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BOTSWANA

EDUCATION AND HUMAN RESOURCES

SECTOR ASSESSMENT

June 1984

Coordinated by the Ministry of Finance and Development Planning
and the Interministerial Steering Committee with USAID

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BOTSWANA EDUCATION AND HUMAN RESOURCES SECTOR ASSESSMENT

For the Government of the Republic of Botswana

Ministry of Education
- Murray Simon, Chairman of the Steering Committee
- E. K. Townsend-Coles
- C. O. Shaw
- U. Kann
- I. P. Woto
- Mothusi Mogasha
- F. M. Mawela
- G. Kgomanyane
- K. Skelemani

Ministry of Finance and Development Planning
- J. S. Salkin
- Y. Masenya
- P. Esderts
- E. McFarland

Ministry of Home Affairs
- A. Vickers

Ministry of Local Government and Lands
- B. Bengtson
- L. Perera

Ministry of Health
- W. Manyeneng

Ministry of Commerce and Industry

Ministry of Agriculture

University of Botswana

Office of the President

For the Agency for International Development

Joan M. Claffey, Team Leader, AID/W, Bureau of Science and Technology, Office of Education

David Chapman, Consultant, USDA Graduate School

Victor Cieutat, Consultant, USDA Graduate School

Frances Kemmerer, Consultant, USDA Graduate School

Mary Joy Pigozzi, Consultant, USDA Graduate School

George Quarles, Consultant, USDA Graduate School

Douglas Windham, Consultant, USDA Graduate School

Ann Domidion, HRDO, USAID/Gaborone

Gweneth Eng, USDA Graduate School and AID/W

Heather Westdal, Administrative Assistant

Kathy Blaine, Senior Executive Secretary

Editorial assistance provided by Susan M. Selbin and Lola Zook.

FOREWORD

Our Ministry is appreciative for having collaborated with the United States Agency for International Development on this Sector Assessment of Education and Human Resources in Botswana. The magnitude and depth of this effort reflect the problems and concern for Botswana's development. We are especially pleased that this study took place at an important moment of our growth. Many of the observations and recommendations will serve as a basis for planning and decision-making in the immediate future by all Ministries affected by the report.

Education in Botswana is expanding at all levels. Primary Education reaches 84% of the school-age population. This year Junior Secondary Education has launched an expansion programme to achieve universal access to nine years of education by the 1990's. Senior Secondary and Post-Secondary Education are focussing on closing the gap on shortages in high level manpower needs.

Nevertheless, we are mindful of education quality needs at each level. We must continue to revise and improve the quality of instruction so that we develop a blend of well educated Batswana related to our national and local aspirations. The Sector Assessment addresses itself to these concerns.

By its nature, no Sector Assessment is a definitive work; nor is it a document with total agreement of all parties involved. Now, six months after the study, some information is already out of date. However, this is a credit to the study. Time and flexible thinking will always change our perspectives of educational requirements in Botswana.

Even today, the Assessment requires updating. We hope this will be done by the end of this year and each year thereafter. One reason for updating is that the study began immediately after two key Cabinet decisions: the expansion of secondary education and the establishment of Vocational Training Centres. The implementation of secondary school expansion affected our Ministry in some unexpected ways. The ripple effect of this expansion created additional tasks for Primary, Secondary and University levels. We are still not fully aware of the implications of this decision.

Some of the data presented require modification. For example, our analyses subsequent to the study reflected the need for several adjustments and corrections. In addition, we realised that in some areas we do not have sufficient information but that we can make a professional estimate of the situation. We expect that future research will help to sharpen our knowledge. These discoveries of inadequate data reinforce the importance of the Sector Assessment.

We are pleased that Botswana will be participating as one of several countries in this AID project. We agree that a long term partnership is conducive to institutionalization of good practices in education. Other relevant Ministries concur on the value of this relationship. We look forward to this new venture with optimism. We believe that the Sector Assessment and the fruits derived from it will serve to bind both countries in areas of mutual interest.

We wish to express our special thanks to Mr. Paul Guedet (Director, USAID/Botswana), Dr. Ruth Zagorin (Agency Director for Human Resources, AID/Washington) and to Dr. Joan Claffey (Education Analyst and Planner, Bureau of Science and Technology, AID/Washington) for their special interest in Botswana.

Jakes Swartland
Deputy Permanent Secretary
Ministry of Education

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LIST OF ACRONYMS

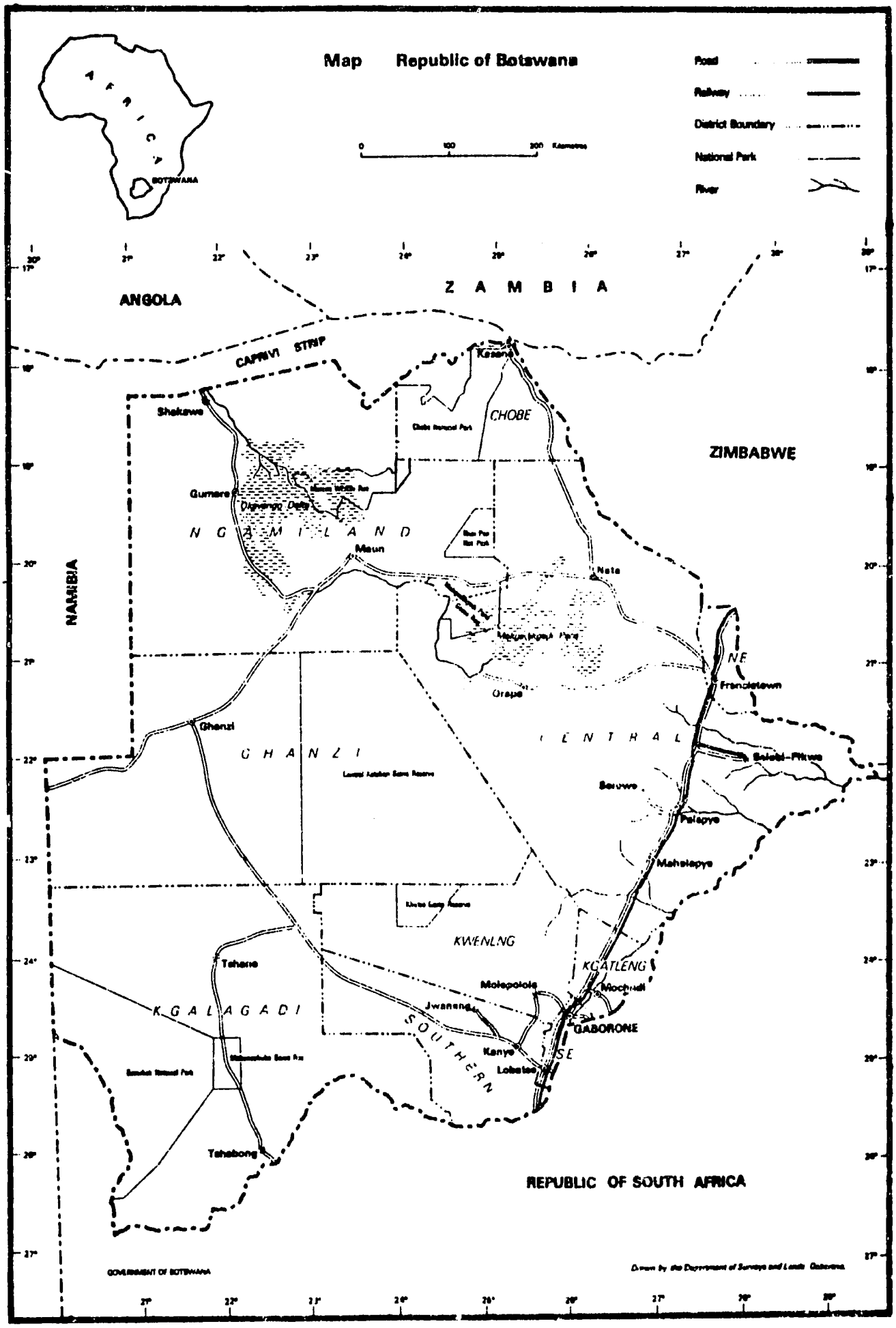
ACDO	Assistant Community Development Officer
AD	Agricultural Demonstrator
AID	Agency for International Development
ATC	Advanced Teachers Course
ATTS	Automotive Trades Training School
BAC	Botswana Agricultural College
BAS	Business Advisory Service
BASC	Advanced Secretarial Certificate
BCC	Botswana Christian Council
BCW	Botswana Council of Women
BEDU	Botswana Enterprise Development Unit
BEF	Botswana Employers Federation
BEP	Botswana Education Project
BESC	Elementary Secretary Certificate
BIAC	Botswana Institute of Administration and Commerce
BISC	Intermediate Secretarial Certificate
BMC	Botswana Meat Commission
BP	Botswana Polytechnic
BRIDEC	Brigades Development Center
BSC	Bachelor of Science
BUCA	Botswana University Campus Appeal
BWAST	Botswana Workforce and Skills Training
CABS	Certificate in Accountancy and Business Studies
CCDO	Chief Community Development Officer
CDC	Central District Council; Commonwealth Development Corp.
CELF	Cattle Export Levy Fund
CIDA	Canadian International Development Agency
CJSS	Community Junior Secondary School
COSC	Cambridge Overseas School Certificate
CSC	Cambridge Senior Certificate
CSO	Central Statistics Office
CUSO	Canadian University Service Overseas
DABS	Diploma in Accountancy and Business Studies
DAEO	District Adult Education Officer
DAFS	Department of Agricultural Field Service
DANIDA	Danish International Development Agency

DAO	District Agricultural Office
DDF	Domestic Development Fund
DET	District Extension Team
DISF	Dairy Industry Special Fund
DNFE	Department of Nonformal Education
DSE	Diploma in Secondary Education
EC	Education Center
EDF	European Development Fund
EEC	European Economic Community
EHR	Education and Human Resources
EMS	Engineering Management Services
EO	Education Officer
ETC	Elementary Training Certificate
FAO	Food and Agriculture Organization
FAP	Financial Assistance Policy
FESS	Faculty of Economics and Social Science
FRG	Federal Republic of Germany
FTBN	Funds to be negotiated
FTE	Full-Time Equivalent
FWE	Family Welfare Educator
GCE	General Certificate of Education
GCF	Gross Capital Formation
GDP	Gross Domestic Product
GDR	German Democratic Republic
GOB	Government of Botswana
GTZ	German Agency for Technical Cooperation
IAE	Institute for Adult Education
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association
IDM	Institute for Development Management
ILO	International Labor Organization
IMP	International Monetary Fund
IPPF	International Planned Parent Federation
JC	Junior Certificate
KFW	Kreditanstalt Fur Wiederaufbau
KRDA	Kweneng Rural Development Association
LA	Literacy Assistant
LADG	Local Authority Deficit Grant
LGL	Literacy Group Leader
LIEF	Labour Intensive Employment Fund

MCI	Ministry of Commerce and Industry
MEMBOT	Macro-Economic Model for Botswana
MFDF	Ministry of Finance and Development Planning
MHA	Ministry for Home Affairs
MLGL	Ministry of Local Government and Lands
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOH	Ministry of Health
NBCC	National Brigade Coordinating Committee
NDB	National Development Bank
NDP	National Development Plan
NFE	Nonformal Education
NGO	Nongovernmental Organization
NHI	National Health Institute
NIR	National Institute of Research
NLP	National Literacy Program
OSAS	Overseas Service Aid Scheme
P	Pula
PDSF	Public Debt Service Fund
PEIP	Primary Education Improvement Project
PESC	Pre-Entry Science Course
PFP	Partnership for Productivity
PH	Primary Higher Teacher Training Certificate
PL	Primary Lower Teacher Training Certificate
PSLE	Primary School Leaving Examination
PTC	Primary Teacher Certificate
PTTC	Primary Teacher Training College
RADA	Remote Area Development Assistant
RADO	Remote Area Development Office
RADP	Remote Area Development Program
RAO	Regional Agricultural Office
RECC	Rural Extension Coordinating Committee
RIIC	Rural Industries Innovation Centre
RIO	Rural Industrial Office
RSF	Revenue Stabilization Fund
RTC	Research and Testing Center; Rural Training Center
SADCC	Southern Africa Development Coordination Conference
SAMDP	Southern Africa Manpower Development Project
SBU	Schools Broadcasting Unit
SIDA	Swedish International Development Authority
TAPU	Teaching Aids Production Unit
TEC	Total Estimated Costs
TTC	Teacher Training College

UADG	Urban Authority Deficit Grant
UB	University of Botswana
UBL	University of Botswana, Lesotho, and Swaziland
UBS	University of Botswana and Swaziland
UK	United Kingdom
ULGS	Unified Local Government Service
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VDC	Village Development Committee
VET	Village Extension Team
VHC	Village Health Committee
WFP	World Food Programme
WHO	World Health Organization
YWCA	Young Women's Christian Association

Batswana - the citizens of Botswana
Motswana - one citizen of Botswana


Map Republic of Botswana
Road
Railway
District Boundary
National Park
River
0
100
200 Kilometres
AFRICA
BOTSWANA
ANGOLA
ZAMBIA
ZIMBABWE
NAMIBIA
CAPRIVI STRIP
Kasane
Shakawe
CHOBE
Gumare
Okavango Delta
NGAMILAND
Maun
Nata
Orapa
NE
Francistown
Ghanzi
GHANZI
CENTRAL
Selebi-Phikwe
Serowe
Palapye
Mahalapye
KWENENG
KGATLENG
Mochudi
Tsabong
Molepolole
Jwaneng
KGALAGADI
SOUTHERN
GABORONE
Kanye
Lobatse
SE
Tsabong
REPUBLIC OF SOUTH AFRICA
GOVERNMENT OF BOTSWANA

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This assessment of the education and human resources (EHR) sector in Botswana reviews the country's education and training system in connection with national goals, needs, constraints, and opportunities. The study has been coordinated by an inter-ministerial Steering Committee chaired by the Ministry of Education (MOE). A team of USAID-sponsored specialists prepared this report in collaboration with professional staff of the concerned ministries and other public and private sector organizations.

The purpose of the assessment is to:

- strengthen the base for systematic planning of Botswana's human resource development;
- identify priority areas of education and training for the investment of internal and external resources;
- focus attention on the constraints affecting such investments; and
- provide a sounder basis for monitoring system performance.

The assessment begins with an examination of the capacity of the EHR system. This includes an economic and financial analysis of human resource development focusing on economic characteristics and performance, fiscal capacity, manpower demand and supply, and EHR program costs and rates of return. The sector-wide economic study and

comparative unit cost analysis result in a set of conclusions and recommendations which foreshadow findings throughout the assessment. The review of EHR system capacity also includes consideration of the country's management capability and its needs in this regard.

The assessment next addresses the formal education system, encompassing primary, secondary, and teacher education, and higher education. An assessment of vocational and technical education follows, with consideration of formal (in-school and government-operated) and nonformal programs, as well as those offered by private sector employers and proprietary institutions. The final part of the report examines nonformal education. This focuses, though not exclusively, on the national extension system and the delivery of education and services in the areas of health, agriculture, and basic life skills (e.g., literacy and income generation skills).

Each subsector assessment first presents a status overview covering goals and strategies, and current programs. It then identifies needs, constraints, and plans, and analyzes present strategies with respect to national goals and system capacity. This analysis is used as a basis for summary conclusions and a set of priority-ordered recommendations.

1.2 NATIONAL POLICIES, PLANNING OBJECTIVES, AND STRATEGIES

Government's policies are founded on four national principles rooted in traditional Botswana culture: democracy, development, self-reliance, and unity. Related to these principles and to the

country's political and economic situation are four main planning objectives:

- Rapid economic growth
- Social justice
- Economic independence
- Sustained development

To achieve these objectives, government's strategy remains to:

- achieve rapid and large returns from intensive capital investment in mining, and
- reinvest those returns so as to improve the living standards of those who do not benefit directly from mining sector expansion.

Particular emphasis is given to expanding rural work opportunities via employment creation and rural development.

The National Development Plan, 1979-85 (NDP V) further specifies the following four objectives for education:

- To increase educational opportunities, and to reduce inequalities of educational opportunities, so far as resources permit;
- To contribute to the balanced economic development of Botswana by seeking to satisfy manpower requirements for all sectors, emphasizing particularly the needs of rural development and employment generation;
- To promote personal qualities such as respect for national ideals, self-reliance and concern for other people, and to encourage full development of individual talents;
- To extend the role of schools and colleges in the local community and vice versa.

In the NDP V three education priorities are identified:

(1) Improve the quality of and access to primary education;

(2) Develop technical education to meet the country's needs; and

(3) Increase the numbers of Form V secondary school leavers who are well qualified in mathematics and science.

In addition, priority is being given to rapidly expanding access to two years of junior secondary school. Furthermore, "The Midterm Review of NDP V" (Draft, May 4, 1983) by the Ministry of Finance and Development Planning signals that increased vocational and technical training is to be provided at the post-junior certificate (JC) level.

These objectives and strategies remain generally valid for reasons detailed in the body of this report. The means by which they will become operational, however, and the trade-offs that will be required in pursuing them are amplified later in this summary and form the main points in the chapters which follow.

1.3 POLITICAL AND SOCIAL SETTING

From 1885 until independence in 1966, Botswana was the Bechuanaland Protectorate under British rule. Botswana is noteworthy in Africa for its democratic parliamentary government. The constitution, which dates from 1965, calls for a unicameral legislature, the National Assembly, with members elected from 32 constituencies. The President is the candidate whose declared supporters form the majority of elected members of Parliament. There is universal suffrage and general elections must be held at least every five years. A House of Chiefs represents the principal tribes and serves as an advisory body to government.

Central Government, based in Gaborone, comprises the Office of the President, the Department of External Affairs, and the Ministries of Finance and Development Planning, Agriculture, Education, Health, Home Affairs, Industry and Commerce, Mineral Resources and Water Affairs, Local Government and Lands, and Works and Communications. Local government is managed by nine district councils and five town councils, with executive authority vested in the district commissioner who is centrally appointed.

Situated in the center of the Southern Africa Plateau, Botswana comprises 582,000 square kilometers and borders with Namibia, the Republic of South Africa, and Zimbabwe. The nearest coastline is about 600 kilometers from Botswana's borders. Most Botswana citizens belong to Setswana-speaking tribes or clans. The official languages are Setswana and English, the latter the main language of government. Minority groups include the Bakalanga in the north, Basarwa (Bushman) and other semi-nomadic groups in remoter areas, the Baherero in the west, and a small number of citizens of European origin.

The 1981 census counted a de facto population of 941,027, with an additional 42,000, many of whom live and work in South Africa, forming the de jure population. While this makes Botswana the least densely populated country in Africa (1.6/sq. km.), such figures are misleading. The Kalahari Desert covers more than two-thirds of the country's land area, relegating most of the population to a band along the eastern rail corridor. About 16 percent of the population dwells in towns, about 20 percent in major villages, and the rest in smaller

settlements. Although little more than 5 percent of Botswana's land is cultivable with current technology, the traditional sector is responsible for nearly three-quarters of the population. The 1979 Crop and Livestock Survey tallied 78,000 traditional tenure (primarily subsistence) farms and 340 freehold (commercial) farms, plus a total of nearly 3 million cattle, most raised through traditional husbandry. Sorghum is the main staple; most of the 12 percent of the Gross Domestic Product (GDP) from agriculture is accounted for by the cattle industry.

Unique to Botswana, a three-site system of farming remains in use, though decreasingly so, by the majority of rural inhabitants. This system results in families living together in villages only from about June to November. Generally, for the rest of the year the men and boys live at cattle posts, and the women and girls live on small farms ("the lands") away from the village. This poses some problems for providing education and other government services.

From 1971 to 1981 the population growth rate averaged 5 percent per annum (in 1983 it was estimated at 3.3%), one of the fastest growth rates in the world. Nearly half of the population is under 15 years of age; life expectancy at birth is about 55 years. Only half of the population has access to safe drinking water. The adult literacy rate is estimated at 35 percent but this should rapidly increase, since primary schools now enroll about 83 percent of the age cohort.

1.4 ECONOMIC AND FINANCIAL CONDITIONS

Six major characteristics describe Botswana's economy, and constitute a set of opportunities and constraints in government's attempt to promote aggregate national development and a more equitable distribution of income.

- Dual economic bases of mining and agriculture--the former the driving force for aggregate economic growth and the accumulation of foreign reserves, and the latter the provider of livelihood for an estimated three-quarters of the population.

- Interdependence of the traditional and modern sectors--seen in extended family arrangements which allow a majority of Batswana workers to benefit from both family agriculture and wage employment. This also is evident in a macro-social context wherein the agriculture sector is dependent on the mining sector specifically, and the modern sector generally, to provide the resources for improvement in access to and use of land, irrigation, training, and technology--while the modern sector is dependent on the traditional sector to ease the employment burden which would result from mass urban migration.

- Political stability and conservative fiscal management--which resulted in a surplus of receipts over expenditures throughout the 1970s and in 1982 resulted in sufficient foreign reserves to cover four to six months of imports.

- Environmental fragility--manifest by periodic drought and the fact that 75 percent of the country's water needs are supplied by subterranean water sources, dramatically affecting the 5 percent of the land area suitable for cultivation.

- External dependence--upon the ports of other southern African countries for export of minerals and beef, for repatriated payments and reduced employment pressures at home, for demand for its products, for foreign assistance to finance development expenditures, and especially on professional and technical expatriate personnel in both public and private sectors.

- Manpower imbalances--evident in a gross surplus of workers relative to jobs while there are simultaneous shortages in trade, technical, scientific, and managerial skills.

The analysis of Botswana's fiscal capacity related to the education and human resources sector highlights the expectation that aggregate growth of the sector will be dominated by the funding of the expansion of secondary education and smaller but equally important improvements in technical training and higher education. Over the next five to ten years, the emphasis will be placed on improved internal efficiency in the use of funds and a careful selection of new initiatives. The secondary system will require special attention to prevent losses in quality while achieving gains in quantity. The vocational and technical training system will have to look toward the private sector for greater direction and coordination and for support of expanded post-Junior Certificate and post-secondary training. It will be important to examine the option of subsidizing training by private sector firms as an alternative to the costly development and recurrent budget burdens of institutionalized government-financed programs. Fiscal issues are expected to remain a constraint on EHR development through the 1980s but not so severe as to prevent substantial progress in the sector by 1990.

1.5 LABOR MARKET OVERVIEW

About 97,100 persons were employed in the formal sector of the economy in 1981. While in the same year there was an estimated gross surplus of over 126,000 workers relative to formal sector demand, shortages of workers existed at the Junior Certificate level and above. Almost 10,000 Junior Certificate holders, almost 4,000

Cambridge-level graduates, and slightly more than 1,000 university and post-university degree holders were in demand but unavailable. Expatriates constituted about 5 percent of formal sector employment the same year (roughly equal to the number of Cambridge and university degree holders in unmet demand), concentrated in occupations with the highest skill requirements.

A comparison of manpower supply estimates to the net demand projections for the rest of the decade points to four themes. First, through 1989 a shortage of employment opportunities will continue for those with only a primary school education, as will a surplus of positions for those with higher levels of education. The surplus of Standard 7 leavers, expected to reach 176,000 in 1989, is the most dramatic pattern projected for formal sector employment for the decade. Within secondary education levels, internal imbalances in employment opportunities will exist, with surpluses of those graduates having only formal schooling, and shortages of graduates who have supplemented their schooling with training.

Second, long-term effects of the educational expansion should be to reduce relative demand for expatriate personnel in the economy. In the short run, however, absolute numbers of expatriates may increase and a higher concentration of expatriates is expected to be necessary in the technical, scientific, and management occupations. While teacher demand and supply appears in reasonable balance through 1989 except at the senior secondary level (especially in science and

mathematics), the junior secondary expansion will temporarily slow the process of localizing the teaching force.

Third, localization (the assumption by trained Batswana of positions held by expatriates) will remain a significant issue through the 1990s. In the public sector, where 61 percent of the professional cadre in government (excluding the MOE) consists of expatriates, the greatest need is for their increased use in training as well as operational roles. Also necessary is a greater overlap on the job between expatriates and Batswana replacements. In the private sector, where almost 40 percent of professional and technical workers and over 50 percent of managerial personnel are expatriates, it will be increasingly important for government to make available to the sector an appropriate number of highly educated Batswana during their period of bonded service.

Fourth, future manpower planning requires special kinds of data. The National Manpower Survey proposed by the Ministry of Finance and Development Planning deserves support and should include focus on private sector, on-the-job training capacity and the job search behavior of recent school leavers.

1.6 EDUCATION FINANCING AND UNIT COST SUMMARY

Several considerations emerge from the review of enrollments, funding sources, recurrent costs, and capital expenditures associated with the major levels and types of schooling. At the primary level,

while government policy has successfully precluded a concentration of untrained teachers in particular locations, the large number of untrained teachers continues to devalue current public and private investments in schooling. At the secondary level, the lack of parity between government spending levels (and therefore total investments in students) at Government Schools and Community Junior Secondary Schools (CJSSs) is compounded by the quality differences in prior student learning, teachers, and material resources and facilities. This dual system of junior secondary schooling is the result of a difficult choice between types of equity--a more equitable access to secondary education and a more equitable distribution of inputs. However, the persistence of such a system beyond the current expansion period may carry heavy social costs, in foregone opportunites for alternative educational investments and in reduced quality of manpower in the future. At the vocational/technical and post-secondary level, the cost inefficiencies exist in terms of low student/teacher ratios and low utilization of buildings.

Differences in the unit costs and cycle costs for the different types and levels of schooling are dramatic. The unit cost for primary schooling, a seven-year cycle, is moderate at P189 per annum. However, it takes 21.4 years of investment (P4,045) to produce one student with an A or B pass on the Primary School Leaving Examination which permits continuation to secondary school. To produce one graduate with an A, B, or C pass requires 10.3 years of investment (P1,947).

At the secondary level, nearly two and a half times as much is invested per annum in non-boarding students in Government Schools (P833), and one and a third times as much in those in Government-Aided Schools (P460), as in those in Community Junior Secondary Schools (P349). However, the total cost per graduate produced at the CJSS is more (1.3 times as much as at a Government School and 2.3 times as much at an Aided School). This is because three times as many student years are required to produce a single CJSS graduate as to produce a graduate of a Government/Aided School. Moreover, while students pay only 10 percent, approximately, of the total cost for Government School, and 14 percent for Government-Aided School, they pay approximately 62 percent of the cost of CJSS.

Annual unit cost figures based on government support for selected vocational/technical programs are as follows: Brigades, P1,000; Botswana Polytechnic, P2,955; Automotive Trades Training School, P2,428; Botswana Institute of Administration and Commerce, P987. For the Brigades and ATTS, total unit costs, which also would include nongovernment support, are probably twice these figures. For reasons detailed in Chapter 8.0, the differences in costs cannot be interpreted as indicating relative efficiency in the conduct of training.

Unit cost at the University of Botswana, including all recurrent expenditures, is estimated at P7,143 per annum, of which P3,600 represents the per student cost of the academic salaries. Unit costs for the teacher training colleges average P938 annually.

1.7 CONSTRAINTS

The major constraint to development of the education and human resources sector is the shortage of Batswana trained to assume professional and technical positions as a basis for eventual promotion to senior administrative positions. Although the administration of the public sector is characterized by a high level of efficiency, it has been achieved through substantial and continuing reliance on expatriate personnel. In 1981, expatriates filled the following proportions of technical and managerial positions: superscale, 30%; general administrative, 3%; professional, 58%; technical, T1-T3, 35%; technical, T4-T5, 2%. Because expatriates fill many senior and technically demanding positions, the demands on the EHR system to provide well-educated Batswana to replace the expatriates will be especially severe.

The problems of localization of management positions in the private sector are enormous, as well. In the past, university graduates have been bonded for public employment as a condition of their bursaries. Private sector firms therefore have had less access to the most highly qualified Batswana.

A second constraint on the EHR sector has been the shortage of effective staff development programs in public and private sector organizations. The new Botswana Workforce and Skills Training (BWAST) Project will assist selected government agencies in staff development. This assistance needs to be generalized throughout government and into private and parastatal organizations.

A third possible constraint concerns the organizational conditions of several EHR ministries which serve to converge decision-making responsibility at the level of the deputy permanent secretary. This becomes problematic when the middle management cadre does not have adequate preparation to ably handle day-to-day decisions and thereby enable senior administrators to focus on major issues of policy and planning. It can also inhibit the acquisition of better management skills by middle-level staff who will have to assume ever greater responsiblities later in their careers.

A fourth constraint is the lack of a sufficient data base for improved manpower planning. This is important for ensuring the optimum external efficiency of the EHR sector in keeping with national economic and development needs.

A final constraint is the circumstance that funds available for new education and training initiatives at levels other than junior secondary are likely to be limited because of the large expansion targeted for this level. The recurrent government expenditures on education (for the Ministries of Education, Local Government and Lands, and Home Affairs) are projected to increase between 1983-84 and 1987-88 from 23.6 percent to 29.6 percent of total government costs, in large part to pay for the expanded access to junior secondary education. By the end of 1988 the education budget will be subject to an annual growth rate of 13 percent compared to 6.1 percent for all other government expenditures. In view of these financial pressures,

the challenge to government is to finance education and other human resource activities in a manner so as to remove education and training shortages constraining development, without creating new problems presented by graduates for whom no demand exists in the labor market.

1.8 CHARACTERISTICS AND KEY ISSUES OF EDUCATION AND HUMAN RESOURCES

Analysis of each of the EHR subsectors in the assessment identifies issues in five categories: external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing. These categories have proven useful for studies of the EHR sector and enable examination of the basic concerns of education and development. Furthermore, use of this comparative framework for all subsectors makes it easier to discern strengths and constraints which may be systemic rather than specific to a given subsector.

An EHR system is externally efficient to the extent to which education and training can contribute to sustained economic and social development, build knowledge and skills geared to specific employment opportunities in the economy, and are balanced in terms of type and quantity of output.

A system is internally efficient to the extent that it optimally allocates and uses available resources for improving the quality and increasing the quantity of education. Qualitative inefficiencies, when they exist, are reflected in low student attainment, weak teacher

preparation and effectiveness, inadequate or inappropriate content and presentation of curricula, and low availability and utility of instructional materials and resources. Quantitative inefficiencies, when they exist, can be manifest in high rates of attrition and repetition, low student/teacher ratios, and under-used physical facilities.

Access concerns the proportion of the target population reached by the education system. Equity concerns the extent to which these opportunities are made available for all segments of the population, without restriction due to such factors beyond an individual's control as gender, socio-economic status, and rural-urban location.

Administration and supervision concerns the capacity to effectively manage education systems, involving, in particular, managerial and analytic capabilities. Important in this regard is an ability to assess needs and to design, analyze, manage, and evaluate education and training programs. Administration and supervision also includes specifying responsibilities and distributing them from the central to the local levels, and having supports available for monitoring and guidance.

Analysis of costs and financing focuses on aggregate expenditures for education and human resources development nationally, by level and type. It also involves growth projections and assessment of the likely impact on total recurrent costs. At the micro level, the analysis of unit and cycle costs enables comparison of program outcomes relative to cost.

1.8.1 External Efficiency

To improve the external efficiency of the EHR system, EHR planning should give more attention to national manpower demand. Education and training initiatives that are primarily in response to social demand may need to be restrained. While the accelerated expansion of secondary education will help meet some manpower shortages, it is not primarily designed to alleviate the large problems of manpower surplus which now exist. These same problems are likely to increase in severity over the decade. Greater orientation to demand is needed especially in the vocational/technical and higher education programs to ensure that graduates have skills that are relevant to national development needs and the labor market.

Attaining better congruence between skill supply and demand requires more complete data from the public sector and especially from the private sector, where such information is particulary lacking. Manpower balances are cast at present in terms of formal educational levels with or without "training," but such "training" only now is being defined as to level, type, and duration.

It is important that a balanced EHR/manpower development approach carefully consider the needs of both the modern and the traditional sectors of the economy. Recent education and training policy has primarily dealt with modern sector considerations. Higher quality of formal education, improved access to nonformal education (in agriculture and health as well as literacy and numeracy training), and

preparation in income-generation skills all are important activities for the EHR system and can have particular benefits in the traditional sector.

A more equitable arrangement for sharing highly trained workers between the private and public sectors might also be considered. The present shortage of university graduates and other highly skilled workers available to the private sector restrains efficiency and delays the necessary process of localization. The present system of tax subsidization of training in the private sector appears effective and should be continued.

1.8.2 Internal Efficiency

Increased relevance of education at the primary and secondary levels will require improved quality of achievement particularly in English, mathematics, and science. Skills in these areas will prepare graduates for job training opportunities in formal education or in on-the-job settings. To the extent that quality is improved in the formal system, training will be more efficient and will not need to incorporate a large remedial component.

Improvement in the quality of CJSSs is the chief need identified in this assessment. More trained teachers, instructional materials, better facilities, and concerted efforts to reduce student attrition are needed.

1.8.3 Access and Equity

Government has achieved the laudable goal of near-universal access to primary schooling. Enrolling the remaining 17 percent is a difficult challenge, particularly because this number includes many children of remote and semi-nomadic families. The more critical goal may be ensuring access to functional literacy, numeracy, and other skills to improve livelihood and enable greater participation in national life. Nonformal means may be most suitable to achieve this goal.

1.8.4 Administration and Supervision

Management of the EHR sector generally is of a high order. Several needs have been identified, however. The organizational structure and responsibilities of units within the MOE deserve re-examination in view of the large, complex set of tasks to be effectively coordinated for the expansion of secondary education. In particular, middle management skills need to be strengthened to relieve senior administrators from daily operational decision-making. It also is important that organizational responsibility be designated within government for planning, implementing, and validating skill training, and for exploring greater use of private sector resources in training.

1.8.5 Costs and Financing

Continued under-financing of the Community Junior Secondary Schools may prove more costly in both monetary and social terms than slower secondary expansion characterized by higher quality. Also, the high public costs of post-junior secondary education and training combined with high rates of return to individual investments suggest that government might consider requiring needs tests for bursaries, or conversion of a share of the grants into long-term, low-interest loans. Consideration also might be given to ways to raise the low student/teacher ratios in many of the vocational training programs and at the University, without reducing quality of instruction.

1.9 SUMMARY CONCLUSIONS

Following are several conclusions that refer generally to education and human resource development in Botswana. The final section of this Executive Summary gives overviews and recommendations for specific subsectors of formal and nonformal education and training.

Conclusion 1. Botswana's political and economic stability and laudable record of social accomplishments justify long-term optimism for EHR development. At the same time, the variability of the basic GDP determinants combines with Botswana's external dependence to create a situation of macro-economic uncertainty. The experience of the last several years supports continued moderation in expenditures, both recurrent and development. New spending plans should be for the short term or designed in a "phased" format that allows for

postponements and/or reductions in expenditure levels from year to year if GDP growth slows.

Conclusion 2. Donors should be prepared to fund a greater share of development costs. Government's ability to support development expenditures for the remainder of NDP V and into NDP VI will be tied directly to the nation's macro-economic performance. While government will continue to support a responsible share of project costs, it may be necessary for external funding to support a larger proportion of these costs than has been the case to date. Full responsibility for recurrent costs will continue, of course, to be that of government.

Conclusion 3. Coordination among EHR agencies needs to be improved. Because of the probable constraints on aggregate EHR spending by the end of this decade, better coordination will be required among agencies to ensure that funds are used effectively. The areas of training and nonformal education are the most in need of improved information, goal-oriented management, and generally improved planning and accountability.

Conclusion 4. The expansion of secondary education will reduce the availability of funds to enhance quality and to supply complementary post-school training activities. The decision to enact the accelerated expansion of secondary education will increase the absolute level of the EHR budget, its rate of growth, and its share of total government expenditures and of GDP. The opportunity cost of this decision is that some other demand-oriented education and training activities may not be financed unless GDP growth exceeds

present expectations. The most important educational investments in terms of manpower demand appear to be in quality improvement, curriculum reform, and the provision of post-school training (especially at the secondary levels).

Conclusion 5. The private sector can be tapped to better advantage to improve the external efficiency of vocational and technical education and training and to assist in providing training. Because of potential financial constraints, a priority should be placed on the provision of training without becoming encumbered by large, ongoing obligations. This can be achieved through using private sector firms as providers of training or using private sector facilities as sites for training. The Apprenticeship and Industrial Training Bill of 1983 will begin to address this need. While it remains appropriate for training to be conducted under government sponsorship and direction, there is a need to avoid the development and recurrent cost obligations inherent in new institutional development. In addition, the private sector scheme promotes greater flexibility in the types of training that may be provided.

1.10 SECTOR-SPECIFIC OVERVIEWS AND RECOMMENDATIONS

This part of the Executive Summary provides abstracts for each education subsector covered in this assessment: Primary (Chapter 4.0), Secondary (Chapter 5.0), Teacher Training (Chapter 6.0), Higher (Chapter 7.0), Vocational and Technical (Chapter 8.0), and Nonformal (Chapter 9.0). The abstracts briefly summarize the status of the

subsector, principal challenges, plans, conclusions, and recommendations. For a more complete discussion of these topics, the reader is referred to the subsequent chapters.

1.10.1 Primary Education

The primary schooling system consists of a seven-year cycle. Enrollments in 499 of the 502 schools existing in 1983 totaled 197,510, about 83 percent of the school age cohort. Enrollments are almost equally divided between males (47%) and females (53%), with female enrollments progressively increasing from Standard 1 through Junior Secondary School, then decreasing in Senior Secondary School. Setswana is the language of instruction in Standards 1 through 4, while English is the medium of instruction for Standards 5 through 7.

Although overall management of the primary system is the responsibility of the MOE, operations are somewhat decentralized. The MOE manages sector planning, curriculum development, teacher training and appointments, and school administration and supervision. Each district and township has an elected local authority with responsibilities that include school construction, building maintenance, equipment, and some administrative costs.

Significant changes are under way in the structure of the formal education system through secondary school. The system now comprises seven years of primary schooling, three years of junior secondary school, and two years of senior secondary school. This 7-3-2 structure will be modified in 1984 to a transitional 7-2-3 system and

eventually will become 6-3-3 with universal access proposed for the first two levels (i.e., nine years of basic education). The Standard 1 intake is projected to increase 4 percent per year, indicating a modest proposed reduction in the 17 percent of school age children not now enrolled in primary school.

The student/teacher ratio is 31:1 with little variation among the districts. This indicates an efficient use of classroom space and would permit a small expansion of capacity in crowded areas without significant reduction in level of achievement. Progression rates throughout the primary cycle are relatively high, with repetition occurring at Standards 4 and 7 due to examinations. The primary school teaching force is predominately female (76%), and 70 percent of all teachers are trained. The capacity of the system to train teachers over the next several years is sufficient to maintain the present student/teacher ratio but the projected training capability will not be sufficient to rapidly replace the 1,894 untrained teachers. Donor support has been responsible for most new school construction.

Principal challenges confronting government are to improve the teacher training program, reach in a cost-efficient manner the 17 percent of the school age children not now enrolled, improve the distribution of qualified teachers, and improve coordination of all components of the education system.

The planned growth rate of 4 percent for primary enrollments, projected for the next decade, can be handled adequately without undue

stress on the system. Under the Third Education Project, the World Bank will finance the construction and equipping of about 500 primary classrooms and related teachers' facilities.

Conclusions. Twelve conclusions are reached regarding primary education. First, the revised curriculum is appropriate with respect to content, organization, structure, and the availability of support materials. Second, textbooks and related instructional support materials are not currently available in sufficient quantities at all schools. Third, pre-service teacher training could benefit from improved selection procedures. Fourth, pre-service teacher training would be more effective with an appropriate and common curriculum more fully implemented at all Primary Teacher Colleges. Fifth, all in-service teacher training programs should be reviewed to determine their impact on teaching practices and student achievement; those programs found effective should then be expanded to include a larger number of teachers. Sixth, the use of radio is not fully utilized for distance teaching and as a support for in-service teacher training.

Seventh, the cost of repeaters is high and may not be justified on the basis of evidence currently available. Eighth, school age children in remote areas are seriously under-served. Ninth, the formal education system presently cannot be extended at a reasonable cost to serve remote populations adequately. Tenth, instructional quality is not evenly distributed. Eleventh, the present administrative structure may not be appropriate to current and

projected requirements. Twelfth, present unit costs are reasonable when compared with other countries in similar circumstances.

Recommendations. The recommendations for primary education are in the following priority:

First, to strengthen administration and supervision, (1) improve the coordination for all elements of the primary cycle, and (2) review the structure and staff needs of the Ministry of Education.

Second, to strengthen internal efficiency, (1) improve the supply and distribution of textbooks and related instructional materials, (2) raise the instructional skills of teachers trained at the PTTCs, (3) evaluate and improve the in-service teacher training program, (4) improve and expand radio support for direct instruction and in-service teacher training, and (5) evaluate the cost-effectiveness of allowing repeaters at Standards 4 and 7.

Third, to enhance access and equity, (1) improve the distribution of quality instruction through more equitable distribution of qualified teachers, and (2) consider nonformal instructional alternatives for providing instruction to remote areas.

1.10.2 Secondary Education

Secondary education, a five-year sequence following seven years of primary school, is divided into junior secondary school (Forms I, II, and III), culminating in a Junior Certificate (JC) Examination, and senior secondary school (Forms IV and V), leading to the Cambridge Overseas School Examination. In 1982, 20,520 students were enrolled

in 41 secondary schools. Nearly half of these are Government Schools, funded and operated directly by the MOE. There also are four Government-Aided Schools which are mission schools that have come to be subsidized by Central Government. The other (nearly half) secondary schools are called Unaided or Private; with one exception they are Community Junior Secondary Schools operated by local communities. Despite their designation as private schools, CJSSs receive some subsidy from government.

Secondary schooling is an experience afforded to only one in five Batswana of the age cohort. This is to change dramatically, however, in 1984. Government plans to increase the percentage of Standard 7 leavers entering Form I from 25 to 40 percent (an increase from 7,255 to 11,025 students), and to continue increasing enrollments until near-universal access to junior secondary schooling is reached in the 1990s.

At present, of the 25 of every 100 Standard 7 leavers who now enter Form I, only 4 eventually earn a Cambridge Overseas School Certificate (COSC) at the end of Form V, while another 2.6 earn a General Certificate of Education (GCE). Students are admitted to Form I on the basis of their scores on the Primary School Leaving Examination (PSLE). Headmasters from Government and Aided Schools typically select students with the highest scores. The availability of boarding facilities at most of these schools means that students do not have to attend a school near them. Less able students may be

accepted into a CJSS if they live close enough to commute and have the means to pay the fees.

Relative to Government and Aided Schools, CJSSs cost the student more to attend (total investment in a CJSS student is only 40 percent that of a non-boarder in a Government school), have fewer trained teachers (31% vs. 87%), a lower pay scale, poorer facilities, and a loss rate that has ranged from three to ten times higher. It takes more than twice as many students to yield 100 graduates from a CJSS than it does in a Government School. The student/teacher ratio is relatively low, at 21:1 in Government and Aided Schools and 23:1 in the Private Schools. There is equal access by gender.

One concern is how school leavers at the various levels balance with formal sector requirements. Through 1995 it is expected that a growing number of primary and junior certificate completers without additional post-school training will be in excess of what the labor market requires. At the same time, there will be a shortage of Cambridge (Form V) completers (with and without additional job-related training). Foreseen for 1989 is at least a 30 percent shortfall of the Cambridge graduates needed in the labor market.

Principal challenges in regard to secondary education are to improve the articulation of education planning with projected national manpower needs, increase the number of qualified teachers, and raise the quality of instruction in community junior secondary schools. In addition, the primary/junior secondary/senior secondary cycle is to be

changed from its present 7-3-2 year cycle to 7-2-3 in 1988, then to 6-3-3 in 1991. This will necessitate redesigning the secondary curriculum, which also must take into account a wider range of student abilities resulting from expanded access. The increased enrollment will require additional teachers and classroom space. Construction of 54 new schools is planned by 1991, with modest increase in the number of teachers. The most critical need for teachers will continue to be at the senior secondary level, particularly in the fields of science and mathematics, where there is heavy reliance on expatriates. The rapid expansion of the junior secondary level also will present new challenges in the coordination and logistics needed to manage the change, and in special effort to maintain academic quality.

Various donors are assisting government with its projects to expand existing government secondary schools and to construct new ones, and to upgrade existing CJSSs and build several more. Of the P58 million targeted for these efforts, much of the funding remains to be secured.

Conclusions. Three central conclusions follow from the assessment of secondary education. First, increasingly well-defined mechanisms are needed to coordinate the expansion of secondary schooling with anticipated manpower needs. At the same time, procedures should be implemented for collecting more refined estimates of specific training and skill needs to accompany the expanded access to secondary school. Third, strategies should be further identified

and implemented for equalizing cost and quality between Community Junior Secondary Schools and Government/Aided Schools.

Recommendations. Recommendations for secondary education are in the following order of priority.

First, to strengthen external efficiency, (1) continue to monitor the secondary school expansion as it relates to national manpower needs, (2) conduct tracer studies of recent school leavers, (3) identify specific occupational and skill areas in high demand by employers, and (4) implement a study to determine whether the market demand for JC leavers is for students having more practical skills (than now taught in the junior secondary school curriculum) or a better grasp of basic knowledge and skills.

Second, to improve internal efficiency, (1) give strong support to secondary school curriculum activities, (2) expand opportunities for untrained secondary school teachers to become qualified, (3) expand in-service education opportunities for currently employed trained teachers, and (4) implement procedures to ensure the validity of the PLSE and JC examinations and to equate test difficulty from year to year.

Third, to increase access and equity, (1) identify means for improving the quality of CJSSs without reducing the quality of Government and Aided Schools, and (2) encourage the expanded enrollment of women in the Diploma Program in Secondary Education.

Fourth, address cost and financing issues by identifying means of equalizing cost to the student between CJSS and Government and Aided Secondary Schools.

Fifth, to strengthen administration and supervision, (1) implement a study of the structure and organization of the MOE, and (2) expand and upgrade the training of local school administrators.

1.10.3 Teacher Education

All pre-service and in-service academic teacher education is under the managerial responsibility of the MOE's Department of Primary and Teacher Training. The pre-service program for primary teachers takes place at three Primary Teacher Training Colleges (PTTCs), which jointly graduate about 450 students each year from a two-year Primary Teacher's Certificate (PTC) program. Beginning in 1984, about 80 percent of the beginning students will be required to have the JC or COSC plus one year of experience as an unqualified teacher at a primary school. The remaining 20 percent will comprise currently unqualified teachers recommended by their Head Teachers. Most of the PTTC students are female (87%); most of the teachers are male (66%). The student/teacher ratio ranges among the three schools from 18:1 to 14:1; the student/classroom ratio ranges from 33:1 to 22:1. Half of the staff of the PTTCs are expatriate. A new PTTC is slated to open in 1985 and graduate an additional 150 primary teachers each year. The PTTCs are affiliated with the Faculty of Education of the University of Botswana (UB) which certifies the PTC.

The pre-service program for secondary teachers is the Diploma in Secondary Education course at UB, which graduates about 90 students annually. This program is important because the secondary school teaching force of 666 is heavily dependent on expatriate teachers (42%). The program is to be either replaced or supplemented by Molepolole Teacher Training College, under construction and expected to offer a three-year course for junior secondary teachers. It will have the capacity to graduate 150 students per year.

The in-service program takes place at six Education Centers and sometimes at individual rural schools. Begun in 1981, the Primary Education Improvement Project (PEIP) has both pre-service and in-service components and has helped to establish a Department of Primary Education at the University of Botswana.

Teacher supply and demand is in reasonable balance except at the senior secondary level. At the primary level, training capacity can provide adequate numbers of trained teachers to maintain current student/teacher ratios for the rest of the decade, provide a surplus to replace teachers leaving the service, and increase the proportion of qualified teachers.

The junior secondary pre-service training capacity is affected by the dramatic increase in the Form I enrollments which is to start in 1984. The required number of junior secondary teachers will almost double by 1989 but this demand is not expected to exceed the training capacity of the system with the opening of the new TTC at Molepolole. However, this assumes a continued reliance upon expatriate teachers,

especially in the areas of science, mathematics, and English. The delayed localization of the junior secondary teaching force will have to be weighed against the costs of increasing pre-service training capacity at this level. At the senior secondary level the situation is critical and training capacity is not sufficient to meet projected demands, as detailed in Section 2.4.4. Because only about 20 students are graduating annually from the four-year degree program in education at UB, reliance on expatriate teachers is likely to increase at the senior secondary level as the bulge in new Form I entrants moves through the system.

Major needs are for improved coordinating mechanisms for teacher education within the context of a more fully integrated plan, increased relevance of the curricula, and an enhanced quality of instruction. Significant plans for teacher education include the new facilities to open in 1985 for pre-service primary and secondary teacher education, and continuation of the PEIP effort for institutional support in pre-service and in-service training.

Conclusions. Six conclusions are drawn concerning teacher education. First, there is a need to review the capabilities of the existing mechanisms, organizational structure, and staff to manage and coordinate the full range of activities for teacher education. Second, current pre-service and in-service teacher education programs should be reviewed, with a view to strengthening the more effective ones to support the proposed expansion of basic education. Third, the many untrained and under-trained teachers in the primary schools

constitute a barrier to improving the quality of instruction, and present in-service programs do not appear to have extensive enough coverage to adequately address this shortcoming.

Fourth, current capacity to train primary and secondary tutors and the present in-service activities are not sufficient to localize teacher training staff within the next five years; the PEIP program may meet this need at the primary level if implemented successfully, but a shortage at the secondary level will persist. Fifth, the quality of instruction at the primary level can be improved most effectively in the short term by an improved and expanded program of in-service training associated with an upgrading plan. Sixth, the quality of instruction at the primary and secondary levels can be improved most effectively in the long term by enhanced pre-service training.

Recommendations. The recommendations for teacher education are given priority as follows:

First, to strengthen administration and supervision, (1) develop a fully integrated and costed plan for teacher education, with a short-term emphasis on in-service training and a long-term emphasis on pre-service training; (2) review existing teacher education coordinating mechanisms with respect to the objectives identified in the above plan; and (3) review existing organizational structure and staff with respect to this plan.

Second, strengthen external efficiency by reviewing curricula of current pre-service and in-service programs and revising them as required.

Third, to strengthen internal efficiency, (1) assess current in-service programs and expand those found to be effective and consistent with the plan, and (2) review existing pre-service programs with respect to curricula, staffing, facilities, selection, and certification examinations, and revise as required in light of identified plan objectives.

1.10.4 Higher Education

Higher education is provided principally by the University of Botswana (UB), and at a lower level by Botswana Agricultural College (BAC). It soon will include the Secondary Teacher Training College to be opened in Molepolole. In addition, about 200 students study at universities abroad. Only about five of every hundred Standard 7 leavers currently receive higher education.

The University of Botswana enrolled 1,095 students in 1982-83, 759 of these in four-year degree programs and the rest in shorter diploma and certificate programs. UB has Faculties of Education, Humanities, Science, and Economics and Social Sciences, as well as the Institute of Adult Education and the National Institute of Research. Although UB received full university standing in 1982, its lineage extends from 1963, when the University of Botswana, Lesotho, and Swaziland was established.

At UB women account for about 40 percent of the total enrollment each year. There are notable differences by Faculty, however, with 21 percent female enrollment in Science and 48 percent in Education, for example. About half of the staff are expatriates. The low student/teacher ratio (8.6:1 in 1983-84) is explained, in part, by UB's relatively small enrollment and diverse program offerings. Most of the students board on campus, and 82 percent of the students received a full government bursary in 1982-83. In return, students who receive bursaries are bonded to work for government for a term equaling their length of study plus one year. Their assignments are determined at graduation by an allocation committee, with representatives of Central Government, local government, and the private and parastatal sectors. Students also pay 5 percent of their salaries to government for the duration of the bonding period. Students studying abroad accept the same responsibilities with their bursaries.

BAC trains students in agriculture, primarily to work as agriculture demonstrators, and in animal health, primarily to serve as veterinary assistants, both for the Ministry of Agriculture. Students enter BAC after completing junior secondary school (Form III) and follow a certificate or diploma curriculum stressing practical training and field experience. BAC, which began in 1979, enrolled 190 students in 1982 in the Agricultural Certificate and Diploma programs, about a quarter of these women. The student/ academic staff ratio in 1983 was 7.5:1.

Foreign study may increase with the implementation of the Botswana Workforce and Skills Training Project (1982-1986). Under this project, sponsored by government and USAID, 72 high-level managers and technicians will go for long-term training overseas, 37 will receive short-term training overseas, and 1,000 will participate in short-term training in-country through existing institutions.

Principal concerns regarding higher education are the adequacy of supply relative to the demand for university graduates in the national workforce, the efficiency of student flow through the higher education system (particularly in science and mathematics), support mechanisms to assist entering students who lack necessary preparation, and the formulation of policies and procedures to guide coordination across higher education institutions and opportunities.

Projections of national needs for highly educated manpower point to an increasing shortfall of university educated personnel every year through 1995. The estimated shortfall ranges from 1,221 in 1983 to 1,599 in 1995 and suggests a need for greater investment in higher education over the next decade.

Also deserving attention is a possible need to encourage greater student enrollment in University Faculties and programs most critical to national manpower needs. Related to this is the need to reduce attrition in the Faculty of Science. Of every 100 male students entering the Science Faculty in 1978, only 15 were enrolled in the fourth-year program in 1981, and for women the corresponding progression was only 9 per 100 (although a few of these men and women

left to continue studies overseas). Proposals under consideration at the UB include establishing a pre-entry program for all Faculties along the lines of the existing program for the Science Faculty, a Teaching Unit for the improvement of University teaching and learning, and part-time study programs.

Conclusions. The assessment of higher education results in five general conclusions. First, open and ongoing dialogue should be encouraged on the role of higher education in national development, particularly as it relates to resource flow. Second, continued expansion of higher education opportunities should be based on evidence of demand for the skills and knowledge being developed. Third, need exists for a series of intervention programs that would improve student flow through higher education. Fourth, UB and BAC should closely examine student/staff ratios with a view to greater efficiency. Fifth, a long-term plan for inter-institutional coordination should be developed.

Recommendations. Recommendations regarding higher education are in priority as follows:

First, to increase external efficiency, (1) conduct a training needs survey of the government and industry fields that graduates are likely to enter, (2) conduct a tracer study of University leavers, and (3) encourage bonded students to enter private sector employment.

Second, to improve internal efficiency, (1) extend systematic collection and analysis of data on student flow, (2) study staff time

allocation, (3) develop pre-entry programs to provide remediation in Faculties other than Science, and (4) develop a career advisement program.

Third, strengthen administration and supervision by developing a long-term plan for the coordination of higher education.

1.10.5 Vocational and Technical Education

At least 38 institutions and organizations offer vocational and/or technical training, the former oriented toward craft skill development and the latter aimed at higher order skills. These institutions represent both the public and the private sectors and consist of in-school and out-of-school training programs with an estimated combined enrollment of more than 4,900 in 1983. Of these, 2,080 are trained in formal institutions. Most skills training in Botswana is at the vocational rather than the technical level, and the majority of the trainees are male except in the clerical, health, and social service skills areas, where the majority are female. Most of the programs are in the Gaborone area and are directed toward the modern sector. Currently, no institutionalized mechanism exists for coordinating all vocational and technical education activities.

Botswana Polytechnic (BP), under the jurisdiction of the MOE's Technical Education Department, enrolled 646 students in 1983, only 20 of these females. There are three Departments of Engineering (Civil, Mechanical, and Electrical) and a teacher training unit. Students normally must have a JC to enter craft courses and a Cambridge

Certificate or GCE to enter the technical courses. The ratio of students in craft to technical courses is about 2:1. The craft courses are designed to the standards of the National Trade Tests while courses for technicians prepare students for modified City and Guilds of London examinations.

The Automotive Trades Training School (ATTS), begun in 1982, is expected to have a full complement of 120 students in 1984. To enter, students must have passed the JC Examination and completed an aptitude test. Courses lasting three years are offered in auto mechanics, auto electrics, and plant mechanics.

Botswana Institute of Administration and Commerce (BIAC) enrolled 1,103 students in 1983 and offers many short courses for government, parastatal, and private organizations in commercial and secretarial subjects.

In addition to the programs of the above three institutiuons, 16 units of government and parastatals offer vocational and technical training programs, enrolling at least 719 individuals in 1983.

Three major institutions provide out-of-school training, primarily vocational and often rural in orientation: the Botswana Brigades, the Rural Industries Innovations Centre (RIIC), and the Botswana Enterprise Development Unit (BEDU). The Brigades trained 726 individuals, mostly males, at 13 Centres in 1983. Government is making a major commitment to the Brigades by increasing per student subsidy from P400 to P1,000 a year in 1984 and by expanding services offered to the individual Brigades by the Brigades Development Centre

(BRIDEC) in Gaborone. RIIC's 93 trainees in 1983 were mostly adults who remain self-employed after training by starting small village industries. BEDU focuses on business management and works with entrepreneurs engaged in such fields as metalwork, construction, textiles, leatherwork, woodwork, and handicrafts. Sixteen entrepreneurs, employing 696 individuals, completed BEDU training in 1983. BEDU suffers from staff imbalance in terms of the number qualified to serve as technical and business management advisers.

Private sector businesses, commerce, and industry also engage in training with the encouragement of government. The Association of Training Officers began in 1982 in an attempt to coordinate training in the private sector and the parastatals and to address government's localization policy. The Botswana Employers Federation recently has initiated a training program for selected employees.

Principal challenges to meet Botswana's growing demand for skilled manpower are the needs to better link the training of skilled technicians and craftspeople with national manpower demands, develop a national plan and coordinating mechanisms for vocational and technical education and training, establish stronger links between government and the private sector in identifying manpower demand and planning responsive training programs, and improve the quality and relevance of skills training programs. Other challenges are to overcome inadequate student preparation for entry into programs, limited access to higher level technical and commercial training, unevenness of program quality

in rural areas, and lack of a sound localization strategy for upgrading vocational instructors.

Plans are under way to provide greater on-the-job industrial training as a result of the Apprenticeship and Industrial Training Bill of 1983, and to build four Vocational Trade Centres at Palapye, Maun, Selebi-Phikwe, and Jwaneng. Government also is exploring an appropriate relationship between the MOE and the Brigades in an effort to ensure better quality of instruction and fiscal accountability in the programs.

Conclusions. Basic conclusions reached concerning the vocational and technical subsector are the following. First, government needs more detailed information on the current process of supplying trained manpower and the actual and anticipated demand for skilled labor. Second, the external efficiency and financing of the subsector could be improved by greater private sector involvement. Third, vocational and technical training institutions could improve the overall appropriateness and quality of their training by linking their programs more closely to the changing priorities of the workplace. Fourth, a mechanism is needed to coordinate, on a national level, the activities of the subsector. Fifth, most locally trained vocational education instructors have not received training in pedagogy and this tends to limit their effectiveness. Sixth, little knowledge exists regarding full costs of the out-of-school programs, including the Brigades. Seventh, the subsector appears to provide less than optimum emphasis on high-level technical skills and inadequate access for

females. Eight, students generally lack counseling as to career opportunities and requirements.

Recommendations. Recommendations concerning vocational and technical education and training are in five areas, by priority:

First, to improve external efficiency, (1) establish a labor market information service, which includes information from tracer studies of graduates, as one step in completing periodic national manpower surveys; (2) develop a national plan for vocational and technical education; and (3) increase involvement of the private sector.

Second, to strengthen internal efficiency, (1) delineate responsibilities and relationships among the ministries involved in the subsector, particularly the MOE which has curriculum responsibilities for several institutions, and the Ministry of Home Affairs whose Department of Labor administers the National Trade Tests; (2) come to terms regarding testing in the subsector (use of City and Guilds examination and/or the National Trade Tests); (3) improve data collection; (4) expand vocational teacher training with an emphasis on improved teaching methodologies; and (5) improve career counseling at the secondary level.

Third, to improve access and equity, (1) increase opportunities for women and girls, and (2) assess opportunities and entry requirements for training as more secondary leavers compete for training with lesser schooled individuals.

Fourth, to strengthen administration and supervision, (1) establish and implement a national coordinating mechanism for the subsector, and (2) improve the management and accounting skills of Brigades staff and increase accountability.

Fifth, to improve cost and financing of the subsector, (1) obtain comparative cost data for all programs, and (2) explore strategies for more cost-effective training.

1.10.6 Nonformal Education

In accord with government's emphasis on rural employment and access to services by all Batswana, attention is given to the delivery of nonformal education (NFE) programs in three areas: agriculture, health, and life skills (e.g., functional literacy and numeracy) and income generation. Nonformal education is within the purview of the Ministries of Agriculture, Health, Education, Industry and Commerce, Local Government and Lands, and Home Affairs. In addition, the Office of the President administers the national youth service program Tirelo Setshaba, and nongovernmental organizations (NGOs) provide a wide range of NFE programs.

Programs reaching the largest audiences are operated by government. Ministerial NFE activities are fitted within a well-conceived national extension system intended to promote coordination and cooperation among the various entities. The national extension system enables government services to be delivered through a hierarchy of offices at the national, district, and village levels.

At the national level, extension activities by various government entities are coordinated by the Rural Extension Coordinating Committee. At the district level, government's NFE activities are coordinated by a District Extension Team consisting of district officers of the different ministries, local government officials, and representatives from formal education. Reporting to the ministries' district officers are village field workers, who, with village officials, comprise a Village Extension Team. Batswana participation in the country's development processes is promoted through an elected Village Development Committee which identifies local needs and works with Local Councils and the Village Extension Team to address village concerns.

The strength of Botswana's national extension system is its emphasis on participation, consultation, and inter-ministerial coordination. While the structure described does not guarantee jointly designed and implemented NFE activities, it provides an important framework for such activities. A limitation is that little opportunity exists for a similar level of coordination among NGOs involved in related activities.

In the area of agriculture, major programs include agricultural extension, farmer training through short courses, and 4-B clubs. In 1983 government employed 198 Agricultural Demonstrators (ADs) who reached an estimated 15 percent (115,000) of all farmers. Fewer than 20 of the ADs are women although 45 percent of Batswana farmers are women. Most of the ADs have completed a two-year course at Botswana

Agricultural College after achieving at least a Junior Certificate. The Ministry of Agriculture organizes a radio program broadcast regularly for farmers. Few data are available to assess the extent to which farmers have benefitted from the extension activities.

Training in agricultural skills is offered to male and female farmers at five Rural Training Centres, with 10,985 individuals participating in such training in 1981-82. An active Agricultural Information Service disseminates research results through materials in various media. The 294 4-B clubs serve approximately 8,000 rural Batswana youth.

In the area of health, government employs approximately 300 Family Welfare Educators (FWEs) who work on the Village Extension Teams and serve from 500-2,000 people each. The Village Health Committee selects an individual who has passed Standard 7 to become the FWE and undergo three months' training. Research indicates that the FWEs are judged by villagers to be the most effective of all extension workers because they have the highest contact rate among the cadres and tend to live with those they serve.

In the area of life skills and income generation, the Ministry of Education's Department of NFE operates correspondence courses at the Junior Certificate and Cambridge levels, and a nationwide literacy program. The correspondence program enrolled 7,224 students in 1982 and the literacy program enrolled 18,779. Literacy group leaders and literacy assistants are responsible to the District Adult Education

Officer. The Department of NFE has developed a series of primers available to all learners and the department also operates a radio program.

Tirelo Setshaba volunteers, who have completed secondary school, serve for one year as primary school teachers or village development workers after a short training program; about 450 volunteers were serving in 1983. The NFE activities of the Ministry of Industry and Commerce are directed toward potential and existing small entrepreneurs in the rural areas; in 1983 about 1,700 such individuals, many of them illiterate, received training or financial support. A Rural Industries Innovation Centre also provides training, conducts research on technologies appropriate to Botswana, and has an extension program to introduce successful technologies. The Ministry of Local Government and Lands also is actively involved in NFE activities coordinated at the district level. The Remote Areas Development Programme seeks to serve all nationals living outside the established village structure, about 15 percent of the population who are hunters and gatherers, nomadic, or without livestock. The Ministry has an array of community development, women's, and youth programs, as well. The Ministry of Home Affairs conducts NFE activities to strengthen Botswana's cultural identity, and also focuses on women's concerns in both the rural and modern sectors and is responsible for NGO activities in Botswana.

NGOs are very active in providing NFE. The Botswana Christian Council (BCC), the Botswana Council of Women (BCW), and the YWCA have

extensive programs for employment-related skills training. The largest such program is the Urban Industrial Mission (BCC-sponsored) which provided learning opportunities in trades and textiles to 848 Batswana in 1982. Both the BCC and BCW participate in the National Literacy Program. The Red Cross and BCW focus on health and nutrition education.

Four major needs are related to the delivery of NFE services to Batswana. First, research data are lacking for the evaluation needed to enable better management of NFE projects and development of programs more responsive to learner needs. Second, better coordination is needed among NFE programs offered by government and NGOs. Third, problems of staff adequacy must be addressed in terms of numbers, training, and retention. Fourth, the content of many NFE programs should be examined to improve the link to productive participation in the economy. Plans of the concerned ministries address two general topics: increased coverage and staff development.

Conclusions. Nine conclusions result from the assessment of nonformal education. First, the data base on NFE activities is insufficient to permit assessing the kinds of financial and personnel resources being invested relative to the outcomes resulting from various combinations of investments. Second, most NFE progams are not linked closely to employment opportunities. Third, NFE is not well coordinated between government and NGOs, nor is it well integrated with formal education. Fourth, the research and evaluation capabilities related to NFE need strengthening. Fifth, manpower skill

needs for NFE staff are not well defined. Sixth, training of fieldworkers requires evaluation as to appropriateness, duration, and level. Seventh, procedures for recruiting and placing of NFE fieldworkers take inadequate account of experience, interest, and knowledge required. Eighth, linkages among research, training, and information dissemination are weak or lacking. Ninth, some existing policies complicate NFE activities and goals.

Recommendations. The recommendations related to nonformal education have priority as follows:

First, to improve external efficiency, (1) link NFE programs more directly to employment opportunities and activities that contribute to a better quality of life for Batswana, and (2) evaluate the need for a bridging program from the National Literacy Program to the Secondary School Correspondence Program, and the desirability of offering formal school curriculum through the Department of Nonformal Education.

Second, to improve internal efficiency, (1) design and institute a mechanism for collecting and storing relevant data on NFE programs, (2) evaluate training of the different cadres of agents and instructors and develop a better mechanism for recruiting and placing fieldworkers, (3) assess the extent to which the NFE projects and activities of NGOs fit government's national development priorities, (4) use NFE more extensively as a forum for pilot activities to develop new methodologies, (5) begin dialogue to alter conflicting government policies that hamper development of small business in the rural areas, and (6) improve the integration of formal and nonformal education.

Third, to improve administration and supervision, (1) provide district and village level workers with training in administration and management, and (2) develop Botswana's research capacity for the analysis of NFE.

Fourth, enhance access and equity by conducting small-scale needs assessments to identify kinds of NFE activities desired by particular groups of Batswana.

Fifth, better assess costs and financing by developing and implementing mechanisms to enable data collection on investments in NFE.

2.0 ECONOMIC AND FINANCIAL ANALYSIS OF HUMAN RESOURCES DEVELOPMENT IN BOTSWANA

2.1 INTRODUCTION

The economic and financial analysis of human resource development is divisible into four main activities:

- Evaluation of macro-economic conditions and trends;
- Analysis of government's fiscal capacity to absorb increased expenditure for human resource development;
- Analysis of current and projected manpower supply and demand; and
- Analysis of costs and returns to the major levels and forms of education and training.

The major purpose of the economic and financial analysis is to provide a context within which the subsequent discussion of the individual education and human resource (EHR) subsectors may take place.

The review of macro-economic conditions and trends is justified because the demand for education and training is derived largely from the economic system's demands for skills. This factor is even more important in a developing nation such as Botswana than in more developed nations. In addition, the nation's ability to support ongoing governmental expenditures, in general, and EHR expenditures, in particular, is determined by the level and stability of the nation's economic activity.

The analysis of fiscal capacity contrasts the expected growth of governmental resources with the expected increases in demands on these resources. The analysis concentrates on the likely availability of funds for EHR programs compared to the demand for EHR funds from existing or planned education and training activities. Only if some positive net capacity exists is it reasonable to propose substantial new initiatives in the EHR sector.

A special aspect of the fiscal capacity review deals with present and planned EHR development expenditures. These affect the fiscal capacity analysis in two main ways. First, domestic financing of development expenditure reduces the total amount of government resources available to support existing recurrent cost obligations. Second, development projects, once realized, create new recurrent cost obligations that must be considered in assessing fiscal capacity for future years.

The analysis of manpower supply and demand attempts to identify areas of surplus and shortage between outputs of the EHR system and the needs of the labor market. This analysis is based upon two related assumptions. First, it is considered meaningless to discuss "aggregate" surpluses and shortages of manpower. To be useful to national planners, manpower analysis must be as specific as possible about the particular skills or levels and types of education and training that are in current or projected under- or over-supply. Second, manpower analysis must be viewed in a long-term adaptive context. The labor market system, working through the initiative of

individual employers, administrators, and employees, will make some adjustment to existing imbalances. Workers and employers will adapt job expectations and skill requirements to take advantage of the available opportunities. In planning adaptive changes in the EHR system, one must look at least five to ten years ahead. The goal of manpower assessments should be to identify conditions that will resolve current problems or imbalances without leading to new problems or imbalances of a different nature.

The review of unit costs and returns concentrates on a narrower EHR configuration. The unit cost analysis focuses on specific levels of education and training and, where appropriate, on the major forms and types within a particular level. Indicative rates of return are calculated for selected forms of education and training. It is recognized that these estimates cannot incorporate all of the social, psychological, and economic factors that structure either private or social EHR investment decisions. However, such rates are a valuable tool in analyzing potential investment imbalances among forms of education. In addition, a comparison of the variation between individual (private costs only) and total (private plus government costs) rates of return provides a useful indication of the differential incentives that exist between individual and collective rationales for EHR demand.

The focus of the economic and financial analysis is on the future constraints and opportunities of the EHR sector and how these factors should affect the planning requirements for EHR development. Although

the analysis is based largely on data from the present and recent past, emphasis is solely on what might be done rather than on questioning past decisions that have structured EHR policy and practice. In addition, the total EHR assessment is concerned with both short-run, marginal changes that can improve EHR practice and long-run policy reform that might affect the EHR sector generally. The overriding goal of this economic and financial analysis (and of the EHR assessment as a whole) is to propose a set of planning strategies that will allow government to adapt EHR policy and practice to the emerging pattern of constraints and opportunities.

A signal accomplishment of government has been to maintain a flexible and adaptive posture in both macro-economic and EHR policy. Given the continuing fragility of the natural environment and the economy's exposure to external economic changes, government will need to maintain this posture for the foreseeable future. The investment criteria established for the Fifth National Development Plan (NDP V, 1979-80/1984-85), and revised in the recent mid-term review, are an appropriate basis for future planning exercises. Because of the variety of changes that have taken place in Botswana since the mid-1970s, it is difficult to characterize what represents typical or atypical economic conditions. The political stability of the government and the competence and commitment of government personnel continue to be two of the major strengths of the nation.

As with most analyses of EHR sector activity, the economic and financial analysis is constrained and biased by the fact that the

greatest detail on program content, participants, cost, and effects exists for the public formal educational programs. As a result, the analysis concentrates on these areas more than on the private and nonformal programs for which less information normally is available. Comparisons are made even more difficult by the fact that private and nonformal programs tend to be numerous and small, making summarization inappropriate and often blatantly misleading.

The subsector assessments of vocational/technical education and nonformal education provide qualitative information on many programs for which quantitative data are not available. The point to be stressed in the economic and financial analysis is that the limited quantifiable treatment of these programs does not indicate an under-estimation of the importance of non-profit and private sector programs, or of nonformal education generally. These programs play an important role in meeting individuals' needs for education and training that is responsive to demands of the formal and informal economy for workers with specific skills.

2.2 THE ECONOMY OF BOTSWANA

This section of the analysis identifies key issues affecting the economy of Botswana, reviews recent levels of macro-economic and economic sector performance, and analyzes the revenue and expenditure budget performance of government. These exercises provide a framework for a subsequent analysis of macro-level EHR expenditure.

2.2.1 Major Economic Characteristics

The economy of Botswana may be described in terms of six major characteristics:

- Dual economic bases of mining and agriculture
- Interdependence of the traditional and modern sectors
- Political stability and conservative fiscal management
- Environmental fragility
- External dependence
- Manpower imbalances

Within the economy of Botswana, these characteristics represent a set of opportunities and constraints in government's attempt to promote aggregate national development and to assure a more equitable distribution of income.

2.2.1.1 Dual Economic Bases of Mining and Agriculture

Botswana has developed its economy on a dual base: The mineral sector is the driving force for aggregate economic growth, and the accumulation of foreign reserves and agriculture supports the vast majority of the population. This has not led to a stereotypic dualistic economy because of the unusual interdependence existing between the traditional and modern sectors. This interdependence is discussed below.

The dominance of the mineral sector is reflected in the stress given it in the NDP V projections. Most other modern sector

activities depend upon the growth of the mineral sector for their own success. Sales to the mineral sector or to consumers whose income is directly or indirectly determined by the mineral sector make up a major share of the demand for other industrial and manufacturing concerns in Botswana.

As indicated later in the discussion of the economy, mining activities are the largest sector of origin for Gross Domestic Product (GDP) and the single largest contributor to the trade balance and foreign reserve earnings. This sector determines the macro-economic vitality and stability of the nation and supports the ability of government to expand its recurrent cost and capital investment activities.

Given this dominance, it is surprising to note that mining employment in 1981 represented only 8.3 to 8.8 percent of the modern sector employment (8,100-8,560 workers out of a total modern-sector employment of 97,400). Given that the traditional sector is responsible for an estimated three-quarters of the population, the mining sector is less important for immediate general welfare conditions of the population than its role in the modern economy might suggest.

The agriculture sector is itself divisible into a traditional and a modern sector. Freehold or modern-sector agriculture was estimated to employ 4,800 individuals in 1981, or 4.9 percent of all modern-sector employment. The Macro-Economic Model for Botswana

(MEMBOT) forecast for 1983 (based on 1981 data) estimated 5,328 workers in freehold agriculture and an additional 107,657 in the traditional sector. This latter total is almost equal to the full modern-sector employment.

The importance of agriculture in terms of population support is even more dramatic than these data indicate. The patterns of migration, job location, and family structure in Botswana result in each traditional agricultural worker being responsible for a larger number of individuals than is the case for most urban workers. The young, the elderly, and the unemployed continue to be dependent predominantly upon agriculture for their daily source of support. The analysis of this situation is made more complex by the highly developed interdependence of the two sectors in Botswana, but it is fair to summarize that mining provides for the macro-economic support of the nation while agriculture dominates employment provision and the support of the general welfare.

2.2.1.2 Interdependence of Traditional and Modern Sectors

The economy of Botswana presents a dramatic case of linkage between the traditional and modern sectors. Extended family arrangements allow a majority of Batswana workers to benefit from both family agriculture and wage employment. The extended family arrangement is especially useful for unskilled workers and those without freeholds because these individuals often cannot earn enough

in either rural or urban employment to support themselves and their families. In some cases, individual workers engage in alternating migrations that allow them to work in both sectors during a single year. The economic and geographical diversity of an extended family unit allows it to hedge against dramatic reversals of fortune in either sector. It is also a structure particularly suited to the adaptive demands of a rapidly changing economy.

The most dramatic example of this phenomenon of interdependence occurs in the case of the 30,000 Batswana who work in South Africa (primarily in the mining industry). The repatriation of funds from these workers continues to represent a significant source of money income for segments of the rural population. A cost of this activity and of the internal urban migration of males is indicated by the substantial proportion (45%) of households in the country that are headed by females. While this changed status for women may have promoted gains in social and political equity, it has tended to aggravate the income disadvantage placed upon rural women. Only 54 percent of rural female-headed households have lands as compared with 82 percent of the male-headed households; in a recent year 3 percent of the female-headed households had an above average crop while 19 percent of the male-headed households did. In an economy where livestock, especially cattle, are an important index of status, it is relevant to note that 67 percent of the female-headed households had no livestock at all.

The interdependence of the mining and agriculture sectors may be noted also in a larger social context. While agriculture continues to carry the employment and welfare support burden for the nation, it depends on the mining sector specifically, and the modern sector generally, to provide the resources for improving access to and use of land, irrigation, training, and technology. The two sectors in Botswana should be viewed not as in a dualistic competition for resources but as in a symbiotic effort at survival and progress. And just as the traditional sector looks to the modern sector for development resources, so will the modern sector continue to depend upon the traditional sector to protect it from the employment burden that would result from mass urban migration. Government's planning has been based on an explicit recognition of this interdependence; the need for the future is only for this recognition to be made more explicit and central to the national development strategy.

2.2.1.3 Political Stability and Conservative Fiscal Management

Botswana's multi-party democracy has produced a markedly stable political environment. This is especially remarkable given Botswana's location in the center of a politically disrupted region. In addition, government has promoted a system within which neither political nor bureaucratic corruption has been allowed to emerge as a restraint on development. The government has promoted joint development of agriculture (including livestock production) and

manufacturing to complement the strengths inherent in the nation's mineral resources.

The nation's political stability has made it an attractive location for foreign investment in the private sector and for bilateral and multilateral assistance to both the private and the public sectors. Government has increased this attractiveness through the provision of subsidies, tax incentives, and flexible foreign currency use and exchange regulations. In addition, government's development finance corporation has supplied risk capital and credit facilities for new enterprises.

A review of government policies toward small- and medium-size industries was conducted in 1981. As a result, government plans to increase the provision of economic and technical support for new industries and enterprises designed to satisfy unmet needs in the present economy. Government also has stressed the need for job expansion by providing a wider range of incentives for the use of labor-intensive approaches in the private sector.

The record of conservative fiscal management achieved by government is unmatched in Africa. During the prosperous years of the 1970s, government was careful to operate with a surplus of receipts over expenditures. GDP increased annually at a nominal rate of 25 percent and at a real rate of approximately 12 percent during that decade (8% real growth per capita, per year).

During the 1970s, government's recurrent expenditures increased at an average annual rate of 27 percent. Even with these substantial

increases, government maintained a current account surplus and was able to finance a major proportion of its development expenditures from its own resources. For the full decade, government receipts averaged 29 percent of GDP and government expenditures 21 percent of GDP.

The strength of the economy and of government's fiscal position is indicated by the balance of payments. Even with an annual increase in imports averaging a rate of 23 percent, the balance of payments remained positive. By 1980 year-end, foreign exchange reserves were adequate to finance seven months of imports, and debt servicing by government equaled less than 4 percent of export earnings.

Unfortunately, this remarkable record of prosperity did not continue after 1980. The worldwide recession has combined with extensive local drought conditions to slow Botswana's economic growth. The result has been to depress demand for Botswana's mineral and livestock exports while retarding local agriculture and livestock production. Government has responded by reducing planned development expenditures and increasing controls over current revenues and expenditures. As a result, the budget deficits have varied from only 2 percent of GDP in fiscal year (FY: April 1 to March 30) 1979-80 to 6 percent for FY 1981-82. Debt servicing as a percent of export earnings has remained relatively stable at around 4 percent and foreign reserves still cover four to six months of imports. Because of government's consistently conservative approach, Botswana remains

an attractive location for both private investment and external donor assistance.

2.2.1.4 Environmental Fragility

The interdependence of the modern and traditional sectors and government's economic conservatism are, in part, responses to the environmental fragility of the nation. With a land area of some 580,000 square kilometers, there would appear to be more than sufficient land to support the present population of almost one million. However, most of the country is arid or semi-arid and two-thirds of the land area lies in the Kalahari Desert. Rainfall is seasonal but varies dramatically in terms of location and amounts. Botswana's water needs are supplied primarily (approximately 75%) by subterranean water sources.

It is estimated that only 5 percent of Botswana's land area is suitable for agricultural cultivation. The soils tend to be of poor quality and the recurrent patterns of rain and seasonal drought promote extensive erosion. Fortunately, a substantial proportion of land is suitable for grazing, although overgrazing and drought have combined to restrict this activity in recent years.

The importance of the issue of environmental fragility is indicated by the fact that, while the agriculture sector provides only about 12 percent of national GDP, it employs more than one-half of Botswana's active labor force. Thus, the economic livelihood of a majority of Batswana is determined by the extremely fragile condition

of the environment. Any change in the availability of rainfall or the conditions of the grazelands directly affects these workers and their families. The increased use of boreholes to gain access to subterranean water has not yet made a major impact on this condition for the majority of agricultural workers.

2.2.1.5 External Dependence

The fifth major characteristic concerning the economy of Botswana is that of external dependence. This dependence takes a variety of forms, most of which are related to Botswana's geographic location and size. Because it is landlocked, Botswana has had to depend on the transportation infrastructure and ports of the Republic of South Africa to facilitate the export of its two major commodities, minerals and beef. In addition, the aforementioned employment of Batswana in the South African economy has produced benefits in terms of repatriated payments and reduced employment pressures at home.

As with any export-oriented economy, Botswana is dependent on foreign demand for its products. The recent glut of diamonds in the world market, the current depressed demand for other mineral exports, and the earlier restrictions on beef exports from Botswana (because of an outbreak of hoof-and-mouth disease) by the European Economic Community (EEC) are all instances of the local economy's sensitivity to external determinants. The membership of Botswana in the South African Customs Union provides advantages in terms of customs receipts (which provide 35-40% of government revenues) but reduces the ability

of government to provide "infant-industry" protection for manufacturers. This has the effect of reinforcing the nation's import dependence on South Africa.

The economic recession of the last two years has increased government's reliance on foreign assistance to finance development expenditures. In addition, the 1982 project review of the NDP V indicates that P436.9 million will be carried over to NDP VI. This 30 percent postponement of project activities is only partly a result of the current economic recession; NDP funding has a built-in excess in allocations above the level at which government expects actual spending to occur. Nevertheless, there is little doubt that continued drought and low mineral prices will exact a significant cost in terms of development program activities.

The most visible form of external dependence is extensive use of expatriate personnel in both the public and the private sectors. Government's enlightened "localization" strategy is one that works toward a timely transition to Batswana personnel without management or economic dislocation. In the private sector localization has been somewhat delayed because of government's priority position in recruiting highly educated or trained graduates. As a result of the report of the National Commission on Economic Opportunities, government plans to divide graduates equally among central government, local government, and the private sector (including parastatals).

The Financial Assistance Policy (FAP) grants have been used to promote localization in the private sector while encouraging increased

Excluding family agriculture from the labor force definition results in an unemployment estimate for the modern sector of 22 percent. This dramatic figure may overstate the problem because of participation in the parallel informal activities in the modern sector. However, the potential for increased migration of people from rural to urban locations will more than offset the solace to be gained from the "disguised employment" situation. In addition, the "economically inactive" total includes a substantial number of workers who would enter the job market if prospects were more favorable.

At present, Botswana suffers from a gross surplus of workers relative to jobs while simultaneously facing shortages in trade, technical, scientific, and managerial skills. The challenge to government for the remainder of this century is to remove educational and training shortages as a constraint to development without creating even more serious constraints in the form of costly education and training programs that produce graduates for whom no demand exists in the labor market. The problem of manpower imbalance must be treated from the demand side as well as from the supply side. Government policy toward labor intensification in industry and manufacturing must be reinforced. In addition, general population control strategies should be re-examined in the light of the potential economic dislocations that could occur from the interaction of high birth rates and increased urban migration.

The six issues raised here have served to structure the discussion of the economy of Botswana. In the subsequent sections of

problems in terms of rail line construction and the purchase of rolling stock. In addition, there are political considerations in terms of the decision whether to export via South Africa or another sea outlet. The case of coal is significantly different from that of diamond exporting because of coal's low value-to-weight ratio.

2.2.1.6 Manpower Imbalances

The final major characteristic that structures the economy of Botswana is that of manpower imbalances. The preliminary results of the 1981 census revealed the following about the economic status of the population (age 15-64):

Employee	119,415
Self-employed	8,507
Periodic piecework	5,888
Family agriculture	119,368
Actively looking for work	31,051
Economically inactive	167,177
Total	451,406

If the economically inactive are excluded from the definition of the labor force, unemployment, according to these data, would equal 11 or 13 percent, depending upon the classification of the "periodic piecework" category. Because the cohorts below the age of 15 are increasingly larger than those that preceded them into the labor market (the population growth rate is estimated at approximately 3.3 percent per year), the economy will be pressed to expand employment at a rate rapid enough just to keep unemployment from increasing.

domestic industrialization and manufacturing. As of September 1983, 100 percent of all small grants and 48 percent of all case-by-case (not-automatic) medium-scale grants have gone to Botswana citizens. The total value of FAP five-year grants on that same date was P6.1 million, with 46 percent of all projected grants going to citizens and an additional 26 percent to joint venture concerns.

Botswana's population size operates as a constraint on local development of manufacturing because the economies of scale for efficient production often cannot be realized on the basis of the level of domestic demand. The result is an increasingly bimodal private sector with the relatively small number of large mining concerns at one extreme and the numerous but small manufacturing and agricultural concerns at the other. The middle range of firms will develop only if Botswana can become a regional center for production of selected goods for other southern African nations. The formation of the Southern Africa Development Coordination Conference (SADCC) offers some hope for improvement. However, in 1981 only 9 percent of exports and imports were with the SADCC countries.

Botswana's landlocked position presents a constraint in several areas but nowhere is it a more dramatic issue than in the development for export of the estimated 17 billion metric tons of coal reserves. (This would be adequate to supply total world needs at current levels for twenty years.) The feasibility of extracting and exporting 15 million metric tons a year from the site at Kgaswe is currently under study. Unfortunately, the need to ship the coal poses economic

the economic and financial analysis, detail is provided on national accounts and on patterns of government expenditures and receipts. In addition, more detailed projections of manpower demand and supply are presented for analysis.

2.2.2 Measures of Economic Performance

The first three years (1979-80/1981-82) of the NDP V represent a period of erratic performance for the Botswana economy. The boom in world diamond prices in 1979 and 1980 had led to an explosive growth of Gross Domestic Product (GDP) in fiscal years 1978-79 and 1979-80 of 42 percent and 37 percent, respectively, in current prices. Even after accounting for inflation, the growth rate of real GDP for 1979-80 was 19 percent. With the dramatic drop in diamond prices which occurred in 1981, GDP for Botswana fell in real terms (down 3%) although it continued to rise in nominal terms (up 12% in 1980-81 to P771 million).

The actual and estimated GDP for Botswana for the six years of NDP V are presented in Tables 2.1 and 2.2. Table 2.1 presents GDP, aggregate and by major sector, in current prices, while Table 2.2 presents the annual GDP figures in terms of 1979-80 consumer prices. The 1978-79 and 1980-81 figures are from the Central Statistics Office, and the latter figures are projected from 1980-81 data by use of the Macro-Economic Model for Botswana (MEMBOT).

In Table 2.1 it may be seen that mining leads all sectors in GDP generation for the first two years of NDP V; the percentage of total GDP from this sector equaled 31.5 percent in 1979-80 and 27.1 percent in 1980-81. By 1981-82, however, the trade sector became the leader with 25.5 percent of total GDP compared to 17.5 percent for mining. The diminished role of the mining sector in GDP is a joint function of absolute declines in the value of mine production (led, of course, by diamond price declines) and the continued expansion of the trade sector's contribution to nominal GDP.

The resurgence in mining production and the assumed resurgence in mineral prices will have the two sectors of mining and trade almost equal again by the end of NDP V. In 1984-85 the estimated contribution to GDP will be P363 million for mining and P373 million for trade; this will represent proportions of total GDP of 23.9 percent and 24.5 percent, respectively.

The third and fourth largest contributors to GDP during the NDP V will be Central Government and agriculture. In 1978-79, the last year before the initiation of NDP V, the agriculture sector exceeded the government sector by P78 million to P70 million (15.5% to 13.9% of total GDP). Government sector production of GDP exceeded that of agriculture in 1979-80 and has continued to do so since. The MEMBOT projections assume that by 1984-85 the Central Government sector will equal P212 million (13.9%) while the agriculture sector will produce only P158 million (10.4%).

TABLE 2.1

BOTSWANA GROSS DOMESTIC PRODUCT:
CURRENT PRICES
(Million Pula)

	Fiscal Year					
Sector	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Agriculture	75	82	110	123	141	158
Mining	217	209	150	211	284	363
Manufacturing	29	49	63	75	92	111
Water and Electricity	15	27	35	46	56	67
Construction	36	38	43	55	64	75
Trade	157	175	218	266	319	373
Transport	14	17	20	24	28	32
Financial Services	43	35	44	54	65	77
Social and Personal Services	21	27	33	40	47	55
General Government	82	111	138	151	183	212
Total GDP	689	771	855	1043	1280	1522
Percentage Growth	37%	12%	11%	22%	23%	19%

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums due to rounding.

In Table 2.2, the Central Statistics Office's National Cost of Living Index has been used to deflate the nominal GDP values after 1979-80. As the same index value is used for all sectors, proportional contribution of a sector to annual GDP is unaffected. The table is especially useful, however, in highlighting the real growth in sector GDP and total GDP over the period of NDP V. For example, total real GDP in the last year of the Plan will equal 1.26 times the level in the first year of the Plan.

Only one sector, mining, will suffer a decline in real GDP production; this is from P217 million to P207 million. The smallest positive change is for financial services, which will increase only 2.3 percent from the first to the last year of the Plan (P43 million to P44 million). The largest proportional gains are by the sectors of manufacturing and water and electricity. The percentage increases for these sectors for the full six-year period will be 117 percent and 153 percent, respectively. These figures are potentially misleading for manufacturing, which suffered a decline in real GDP production from P49 million to P29 million in the 1978-79 to 1979-80 period. Using the 1978-79 value as a base, the increase in the manufacturing sector for the seven-year period is reduced to 28.5 percent. Similarly, agriculture in 1984-85 will exceed its pre-NDP V level from 1978-79 by only P1 million.

TABLE 2.2

BOTSWANA GROSS DOMESTIC PRODUCT:
CONSTANT 1979-80 PRICES
(Million Pula)

	Fiscal Year					
Sector	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Agriculture	75	71	85	85	88	90
Mining	217	181	116	145	178	207
Manufacturing	29	43	49	52	58	63
Water and Electricty	15	24	27	32	35	38
Construction	36	33	33	38	40	43
Trade	157	152	169	183	200	213
Transport	14	14	15	16	18	18
Financial Services	43	31	34	37	41	44
Social and Personal Services	21	24	26	27	30	31
General Government	82	96	107	104	115	121
Total GDP	689	669	661	720	803	868
Percentage Growth	19%	-3%	-1%	9%	12%	8%
Consumer Price Index	1.0	1.152	1.294	1.449	1.594	1.753
Rate of Inflation	14.5	15.2	12.3	12	10	10

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums because of rounding.

Table 2.3 presents a slightly different look at GDP output by using producer rather than consumer prices as the deflator. Because producer prices are the most immediate determinant of domestic income and employment, the GDP figures in Table 2.3 offer a unique insight into domestic economic activity and manpower demand.

The most dramatic difference between Table 2.2 (purchasing power approach to GDP) and Table 2.3 (volume of production approach) occurs in the mining sector. Rather than a decline from P217 million to P207 million over NDP V, the sector shows a production increase from P217 million to P311 million. This indicates that the problems of the mining sector are at the retail rather than the production level of operation. In fact, diamond mining has produced at a faster rate and at a higher quality of output than was expected for the plan period. This success has been offset by the low diamond prices and by the inability of Botswana to sell its total output. The sectors of agriculture, manufacturing, water and electricity, and construction show lower producer rather than consumer price GDP while all other sectors are higher in 1984-85 in terms of producer GDPs. Table 2.4 summarizes the two preceding tables by presenting the 1979-80 and 1984-85 levels and deriving the differential changes in GDP proportions by sector.

In summary, the mining sector, for the remainder of the NDP V, is expected to result in GDP contributions below even those levels

TABLE 2.3

BOTSWANA GROSS DOMESTIC PRODUCT
PRODUCER PRICES
(Million Pula)

	Fiscal Year					
Sector	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Agriculture	75	68	80	82	85	88
Mining	217	286	210	275	299	311
Manufacturing	29	37	40	44	48	52
Water and Electricity	15	22	26	31	33	36
Construction	36	32	33	38	39	42
Trade	157	164	184	204	215	228
Transport	14	15	16	18	18	19
Financial Services	43	33	38	43	45	48
Social and Personal Services	21	26	28	31	32	34
General Government	82	93	106	112	118	124
Total GDP	689	775	760	876	931	983
Percentage Growth	15%	13%	-2%	15%	6%	6%

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums because of rounding.

TABLE 2-4

GDP CHANGES BY SECTOR, 1979-80 TO 1984-85:
CONSTANT PRICES VERSUS PRODUCER PRICES
(Million Pula)

Sector	GDP (Constant Prices)				GDP (Producer Prices)			
	1979-80	1984-85	Change	Percent Change	1979-80	1984-85	Change	Percent Change
Agriculture	75	90	+15	+20.0	75	88	+13	+17.3
Mining	217	207	-10	-4.6	217	311	+94	+43.3
Manufacturing	29	63	+34	+117.2	29	52	+23	+79.3
Water & Electricity	15	38	+23	+153.3	15	36	+21	+140.0
Construction	36	43	+7	+19.4	36	42	+6	+16.7
Trade	157	213	+56	+35.7	157	228	+71	+45.2
Transport	14	18	+4	+28.6	14	19	+5	+35.7
Financial Services	43	44	+1	+2.3	43	48	+5	+11.6
Social and Personal Services	21	31	+10	+47.6	21	34	+13	+61.9
General Government	82	121	+39	+47.6	82	124	+42	+51.2
Total GDP	689	868	+179	+26.0	689	983	+294	+42.7

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums due to rounding.

predicted by the "slower mineral growth" hypothesis in the original estimates. Agricultural GDP will fall between the "drought" and "base" forecast levels but in 1984-85 is not expected to exceed the drought level by any substantial margin. The other GDP sectors, led by manufacturing, are expected to be above the originally projected NDP V levels. However, without both a stronger mining sector to improve the balance of payments (and foreign reserve holdings) and an end to drought conditions to alleviate living conditions for the majority of citizens, the manufacturing growth may not be sustainable. As noted earlier, for the foreseeable future Botswana will depend upon its complementary bases of mining and agriculture for modern sector support and for subsistence and maintenance, respectively.

The data on gross capital formation (GCF) in Botswana by economic sector are provided in Table 2.5 for 1978-79 to 1981-82. Figures are presented both in current and constant (1979-80) values. For all four years the largest sector in terms of GCF was mining. General government was second but increased as a percentage of total GCF by more than mining did in the four years shown. Excluding mining, the largest private sector investment in capital formation was by the trade and hotels and the transportation/communication sectors.

Regarding kind of asset, GCF in this period saw a dramatic decline in cattle herd size and large increases in inventories and intermediate goods. Non-residential construction grew more rapidly than residential construction work, and the constant dollar investment in transport equipment more than doubled in the four-year period.

TABLE 2-5

GROSS CAPITAL FORMATION, BY SECTOR
1978-79/1981-82

(Current and 1979-80 Price, Million Pula)

	1978-79		1979-80		1980-81		1981-82	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
Agriculture	15.9	17.3	16.4	16.4	13.5	11.5	6.1	4.9
Mining	74.6	87.5	128.8	128.8	126.5	109.8	115.8	149.3
Manufacturing	7.7	9.3	2.3	2.3	20.5	16.8	7.5	8.0
Water and Electricity	3.3	3.5	8.2	8.2	25.7	22.2	17.2	14.1
Construction	3.7	3.4	7.2	7.2	12.7	11.1	7.7	6.5
Trade, Hotels	10.4	10.1	22.0	22.0	20.1	17.3	31.4	25.6
Transportation/ Communication	5.0	5.6	7.2	7.2	8.8	7.6	29.0	23.3
Bank, Insurance, Business Services	16.2	18.9	20.5	20.5	34.1	29.8	16.7	13.5
General Government	57.5	66.0	78.6	78.6	90.1	77.9	101.3	82.8
Social & Personal Services	3.3	3.9	6.6	6.6	6.0	5.2	3.2	2.0
Total	197.6	225.5	297.8	297.8	358.0	309.2	335.9	330.0

Source: "National Accounts of Botswana, 1981-82" (Draft)

Note: Totals may not equal sums due to rounding.

GCF as a proportion of GDP for the four years covered by Table 2.5 was as follows:

	Current	Constant
1978-79	39%	37%
1979-80	43	43
1980-81	47	40
1981-82	46	42

The increases in recent years, in terms of current and constant purchasing power, would be more encouraging if mineral and other inventories were not such an important factor. Most disturbing is the continuing decline in agricultural gross capital formation.

The external exposure of the economy makes consideration of the balance of trade and balance of payments situation especially significant. The recorded foreign trade, in current prices, for Botswana from 1979-80 to 1984-85 is shown in Table 2.6 by major export and import category. The export statistics are led by diamonds, copper, nickel matte, and meat products. The variation in diamond export values has followed the world fluctuations cited earlier. Meat output suffered from the recent EEC restrictions on meat imports from Botswana. Current conditions in Botswana (including improved vaccination programs) give reason for optimism concerning the stability of future meat exports.

Total exports in 1982-83 are expected to jump by P144 million, from P355 million to P599 million. This increase will be led by an expected increase of P266 million in diamonds. While there is little doubt of the physical ability of Botswana mines to produce this

TABLE 2.6

BOTSWANA'S BALANCE OF TRADE
1979-80/1984-85
(Current Prices, Million Pula)

		1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
(A)	Exports						
	Diamonds	215	223	149	375	433	470
	Copper/Nickel	64	91	69	60	71	100
	Beef	41	55	76	95	106	118
	Other Goods	38	37	52	69	85	103
	Adjustments	33	7	9	n.a.*	n.a.	n.a.
	Total	391	413	355	599	694	791
(B)	Imports	408	523	577	664	740	891
(C)	Balance of Trade	-17	-110	-222	-65	-45	-100
(D)	Percentage Growth of Exports	-	6%	-14%	69%	16%	14%
(E)	Percentage Growth of Imports	-	28%	10%	15%	11%	21%

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums due to rounding.

*n.a. = not available

quantity, there is doubt whether final 1982-83 value figures will actually reach these estimated levels. Subsequent increases in total exports are led by diamonds, and this single commodity's performance ultimately will determine whether the negative balance of trade will remain within acceptable limits.

Over the NDP period, trade balances will remain negative. The extraordinary trade deficit of P222 million in 1981-82 will not be maintained and trade balances will improve until 1984-85. In this last year of the Plan the resurgence of import levels (estimated to increase by P151 million) will result in a deficit estimated at P100 million. The deficit levels originally anticipated for the Plan period, according to the "slower mineral growth" projections, would have been positive in the 1983-84 and 1984-85 fiscal years.

The balance of payments figures for the NDP V are presented in Table 2.7. The effect of the negative balance of trade is reinforced by the deficit in the balance of net services and net transfers. For 1982-83 this balance will equal a deficit of P20 million as opposed to an originally projected surplus of P33 million. For the last year of the Plan, 1984-85, the presently estimated net services/net transfer balance will be in deficit P44 million rather than the original estimate of only a P1 million deficit.

Because of the large positive balance on capital account throughout the NDP V, the overall balance of payments is expected to be positive for every year except 1981-82. However, it should be noted that for an import-dependent nation of Botswana's nature, five

TABLE 2.7

BOTSWANA'S BALANCE OF PAYMENTS
1979-80/1984-85
(Current Prices, Million Pula)

I. ORIGINAL NDP V ESTIMATES ("Slower Mineral Growth Forecast")

	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Balance of Trade	-69	-94	-130	-70	3	49
Net Services	-47	-56	-77	-92	-134	-156
Net Transfers	87	97	112	125	139	155
Current Account Balance	-29	-54	-95	-37	8	49
Capital Account Balance	140	166	158	68	65	30
Overall Balance	111	112	63	31	73	79
Foreign Exchange Reserves	317	429	492	523	596	675
Months of Imports	8.6	10.1	9.7	9.3	9	9

II. ACTUAL VALUES FOR 1979-80 AND 1980-81; MEMBOT FORECASTS FOR LATER YEARS

	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Balance of Trade	-17	-110	-222	-65	-45	-100
Net Services	-89	-99	-77	-150	-160	-182
Net Transfers	108	95	121	130	134	138
Current Account Balance	2	-114	-179	-85	-71	-144
Capital Account Balance	102	114	156	137	160	180
Errors and Omissions	-9	10	16	n.a.*	n.a.	n.a.
Overall Balance	95	10	-7	52	89	36
Foreign Exchange Reserves	266	261	307	359	448	484
Months of Imports	6.4	4.8	5.8	5.3	6.0	5.4

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums because of rounding.

*n.a. = not available

to six months of import equivalence in foreign exchange is not excessive. Given that government programs are highly import-elastic, foreign currency reserves are the ultimate constraint on government activity. All aspects of the current and capital account balances need to be monitored to prevent any rapid draw-down on foreign reserve holdings.

2.2.3 Central Government Current Receipts and Expenditures

2.2.3.1 The Revenue System

Historically, the tax revenue system of Central Government (which classified mineral royalties as non-tax revenue) has been based on customs union receipts and company income taxes. During the last half of the 1970s and the early 1980s, these tax sources together averaged between 60 and 70 percent of total tax revenues. The contribution of the individual income tax increased from 6.6 percent of total taxes in 1977-78 (the government fiscal year runs from April 1 to March 31) to 11.2 percent in 1981-82. Other tax sources included casino and business licenses, export duties, and property taxes.

Non-tax revenue has been a substantial proportion of government recurrent revenue but, because of its dependence on the international mineral resource markets, it has been a highly variable source of revenue. Non-tax revenue declined as a proportion of total revenue from 43.0 percent in 1976-77 to 23.5 percent in 1981-82.

The company income tax is assessed against all companies operating in Botswana whether resident or non-resident. A flat rate of 35 percent of taxable income is charged. Allowances (at various rates) are permitted against income for capital expenditures on industrial buildings, plant and machinery, employee housing, and training. As to the last, a deduction against income is allowed equal to 200 percent of any expenditure on approved post-secondary education or training or on the employment of an approved full-time training officer. A tax credit is provided for approved training expenditures at lower levels or in out-of-school educational activities.

Income of individuals is taxed on the basis of a 1 July to 30 June tax year. The tax rates range from 10 percent for the first P3,000 of taxable income to a maximum rate of 60 percent for incomes above P20,000 (reduced from a former maximum of 65% for taxable incomes above P45,000).

Botswana's revenue from the Customs Union is based on a formula that takes into account the proportions of imports and of dutiable goods which, respectively, come into or are produced and consumed in Botswana. A compensation factor is included in the formula to offset the (a) price-raising effects of South African tariffs; (b) price-raising effects of South African import controls; (c) the imbalance in dependence between Botswana and South Africa in terms of comparative market advantage; and (d) the loss of fiscal discretion.

2.2.3.2 The Consolidated Budget

The consolidated cash flow budget as it is currently structured in Botswana is presented in Table 2.8. The figures up to 1981-82 are actual receipts and expenditures, the 1982-83 figures are revised estimates, and the 1983-84 amounts are original estimates. The new tax/non-tax classification system is based on the IMF's Draft Manual of Government Finance Statistics.

Tax revenue will almost double in current value from the beginning of the NDP to the end of 1983-84 (P184.26 million to P365.03 million). Customs pool revenue will grow proportionally for this period, increasing from P80.18 million to P158.50 million. The fastest growth will be in non-mineral income taxes which will jump from P24.34 million in 1979-80 to an estimated P67.25 million in 1983-84. A new general sales tax begins to contribute to tax revenue in 1982-83 and is expected to be an increasingly important revenue source.

Non-tax revenue increases will be almost as great as those for tax revenues; the total from these sources will rise from P27.91 million to P51.69 million. "Other property income," which includes joint venture benefits for government, has increased at a faster rate than any item in this category. Its level of P22.46 million in 1983-84 will be nearly two and one-half times its level in the first

TABLE 2.8

CONSOLIDATED CASH FLOW BUDGET
1979-80/1983-84
(Current Prices, Million Pula)

	1979-80	1980-81	1981-82	1982-83 (Revised Estimates)	1983-84 (Estimates)
(A) REVENUES AND GRANTS					
(1) TAX REVENUES					
Mineral Revenues	76.60	101.11	77.05	100.25	129.69
Customs Pool Revenues	80.18	102.02	104.29	112.95	158.50
Non-Mineral Income Tax	24.34	38.45	41.55	53.22	67.25
Export Duties	.63	.49	.46	.62	.53
Taxes on Property	.63	.25	.75	.25	.20
Taxes on Motor Vehicles	.97	1.14	1.34	1.33	1.33
Business and Professional Licenses	.91	.80	1.18	.94	.94
Stamp Duties	-	-	-	-	-
General Sales Tax	-	-	-	4.12	6.59
Subtotal	184.26	244.26	226.62	273.68	365.03
(2) NON-TAX REVENUES					
Interest	9.25	8.42	10.68	10.16	12.15
Other Property Income	8.69	3.89	27.49	28.49	22.46
Fees, Charges, Reimbursements	9.27	11.18	14.47	13.53	14.81
Sales of Fixed Assets and Land	.70	1.76	3.71	1.87	2.27
Subtotal	27.91	25.25	56.35	54.05	51.69
(3) GRANTS					
Recurrent	2.69	2.30	1.41	3.05	1.15
Development	34.25	35.51	38.24	35.00	36.20
Subtotal	36.94	37.81	39.65	38.05	37.35
Total Revenue	249.11	307.32	322.62	365.78	454.07
(B) EXPENDITURES AND NET LENDING					
Recurrent Expenditure	121.98	166.81	199.97	239.22	285.23
Development Expenditure	98.28	121.44	121.25	165.00	172.00
Loans	9.87	28.58	27.54	38.04	46.70
Loan Repayments	(2.09)	(7.85)	(7.40)	(6.80)	(3.70)
Total Expenditures	228.04	308.98	341.36	435.46	500.23
(C) OVERALL BALANCE	21.07	-1.66	-18.74	-69.68	-46.16
(D) RECURRENT BALANCE	84.27	-12.03	-31.39	41.91	3.07

Source: Financial Statements, Tables and Estimates of Consolidated and Development Fund Revenues, 1983-84.

year of the NDP V. Revival of mining dividends after 1983-84 should see the even higher levels of 1981 to 1983 reoccur.

The third source of government receipts is grants for recurrent and development costs. As would be expected, development grants represent a substantial multiple of recurrent expenditure grants. Both sources of receipts have been, and are expected to continue to be, relatively stable over the NDP V period.

The expenditures and net lending portion of Table 2.8 is divisible into four main catagories. The largest is the recurrent cost of government, which more than doubles from P121.98 million in 1979-80 to P285.23 million in 1983-84. The increase for development expenditures for the same period will be from P98.28 million to P172.00 million. The Loans item represents all loans made from the Public Debt Service Fund (PDSF) and the Revenue Stabilisation Fund (RSF) to parastatals, town councils, and other organizations. The repayments item includes all loan recoveries of the PDSF, the RSF, and the Domestic Development Fund. Loan interest earned by government appears under non-tax revenues.

Because of the macro-economic conditions discussed earlier, the overall balance has been negative for the last three fiscal years and is expected to remain so into 1984. The recurrent budget balance is expected to be positive for 1982-83 and 1983-84 after two fiscal years of deficit.

More recent figures from the Ministry of Finance and Development Planning suggest that the overall deficit may be less in 1982-83 than shown in Table 2.8. However, the need for an emergency expenditure of P20 million for drought relief for the Gaborone area may result in an even larger deficit in 1983-84 unless other development expenditures fall short of original levels. If the drought continues, an additional P45 million for drought relief would be needed in 1984-85 and could offset the budget surplus projected for that year.

The percentage distribution of total revenue and grant items, as well as a separate listing of the percentage distribution of the tax revenue items alone, is shown in Table 2.9. Tax revenues vary from 70 to 80 percent of all revenues and grants under the new IMF classification system. Customs pool revenues make up 30 to 35 percent of all revenues and grants, and 41 to 46 percent of total tax revenues. Mineral revenues are a close second although the recent diamond slump caused a drop in 1981-82 to 23.9 percent of total revenues and grants, from a level of 32.9 percent the preceding year. Non-tax revenues and grants have varied in their relative proportions of total revenues and grants but non-tax revenues are expected to exceed grants for the remainder of NDP V.

The narrow tax base of Botswana is indicated by the fact that over 80 percent of all taxes come from the mineral revenues and customs duties taxes. The non-mineral income tax is the only other significant contributor to tax revenues; this source has increased at the expense of mineral revenues in recent years. A longer term

TABLE 2.9

PERCENTAGE DISTRIBUTION OF REVENUE AND GRANT SOURCES
1979-80/1983-84

Source of Revenue or Grant	Proportion of Total Revenues and Grants					Proportion of Tax Revenues				
	1979-80	1980-81	1981-82	1982-83	1983-84	1979-80	1980-81	1981-82	1982-83	1983-84
(1) TAX REVENUES										
Mineral Revenues	30.7%	32.9%	23.9%	27.4%	28.6%	41.6%	41.4%	34.0%	36.6%	35.5%
Customs Pool Revenues	32.2	33.2	32.3	30.9	34.9	43.5	41.8	46.0	41.3	43.4
Non-Mineral Income Tax	9.8	12.5	12.9	14.5	14.8	13.2	15.7	18.3	19.4	18.4
Export Duties	.3	.2	.1	.2	.1	.3	.2	.2	.2	.1
Taxes on Property	.3	.1	.2	.1	-	.3	.1	.3	.1	.1
Taxes on Motor Vehicles	.4	.3	.4	.4	.3	.5	.5	.6	.5	.4
Business and Professional Licenses	.4	.3	.4	.3	.2	.5	.3	.5	.3	.3
Stamp Duties	-	-	-	-	-	-	-	-	-	-
General Sales Tax	-	-	-	1.1	1.5	-	-	-	1.5	1.8
Subtotal	74.0	79.5	70.2	74.8	80.4	99.9%	100.0%	99.9%	99.9%	100.0%
(2) NON-TAX REVENUES										
Interest	3.7	2.7	3.3	2.8	2.7					
Other Property Income	3.5	1.3	8.5	7.8	4.9					
Fees, Charges, Reimbursements	3.7	3.6	4.5	3.4	3.3					
Sales of Fixed Assets and Land	.3	.6	1.1	.5	.5					
Subtotal	11.2	8.2	17.5	14.8	11.4					
(3) GRANTS										
Recurrent	1.1	.7	.4	.8	.3					
Development	13.7	11.6	11.9	9.6	7.9					
Subtotal	14.8	12.3	12.3	10.4	8.2					
Total	100.0%	100.0%	100.0%	100.0%	100.0%					

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums due to rounding.

prospect is for this item to average approximately 15 percent of total tax revenues. The new sales tax is not yet a major contributor to the revenue total from taxation but may be expected to make relative as well as absolute increases in the next few years.

Of special interest in a nation such as Botswana is the source of development fund revenues. Table 2.10 provides detail on fund revenue by foreign and domestic sources and by the forms of support. For 1983-84, a total of P111.6 million is expected to be financed. Of this, 58.3 percent will be foreign financed with 20.7 percent from grants and 37.6 percent from loans. Over two-thirds of the grant funds will come from bilateral sources while over three-quarters of the loan funds will be from multilateral sources. At the present time P94.5 million of the planned development budget is unfinanced. This represents 45.85 percent of the total and an amount equal to 84.67 percent of the secured financing. Ironically, Botswana's past developmental successes have reduced the nation's eligibility for certain forms of foreign financing at the same time that the decline in mineral resource prices has reduced Botswana's own ability to fund development activities from domestic sources.

Recurrent and development expenditures, by activity, are summarized in Table 2.11 for the first five fiscal years of NDP V. The figures are presented in terms of millions of pula expended and as percentage distributions of the recurrent and development expenditure totals.

TABLE 2.10

ESTIMATED DEVELOPMENT FUND REVENUE, BY SOURCE
1983-84
(Thousand Pula)

Sources	Amount	Percentage of Total Financing
FOREIGN		
Bilateral Grants	16,439.0	14.7 %
Multilateral Grants	6,437.6	5.8
Other Grants	230.0	.2
Total Foreign Grants	23,106.6	20.7
Bilateral Loans	9,966.0	8.9
Multilateral Loans	31,987.0	28.7
Other Loans	-	-
Total Foreign Loans	41,953.0	37.6
TOTAL FOREIGN FINANCING	65,059.6	58.3
DOMESTIC		
Domestic Development Fund	46,578.4	41.7
Bond Issue	-	-
TOTAL DOMESTIC FINANCING	46,578.4	41.7
TOTAL FINANCING	111,638.0	100.0%
UNFINANCED BALANCE	94,528.0	
TOTAL BUDGET	206,166.0	

Source: Financial Statements, Tables and Estimates of Consolidated and Development Fund Revenues, 1983-84.

TABLE 2.11

RECURRENT AND DEVELOPMENT EXPENDITURE, BY ACTIVITY
1979-80/1983-84
(Current Prices, Million Pula)

Activity	Recurrent					Development				
	1979-80	1980-81	1981-82	1982-83	1983-84	1979-80	1980-81	1981-82	1982-83	1983-84
I. AMOUNTS										
General Public Service	39.51	50.39	56.93	68.53	87.31	6.57	5.59	7.05	7.54	14.30
Defence	7.44	11.89	14.48	16.28	16.61	14.45	13.76	11.69	6.56	12.70
Education	28.16	37.71	43.60	50.25	58.99	16.08	20.37	19.90	19.19	23.69
Health	7.61	10.11	12.33	13.92	16.47	1.81	3.99	5.52	3.68	5.32
Food and Social Welfare	.32	.55	.57	5.01	1.61	1.73	1.30	.25	5.05	1.27
Housing, Urban and Regional Development	4.94	6.34	7.80	9.87	11.20	8.50	13.06	12.52	25.86	22.91
Other Community and Social Services	1.75	2.48	2.93	3.44	4.51	.84	1.19	2.18	2.05	3.08
Economic Services	21.56	30.37	33.81	39.61	49.45	48.30	62.07	61.99	95.07	87.65
Unallocated Expenditures	10.68	16.97	24.82	32.31	39.08	-	.11	.15	-	1.08
Total	121.98	166.81	197.27	239.22	285.23	98.28	121.44	121.25	165.00	172.00
II. PROPORTION OF TOTAL										
General Public Service	32.4%	30.2%	28.9%	28.6%	30.6%	6.7%	4.6%	5.8%	4.6%	8.3%
Defence	6.1	7.1	7.3	6.8	5.8	14.7	11.3	9.6	4.0	7.4
Education	23.1	22.6	22.1	21.0	20.7	16.4	16.8	16.4	11.6	13.8
Health	6.2	6.1	6.3	5.8	5.8	1.8	3.3	4.6	2.2	3.1
Food and Social Welfare	.3	.3	.3	2.1	.6	1.8	1.1	.2	3.1	.7
Housing, Urban and Regional Development	4.0	3.8	4.0	4.1	3.9	8.6	10.8	10.3	15.7	13.3
Other Community and Social Services	1.4	1.5	1.5	1.4	1.6	.9	1.0	1.8	1.2	1.8
Economic Services	17.7	18.2	17.1	16.6	17.3	49.1	51.1	51.1	57.6	51.0
Unallocated Expenditures	8.8	10.2	12.6	13.5	13.7	-	.1	.1	-	.6
Total	100.0%	100.0%	100.1%	99.9%	100.0%	100.0%	100.1%	99.9%	100.0%	100.0%

Source: Financial Statements, Tables and Estimates of Consolidated and Development Fund Revenues, 1983-84

Note: Totals may not equal sums due to rounding.

The recurrent budget is dominated by the categories of general public service, education, and economic services. The general public service item is divided into general administration (legislative, foreign affairs, financial adminstration, etc.) and public order and safety (courts, police, and prisons). The education item is described later in this discussion but it should be noted here that it is not restricted to Ministry of Education activities. The economic services item is a diverse one and includes the following subitems:

- General adminstration, regulation, and technical services
- Agriculture, forestry, and farming
- Mining
- Electricity and water supply
- Roads
- Air transport
- Posts and telecommunications
- Other transport
- Promotion of commerce and industry
- Storage

The largest of these subitems in expenditure is the agriculture et al. category, followed by electricity/water supply and roads. A rapidly increasing item (from P1.32 million in 1979-80 to P24.74 million in 1983-84) is promotion of commerce and industry.

In the development budget, economic services make up over one-half of total expenditure for every year but 1979-80. This reflects the focus of government on job creation in the modern sector and the drought relief and other agricultural support activities in NDP V. The education development expenditures rise from P16.08 million to P20.37 million in the first two years but then undergo an absolute as well as relative decline. The 1983-84 estimates project

an improvement in development expenditures on education, but the effects of inflation will mean that the purchasing power of this allocation probably will be below that for 1980-81. The major increases in development expenditure proportions will occur in health, housing, and other community and social services. The decline in food and social welfare assistance from P5.05 million in 1982-83 to P1.27 million in 1983-84 is based on an assumed end to the current drought conditions.

The recurrent expenditure budget for the lead EHR agency, the Ministry of Education (MOE), is presented in Table 2.12 for the period 1981-82 to 1983-84 for individual activities and departments within the Ministry. As one would expect, the salaries of teachers (99.2% of the total of the unified teaching service item) dominate. More surprising is that the proportion of the total MOE budget represented by this item declines from 59.2 percent to 56.0 percent over the three years shown.

Other notable patterns in Table 2.12 are the large size of the headquarters budget and the relative expenditure levels of the primary education department and the secondary education department. The explanation for the large headquarters budget (P5.9 million in 1983-84) is the inclusion of the University of Botswana subsidy (P5.6 million). For 1983-84 this one item represents 94.9 percent of the headquarters budget. Excluding this item, headquarters expenditures for that year are budgeted at P327,480 (0.6% of the total MOE budget).

TABLE 2.12

MINISTRY OF EDUCATION RECURRENT EXPENDITURE BUDGET
1981-82/1983-84
(Current Price, Thousand Pula)

Activity/Department	1981-82 (Actual Expenditure)		1982-83 (Authorized Expenditure)		1983-84 (Estimated Expenditure)	
	Amount	Percent	Amount	Percent	Amount	Percent
Headquarters	5,175.4	12.6%	6,238.0	12.3%	5,913.0	10.8%
Department of Technical Education	1,527.5	3.7	2,177.6	4.3	2,351.1	4.3
Bursaries	3,326.0	8.1	5,011.1	9.9	6,469.3	11.8
Department of Non-Formal Education	459.2	1.1	590.9	1.2	658.6	1.2
Department of Curriculum Development and Evaluation	375.6	.9	752.4	1.5	825.2	1.5
Department of the Unified Teaching Service	24,229.3	59.2	28,769.6	56.9	30,646.1	56.0
Department of Primary Education	405.7	1.0	575.6	1.1	692.0	1.3
Department of Secondary Education	4,512.3	11.0	5,539.3	11.0	6,182.9	11.3
Department of Teacher Training	947.5	2.3	926.6	1.8	1,001.9	1.8
Total	40,958.4	99.9%	50,580.9	100.0%	54,740.0	100.0%

Source: Financial Statements, Tables and Estimates of Consolidated and Development Fund Revenues, 1983-84.

Note: Totals may not equal sums due to rounding.

The fact that the secondary education department budget is more than nine times the size of the primary department budget has a similarly logical explanation. First, food expenses at secondary boarding schools are budgeted at P1.4 to P1.6 million depending on the year. The food item for primary schools is only P17,000 to P19,000. In addition, the secondary education budget includes funds for grants to government-aided schools and private schools. For 1983-84 the estimated expenditure on these two types of school is P1,212,320 and P140,000, respectively. The remainder of the difference in the two departmental budgets is made up in salaries and allowances, general expenses, and equipment and supplies.

For the three years listed (1981-82/1983-84), the MOE budget as a percent of the total government recurrent budget is 20.5 percent, 21.1 percent, and 19.2 percent, respectively. The MOE budget as a percent of national GDP for the three years is 4.8 percent, 4.8 percent, and 4.3 percent. The latter figures are not exact because of the difference between the fiscal year (April-March) and the national accounts year (July-June).

The detailed NDP V project list in the Ministry of Education is shown in Table 2.13. The actual expenditure levels for 1979-80 to 1981-82, as well as the anticipated expenditures from 1982-83 to 1984-85, are presented for each project. The data are taken from the 1982 Project Review and include revised estimates of total project costs during NDP V and current projections of the expenditure amounts that will be left over to NDP VI.

TABLE 2.13

MINISTRY OF EDUCATION DEVELOPMENT EXPENDITURE BUDGET
(Current Price, Pula)

Department/Project	Expenditure						Total Estimated Cost	Amount Left To NDP VI
	Actual			Anticiptated				
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85		
HEADQUARTERS								
Drought Relief (School Fees)	245,168	176,549	357,108	31,175	-	-	810,000	-
Institute of Development Management	-	21,442	202,303	17,255	-	49,000	290,000	-
Education Evaluation	-	-	-	8,300	16,000	16,000	40,300	-
Regional Testing Center	2,070	2,017	525	240	-	-	4,852	-
Restoration of Essential Services	-	-	-	100,000	250,000	250,000	600,000	574,000
University of Botswana	1,424,803	2,197,366	1,981,506	1,478,325	1,488,000	2,350,000	10,920,000	4,293,000
Secondary Schools & Brigades Equipment	-	339,553	-	140,447	200,000	500,000	1,180,000	-
Boipelego Education Project Unit	118,711	83,484	106,972	175,833	200,000	225,000	910,000	426,300
TOTAL HEADQUARTERS	1,790,752	2,820,411	2,648,414	1,951,575	2,154,000	3,390,000	14,755,152	5,293,300
TECHNICAL EDUCATION								
Brigades	386,380	673,766	365,244	114,610	750,000	750,000	3,040,000	3,035,000
Botswana Polytechnic	53,210	20,562	990,338	1,518,889	500,000	57,000	3,140,000	-
Automotive Trades Training School	-	201,635	890,981	427,384	456,000	200,000	2,176,000	-
TOTAL DEPT. OF TECHNICAL EDUCATION	439,590	895,964	2,246,563	2,060,883	1,706,000	1,007,000	8,356,000	3,035,000
NON-FORMAL EDUCATION								
National Literacy Project	-	168,095	609,929	908,976	1,122,000	1,283,000	4,092,000	1,451,000
Non-Formal Education	115,522	10,602	19,996	32,880	50,000	180,000	409,000	-
TOTAL DEPT. OF NON-FORMAL EDUCATION	115,522	178,697	629,925	941,856	1,172,000	1,463,000	4,501,000	1,451,000
DEPARTMENT OF CURRICULUM DEVELOPMENT AND EVALUATION								
Curriculum Development & Evaluation	-	-	-	50,000	250,000	500,000	800,000	200,000
Schools Broadcasting Unit	-	-	-	125,000	300,000	400,000	825,000	125,000
Teaching Aids Production Unit	-	-	-	210,000	515,000	363,000	1,088,000	-
TOTAL DEPT. OF CURRICULUM DEVELOPMENT AND EVALUATION	-	-	-	385,000	1,065,000	1,263,000	2,713,000	325,000
DEPARTMENT OF PRIMARY EDUCATION								
English Medium Primary School Gaborone	103,221	9,466	190	123	-	-	113,000	37,000
TOTAL DEPT. OF PRIMARY EDUCATION	103,221	9,466	190	123	-	-	113,000	37,000

(Continued)

TABLE 2.13 (Continued)

Department/Project	Expenditure						Total Estimated Cost	Amount Left To NDP VI
	Actual			Anticiptated				
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85		
DEPARTMENT OF SECONDARY EDUCATION								
Mater Spei College	137,011	446,014	62,147	10,828	-	-	656,000	27,000
Swaneng Hill School	91,659	69,923	33,845	61,573	59,000	-	316,000	23,000
Moeding College	-	-	-	-	-	-	-	175,000
Kgari Sechele Secondary School	-	9,639	-	25,361	200,000	481,000	716,000	79,000
Molefi Secondary School	-	1,895	-	23,105	20,000	130,000	175,000	510,000
Seepapitso Secondary School	9,000	5,476	9,076	127,448	449,000	400,000	1,000,000	-
Practical Subjects/Secondary Schools	-	5	71,156	65,839	41,000	21,000	199,000	553,000
Hostels for Secondary Schools	-	-	-	-	-	-	-	984,000
Self Help Secondary Schools	-	-	381,380	2,844,620	2,837,000	3,437,000	9,500,000	-
Government Secondary Schools Expansion	-	-	-	-	250,000	500,000	750,000	4,859,000
Shashe River School	96,946	598,648	124,270	51,136	20,000	-	891,000	45,000
Lobatse Secondary School	12,319	11,863	120	156,698	848,000	372,000	1,401,000	-
Moeng College	52,449	27,598	87,417	769,536	1,134,000	433,000	2,504,000	271,000
Maun Secondary School	69,713	-	-	287	50,000	300,000	420,000	900,000
Tutume Community College	302,549	311,082	160,086	33,283	25,000	-	832,000	99,000
Selebi-Phikwe Secondary School	5,572	3,444	40,363	621	25,000	-	75,000	980,000
Naledi Secondary School	6,464	2,315	-	12,221	50,000	300,000	371,000	222,000
New Secondary School, Francistown	11,627	5,229	-	11,144	52,000	52,000	132,000	-
Letlhakane Secondary School	494,394	178,760	21,952	90,894	-	-	786,000	-
Matsha Community College	488,962	2,764,936	1,938,611	297,491	70,000	-	5,560,000	1,295,394
Madiba Secondary School	-	15,212	118,952	251,836	700,000	750,000	1,836,000	1,154,000
Ramotswa Kagiso Secondary School	23,880	7,456	-	16,664	-	-	48,000	109,000
Matshekge Hill Secondary School	362,239	9,917	45,744	42,100	50,000	300,000	810,000	669,000
St. Joseph's College	427,623	780,094	48,431	81,852	48,000	-	1,386,000	95,000
Gaborone Secondary School	-	-	-	27,000	50,000	97,000	174,000	50,000
Moshupa Secondary School	1,413,915	514,973	12,797	40,315	150,000	-	2,032,000	153,000
Palapye Secondary School	1,849,473	555,976	99,669	32,882	150,000	-	2,688,000	202,000
TOTAL DEPT. OF SECONDARY EDUCATION	5,855,795	6,220,455	3,256,016	5,074,734	7,278,000	7,573,000	35,263,000	13,464,394
DEPARTMENT OF TEACHER TRAINING								
Junior Secondary TTC	-	-	83,462	371,538	2,500,000	4,345,000	7,300,000	1,600,000
Primary TTC	-	-	-	350,000	2,500,000	2,300,000	5,150,000	850,000
Education Centers	-	-	-	25,000	250,000	400,000	675,000	2,075,000
Francistown TTC	393,412	182,078	20,360	89,150	-	-	685,000	28,000
Lobatse TTC	513,206	319,501	25,431	161,862	-	-	1,020,000	-
Serowe TTC	435,049	702,938	226,058	90,955	-	-	1,455,000	40,000
Agricultural TTC	-	-	-	-	75,000	400,000	475,000	854,000
TOTAL TEACHER TRAINING	1,341,667	1,204,517	355,311	1,088,505	5,325,000	7,445,000	16,760,000	5,447,000
TOTAL MINISTRY OF EDUCATION	9,646,547	11,329,510	9,136,419	11,502,676	18,700,000	22,141,000	82,456,152	29,052,694

Source: Ministry of Education, Development Expenditure Budget

The total estimated cost of MOE projects in NDP V is P82.5 million; an additional P29.1 million will not be expended during the Plan period. Expenditures for the first three years of NDP V totaled over P30 million; the expenditure levels for the last three years will be in excess of P52 million unless further reductions occur. In the first three years of NDP V, the MOE has spent 81.0 percent, 74.0 percent, and 71.0 percent, respectively, of its provision. For the same three years, the percentage of expenditure which came from foreign donors was 86.0 percent, 73.0 percent, and 47.0 percent, respectively. Increased reliance on domestic funds may be related to the declining expenditure efficiency of the MOE but there are a variety of other technical and bureaucratic reasons as well.

The total cost of MOE projects (including the balance left to NDP VI) is P111.5 million or 7.7 percent of the government total of P1,442.8 million. For the first three years of the Plan, MOE expenditures equaled 8.8 percent of the total actual expenditures or slightly more than their overall proportion. This rate will drop to 7.9 percent for the last half of NDP V and the MOE proportion of funds left to NDP VI will be 6.6 percent.

Within the Ministry of Education project budget, the departmental proportions of total estimated cost for the full NDP V period are as follows:

Headquarters	17.9%
Technical education	10.1
Non-formal education	5.5
Curriculum development and evaluation	3.3

Primary education	.1
Secondary education	42.8
Teacher training	20.3

Once again, the major part of the headquarters budget is for the University of Botswana, with P10.9 million of the total headquarters estimated cost of 14.8 million allocated to this single project.

The MOE program is dominated by the secondary school department; the main expenditure is for construction of new secondary schools. These projects are in line with government's long-term plans to provide universal access through Form II and to increase the number of Form V graduates to meet manpower demand. Primary education receives little direct project funding but P5.2 million in the teacher training provision is for the preparation of primary school teachers. Some primary education projects appear in the MLGL budget.

Both nonformal and technical education will receive more emphasis in the latter half of NDP V than they have to date. One should keep in mind, however, that all figures in Table 2.13 are in current prices; thus expenditure in the early years had a purchasing power which is a multiple of the planned expenditures for 1982-83 to 1984-85.

2.3 ANALYSIS OF BOTSWANA FISCAL CAPACITY

2.3.1 Projections of Economic Growth

The projected GDP, in current purchasing power, for 1983-84 to 1987-88 is shown in Table 2.14. All projections are based on

TABLE 2.14

PROJECTIONS OF BOTSWANA GROSS DOMESTIC PRODUCT, BY SECTOR
1983-84/1987-88
(Current Prices, Million Pula)

Sector	1983-84	1984-85	1985-86	1986-87	1987-88
Agriculture	141	158	176	215	240
Mining	284	363	500	602	638
Manufacturing	92	111	133	145	177
Water and Electricity	56	67	83	101	124
Construction	64	75	101	125	162
Trade	319	373	448	533	642
Transport	28	32	38	45	53
Financial Services	65	77	93	111	134
Social and Personal Services	47	55	65	77	91
General Government	183	212	246	284	330
Total GDP	1,280	1,522	1,884	2,236	2,591
Percentage Growth	23%	19%	24%	19%	16%
GDP in 1979-80 Prices	803	868	977	1,054	1,110
Percentage Growth	12%	8%	13%	8%	5%

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums due to rounding.

parameters of the MEMBOT model. An annual inflation rate of 10 percent is assumed for the period shown, as are the following annual growth rates by sector:

Agriculture	5.5%
Mining	6.0
Manufacturing	8.5
Water and Electricity	12.2
Construction	11.1
Trade and Hotels	8.8
Transport and Communication	6.6
Financial Services	9.4
Other Services	7.5
Local Government	7.9
Central Government	4.4
Total Government	7.5%

The limitations on the MEMBOT model and detail on individual sector projections may be found in "The Midterm Review of NDP V" (Draft) by the Ministry of Finance and Development Planning.

2.3.2 Projections of Government Budget

The projections of the Central Government fiscal operations from 1983-84 to 1987-88 are presented in Table 2.15. Both customs revenue and mineral revenue are expected to grow rapidly over this period, from P158 million to P284 million for customs revenue and from P169 million to P405 million for mineral revenue. The other revenue sources will less than double over the projection period and will decline as a share of total revenue, from 25.1 percent to 23.3 percent.

The fastest growing item of government recurrent expenditure will be the Financial Assistance Policy (FAP) and related activities. This

TABLE 2.15

CENTRAL GOVERNMENT FISCAL OPERATIONS
1983-84/1987-88
(Current Prices, Million Pula)

ITEM	1983-84	1984-85	1985-86	1986-87	1987-88
(A) Revenues and Grants					
Customs Revenue	158	175	222	266	284
Mineral Revenue	167	242	236	290	405
Increase in Income Tax Due to Salary Award	3	5	4	5	6
Other Revenue	133	144	173	199	231
Grants	50	51	55	61	67
Total Revenue	512	617	690	821	993
(B) Expenditures and Net Lending					
Recurrent Expenditures					
Personal Emoluments	110	130	154	181	214
Other Charges	134	157	180	210	245
Salary Award Effect	9	15	13	15	18
FAP, LIEF, LADG/UADG	29	40	47	55	64
Subtotal	282	342	394	462	541
Development Expenditures	201	224	201	275	303
Net Lending to Parastatals and Jwaneng Equity	60	57	69	83	101
Total Expenditures and Net Lending	543	623	664	821	945
(C) Budget Surpluses (+) or Deficits (-)	-31	-6	+26	+1	+48

Source: Ministry of Finance and Development Planning

reflects government's emphasis on strengthening private sector activities in agriculture and throughout the modern sector.

2.3.3 Projections of Education Expenditures

The most recent estimates of Central Government expenditures on education are presented in Table 2.16 by major level and type. Headquarters expenditures have been allocated to individual levels and types and post-secondary education is excluded. The direct subsidy of the University of Botswana would equal P6 to P7 million per year for this period. The bursaries (scholarships) item excludes secondary bursaries (which are included under secondary education) but includes all post-secondary bursaries. The primary education estimate includes costs which are borne by the Ministry of Local Government and Lands.

Primary education expenditures dominate over the period shown but are increasing at a significantly lower rate than are those for secondary education. Over the 1983-84 to 1987-88 period, the primary education recurrent cost will increase from P26.75 million to P34.90 million (+30.5%), while secondary education recurrent cost will increase from P13.52 million to P25.17 million (+86.2%). Another program undergoing substantial increase is technical training, which will increase from P2.44 million to P8.65 million (+254.5%) by 1987-88.

2.3.4 Botswana Fiscal Capacity for EHR Expansion

The economic judgment of a nation's fiscal capacity is based on its aggregate growth expectations, revenue, and expenditure patterns, and its

TABLE 2.16

EDUCATIONAL RECURRENT COSTS, BY TYPE
1983-84/1987-88
(1982-83 Costs, Million Pula)

Item	1983-84	1984-85	1985-86	1986-87	1987-88
I. LEVEL OF EXPENDITURE					
Primary Education	26.75	28.21	31.66	33.24	34.90
Secondary Education	13.52	15.05	17.72	21.12	25.17
Teacher Training	1.55	1.66	1.71	2.34	3.20
Technical Training	2.44	3.24	5.10	7.05	8.65
Bursaries	9.35	10.61	12.05	13.67	15.51
Nonformal Education	.63	.74	.87	1.03	1.22
Total	54.24	59.51	69.11	78.45	88.65
II. PROPORTION OF TOTAL EXPENDITURE					
Primary Education	49.3%	47.4%	45.8%	42.4%	39.4%
Secondary Education	24.9	25.3	25.6	26.9	28.4
Teacher Training	2.9	2.8	2.5	3.0	3.6
Technical Training	4.5	5.4	7.4	9.0	9.8
Bursaries	17.2	17.8	17.4	17.4	17.5
Nonformal Education	1.2	1.2	1.3	1.3	1.4
Total	100.0%	99.9%	100.0%	100.0%	100.1%

Source: Ministry of Education

ability to service its internal and external debt. As reviewed above, the continued strong growth of GDP in Botswana will provide some increased absorptive capacity through the end of this decade. This capacity will be necessary to deal with the increased recurrent expenditure from existing government activities and the new recurrent activities that will result from the completion of development projects in NDP V and the early years of NDP VI.

In Table 2.17, the recurrent government expenditures on education are compared with those for all other activities and for total government operations. The last item is exclusive of FAP and Local and Urban Authority Deficit Grants (LADG/UADG). The education costs (for the Ministries of Education, Local Government and Lands, and Home Affairs) include the normal expansion of the existing system plus the effects of introducing the revised access plan for junior secondary education. Over the five years shown, the education proportion of total government costs is projected to increase from 23.6 percent to 29.6 percent.

By the end of 1987-88 the education budget will be subject to an annual growth rate of 13 percent as compared to 6.1 percent for all other government expenditures. Given that the overall growth rate for the Central Government will be only 7.9 percent, Botswana faces the need to either control education costs by the end of the decade or accept an increasing proportion of government funds to be expended in this way.

TABLE 2.17

EXPENDITURE PROJECTIONS, EDUCATION AND TOTAL GOVERNMENT
1983-84/1987-88
(1982-83 Prices, Million Pula)

Item	1983-84	1984-85	1985-86	1986-87	1987-88
Education	54.24	59.51	69.11	78.45	88.65
All Other Government	175.88	190.02	191.51	199.39	211.14
Total Government	230.12	249.53	260.62	277.84	299.79
Education/Total Government	23.6%	23.8%	26.5%	28.2%	29.6%

Source: Ministry of Education and Ministry of Finance and Development Planning

A recent appraisal of the recurrent cost impacts of the secondary education expansion notes that:

> Given that there are a number of other high priority activities in the recurrent budget, the squeeze on the rest of the recurrent budget (because of the education increases) will be considerable, even without the additional resources that will be required for a faster expansion of technical education than is now on the drawing board.

A point made in the section reviewing the economy should be repeated here. The challenge to government is to finance education and other human resource activities in such a manner that present manpower constraints and bottlenecks are met without creating new problems of manpower surpluses and redundant educational programs. These issues will be dealt with in more detail in the external efficiency sections of the later subsector discussions.

Of equal importance will be the internal efficiency issues. Satisfaction of Botswana's social and economic needs will depend on what is done with EHR funds, not just on how much funding is provided. Better data on educational demand, and especially more extensive data on specific technical and vocational skill needs, are necessary before optimum internal allocations of the education and training budget can be made.

The situation of Botswana's medium- and long-term external debt, as well as the level of public debt interest, is summarized in Table 2.18. Data are as of March 31 of the calendar years of 1980 to 1984 (interest is for the fiscal year ending in the given calendar year). Neither the absolute level of debt nor the public debt interest level

TABLE 2.18

MEDIUM- AND LONG-TERM OUTSTANDING DEBT
1980-1984
(Million Pula)

ITEM	1980	1981	1982	1983	1984
LOANS FROM GOVERNMENTS					
United Kingdom	.1	-	-	-	-
Canada	-	-	-	-	-
United States	19.9	19.8	24.9	25.0	25.0
Sweden	-	-	-	-	-
Denmark	2.2	3.2	3.4	4.0	4.0
Arab States	4.5	4.2	5.9	9.0	13.0
Germany	-	-	-	-	-
Total Loans from Governments	26.7	27.2	34.2	38.0	42.0
LOANS FROM ORGANIZATIONS					
International Development Association	12.4	12.2	15.0	15.0	15.0
International Bank for Reconstruction and Development	39.2	45.9	67.2	72.0	76.0
United Nations Development Programme	.4	.3	.3	.3	.3
African Development Fund/Bank	6.7	8.9	9.0	12.0	15.0
OPEC Special Fund	.7	2.3	3.3	3.7	4.0
Commercial Bankers	-	-	-	31.0	24.0
Commonwealth Development Corp.	-	-	-	.1	.1
European Investment Bank	-	.1	1.6	2.0	2.0
Total Loans from Organizations	59.4	69.7	96.4	136.1	136.4
BOTSWANA GOVERNMENT REGISTERED BONDS	1.9	1.9	1.9	1.9	1.9
SUPPLIERS CREDITS AND OTHER LOANS	.1	-	-	-	-
TOTAL	88.1	98.8	132.5	176.0	180.3
INTEREST ON PUBLIC DEBT	4.96	4.96	5.44	12.96	17.14

Source: Ministry of Finance and Development Planning

is excessive for a nation of Botswana's resources and GDP expectations. However, continued conservatism in debt incurrence will be essential if debt servicing is not to pose a future problem to government budgeting.

Payment of interest and repayment of external loans is projected to rise from a 1982-83 level of P12 million to P169 million in 1989-90. A major proportion of this obligation will be paid by parastatals whose debt obligations have been guaranteed by the Central Government. Still, the effect of debt servicing in the 1990s will be burdensome unless fiscal moderation is maintained over the remainder of this decade. As always, the challenge is to meet society's legitimate demands as quickly and as equitably as possible without jeopardizing the underlying strength of government's fiscal structure or of the economy generally.

The implications of this fiscal analysis for the EHR sector are that aggregate growth will be dominated by the funding of the expansion of secondary education and the smaller but equally important improvements in technical training and higher education. Over the next five to ten years the emphasis will be on improved internal efficiency in use of funds and a careful selection of new initiatives.

The secondary system will have to be especially concerned about excessive tradeoffs between quantity gains and quality losses. The training system will have to look toward the private sector both for greater direction and coordination and for financial support for

expanded post-Junior Certificate and post-secondary training. The Education and Home Affairs Ministries will want to examine the option of subsidizing training by private sector firms as an alternative to the costly development and recurrent budget burdens of institutionalized government-financed programs.

Fiscal issues will remain a constraint on EHR development through the 1980s, but the present system suffers more from questions of quality and appropriateness than from questions of aggregate access. Government attention should be directed to the topic of access and retention equity by gender, by region, and by rural-urban dimensions. Fiscal constraints are real but not so severe as to prevent Botswana from making substantial progress in the EHR sector by 1990.

2.4 MANPOWER DEMAND AND SUPPLY

2.4.1 Introduction

The discussion of the present and projected labor market conditions is divided into four parts. Initially, the employment detail from 1981 is reviewed as a basis for analyzing the later projections. The second part analyzes the expected change in manpower demand and supply from 1983 to 1989. Parts three and four are concerned with two special topics regarding manpower imbalances: the demand and supply of teachers, and the employment "localization" strategy. The issue of management shortages and their effects upon the ongoing and development programs of government and the private sector is covered in the next chapter of the assessment.

Before proceeding to a review of the data, comment should be made on the methodology of manpower demand and supply projections and the assumptions that underlie the analysis. In projecting manpower demand by educational qualifications, the first step is to analyze the existing employment structure in each sector in terms of the educational distribution of workers. Sectoral GDP projections are made and converted into employment demand via GDP/employment coefficients. These coefficients indicate the expected percentage change in sectoral employment from a one percent change in sectoral GDP. The coefficients can be simply projections of past ratios or can incorporate information on future changes in the labor intensity of production, supply of personnel, and so forth.

Once sectoral employment demand has been computed, it may be converted into demand by educational level by means of an assumed sectoral education distribution. Again, this distribution can be a projection of past patterns or incorporate forecasted changes in aggregate educational supply and demand. Alternatively, sectoral growth may be related to a change in the occupational distribution. The latter is then converted into demand by educational level through use of occupation/education coefficients.

The individual sectoral employment levels for the future year are summed and then the totals are adjusted to reflect the original supply of workers by education credential. Adjustments are made for mortality, retirement, and migration.

The supply of workers by educational credential in a future year is derived by tracking the numbers of school leavers, by level, over the time span. These school leavers may be presented with or without further post-school training although the latter is preferable. Adjustments are made in the total supply to account for the net accumulation of school leavers at various levels between the present and the future year. Supply and demand imbalances may be stated as a flow statistic (new graduates versus new demand), but are more properly considered in terms of the total stock of demand and supply at a point in time.

Manpower analysis has an inherently conservative bias in that the coefficients and distributional patterns used are based on current patterns of technological use, efficiency, and labor utilization. A change in any one of these three variables can result in a significant error between forecasted and realized levels of employment. This is why forecasts are primarily of indicative value for planning and should be recalculated frequently. The manpower analysis activity of government has been especially careful in this regard.

A constraining assumption of traditional manpower analysis has been the assumption of a rigid relationship between job demand and educational qualification. Two problems result from this assumption. First, the ability of the market to adapt school leavers to job demands is underestimated. Less educated workers can be upgraded through formal or informal training and more educated workers can lower their job aspirations and accept lower-skilled jobs.

The second problem with the assumption is the underlying belief that educational quality by level remains constant. In many systems the education-job match changes not because of educational quantity inflation but because of quality deterioration. Especially when systems are expanded rapidly, the employer may have to demand a JC graduate to obtain the same skill levels that were once obtained from a Standard 7 graduate. The secondary expansion now proposed for Botswana may have the effect of changing the employment value of the Junior Certificate because of both quantity and quality dimensions.

In the discussion that follows, the assumption is made that the planning of the education system should be assessed in terms of employment demand. Obviously, other social, political, and economic criteria exist for evaluating educational policy and practice. Many of these will be discussed in the internal and external efficiency sections in the subsector chapters. However, for education in Botswana in the 1980s, the manpower effects are equaled only by the fiscal implications in terms of importance. As one of the four objectives of education in NDP V, government expects education "to contribute to the balanced economic development of Botswana by seeking to satisfy manpower requirements of all sectors, emphasizing particularly the needs of rural development and employment generation."

2.4.2 Education and Employment, 1981

The occupational distribution of the formal sector of the economy for 1981 is presented in Table 2.19. Of 97,100 workers employed, 33,900 (34.9%) were employed in general government and education. The two next largest areas of formal sector employment were in trade and hotels with 15,300 workers (15.8%) and construction with 15,200 workers (15.7%). The leading growth areas in terms of employment over the previous decade were construction (21.1% per year), banking, insurance, and business services (13.7%), and manufacturing (10.7%). It is interesting to note the relatively low employment in the mining sector (7,350 workers, 7.8%), considering its importance to GDP and foreign reserves generation. This is due, in part, to the 800-plus workers who contribute to the mining sector but are classified into other sectors. The growth rate differentials among sectors indicate that the economy of Botswana is changing in composition almost as rapidly as it has grown in aggregate size.

The second part of Table 2.19 indicates why this change in sectoral composition is important. The employment sectors vary significantly in their occupational distributions. Government is divided into its component parts of education, central government, local government, and industrial class workers. The higher skill occupations (professional and technical workers and management/ administration) are much more important for government than for the private formal sector. Only the banking, insurance, and business

TABLE 2.19

FORMAL SECTOR OCCUPATION DISTRIBUTION, BY NUMBER, PERCENT, AND GROWTH RATE
1981

SECTOR	FORMAL SECTOR EMPLOYMENT			OCCUPATION DISTRIBUTION				
	NUMBER	PERCENT	ANNUAL GROWTH RATE 1971-81	PROFESSIONAL TECHNICAL	MANAGEMENT ADMINISTR.	CLERICAL	SALES	OTHER
Agriculture (Freehold)	4,800	4.9%	1.1%	-	1%	1%	-	99%
Mining	7,350	7.6	7.8	5%	1	7	-	88
Manufacturing	6,400	6.6	10.7	2%	3	6	1%	89
Water & Electricity	1,600	1.6	n.a.	4%	2	11	-	83
Construction	15,200	15.7	21.1	3%	1	3	-	93
Trade, Hotels	15,300	15.8	7.6	1%	1	12	35	51
Transportation and Communications	3,900	4.0	9.0	3%	2	1	3	81
Banking, Insur. and Business Services	4,850	5.0	13.7	14%	5	33	1	47
Social and Personal Services	3,800	3.9	n.a.	28%	4	9	2	57
General Government and Education	33,900	34.9	8.6					
Education				88%	-	2	-	9
Central Government				24%	14	35	-	28
Local Government				19%	9	16	-	57
Industrial Class				3%	-	9	1	87
TOTAL EMPLOYMENT	97,100	100%	10.0%					

Source: Ministry of Finance and Development Planning

Note: Totals may not equal sums due to rounding.

n.a. = not available.

services category and the social and personal services category of the private sector have more than 10 percent of all employment in these top two occupational groups. Education is the main consumer of high-skilled workers with 88 percent of its employees in the professional/technical classification.

Estimates from the Ministry of Finance and Development Planning on the demand and supply of various educational levels in 1981 (excluding those with no schooling) are presented in Table 2.20. While there was a gross surplus of over 136,000 workers in 1981 relative to formal sector demand, shortages of workers existed at the Junior Certificate level and above. Almost 10,000 Junior Certificate holders, almost 4,000 Cambridge level graduates, and slightly more than 1,000 university and post-university degree holders were demanded but unavailable according to the 1981 estimates. These numbers may be slightly underestimated.* It is interesting to note that the unmet formal sector requirement for Cambridge and university degree holders or holders of higher level degrees (3,675 and 1,050, respectively, excluding current vacancies) is very close to the number of expatriates who were employed in Botswana in 1981. In that year, only 5 percent of the total number employed in the formal sector were

*In new (1984) calculations by the MFDP, the university degree population has been revised downward, thus increasing the shortage at this level.

TABLE 2.20

DEMAND AND SUPPLY OF MANPOWER, 1981,
BY EDUCATION

Educational Level	Demand	Supply	Balance
Standard 1-6	31,600	107,775	76,175 (Surplus)
Standard 7	31,450	105,975	74,525 (Surplus)
Junior Certificate	25,100	15,375	-9,725 (Shortage)
Cambridge	7,050	3,375	-3,675 (Shortage)
University Degree or Higher	1,950	900	-1,050 (Shortage)
Total	97,150	233,400	

Source: Ministry of Finance and Development Planning

expatriates but they were concentrated in the occupations with the highest educational requirements.

2.4.3 Education and Employment, 1983-1989

Government forecasting of manpower demand and supply for 1983-1989 followed the methodological patterns discussed above. Based on past employment survey data, total employment in an economic sector was projected via the GDP/employment coefficients (a three-year average was used in determining the coefficients). Sectoral GDP projections were derived from MEMBOT. The growth rate for GDP is forecast to decline to 6.6 percent through 1989. Total formal sector employment is projected at an annual rate of increase of 6.8 percent from 1983 to 1989. Educational qualifications were derived through the assumption of stable education/occupation and occupation/economic sector GDP coefficients.

The estimate of formal sector employment from 1983 to 1989, based on the MEMBOT forecast and the 1978-1981 based employment coefficients, is presented in Table 2.21. Central Government will maintain its prominent position in terms of formal sector employment even though it is projected to decline from 37.1 percent of the total to 34.4 percent. Manufacturing will make the greatest proportional gain: from 7,856 workers in 1983 (7.1%) to 13,912 in 1989 (8.3%).

The smallest changes in employment will occur in formal sector agriculture and mining. The former is projected to increase by only 1,253 jobs in the period shown, or only by 23.5 percent of the 1983

TABLE 2.21

PROJECTED EMPLOYMENT BY SECTOR
1983-1989

Sector	1983	1984	1985	1986	1987	1988	1989
Agriculture	5,328	5,516	5,704	6,079	6,268	6,393	6,581
Mining	8,113	8,438	8,710	8,655	8.411	8,493	8,927
Manufacturing	7,856	8,511	9,329	10,309	11,457	12,603	13,912
Water and Electricity	3,027	3,302	3,760	4,128	4,677	5,136	5,778
Construction	17,115	18,432	22,381	25,016	29,403	33,792	31,158
Trade	16,681	17,689	19,319	20,948	22,888	25,293	26,767
Transportation	3,433	3,624	4,005	4,196	4,387	4,768	5,150
Finance and Business Services	4,890	5,217	5,760	6,304	6,847	7,499	7,933
Social and Personal Services	2,778	2,952	3,212	3,387	3,646	3,994	4,254
General Government and Education	40,908	43,362	45,964	48,721	51,645	54,744	58,028
Total	110,129	117,043	128,144	137,743	149,629	162,715	168,488

Source: Ministry of Finance and Development Planning

level. Mining will grow even less with 814 new workers, or an increase of only 10.0 percent for the total six-year period. Overall, employment is forecast to grow from 110,129 in 1983 to 168,489 in 1989.

A detailed breakdown of the educational distribution by sector is presented for 1986 in Table 2.22. This particular year is selected because it falls at the midpoint of the forecasting period of 1983-1989. Table 2.22 is especially useful in that it divides educational qualifications by formal and formal-plus-post-school-training levels. In addition, it presents detail on informal as well as formal economic sector requirements. The informal sector data are preliminary estimates only, but they do help in presenting a more complete picture of the Botswana labor market.

The large proportions of less educationally qualified workers in the formal sector are as much a result of the shortage of more educated workers as they are a function of the existing production technology. With no change in aggregate demand and the nature of production, increases in educational supply will lead to an inevitable upgrading of the workforce in terms of educational attainment.

The formal private sector data in Table 2.22 reveal that the categories of Primary Plus Training and Secondary Plus Training are, in total, greater than the categories for primary and secondary education alone. The primary education category by itself is slightly larger than the demand for Primary Plus Training graduates. However, the number of jobs to be filled by JC and Cambridge leavers (4.6% and

TABLE 2.22

EDUCATIONAL DISTRIBUTION BY EMPLOYMENT SECTOR
1986

SECTOR	EDUCATION AND TRAINING									
	NO EDUCATION	NO EDUCATION & TRAINING	PRIMARY	PRIMARY & TRAINING	JUNIOR CERTIFICATE	CAMBRIDGE	SECONDARY & TRAINING	UNIVERSITY DEGREE +	TOTAL EMPLOYED	PERCENT OF GRAND TOTAL
Agriculture	73.5%	17.1%	4.9%	2.6%	.2%	-	1.6%	-	6,079	1.8%
Mining	30.7	16.8	6.6	21.2	2.1	2.2%	18.9	1.4%	8,655	2.5
Manufacturing	32.7	8.3	22.0	15.3	4.9	1.0	14.6	1.2	10,309	3.0
Water & Electricity	31.0	.2	19.3	10.5	4.5	1.7	32.5	.4	4,128	1.2
Construction	45.7	8.3	9.2	19.6	3.2	.4	13.3	.2	25,016	7.2
Trade/Hotels	30.7	2.1	31.0	15.0	8.0	1.6	11.2	.3	20,948	6.1
Transportation/ Communications	20.3	7.1	36.7	10.8	3.5	6.5	14.8	.4	4,196	1.2
Finance/Business Services	21.5	3.3	16.4	6.5	6.3	8.6	34.2	3.3	6,304	1.8
Social/Personal Services	24.9	3.4	16.4	17.0	4.8	1.6	25.1	6.9	3,387	1.0
Total Private Sector	36.7%	7.3	17.8	15.2	4.6	1.9	15.6	.9	89,022	25.8%
Local Government	20.5%	1.9	24.6	8.4	5.8	5.8	32.4	.7	8,385	2.4
Industrial Class Workers	62.4	-	-	30.9	-	-	6.3	-	14,784	4.3
Central Government	-	-	-	23.7	11.9	14.2	42.4	7.8	14,311	4.1
Education	-	-	-	-	-	-	95.3	4.7	11,241	3.3
Total Public Sector	22.5%	.3	4.2	17.8	4.5	5.2	42.0	3.5	48,721	14.1%
TOTAL FORMAL SECTOR	31.7%	4.8	13.0	16.1	4.6	3.0	24.9	1.8	137,743	39.9%
Traditional Agric.	82.6%	-	13.5	-	3.1	.6	-	.2	119,692	34.6
Self-Employment	35.3	-	58.5	-	6.2	-	-	-	37,213	10.8
Other Employment	95.2	-	4.8	-	-	-	-	-	50,866	14.7
TOTAL INFORMAL SECTOR	77.2%	-	19.4	-	2.9	.4	-	.1	207,771	60.1%
GRAND TOTAL	59.1%	1.9	16.9	6.4	3.5	1.4	9.9	.8	345,514	100.0%

Source: Based on data supplied by the Ministry of Finance and Development Planning

1.9%, respectively) is considerably less than the 15.6 percent of all private formal sector jobs that will require secondary education plus training.

In the public sector the same pattern is repeated but in even more dramatic fashion. The demand for primary school graduates is only 4.2 percent of the total; however, jobs for those with Primary Plus Training will make up 17.8 percent. At the secondary level, JC (4.5%) and Cambridge (5.2%) holders will be in demand, especially by Central Government, but not to nearly the same extent as secondary graduates with training (42.0% of all public sector employment). Demand for those with university degrees or more remains relatively low at 0.9 percent of all private sector and 3.5 percent of all public sector jobs. However, as will be shown later, low output rates will mean that there will still be a shortage of graduates at these levels.

Over 90 percent of all employment in the informal sector is at the level of primary education or less. Information is not available on this sector to give detail on education plus training. Except for self-employment, the informal sector will continue to be dominated by those with no primary education. For 1986, these workers are forecast to constitute 82.6 percent of all workers in informal agriculture and 95.2 percent of all workers in "other informal employment."

An interesting comparison may be made between the formal sector and grand total rows of figures. Because of the quantitative importance of the informal sector (60.1% of all employment), the

distribution by total educational requirement is skewed toward lower educational levels. This is an important point and directs attention to a crucial educational planning consideration. The vertical expansion of the educational system currently under way serves primarily the interest of the small but growing formal sector. Qualitative improvements in primary education and an increased approximation of universal access is relatively more supportive of the informal sector. This assumes, of course, that most forms of informal sector employment are assisted by knowledge of literacy and numeracy. This assumption has been supported by an increasingly large body of statistical work in developing nations.

For 1983 MEMBOT forecasted that government (including the education sector) will employ 35.4 percent of all formal sector workers and 14.1 percent of all workers in Botswana. For both fiscal and manpower reasons, it is important that the growth in public sector employment not be allowed to exceed that of the private sector. As to the latter, it may be seen from Table 2.22 that the public sector is a disproportionate user of high-level manpower. As Cambridge and University degree output increases, it will be important for government to control its own demand so that more of these workers may find their way to the parastatals and to private sector firms.

The educational flow forecast for the period 1983 to 1989 is presented in Table 2.23. It should be noted that the Form III level

TABLE 2.23

PROJECTED EDUCATIONAL ENROLLMENTS, BY LEVEL
1983-1989

	1983	1984	1985	1986	1987	1988	1989
Standard 1	31,786	33,057	34,380	35,755	37,185	38,672	40,219
Standard 2	29,910	31,101	32,345	33,639	34,985	36,384	37,840
Standard 3	29,635	29,634	30,808	32,041	33,322	34,655	36,041
Standard 4	31,481	31,722	31,746	32,881	34,182	35,548	36,970
Standard 5	25,673	26,749	26,959	26,981	27,940	29,045	30,206
Standard 6	19,590	24,232	25,283	25,490	25,511	26,410	27,454
Standard 7	27,727	26,768	30,853	33,069	33,928	34,206	35,136
Primary Total	195,802	203,263	212,374	219,856	227,053	234,920	243,866
Form I	7,500	11,000	11,000	11,500	13,000	17,000	19,000
Form II	6,500	7,058	10,474	10,474	10,913	12,229	15,739
Form III	5,500	5,854	6,372	9,386	9,386	-	-
Junior Secondary Total	19,500	23,912	27,846	31,360	33,299	29,229	34,739
Form III	-	-	-	-	-	5,313	5,938
Form IV	1,500	2,100	2,700	3,300	3,900	4,500	5,100
Form V	1,574	1,453	2,034	2,616	3,197	3,778	4,359
Senior Secondary Total	3,074	3,553	4,734	5,916	7,097	13,591	15,397
Certificate/Diploma Students Abroad	600	610	520	520	520	520	520
First Degree Prog.	790	830	870	910	950	990	1,030
Post-Degree Prog.	35	85	85	85	85	85	85
Total Post-Secondary Education	1,425	1,525	1,475	1,515	1,555	1,595	1,635
Post-Primary Students/ Trainees	1,863	2,489	3,093	3,393	3,693	3,993	4,293
Post-JC Students/ Trainees	2,457	2,628	2,472	2,893	3,344	3,664	3,824
Post-Cambridge Students/Trainees	975	1,121	1,190	1,234	1,378	1,387	1,385
Total Training	5,295	6,238	6,755	7,520	8,415	9,044	9,502

Source: Ministry of Education and Ministry of Finance and Development Planning

will shift from the junior secondary to the senior secondary classification in 1988. The basic assumptions of these forecasts are as follow:

- Standard 1 enrollment is expected to increase at a rate of 4 percent per year;
- Standards 2 to 6 will have the following progression rates (net of attrition and repetition):

Standard 2	.978
Standard 3	.991
Standard 4	1.070
Standard 5	.850
Standard 6	.945

- Standard 7 net progression rates will vary from 1.27 to 1.33; and
- Form I intake is based on available space, not on a proportion of Standard 7 graduates.

The rate of 1.07 for Standard 4 reflects the repetition effects of the Standard 4 examination.

The proportion of Standard 7 students who are taken into Form I in each succeeding year is forecast as follows:

1984	39.7 percent
1985	41.0
1986	37.3
1987	39.3
1988	50.1
1989	55.5

With the change in the secondary education system planned for 1987-88, dramatic changes will come in net progression rates. For example, the progression from Form II to Form III will change from .896 in 1987 to .566 in 1988 with further declines in subsequent years. However, the net progression rate for Form III to Form IV will

increase from .416 in 1987 to .479 in 1988 and then jump to .960 in 1989.

The overall Form II to Form IV transition will undergo less dramatic change. For the period shown in Table 2.23, the rates for individual years will be as follows:

1984	.337
1985	.415
1986	.468
1987	.372
1988	.430
1989	.467

Thus, the new program in secondary education will initially reduce the passthrough percentage but, by 1989, the proportion will return to its 1986 level. With Form V progression rates constant at .969 and with increasingly large original cohorts, the number of Cambridge-level graduates will begin to increase dramatically.

The bottom part of Table 2.23 presents detail on post-secondary students and on students with post-primary and post-JC or Cambridge training. These numbers are small but, through 1987, are increasing proportionally faster than the numbers of those without training. With the large expansion in secondary school students in the post-1987 period, out-of-school training will have to increase dramatically just to maintain its present proportions.

Further details on the causes, effects, and detailed nature of enrollment changes are included in the subsector chapters. Here, attention now is given to the projected balance between the manpower demand and supply patterns that have been presented.

Table 2.24 summarizes, by formal education level, the balance of manpower demand and supply for 1981, 1985, and 1989, based upon 1981 data. The surplus/shortage pattern for 1981 was discussed earlier. The changes expected by 1985 and 1989 are changes in degree, rather than in type. In all three years shown, there will be surpluses of Standard 1-6 and Standard 7 leavers and shortages at the Junior Certificate level and above.

The surplus at the Standard 1-6 levels increases only slightly from 76,175 in 1981 to 82,275 in 1985 and to 88,775 in 1989. While each year adds only a small marginal surplus, the cumulative effect is significant. The 82,275 surplus in 1985 is slightly more than the total private sector employment projected for 1985 and nearly double the total of Standards 1-6 and "no education" workers employed in that year.

The surplus of Standard 7 leavers is the most dramatic formal sector employment problem projected for the coming decade. The graduation effects of continued progress toward universal primary education will not be met by a corresponding increase in demand for these workers. The surplus will increase dramatically, from 74,525 in 1981 to 118,975 in 1985 and to 176,075 in 1989. This is almost double the Standards 1-6 surplus level and poses a major employment problem for the formal sector.

The shortage levels at the Junior Certificate level and above are not as severe in quantity (either in absolute terms or as a proportion of total demand). However, the total shortage in 1985 and 1989 for

TABLE 2.24

DEMAND AND SUPPLY OF MANPOWER, BY EDUCATION LEVEL:
ORIGINAL ESTIMATES, 1981, 1985, 1989

Education Level	1981			1985			1989		
	Demand	Supply	Shortage (-) Surplus (+)	Supply Demand	Supply	Shortage (-) Surplus (+)	Demand	Supply	Shortage (-) Surplus (+)
Standards 1-6	31,600	107,775	+76,175	41,150	123,425	+82,275	54,400	143,175	+88,775
Standard 7	31,450	105,975	+74,525	40,175	159,150	+118,975	51,975	228,050	+176,075
Junior Certificate	25,100	15,375	-9,725	32,475	21,875	-10,600	42,425	31,375	-11,050
Cambridge Certificate	7,050	3,375	-3,675	8,775	5,375	-3,400	10,850	7,800	-3,050
University Degree or Higher	1,950	900	-1,050	2,350	1,450	-900	2,900	2,050	-850
Total	97,150	233,400		124,925	311,275		162,550	412,450	

Source: Ministry of Finance and Development Planning

Junior Certificate leavers will increase slightly from 1981 levels. The Cambridge and University or higher graduates will remain in shortage but the shortage will decline in absolute terms over the 1981 to 1989 period.

The surplus/shortage of Standard 7 and Junior Certificate leavers has been analyzed separately for graduates with and without training. The results are as follows:

	1981	1985	1989
Standard 7 (no training)	+79,600	+126,450	+186,150
Standard 7 (training)	- 5,075	- 7,475	- 10,075
J.C. (no training)	+ 3,300	+ 4.575	+ 5,350
J.C. (training)	-13,000	- 15,150	- 16,375

It is obvious from these figures that the aggregate surplus and shortage data in Table 2.24 are quite misleading. Although there is a surplus of Standard 7 graduates, per se, Standard 7 graduates with post-school training are not only in shortage but the shortage will increase over this decade. For Junior Certificate graduates, the apparent shortage in Table 2.24 disguises a surplus of Junior Certificate leavers who have no further training. In fact, the shortage of job seekers who combine a Junior Certificate with training is even more dramatic than the aggregate data indicate; the figure of -16,375 for JC plus training compares with -11,050 for all JC graduates. This means that it is possible that a simultaneous surplus and shortage of JC graduates of the two types will exist.

The planning problem for government in this regard is uncertainty over what type of training to provide the Standard 7 and Junior

Certificate leavers. While some data are now being assembled, the greatest research need is to identify in more detail the nature of specific skill shortages in the future. This will be difficult to do (and in some cases impossible) and the information problem argues for an adaptable training scheme by government. The most flexible of the available training alternatives is for government to subsidize training in the private sector and parastatal institutions. This avoids the problem of large development costs related to institutional creation or expansion and increases government's ability to shift training emphases as needs are met in specific skill areas. Only where a large quantity of workers of a certain skill or skills is projected long-term should government engage in institutional development.

The Apprenticeship and Industrial Training Bill of 1983 incorporates these concepts. The object of the bill is to "promote adequate and reputable industrial training in Botswana and, in particular, to provide for the sound, regulated training of apprentices under registered contracts of apprenticeship and of trainees enrolled in and undergoing approved industrial training programmes provided by their employers." The Act will be implemented under the direction of a National Advisory Board for Apprenticeship and Industrial Training with a membership representing government, employer, and employee interests.

A special opportunity for Botswana is adaptation of existing training institutions to meet these new needs. Again, this is more

cost-effective than creation of new institutions or programs and assures better use of existing financial obligations.

In part because of the evidence of forthcoming manpower imbalances, the Ministry of Education has proposed an expansion of junior secondary education. In discussions within government, and especially with the Ministry of Finance and Development Planning, the MOE has reached agreement to extend this expansion program to the senior secondary, technical education, and higher education levels. The revised strategy is asserted to be more in line with the formal sector manpower demands of the economy.

Under the plan currently agreed upon (details of which appear in the secondary education subsector discussion), the manpower imbalances reported in Table 2.24 will be modified. The Standard 1-6 surplus will be least affected, although the progression of more students to higher levels may slightly reduce the aggregate levels of surplus for these school leavers. Table 2.25 presents the net surplus or shortage at each major level of education (including with and without training) projected for the period 1983 to 1989.

Table 2.25 is based on 1981 population data rather than the 1971 data upon which Table 2.24 was based. Thus, the difference between the tables is the combined effect of the accelerated expansion program, revised population projections, and inclusion of nonformal sector manpower requirements and of the uneducated labor force members.

The major effect of the secondary school expansion will be to reduce the shortages of graduates with training at all levels while

TABLE 2.25

EFFECTS OF SECONDARY EDUCATIONAL EXPANSION
ON MANPOWER DEMAND IMBALANCES IN THE FORMAL SECTOR:
REVISED ESTIMATES, 1983-1989

	1983	1984	1985	1986	1987	1988	1989
Less than Full Primary	299,817	300,120	294,906	290,184	285,283	280,219	275,679
Primary Completed without Training	42,568	49,215	55,000	66,087	74,398	81,854	86,804
Junior Certificate without Training	7,979	8,175	7,635	6,794	7,489	9,705	10,670
Cambridge Certificate without Training	-1,337	-2,255	-3,310	-4,195	-4,859	-5,349	-5,503
University Degree or Higher	-1,221	-1,252	-1,271	-1,276	-1,291	-1,321	-1,325
Primary Completed Plus Training	-4,686	-4,345	-4,351	-3,900	-3,722	-3,662	-2,125
Secondary Education Plus Training	-14,856	-14,269	-14,089	-13,559	-13,361	-13,225	-12,037

Source: Ministry of Finance and Development Planning

increasing the surplus of graduates without training at the Junior Certificate level. Because of the availability of more training opportunities and increased higher education openings, the number of Cambridge level graduates without training will decline. This, combined with increased teacher training demand, will cause a dramatic increase in shortages at this level.

Shortages of university degree holders will increase from 1981 levels, be stable through 1986, and then begin to increase slightly again. The overall effect of the program appears favorable during the early years, primarily because of the built-in demand for more teachers.

Longer term effects of the program will be less favorable as the initial teacher demand is satisfied and Cambridge leavers begin to compete with JC holders for formal sector jobs. Through the end of the 1990s, the expansion of the formal sector demand is unlikely to result in continued unmet needs for higher secondary graduates. In fact, a great danger of JC and Cambridge leaver unemployment as well as under-employment exists for the 1990s. This problem plus the present inability to forecast specific skill needs and the maintenance and possible exaggeration of present quality problems are the key EHR/manpower issues.

Certificate inflation for employment is certain to occur in the post-1985 period. This inflation would occur solely on the basis of relative supply conditions but will be even more evidenced if employers perceive declines in quality. From the perspective of

graduates, they will face reduced job opportunities, increased competition from more highly educated workers, and, once employed, slower job advancement than their predecessors encountered.

These realities require government's continued attention. There also will be an eventual need to monitor the expansion of high-level skills so that projected needs are met without shifting the problem from one of shortage to one of dramatic surplus. These demand-side determinants of educational expansion are not the only criteria for educational planning but they deserve full, careful, and ongoing assessment as Botswana develops its EHR system in the 1980s.*

2.4.4 Demand and Supply of Teachers

A special manpower topic is the demand and supply of teachers. This topic is significant because of the involvement of unqualified teachers, the rapid progress sought toward universal primary education, and the planned expansion program for secondary education. The subsector assessment of teacher training (Chapter 6.0) examines the administrative and institutional issues of teacher training in detail. Here, a brief study of current projections is presented as a

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*Revised estimates of manpower requirements and imbalances were prepared by the Ministry of Finance and Development Planning after this manpower section was completed. The data are presented for reference purposes in an Appendix to this chapter. Although the revised figures provide greater detail by employment sector, the new figures do not affect the conclusions as given above.

complement to the preceding analysis of aggregate manpower demand and supply.

The projections of teacher demand which have been estimated for 1983-1989 are presented in Table 2.26. The estimates are based on the projections of enrollments, by level, presented in Table 2.23. The following assumptions have been used to estimate new teacher requirements:

Primary education	Student/teacher ratio of 32.4:1
Junior secondary education	Student/teacher ratio of 26.67:1 (40 students per class, 1.5 teachers per class)
Senior secondary education	Student/teacher ratio of 20:1 (30 students per class, 1.5 teachers per class)

The enrollment totals and teacher requirements by level, as well as the change in enrollments and change in teachers required from year to year, are shown in Table 2.26. The last item is exclusive of replacement demand from teacher retirement or other departure from the profession. Because of the relative youth of the teaching corps, retirement and mortality are less of an issue than resignation.

For primary education, the 1982 teacher corps consisted of 5,770 teachers of whom approximately 65 percent were classified as "qualified" by Ministry of Education standards. This total number of teachers is only five fewer than would have been projected for 1982 on the basis of the Ministry of Finance and Development Planning forecasts upon which Table 2.23 and 2.26 are based. The "teacher requirement" data in Table 2.26 assume that untrained primary

TABLE 2.26

TEACHER DEMAND BY LEVEL
1983-1989

EDUCATION LEVEL	YEAR						
	1983	1984	1985	1986	1987	1988	1989
I. PRIMARY EDUCATION							
No. of Students	195,800	203,265	212,375	219,854	227,053	234,921	243,866
Increase from Previous Year	8,590	7,465	9,110	7,479	7,199	7,868	8,945
No. of Teachers Required	6,043	6,274	6,555	6 786	7,007	7,251	7,527
Increase from Previous Year	265	231	281	231	221	244	276
II. JUNIOR SECONDARY EDUCATION							
No. of Students	19,500	23,912	27,846	31,359	33,298	29,229	34,739
Increase from Previous Year	1,540	4,412	3,934	3,513	1,939	-4,069	5,510
No. of Teachers Required	731	897	1,044	1,176	1,249	1,096	1,303
Increase from Previous Year	58	166	147	132	73	-153	207
III. SENIOR SECONDARY EDUCATION							
No. of Students	3,074	3,553	4,734	5,916	7,097	13,591	15,397
Increase from Previous Year	-49	479	1,181	1,182	1,181	6,494	1,806
No. of Teachers Required	154	178	237	296	355	680	770
Increase from Previous Year	-2	24	59	59	59	325	90

Source: Ministry of Education and Ministry of Finance and Development Planning

education teachers presently in service are not replaced. However, as more trained teachers enter the teaching profession, the proportion of the total represented by untrained teachers should continue to decline.

At present the three primary teacher training institutions at Francistown, Serowe, and Lobatse together are producing approximately 500 new graduates per year (509 in 1982 and 479 in 1983). These teachers will be available for the calendar year following graduation. A new primary teacher training center (TTC) should be ready by 1985 or 1986, with the first graduating class at the end of 1986 or 1987. If one assumes an annual output of 500 teachers per year from the existing three TTCs through the 1987 academic year and 650 after that date, the surplus of teachers for primary education by year will be as follows:

1983	235
1984	269
1985	219
1986	269
1987	279
1988	406
1989	374

These numbers will be more than sufficient to replace teacher attrition and to continue to increase the proportion of qualified teachers.

In the junior secondary data, the most dramatic effects are those that result from the rapid expansion of Form I intake (beginning in 1984) and the shift of Form III to the senior secondary level (in 1988). Although the required size of the teacher corps will almost double from 1983 to 1989, these teacher requirements still should not

outrun the ability of the teacher training system to provide qualified staff for the schools through the end of the decade.

The University of Botswana's diploma course in education has been designed to supply teachers for the junior secondary education system. At present the program produces an average of 70 to 90 qualified teachers per year. In January 1985 the new secondary TTC at Molepolole will begin operation, with its first graduation class entering teaching in 1988. If the Molepolole program replaces the present University of Botswana diploma course, annual output of junior secondary teachers will be approximately 150 over the decade.

Except for 1984, the new teacher output for junior secondary is sufficient to meet the demands of the schools for new teachers. In most years the number of teachers will be sufficient to meet replacement demand. However, increased localization of the teacher force in junior secondary schools will remain a problem, with the most serious areas being in science, mathematics, and English. The decline in junior secondary requirements of 159 teachers in 1988, followed by an increased requirement in 1989 of 207 "new" teachers points to a potential problem of teacher assignment as a result of the shift of Form III to senior secondary education. Schools which have a full Form I to Form V secondary cycle will not be unduly disrupted since the temporary "surplus" of teachers can be assigned transitionally to meet the shortage in the upper forms. However, in schools where only the Form I to Form III courses are offered, a decision will need to be

made about reassignment. It would be inefficient and personally disruptive to assign teachers away from a junior secondary school in 1988 only to have to return them to that school a year later. This problem will not be serious as long as its ramifications are anticipated.

Senior secondary education will grow very steadily through 1987. Then, in 1988, the shift of Form III to the senior secondary level will cause a large increase in enrollment (+91.5%). The effect in Form III will be compounded by the progression of the larger Form I cohorts (from 1984 forward) to the higher grade levels.

The degree program in education at the University of Botswana, which prepares teachers for senior secondary schools, at present graduates only 20 students per year. This number will be inadequate to meet demand even in the early years of the projection period. The remainder of the teacher requirement for senior secondary education will have to be met by bilateral programs (e.g., Peace Corps), the recruitment of expatriate teachers, and the use of teachers qualified only for the junior secondary level. The last group may be replaced in junior secondary school by national service teachers or additional volunteers and expatriates.

In summary, teacher demand and supply appear to be in reasonable balance except at the senior secondary level. At the junior secondary level the inability to hasten localization is the principal difficulty between now and 1989. Government should consider a combined program

of expansion of training for Botswana secondary teachers (especially in science and mathematics) and the expansion of in-service skill upgrading for presently underqualified teachers.

2.4.5 Manpower Trends and Localization

The manpower patterns discussed here suggest four main conclusions concerning the "localization" of the work force. First, the rapid expansion will create a short-run increase in the demand for expatriate teachers. This effect will be most dramatic in aggregate at the senior secondary level but will appear in junior secondary education as well. In the latter case, the demand for expatriate teachers will be generally restricted to science, mathematics, and English. By the end of the decade the output of Batswana teachers should approach a level adequate to reduce the absolute level of expatriate demand.

Second, the long-term effects of the educational expansion should be to reduce relative demand for expatriate personnel in the economy. While absolute numbers of expatriates may increase temporarily (especially if a resurgence of the economy occurs), the proportion of total employment represented by expatriates should decline through 1989. Concentration of expatriates in the technical, scientific, and management occupations will increase. The aggregate expansion of education will not be an adequate remedy to localization needs in these fields. Rather, specific training either in the formal

education system or on the job will be necessary to prepare Batswana for these positions.

Third, the data on manpower demand and supply indicate the importance of timing to the strategy of localization. Effective transition from expatriate to local personnel requires careful planning, especially in the higher skill areas which will be increasingly subject to localization in this decade. Transitions should incorporate the need for a period of on-the-job counterpart training after the local personnel complete formal education and training requirements.

Fourth, the enforcement of localization must continue to be even-handed between the public and private sector agencies. Long-term goals for localization should be maintained while government works to assure an adequate supply of personnel to both the public and the private sectors. In the public sector, the greatest need is to utilize personnel provided through the use of "operational experts" (expatriates employed by government with their base salaries supplemented by donor organizations) in a training as well as an operational role. A greater overlap on the job between expatriate and local replacements is a prime necessity.

Government's successful use of expatriate personnel should not be allowed to become a barrier to timely implementation of the goals of localization. In 1981, 61 percent of the professional cadre in

government (excluding MOE) and 35.7 percent of Group "A" officers were expatriates. In the private sector almost 40 percent of professional and technical workers and over 50 percent of managerial personnel were expatriates. These levels indicate the need for and the challenge to government's localization policy.

2.4.6 Manpower Conclusions

The analysis of manpower demand and supply suggests several main themes for policy consideration. The first is that serious manpower imbalance will continue to exist among and within the levels of formal educational qualifications. For the remainder of this decade there will be a shortage of employment opportunities for those with only primary-level education, and a surplus of positions for those with higher levels of education. Within the secondary education levels, internal imbalances will exist in employment opportunities, with surpluses of those students having only formal schooling and shortages of graduates who have supplemented their formal education with training.

The second major theme is the recognition of special data requirements for future manpower development planning. The Employment Policy Unit of the Ministry of Finance and Development Planning has proposed a National Manpower Development Survey. This project deserves support and should include attention to the private sector, on-the-job training capacity, and the job search behavior of recent school leavers. It is important that the survey supplement employer

perspectives with those of recent successful and unsuccessful job seekers. Special sectoral analyses should be conducted for these employment sectors where worker demand is expected to be most substantial or where work requirements are expected to undergo a dramatic change.

The conclusions regarding teacher demand and supply are that aggregate new teacher supply should satisfy aggregate demand at all but the senior secondary level through 1989. Specific skill areas--particularly mathematics and science--will remain in short supply over the decade at all levels of secondary and post-secondary education.

The final theme to be drawn from the preceding analysis is that localization will remain a significant issue through the 1990s. Only through careful planning of employment transitions will the economic needs of the labor market be satisfied and the political problems inherent in the present situation be removed.

2.5 EDUCATION FINANCING, UNIT COSTS, AND RETURNS TO SCHOOLING

Within the methodological limitations of an EHR assessment, it is not possible to perform the detailed analysis of internal cost efficiency that is required for policy decisions on specific projects in the EHR sector. Within an assessment, the purpose of cost and financing analysis is to combine available quantitative detail with qualitative information and intuitive analysis to identify areas of potential inefficiency.

The analysis which follows is divided into two main sections. The first identifies the chief sources of financing for each major level and type of education and training. It also provides summary data on enrollments, staffing, and other relevant institutional or system characteristics. For greater detail the reader is referred to the relevant subsector chapters.

The second section presents estimates of annual costs of the major levels and types of education. Unit costs and cycle costs are also estimated. The unit cost data are then combined with information on prospective earnings of graduates to produce estimates of individual and total (including government costs) returns to education.

2.5.1 Educational Financing

2.5.1.1 Primary Education

Central Government bears the major responsibility for financing education although local government, communities, and students and their families also share in the cost, depending on the level and type of program. Education at the primary level is decentralized to a greater extent than it is at other levels. Central Government, while retaining administrative and financial responsibility for teacher services, curriculum development, and textbooks, has delegated to local government the responsibility for school construction, maintenance of equipment and facilities, support services, and supplies. Even so, Central Government's share of the total recurrent cost of primary education remains high--81 percent compared to local

government's share of approximately 11 percent. In addition, Central Government provides deficit grants to the local authorities. Parental contributions for uniforms and incidentals make up the remaining 8 percent. Tuition charges for public primary education were abolished in 1980.

Two ministries (Education and Local Government and Lands) participate directly in the governance of schools. The Ministry of Education (through its Department of the Unified Teaching Service) employs and assigns teachers to particular schools. The Department of Curriculum Development and Evaluation develops curricula and selects texts, while the Department of Primary Education provides in-service training and evaluation of teachers. The Ministry of Local Government and Lands is charged with negotiating and financing building loans for primary schools in districts (but not in towns) and supplying funds for textbooks for all school children, whether or not they attend Government Schools.

Since the number of teachers assigned to each school is a function of enrollment, a major issue with respect to Central Government financing is the distribution of teacher quality among districts and towns and between rural and urban areas. Although there is considerable disagreement over the measurement of teacher quality, experience and qualifications are generally considered reasonable indices. The numbers of qualified and unqualified (i.e., not professionally trained) teachers in districts and principal towns are shown in Table 2.27.

TABLE 2.27

PRIMARY TEACHER QUALIFICATIONS BY DISTRICT
1983

District/ Town	Untrained					Trained											
	STD 7	JC	Matric	Degree	Total	ETC	ETC/JC Matric	PL	PL+D WWJC	Sec/PL+ Matric	PTC	PH	PH+ Matric	Post Matric	Deg+ Dipl	Total	Grand Total
District																	
North East	35	75	17		127	37	5	25	16	1	107	12	3			206	333
Central (N)	121	25	24		170	68	12	34	20	2	204	16	4			360	530
Central (C)	273	58	20	3	354	160	16	103	35	2	495	24	13		3	851	1205
Central (S)	108	16			124	53	6	50	17	1	192	21	4	1	1	346	470
Kgatleng	63	45	6		114	34	4	45	8	3	133	17	1			245	359
Kweneng	153	53	28		234	61	8	47	14	2	355	20	5		1	513	747
Southern	174	72	33		279	42	1	92	16		413	28	1			593	872
South East	16	10	3		29	14	2	34	18	3	74	15	1	1		162	191
Kgalagadi	33	18	16		67	17		25	3		77	1				123	190
Ghanzi	9	8	22		39	8	3	17	2		55	2		2		89	128
North West	84	67	16		167	40	5	20	8	1	230	5		1	1	311	478
Town																	
Gaborone	60	46	11	1	118	12	3	44	16	4	115	17	4	16	19	250	368
Francistown	17	7			24	12	2	25	8	4	74	13	2	10	1	151	175
Lobatse	6	9	3	1	19	1		16	12	2	45	15	8		1	100	119
Selebi-Phikwe	15	13	1		29	6	2	12	7		54	4	19			104	133
Jwaneng						1		4			14		12		4	35	35
Total	1,167	522	200	5	1,894	566	69	593	200	25	2,637	210	77	31	31	4,439	6,333

Source: Education Statistics 1983 (Draft), Central Statistics Office, 1983.

Key: JC = Junior Certificate; ETC = Elementary Training Certificate; PL = Primary Lower Teacher Training Certificate;
PH = Primary Higher Teacher Training Certificate.

While the district/town distinction is at best a crude proxy for rural/urban differences, the data in Table 2.27 indicate that in 1983 qualified teachers represented a greater percentage of the teaching force in towns (77%) than they did in districts (69%). This results from deliberate government policies to correct historical imbalance and to facilitate in-service training for unqualified teachers. Thirty percent of all teachers at the primary level are in this category.

The relative concentration of qualified teachers in the more rural locations is justified when one considers the relative absence of plentiful home and community resources in those areas. Thus, assignment of a greater proportion of qualified teachers to rural schools promotes greater equality in access to educational resources.

A second issue with respect to government financing of primary schooling relates to the amount of textbook subsidy and the mechanisms used for the distribution of books. The current subsidy of P16 per pupil per annum (to be increased to P18 in 1984) represents only a fraction of the cost of a set of textbooks. This leaves to local government the decisions of whether and, if so, how to finance the full textbook set for each pupil. Since textbooks are a relatively inexpensive but effective input into the educational process, effort is needed to ensure that each child has the appropriate texts.

Central Government receives the major part of its revenue from mineral royalties, customs receipts, and income taxes. Roughly 80

percent of district or town expenditures are financed by deficit grants from Central Government. The remaining local expenditures are funded from a variety of taxes, which vary somewhat with "town" or "district" classification. For administrative purposes, Botswana is divided into nine districts, four townships, and one township authority. District Councils are empowered to administer a local tax on income, charge fees for a variety of licenses and services, and tax the sale of certain commodities and property. The local income tax is by far the largest generator of revenue, accounting for roughly 56 percent of total local receipts. Rents from government-owned property contribute another 15 percent.

Towns and township authorities have similar powers of taxation. The major difference is that towns are permitted to levy ad valorem taxes on property. During the budgetary process, property tax rates and the amount of the deficit grants are determined after expenditures are weighed against anticipated revenue from all other sources. While there is no statutory limit on the rates at which property may be taxed, Central Government effectively uses the grant system to control upward pressure on property tax rates. In addition, Central Government pays a lump sum to the town in recognition of revenue losses resulting from the presence of non-taxable government housing for the poor in the area.

Estimates of district and town expenditures for primary schooling are shown in Table 2.28, and a more detailed analysis of expenditures is provided in Table 2.29. It may be assumed that variations in expenditure among the districts and towns indicate differences in:

- o local wealth;
- o the value placed on schooling relative to other services; and
- o the differential cost of providing services in various parts of the country because of demographic as well as geographic factors.

The data on local expenditures shown in Table 2.30 tend to confirm these assumptions. Selebi-Phikwe and Gaborone, towns characterized by populations with relatively high levels of wealth and education, spend the most per pupil (annually P34.87 and P34.72, respectively, in 1982-83). In addition, because of their population density, they are able to realize economies of scale not available in more sparsely settled areas.

While District Councils have nominal responsiblity for primary school construction, their statutory inability to incur debt has limited their ability to fulfill this role. Towns and township authorities, unlike districts, operate more autonomously and are empowered to negotiate and administer both grants and loans. This has enabled the towns to assume fuller responsibility for school construction. Data on the sources of funding for new construction in the districts are provided in Table 2.31. The data indicate that the burden on Central Government has been relieved, in part, by external

TABLE 2.28

ESTIMATES OF LOCAL GOVERNMENT EXPENDITURES ON PRIMARY SCHOOLS 1983-84

District/ Town	Expenditures on Primary Schooling	Total Expenditures	Primary Education Share of Total Budget
District			
Central	P1,540,100	P7,951,620	19%
Ghanzi	180,950	1,578,030	11
Kgalagadi	144,730	1,603,520	9
Kgatleng	317,900	1,573,410	20
Kweneng	464,110	2,850,600	16
North East	241,880	1,306,430	19
North West	350,430	2,454,620	14
South East	207,130	1,191,260	17
Southern	649,760	3,209,200	20
Town			
Francistown	109,890	2,500,090	4
Lobatse	97,440	1,606,530	6
Selebi-Phikwe	181,620	2,658,680	7
Jwaneng	38,580	1,120,340	3
Gaborone	422,440	5,576,770	8
Total District	4,096,990	23,718,690	17
Total Town	849,970	13,462,410	6
Grand Total	4,946,960	37,181,100	13

Sources: District Councils Estimates of Revenue and Expenditure and Part II Land Boards Estimates of Revenue and Expenditure: Recurrent Budget 1983-84, Ministry of Local Government and Lands, 1983.

Town Councils Estimates of Revenue and Expenditure: Recurrent Budget 1983-84 and Capital Budgets and Part II Land Board, Ministry of Local Government and Lands, 1983.

TABLE 2.29

ESTIMATES OF LOCAL EXPENDITURES ON PRIMARY SCHOOLS,
BY BUDGET CATEGORIES
1982-83

Budget/Category	DISTRICT							
	Central	Ghanzi	Kgalagadi	Kgatleng	Kweneng	North East	North West	South East
A. Employees								
1. Salaries	97,400	29,290	12,300	17,560	33,350	20,210	26,020	14,380
2. Wages	1,360	39,850	-	310	16,600	-	1,620	12,790
3. Uniforms	50	600	-	-	760	-	50	300
4. Staff training	-	-	-	-	-	-	-	-
B. Maintenance & Repair	410,700	23,140	42,290	74,320	150,200	73,050	84,390	47,590
C. Special								
1. Purchase of office furniture & equipment	1,270	100	120	80	600	-	1,530	340
2. School books & stationery	1,110,240	52,800	83,380	176,000	237,420	150,420	226,050	86,960
3. Teaching materials	2,910	3,160	-	5,500	21,000	1,900	16,930	6,320
4. Sports equipment & prizes, other	8,400	940	20	1,000	5,000	600	1,510	1,020
5. Room & board for students	-	41,300	-	-	-	-	-	-
6. Grants to mission schools for books and supplies	-	-	-	-	-	-	-	-
7. Evening school sal.	-	-	-	-	-	-	-	-
Total	1,632,330	191,110	138,110	274,770	464,930	246,180	358,100	169,700

(Continued)

TABLE 2.29 (Continued)

Budget/Category	District	Town					Total	Average Districts	Average Towns
	Southern	Francistown	Lobatse	Selebi-Phikwe	Jwaneng	Gaborone			
A. Employees									
1. Salaries	27,950	13,630	-	17,050	1,350	20,050	330,540	30,940	10,416
2. Wages	3,240	27,930	6,230	52,330	1,430	59,980	223,670	8,418	29,580
3. Uniforms	130	1,360	100	1,790	120	900	6,160	210	854
4. Staff training	-	-	-	540	-	-	540	-	-
B. Maintenance & Repair	154,220	15,350	330	23,120	8,100	51,100	1,157,900	117,767	19,600
C. Special									
1. Purchase of office furniture & equipment	20,920	200	-	2,000	-	-	27,160	2,773	440
2. School books & stationery	412,590	50,400	53,800	66,880	-	190,290	2,897,230	170,651	72,274
3. Teaching materials	12,000	3,000	3,100	6,640	5,800	24,000	112,260	7,747	8,508
4. Sports, equipment & prizes, other	7,990	700	750	4,720	3,600	5,200	41,450	2,942	2,994
5. Room & board for students	-	-	-	-	-	-	41,300	-	-
6. Grants to mission schools for books and supplies	-	12,150	-	-	-	-	12,150	-	-
7. Evening school sal.	-	8,710	-	-	-	2,000	10,710	-	-
Total	639,040	133,430	64,310	175,070	20,400	353,520	4,861,070	341,448	144,666

Sources: 1980-81, Education Statistics, Central Statistics Office, and Local Authority Final Accounts
1981-82, Education Returns from Education Secretaries and Final Accounts
1982-83, Education Returns from Education Secretaries and Final Accounts

TABLE 2.30

LOCAL GOVERNMENT EXPENDITURES ON PRIMARY SCHOOLS
1980-81/1982-83

Administrative District/Town	1980-81					1981-82					1982-83				
	No. of Schools	Cost Per School (P)	No. of Pupils	Cost Per Pupil/ Year (P)	Actual Expenditure (P)	No. of School	Cost Per School (P)	No. of Pupils	Cost Per Pupil/ Year (P)	Actual Expenditure (P)	No. of Schools	Cost Per School (P)	No. of Pupils	Cost Per Pupil/ Year (P)	Actual Expenditure (P)
North East District	26	3,368	9,127	9.59	87,560	30	3,309	9,569	10.37	99,267	31	7,233	10,014	22.39	224,225
Ghanzi District	14	7,786	3,231	33.73	109,006	14	10,451	3,061	47.80	146,318	16	8,125	3,343	38.88	130,000
Kgatleng District	30	5,205	10,694	14.60	156,152	32	7,902	10,699	23.63	252,872	32	8,355	10,593	25.23	267,365
Kgalagadi District	19	3,873	4,844	15.19	73,594	19	4,387	5,115	16.29	83,362	19	4,170	5,337	14.84	79,225
Central District	124	7,814	65,506	14.79	968,984	149	4,938	68,772	10.69	735,710	154	7,938	70,287	17.39	1,222,511
North West Distr.	33	4,140	11,403	11.98	136,608	43	4,049	13,728	12.67	174,068	45	4,436	14,008	14.24	199,607
South East Distr.	11	8,567	6,688	14.09	94,234	13	8,689	6,516	17.33	112,963	16	11,245	6,685	26.91	179,927
Kweneng District	55	2,805	21,353	7.22	154,254	56	6,809	22,746	16.76	381,278	58	7,424	23,696	18.17	430,583
Southern District	61	3,169	23,145	8.35	193,322	76	3,018	24,865	9.22	229,343	81	5,061	26,734	15.33	409,911
Selebi-Phikwe Town Council	4	25,810	4,065	25.39	103,238	6	18,795	4,555	24.75	112,769	6	27,342	4,704	34.87	164,055
Gaborone Town C.	13	16,315	8,374	25.32	212,009	13	18,409	8,609	27.79	239,321	18	18,915	9,806	34.72	340,466
Francistown Town C.	6	18,598	5,626	19.83	111,588	8	14,819	5,759	20.58	118,550	8	15,761	6,066	20.78	126,086
Lobatse Town C.	5	11,098	3,841	14.44	55,493	5	12,281	3,467	17.71	61,405	5	12,488	3,624	17.23	62,442
Jwaneng Township	2	-	210	-	-	2	-	400	-	-	2	-	498	-	n.a.**
Total	403	Av. Cost P6,094	178,107	Av. Cost P13.79	P2,456,042	466	Av. Cost P5,895	187,861	Av. Cost P14.62	2,747,226	491*	Av. Cost P7,813	195,395	Av. Cost P19.63	3,836,403

Source: Ministry of Local Government and Lands, 1983

* Missing data; 1983 statistics indicate a total of 502 schools.

** n.a. = not available. New township.

TABLE 2.31

ACTUAL AND ANTICIPATED EXPENDITURES ON PRIMARY SCHOOL CONSTRUCTION IN THE DISTRICTS, BY SOURCE
1979-80/1984-85
(Pula)

Source of Funds Available/Required		Actual Expenditure 1979-80	1980-81	1981-82	Anticipated Expenditures 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
FTBN(DDF)	P 9,908,427	-	-	-	427	2,910,000	3,332,000	6,242,427	3,666,000
DDF	P14,553,515	1,119,434	5,480,557	3,447,105	4,314,419	192,000	-	14,553,515	-
SIDA Grant	P 6,438,058	3,270,400	208,115	2,959,543	-	-	-	6,438,058	-
IBRD Loan	P14,100,100	-	-	-	2,911,000	5,249,000	5,940,000	14,100,000	-
Total (Current Prices)		4,389,834	5,688,672	6,406,648	7,225,846	8,351,000	9,272,000	41,334,000	3,666,000
Total (1982-83 Prices)		6,552,000	7,585,000	7,364,000	7,226,000	7,390,000	7,477,000	43,594,000	-
Recurrent Financial Costs (1982-83 Prices)		131,000	152,000	147,000	145,000	147,000	128,000	850,000	

Status Report: Anticipated spending for the World Bank project is P22,144,000. This includes the following:

	IBRD	GOB	TOTAL
Primary Schools	P 11,378,000	6,683,000	18,061,000
Technical Assistance	500,000	56,000	556,000
Contingencies	2,222,000	1,305,000	3,527,000
Total	P 14,100,000	8,044,000	22,144,000

This project should build up to 500 classroom and associated facilities:

Teacher's Quarters	250
Pit Latrines	1,500
Office/Storeroom	50
Kitchen/Storeroom	50

Source: 1982 Project Review, Ministry of Finance and Development Planning.

Key: FTBN = Funds to be negotiated
DDF = Domestic Development Fund
SIDA = Swedish International Development Agency
IBRD = International Bank for Reconstruction and Development (World Bank)
TEC = Total Estimated Cost

grant and loan assistance. However, the requirements for proportional matching funds from government for the IBRD project has placed a great burden on the Domestic Development Fund.

In addition to the 466 Government Schools, there are 13 Government-Aided Schools, including a single remaining English-medium primary school, and 20 unaided independent schools. The independent schools receive no subsidies from government and tuition is set by the individual institution. Private school tuition in the Gaborone area currently averages about P1,920 per annum. The Government-Aided Schools receive the same textbook subsidy as Government Schools to help defray the cost of student books and supplies. The English-medium primary school, at present, is funded totally by the Department of Primary Education in the Ministry of Education. It is the only school financed in this way and the arrangement is under reconsideration.

2.5.1.2 Secondary Education

The secondary education level differs from the primary level in several respects. First, it is characterized by greater diversity in management. There are 19 Government Schools, 4 Government-Aided Mission Schools, 19 private Community Junior Secondary Schools (CJSSs) and 1 private independent school, Maru-a-Pula in Gaborone. Second, local government does not share in the financing of these schools. Third, regardless of type of school, tuition is charged. The relative

share of recurrent costs borne by Central Government and by the student (or his/her sponsor) for each type of school is shown below.

Type	Average Cost	Source	
		Student/Sponsor	Government
Government	P 833*	10%	90%
Government-Aided	460	14%	86%
CJSS	349	62%	38%
Private Independent	2,000 (approx.)	100%	0%

* Day Pupils

While the tabulation highlights the differences in patterns of funding among the three types of secondary schools, it also indicates the large differences in actual education expenditures which characterize the current structure. A significantly greater amount of money is invested in a day pupil at a Government School than in a student at either a Government-Aided School or a CJSS. Although the rising cost of books is increasing the relative contribution of Government School students to their own schooling, the gap in total investments persists. Thus, while parents pay more (absolutely and relatively) at a Government than at a Government-Aided School, they purchase access to proportionally more government funds. In contrast, at a CJSS the parents pay a greater share of total costs but obtain a smaller level of absolute government expenditure on their child.

This lack of parity in government expenditures among the forms of secondary education is a result, in part, of the means by which government has increased access to secondary schooling. At the time of independence, there were only 251 primary schools with a total enrollment of 71,546 pupils. Today, approximately 197,000 pupils, or 83 percent of the age 7-13 cohort, attend primary school. This growth in enrollments has accentuated the historical bottleneck at entry to secondary education. In an attempt to relieve this problem and in recognition of its limited resources, Central Government has permitted local communities to start Junior Secondary Schools (CJSSs), financed primarily by parents and the local community. Table 2.32 shows the change in number and percentage of Standard 7 leavers who were able to find places in Form I from 1974 to 1982. Table 2.33 illustrates the growth in secondary schools, by type.

As Table 2.32 indicates, during the mid-1970s places in junior secondary schools expanded faster than the number of primary graduates. While slightly more than 34 students out of every hundred entered Form I in 1974, the number had reached approximately 52 by 1977. From that year onward, however, a number of factors combined to reverse the trend. First, tuition in public primary schools was reduced in 1977 and then eliminated in 1980, with suprisingly large increases in pupil entry and retention at that level. Second, as Table 2.33 indicates, the rate of growth in secondary places slowed. The decline in private schooling from 1977 to 1980 resulted from a combination of an economic recession (particularly hard-felt in the

TABLE 2.32

NUMBER OF STANDARD VII LEAVERS ENTERING FORM I
THE FOLLOWING YEAR
1974-1982

Year	No. of Std. 7 Leavers	Less Repeaters	Net No. of Std. 7 Leavers	Number Entering Form I the Following Year			Percentage of Net Std. 7 Leavers who Enter Form I*
				Govt/Aided	Private	Total	
1974	13,811	1,284	12,527	2,362	1,933	4,295	34.3
1975	14,449	2,159	12,290	2,812	2,172	4,984	40.6
1976	13,602	3,084	10,518	2,861	2,223	5,084	48.3
1977	12,790	3,107	9,683	2,902	2,110	5,012	51.8
1978	14,395	2,796	11,599	3,345	2,104	5,449	47.0
1979	18,334	2,431	15,903	3,653	2,428	6,081	38.2
1980	21,332	2,967	18,365	3,929	2,680	6,609	36.0
1981	24,823	4,311	20,512	4,061	2,548	6,609(E)	32.2
1982	27,554(E)	5,334(E)	22,220(E)	-	-	7,500(E)	32.6

Source: "Greater Access to Form I in Botswana," Ministry of Education, 1982.

(E) = Estimate

* Note: The use of net Standard 7 leavers is a pattern customarily used. However, the total number of Standard 7 leavers who compete for Form I places includes the repeaters. The percentage of Form I places compared to the number who sit for the Primary School Learning Examination (PSLE) would be considerably lower. The percentages have been as follows:

1974 - 31.1	1978 - 37.8	1982 - 27.2
1975 - 34.5	1979 - 33.2	
1976 - 37.4	1980 - 30.9	
1977 - 39.2	1981 - 26.6 (E)	

TABLE 2.33

GROWTH OF SECONDARY SCHOOLS

1974-1982

Type	Year							
	1974	1975	1976	1977	1978	1979	1980	1981
Government/Aided								
Schools	15	15	15	15	18	20	22	22
Classrooms	209	232	267	289	310	338	366	426
Teachers	350	397	443	443	505	570	634	666
Students	7,055	8,434	9,558	10,219	11,136	12,175	13,424	14,348
Private*								
Schools	14	14	17	17	17	16	16	19
Classrooms	NA	NA	105	127	125	117	121	141
Teachers	142	172	211	206	226	208	217	255
Students	3,253	3,664	4,433	5,106	4,950	4,541	4,911	5,800

Sources: Education in Botswana: A Statistical Guide, Ministry of Education, 1982; Education Statistics, Ministry of Education, 1982; "Greater Access to Form I in Botswana," Ministry of Education, 1982; information provided by Ministry of Education.

* "Private" includes CJSS and Maru-a-Pula. The CJSS figures account for the declines from 1977-1980 as Maru-a-Pula has steadily grown since it began.

rural areas where the CJSS institutions are located) and the manner in which these schools are capitalized and financed.

Created and administered by local communities to serve children who had not secured places in Government or Government-Aided secondary schools, the CJSSs rely heavily on student tuition to finance recurrent costs. All but the most recent (which were built at government expense) were capitalized by local subscription. The Central Government has, in the past, provided the schools with P20 per student per annum, as well as the salaries of teachers under contract with the Unified Teachers Service. In 1984 the per student contribution will be doubled. It is estimated, however, that this increase will not result in lower tuitions but, at best, will hold tuitions to their current levels of P155-P250. At the present time, a number of the schools are either in serious debt or are under-financing instructional materials, libraries, maintenance, and so forth.

The disparity between the financing of the CJSSs and the Government and Government-Aided Schools is of special concern because current policy emphasizes further expansion of the CJSS model. Some of the qualitative problems which characterize the CJSSs are illustrated by the following data:

	Government/Aided	CJSSs
Percentage of qualified teachers	87.1%	69.0% (1980)
Retention percentage	91.8	67.3 (1980)
Percentage JC passes	81.0	36.0 (1979)
Percentage JC Leavers entering Form IV	73.2	26.8 (1980)

A more recent survey of the schools indicates that in 1982 only 43 percent of the CJSS teachers were unqualified but this figure is considered an under-estimate, since expatriate volunteers are generally considered "qualified" even if their degrees are not in education. With respect to attrition rates, those who work closely with the CJSSs attribute the high dropout rate primarily to the amount of tuition and fees. While Government and Government-Aided School students from very poor families may apply to the districts for bursaries to cover their expenses, CJSS students are not eligible for such aid. In addition to these differences, the facilities and equipment at most CJSSs are generally considered inferior, and there is also evidence of shortages of books and other materials.

The government, in creating more CJSS-type institutions, hopes to avoid some of the most glaring inequalities by financing renovation and construction costs and equipping the schools with science kits (in lieu of laboratories) and other instructional materials and furniture. Table 2.34 provides 1982 estimates of the costs of renovation and construction during the expansion period. The most important consideration in terms of holding down private costs at the new CJSSs is the commitment to pay all teachers' salaries at the new schools. This does not mean, however, that all the teachers will be trained. Current plans call for use of expatriate volunteers and the consideration of a compulsory year of teaching service for Form V leavers. Since the latter would have received little formal teacher

TABLE 2.34

ESTIMATED COST OF CONSTRUCTION OF COMMUNITY JUNIOR SECONDARY SCHOOLS
1986-1992
(Pula)

Year	Cost per School*	Number of Additional Students	Number of Schools Required (480 per School in Double Session)	Total Cost
1986	787,800	1,649	4	3,151,200
1987	881,200	4,066	9	7,930,800
1988	986,900	4,846	10	9,869,000
1989	1,105,300	5,090	11	12,158,300
1990	1,238,000	4,529	10	12,380,000
1991	1,386,500	3,460	7	9,705,500
1992	1,553,000	1,657	4	6,212,000
Total		25,297	55	61,406,800
		Add: Contingencies 10%		6,140,680
		Location Differential 20%		12,281,360
		Administration Costs 6%		3,684,408
		Total		83,513,248

Source: "Greater Access to Form I in Botswana," Ministry of Education, 1982.

* Cost per school is based on 1982 cost of P500,000. An annual inflation allowance of 12% is added. The costs are based on double sessions in each school. If double sessions were discarded, the cost would be twice the amount shown to accommodate the same number of students.

training, they would increase the percentage of unqualified and inexperienced teachers in this system. An illustration of government's concern is found in one report:

> The rapid expansion of the Community Junior Secondary School system must not be allowed to lead to any deterioration in the quality of education received in those schools ... Government should monitor the results (at the creation of the new CJSSs) carefully to make certain that this promise is fulfilled ....
>
> "Financial and Manpower Implications of a Faster Expansion of Secondary Education for 1984," Ministry of Finance and Development Planning, 1983.

While the new CJSSs will provide the bulk of the additional places in secondary schools, Government-Aided Secondary Schools and existing CJSSs are also expected to provide more places. The original 1983 and 1984 enrollment targets were:

	1984*	1983	Increase
Form I intake - Existing Govt-Aided and CJSSs	9,500	7,255	2,245
Form I intake - New CJSSs (converted from primary schools)	4,000	-	4,000
Form IV intake - Existing Govt-Aided and CJSSs	2,100	1,500	600
Total	15,600	8,755	6,845

Table 2.35 provides the revised Ministry of Education projections through 1990.

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*The actual 1984 Form I intake total will be held to 11,000 students to enable government to maintain and enhance quality as the expansion takes place. Of the revised Form I intake, 1,800 will be in new CJSSs.

TABLE 2.35

SCHEDULE OF NUMBER OF STANDARD 7 LEAVERS TO BE PLACED IN FORM I DURING 1983-1990

Year	Target Percentage	Projected Std. 7 Leavers Previous Year	Less Repeaters (20%)	Net Projected Std. 7 Leavers	Target No. For Form I	Increase Over Previous Year
1982	0.33	24,823	4,965	19,858	6,551	-
1983	0.33	27,554	5,511	22,043	7,255	704
1984	0.51	26,816	5,363	21,453	11,000	3,745
1985	0.53	25,747	5,149	20,598	11,000	0
1986	0.53	27,294	5,459	21,835	11,500	500
1987	0.53	30,492	6,098	24,394	13,000	1,500
1988	0.71	29,913	5,983	23,930	17,000	4,000
1989	0.76	31,387	6,277	25,110	19,000	2,000
1990	0.81	32,387	6,477	25,910	21,000	2,000

Source: "Financial and Manpower Implications of a Faster Expansion of Secondary Education for 1984," Ministry of Finance and Development Planning, 1983.

Finally, mention needs to be made of Maru-a-Pula, the only independent secondary school and the only school in Botswana which prepares students for the Cambridge A level examinations. Maru-a-Pula, located in Gaborone, currently enrolls 288 students. Almost 50 percent of the students are Batswana, with the remainder consisting of nationals from some 28 countries (37 students are from other African countries). The school receives no government aid and tuition is set to meet all recurrent costs. The school's fee structure is presented below:

	A Levels	O Levels
Batswana		
Day Pupil		P 1,050
Boarder		2,154
Expatriate		
Day Pupil		1,923
Boarder		3,639
Common Fees		
Day Pupil	P 2,184	
Boarder	4,020	

To summarize, secondary education is entering a period of rapid expansion. The most important issues, therefore, are those related to the efficient management of growth in terms of both monetary costs and social costs. Since junior secondary will expand at a much faster rate than senior secondary, and since junior secondary leavers without post-school training cannot be absorbed fully in the economy while junior secondary leavers with such training are in demand, vocational/technical training opportunities are of major importance. A selection of training programs is reviewed in the next subsection.

2.5.1.3 Vocational and Technical Training

Vocational and technical training programs are sponsored by almost every government ministry for their own employees or the clientele they serve. Private companies and parastatals frequently either train their own employees or pay for their employees' participation in a public or proprietary program. Finally, independent non-profit institutions, such as the YWCA and the Botswana Christian Council, run small programs for specific skills. Because of the diversity in target populations, fields, and curricular variations, only a few of the programs are reviewed in this cost analysis subsection, namely those offered by the Brigades, the Botswana Polytechnic, the Automobile Trades Training School, and the Botswana Institute of Administration and Commerce. These programs were chosen because they exemplify the diversity of available training, are targeted to somewhat different groups, and either graduate or could be expanded to graduate relatively large numbers.

A. The Brigades

The Brigades were initiated in 1963 in Serowe as a response to the need of Standard 7 leavers for training and employment. Most brigades combine training with productive work so that the costs of training are at least partially offset by the sale of services and goods.

Each brigade is defined by its activities; for example, there are builder brigades, farmer brigades, and textile brigades. Groups of brigades are organized into Centres. Of the 21 Centres currently in existence, 13 provide formal vocational training in conjunction with other activities, while eight have no formal training components but are involved in activities related to employment generation, community service, or adult education. In the formal vocational training programs, students generally receive training for 2 to 3 years before sitting for Trade Test C. The training is based on an approximate 20 percent/80 percent division of time between academic studies (English, mathematics, development studies, and, in some Centres, science) and craft instruction with work.

In 1983 the Centres had approximately 726 trainees, most of whom were Standard 7 leavers. The number of trainees by craft and by centre is shown in Table 8.10 in the chapter assessing Vocational and Technical Education.

While the Brigades prefer trainees from 16 to 18 years of age, consideration is being given to creating pre-entry courses for new primary leavers, who are typically in the 13- to 15-year age range. Many view this group as especially needy since they are not yet allowed to seek employment and have failed to gain entry into the formal post-primary education sector.

Systematic information is, unfortunately, not available on the number and quality of the teaching staff, although the latter has been

cited as a problem. The typical student/teacher ratio varies between 4:1 and 10:1, depending on craft and location.

From the outset, local government has been directly involved in the brigades. The local Community Development Department often has proved instrumental in founding a brigade. Perceiving the need for coordination and communication among the rapidly proliferating Centres, Central Government in 1969 established the National Brigade Coordinating Committee (NBCC). The Committee was advisory to the Ministry of Education and its Secretary was made a full-time officer of the Ministry. The Brigades Development Centre (BRIDEC) was established in 1976, in the Division of Technical Education in the Ministry of Education. BRIDEC recently was elevated to independent status within the Ministry, indicating the full partnership of government with the Brigades.

Capital funding for the Brigades has come from three sources: (a) grants or loans made to the Central Government for the Brigades, (b) grants made to a particular brigade, and (c) proceeds generated by the Centre's commercial ventures. The loans and grants made to government for the Brigades from 1979-80 through 1983 and projected through 1984-85 are shown in Table 2.36.

The major financial problem which has faced the Brigades over time has been the financing of recurrent costs. Sometimes productive activities have taken precedence over training activities in order to keep a brigade operational. The government subsidy per student will

TABLE 2.36

ACTUAL AND ANTICIPATED CAPTIAL EXPENDITURES
FOR THE BRIGADES
1979-1985
(Pula)

Ministry: EDUCATION
Department: Technical Education

Approved TEC P[illegible] 075 000

Latest Estimate TEC (Current Prices) P[illegible] 0[illegible]0 000

Source of Funds Available/Required	Actual Expenditure 1979-80	1980-81	1981-82	Anticipated Expenditure 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
FTBN P1,024,729	-	-	-	729	-	-	729	1,024,000
DDF P1,740,001	-	70,370	219,186	6,445	225,000	247,000	768,001	972,000
IBRD P2,943,775	276,494	440,145	106,492	76,644	502,000	503,000	1,904,775	1,039,000
SIDA P 366,495	109,886	163,251	39,566	30,792	23,000	-	336,495	-
Total (Current Prices)	386,380	673,766	365,744	114,610	750,000	750,000	3,010,000	1,035,000
Total (1982-83 Prices)	577,000	898,000	420,000	115,000	664,000	605,000	3,279,000	-

Status Report: The nature and extent of assistance to Brigades is under discussion within government and it is possible that actual expenditure, which will be based on project memoranda in respect to individual brigades, may be undertaken by a ministry other than the Ministry of Education.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

be more than doubled, from P460 to P1,000, in 1984 in an effort to alleviate this problem. While data on costs per student are currently not centrally collected, BRIDEC's estimates indicate that training expenditures average P1,500 per student per annum over and above the portion financed from productive activities. The true average cost, excluding income and including the salaries of volunteers and a depreciation allowance, probably is more than double this estimate. The principal reason for the high unit cost is the low student/instructor ratio.

In addition to these training outlays, government expenditures related to the subsidy of BRIDEC itself totaled P614,180 in 1982 and are estimated to have increased in 1983. Additional costs associated with BRIDEC are borne by external agencies through subsidy of the expatriate instructors' salaries.

B. Botswana Polytechnic

Recognizing the increasing need for post-primary vocational training, government upgraded the National Centre for Vocational Training to polytechnic status in 1980. Botswana Polytechnic now offers both introductory and advanced craft courses, as well as technical courses in electrical engineering and telecommunications. A course for science laboratory technicians is planned for the future.

As soon as the new vocational centers are fully operational, the Polytechnic will discontinue its introductory courses and concentrate its resources on advanced craft and technical training. Entry requirements

for the craft courses include a good pass (Grade C or better) in English, mathematics, and science on the Junior Certificate Examinations, an interview, and in some cases a selection examination. Candidates for the technical courses must possess either a Craft Certificate with credit levels of attainment or a Cambridge Overseas School Certificate with minimum grades of 6 in English, mathematics, and science or passes in the General Certificate of Education (GCE) examination in these subjects. A limited number of mature students without these qualifications are also admitted on the basis of employers' recommendations. The craft courses are designed to meet the standards of the National Trade Tests, while those for technicians prepare students for the more theoretically oriented City and Guilds of London examinations.

In 1980 enrollment at the Botswana Polytechnic included 464 students, 20 of whom were women. Of these, 194 were enrolled in the Mechanical Engineering course and 186 and 84 were enrolled in the Civil Engineering and Electrical Engineering courses, respectively. Present aggregate enrollment is 485. Staffing arrangements for 1980 were as follows:

Staff in Post	
OSAS Staff	20
Non-designated contract holders	15
Citizen staff	21
	56
Staff under Training	
Abroad	5
In-service at Polytechnic, full-time	4
day release	4
	13

Student enrollment divided by the staff in residence yields a relatively low student/teacher ratio of 8.3:1.

Capital projects at the Polytechnic have been financed primarily by government development funds, with sizable donations from the United Kingdom and Sweden. Capital expenditures by source from 1979-80 projected through 1984-85 are shown in Table 2.37.

Recurrent costs, exclusive of salaries paid by external agencies, are covered by tuitions paid by employers and by subsidies from Central Government. Employers sponsoring students are required to pay government P20 per week per student (P8 for room and board and P12 for tuition fees) and are asked to cover the cost of the student's books and supplies. The students, in return, are bonded to their sponsors for a period equal to that of their training. These charges do not recover any significant portion of the real cost of training and therefore represent a sizable subsidy of the private sector by government.

Most of the students not sponsored by private employers are sponsored by government. They receive room, board, tuition, books, and supplies. In addition to these subsidies, they also receive monthly allowances of P10 for personal expenses. In accepting their bursaries, government-sponsored students also contract to serve for a number of years equal to those for which they receive support.

TABLE 2.37

ACTUAL AND ANTICIPATED CAPITAL EXPENDITURE FOR
BOTSWANA POLYTECHNIC
1979-1985
(Pula)

Ministry: EDUCATION
Department: Technical Education

Approved TEC P3 140 000

Latest Estimate TEC (Current Prices) P3 140 000

Source of Funds Available/Required	Actual Expenditure			Anticipated Expenditure			Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85		
FTBN	-	-	-	-	-	-	-	-
DDF P2,544,700	-	-	364,472	1,500,340	500,000	57,000	2,421,812	-
SIDA P 129,134	53,210	20,563	36,812	18,549	-	-	129,134	-
UK P 589,054	-	-	589,054	-	-	-	589,054	-
Total (Current Prices)	53,210	20,563	990,338	1,518,889	500,000	57,000	3,140,000	
Total (1982-83 Prices)	79,000	27,000	1,138,000	1,519,000	442,000	46,000	3,251,000	
Recurrent Financial Costs (1982-83 Prices)				25,000	100,000	25,000	150,000	

Status Report: Phase I - Complete
Phase II - Major Project construction begun; completion was anticipated by mid-1983. Approved funds (DDF) exceed the TEC by P123,888 and may not be fully utilized in the current plan period.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

Cost data that would permit estimation of the relative shares (government, external agency, employer) of the recurrent program costs are not available. Government invested about P1,433,070 in Polytechnic training in 1982.

C. Automotive Trades Training School

The Automotive Trades Training School (ATTS) serves a population similar to the Polytechnic (JC passers) and also is located in Gaborone. ATTS, however, is only in its second year. It was established to produce craft-level auto mechanics, auto electricians, and heavy plant mechanics. All three courses are designed for three years of full-time training. Students are not considered to be fully skilled, however, until they complete an additional two years of on-the-job training. At present there are 80 students; 40 were admitted in 1982 and an additional 40 were accepted in 1983. A full complement of 120 students is expected in 1984.

Government has undertaken capital costs of construction with assistance from the Federal Republic of Germany, which has financed almost one-third of the total development costs to date, as can be seen from Table 2.38. The Federal Republic of Germany is also assisting with a large portion of recurrent costs by paying the salaries of the German nationals on staff. Central Government covers all costs of the ATTS associated with student accommodation, books and supplies, non-instructional salaries, and operational costs. In addition, ATTS students are provided a monthly allowance of P10. In

TABLE 2.38

ACTUAL AND ANTICIPATED EXPENDITURES FOR
AUTOMOTIVE TRADES TRAINING SCHOOL
1979-1985
(Pula)

Ministry: EDUCATION
Department: Technical Education

Approved TEC P2 176 000

Latest Estimate TEC (Current Prices) P2 176 000

Source of Funds Available/Required	Actual Expenditure			Anticipated Expenditure			Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85		
FTBN	-	-	-	-	-	-	-	-
DDF P1,576,000	-	-	527,126	307,574	456,000	200,000	1,490,700	-
GTZ P 685,300	-	201,635	363,855	119,810	-	-	685,300	-
Total (Current Prices)	-	201,635	890,981	427,384	456,000	200,000	2,176,000	
Total (1982-83 Prices)	-	269,000	1,024,000	427,000	404,000	161,000	2,285,000	
Recurrent Financial Costs (1982-83 Prices)	-	-	-	100,000	100,000	50,000	250,000	

Status Report: Project complete except for one hostel to be completed in Phase II. Provision for 1983-84 and 1984-85 covers additional hostel accommodation required in this plan period for use by ATTS and Botswana Polytechnic. Approved funds exceed the currently approved TEC of P2,176,000 by P85,300 (DDF) which may not be used in the current plan period.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

return for their bursaries the students agree to work wherever designated by government for a specific period of time. Total government outlays for recurrent costs in 1982 are estimated at P194,288.

D. Botswana Institute of Administration and Commerce

The Botswana Institute of Administration and Commerce (BIAC) resulted from the 1964 merger of the Education Department's Trade School and the Public Works Department's Training School, both of which had been founded two years earlier. Named the Botswana Training Centre, the new institution retained the training functions of both of the original organizations and consequently offers both technical and secretarial courses. Accountancy and business studies were added to the program in the late 1970s. The National Commission on Education recommended in 1977 that BTC "become a National College of Commerce and Administration, training personnel for Private as well as Public Sector Employment" (BIAC Annual Report, 1982-83). In view of its expanded program and purpose, the Centre was given its present name in 1980.

BIAC enrolled 1,103 students in 1983 in courses leading to elementary, intermediate, and advanced secretarial certificates; certificates, diplomas, and higher diplomas in accountancy and business studies; non-degree introductory and basic courses for public service employees; non-degree special courses requested by government departments; and non-degree refresher and upgrading courses for office

TABLE 2.39

ACTUAL AND ANTICIPATED CAPITAL EXPENDITURES,
BOTSWANA INSTITUTE OF ADMINISTRATION AND COMMERCE
(Pula)

Ministry: STATE DEPARTMENT
Department: Botswana Institute of Administration & Commerce

Approved TEC P 811 300

Latest Estimate TEC (Current Prices) P 687 000

Source of Funds Available/Required	Actual Expenditure			Anticipated Expenditure			Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85		
FTBN P 124,200	-	-	-	-	-	-	-	124,200
DDF P 288,300	23,881	13,573	156,746	94,000	-	-	288,200	100
GTZ P 398,800	-	34,851	275,000	88,949	-	-	398,800	-
Total (Current Prices)	23,881	48,424	431,746	182,949	-	-	687,000	124,300
Total (1982-83 Prices)	36,000	65,000	496,000	183,000			780,000	

Status Report: This project is almost complete and no expenditure is anticipated for the rest of this plan period. The project consists of construction of 7 classrooms, a model office, hostel, 2 offices, staff room, store room, toilets for students and for staff, small kitchen, and electrical installations, furniture equipment, beds, and mattresses.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

workers. Entry and graduation requirements for degree programs are shown in Table 8.7 and enrollments by course in Table 8.6, both in Chapter 8.0 on Vocational and Technical Education.

Capital costs have been financed principally from the Domestic Development Fund and loans from the World Bank. Development expenditures from 1979-80 through 1982-83 are shown in Table 2.39.

Recurrent costs at BIAC are met in a somewhat different manner than in the other public post-secondary institutions. Pre-service government workers are charged no fees and receive a P10 allowance per month. In return, they are bonded to government service. In-service government workers are charged no fees and are entitled to full salary for the first 12 months of training and half their salary thereafter. Non-government students are charged P200 per year for tuition and P15 per week for boarding or P5 per week if a day student. These charges represent only a small fraction of the true per pupil costs. Government sponsors roughly 81 percent of all students while the private sector and the parastatals sponsor approximately 17 percent and 2 percent, respectively. Information is not available on the extent and type of subsidy which students receive from employer sponsors. Total government outlays for BIAC were P701,290 in 1982 and P841,620 in 1983.

In general, vocational/technical training in Botswana is characterized by low student/teacher ratios. Since low ratios make expansion of these programs prohibitively expensive, the reasons they exist need to be investigated.

The next subsection describes another source of post-secondary training, the teacher training centers.

2.5.1.4 Teacher Training

Pre-service teacher training is provided at three Teacher Training Colleges (TTCs) affiliated with the University of Botswana and at the University itself. The three centers, located at Lobatse, Serowe, and Francistown, offer a two-year course leading to the Primary Teachers Certificate. UB awards the Certificates, prepares the examinations, and determines pass rates. The Lobatse TTC, originally opened at Kanye in 1947, is the oldest of the three. Serowe was opened in 1963 and is the only one which enrolls only women. The Teacher Training College in Francistown was founded in 1968 to provide in-service training for untrained primary teachers, based on a combination correspondence and residence program. Later this program was phased out in favor of conversion to a full residential primary teacher training program.

Candidates are admitted to the colleges on the basis of a test and/or interview. The dual method of selection is meant to encourage untrained primary school teachers whose educational attainment is below the JC level to apply. This policy presents a dilemma. On the one hand, equity demands that dedicated teachers be provided with opportunities for advancement. On the other hand, the single most pressing issue at the primary level is the quality of the teaching

force. While quality cannot be equated with years of schooling, it is unlikely that a short interview is an accurate means of discriminating between individuals who are likely to benefit from a TTC program and those who are not. This suggests that greater attention needs to be paid to selection criteria and procedures, as well as the capacity of the institutions to deal with substantial differences in student academic ability. At present, attempts are being made to recruit relatively larger proportions of junior secondary leavers and somewhat smaller numbers of students with lower educational attainments. The 1982 enrollments and staffing are summarized as follows:

Students	Lobatse	Francistown	Serowe	Total
First Year	168	150	161	479
Second Year	152	142	215	509
Total Enrollments	320	292	376	988
Staff				
Administration	3	3	3	9
Tutors	17	17	18	52
Other	6	6	6	18
Total Staff	26	26	27	79

These data indicate a student/teacher ratio of about 20:1.

TABLE 2.40

ACTUAL AND ANTICIPATED CAPITAL EXPENDITURES FOR LOBATSE TTC, FRANCISTOWN TTC, and SEROWE TTC 1979-1985 (Pula)

Ministry: Education
Department: Teacher Training

Approved TEC P3 288 000

Latest Estimate TEC (Current Prices) P3 160 000

Source of Funds Available/Required	Actual Expenditure 1979-80	1980-81	1981-82	Anticipated Expenditure 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
FTBN P 71,621	-	-	-	4,171	-	-	4,171	67,000
DDF P 859,900	-	485,590	191,750	181,560	-	-	858,900	1,000
UK P2,296,929	1,341,667	718,927	80,099	156,236	-	-	2,296,929	-
Total (Current Prices)	1,341,667	1,204,517	271,849	341,967	-	-	3,160,000	68,000
Total (1982-83 Prices)	2,002,000	1,606,000	312,000	342,000			4,262,000	-
Recurrent Financial Costs (1982-83 Prices)				1,000	3,000		4,000	

Status Report:
- Lobatse: Project almost complete; solar heating now being installed.
- Francistown: Project almost complete; solar heating to be installed in new hostels. Some equipment has not yet arrived. Some minor works needed (e.g., fencing, sportgrounds).
- Serowe: Project almost complete; solar heating to be installed in new hostels.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

The development expenditure program for the TTCs in NDP V is presented in Table 2.40. As indicated, the United Kingdom has provided support for much of the TTC renovation and extension. Recurrent costs have been paid by government except for external agency contributions for expatriate instructor salaries. In addition to free tuition, students receive board, lodging, books, and a monthly allowance of P10. In return for this support, students sign two-year contracts with the Unified Teaching Service.

Because of the under-supply of qualified primary teachers, discussed earlier, an additional primary teacher training college is under construction at Tlokweng. Its construction is being financed primarily from a World Bank loan. Estimates of development costs are provided in Table 2.41. The college is expected to open in 1985 and will have capacity for about 400 students.

More advanced training, leading to a diploma or Bachelor's of Education in primary education is offered by the University. Students obtaining diplomas or degrees are expected to become Head Teachers or Tutors in the TTCs. At present, all secondary teacher training also takes place at the University. The certificate program for junior secondary teachers is expected to be transferred to Molepolole, as soon as the facility being constructed for this purpose is opened. The Molepolole Junior Secondary TTC has been designed for a capacity of 450 students. The general course of study will be three years. The estimates of capital costs for construction are shown in Table 2.42.

TABLE 2.41

ACTUAL AND ANTICIPATED DEVELOPMENT EXPENDITURES,
PRIMARY TEACHER TRAINING COLLEGE
1979-1985
(Pula)

Ministry: Education
Department: Teacher Training

Approved TEC P6 000 000

Latest Estimate TEC (Current Prices) P5 150 000

Source of Funds Available/Required	Actual Expenditure 1979-80	1980-81	1981-82	Anticipated Expenditure 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
FTBN P1,708,200	-	-	-	200	540,000	759,000	1,299,200	409,000
DDF P 400,000	-	-	-	115,000	285,000	-	400,000	-
UK P3,891,000	..	-	-	234,800	1,675,000	1,541,000	3,450,800	441,000
Total (Current Prices)	-	-	-	350,000	2,500,000	2,300,000	5,150,000	850,000
Total (1982-83 Prices)	-	-	-	350,000	2,212,000	1,855,000	4,417,000	-
Recurrent Financial Costs (1982-83 Prices)						65,000		
Recurrent Manpower Required								
No. of A Level Posts						4		
Main Field(s) of Expertise						Admin. Educ.		

Status Report: Tender documents complete. Contractor to be on site first half 1983. Construction period approximately 22 months. Will be 300 students on two-year course when fully enrolled.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

TABLE 2.42

ACTUAL AND ANTICIPATED DEVELOPMENT EXPENDITURES,
JUNIOR SECONDARY TTC
1979-1985
(Pula)

Ministry: Education
Department: Teacher Training

Approved TEC P8 900 000

Latest Estimate TEC (Current Prices) P7 300 000

Source of Funds Available/Required	Actual Expenditure 1979-80	1980-81	1981-82	Anticipated Expenditure 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
FTBN P 500,000	-	-	-	-	-	122,000	122,000	378,000
DDF P 800,000	-	-	83,462	316,538	200,000	200,000	800,000	-
UK P7,600,000	-	-	-	55,000	2,300,000	4,023,000	6,378,000	1,222,000
Total (Current Prices)	-	-	83,462	371,538	2,500,000	4,345,000	7,300,000	1,600,000
Total (1982-83 Prices)			96,000	372,000	2,212,000	3,504,000	6,184,000	-
Recurrent Financial Costs (1982-83 Prices)				25,000		76,000	101,000	
Recurrent Manpower Required No. of A Level Posts				1	-	4	5	
Main Field(s) of Expertise				Education		Admin. Educ.		

Status Report: Tender documents complete. Contractor to be on site mid-1983, construction period 24 months. Principal to arrive to take up post in October, 1982. Will have 450 students on 3-year courses when fully enrolled.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

2.5.1.5 University Education

Diploma and degree level studies may be pursued in-country at the University of Botswana (UB). UB was established as an independent institution in July 1982, replacing the University of Botswana and Swaziland (UBS, 1976-1982), which was a successor institution of the University of Botswana, Lesotho, and Swaziland (UBLS, 1964-1976). The University currently offers programs leading to:

- a Master's Degree in Education;
- Bachelor's Degrees in Arts, Commerce, Education, Science, and Laws (in conjunction with the University of Edinburgh);
- Certificates in Accounting and Business, Library Studies, and Statistics.

Applicants for the Master's program are expected to have a Bachelor's degree or its equivalent. The general requirement for entrance to the Bachelor's programs is a first- or second-division Cambridge Certificate, with credit level in English. Applicants to the science program must also have credit level in mathematics and have completed a six-month pre-entry course. Degree and certificate programs respectively require a minimum of a third division Cambridge Certificate and a Junior Certificate.

The chief exceptions to these general entrance requirements are the Mature Age Scheme and the government program for upgrading primary school teachers. The Mature Age Scheme permits admission of applicants who are over 25 years of age, who have been out of school for five years or more, and who have a Junior Certificate or its

equivalent. The University also accepts an average of 30 primary school teachers a year, 10 for the Bachelor's program and 20 for the diploma. Enrollments by program level and subject area for 1979-1983 are shown in Table 2.43, and the staff profile is presented in Table 2.44.

As the tables indicate, the overall full-time student/faculty ratio is approximately 8:1, although this varies by faculty and course. The full-time student to total staff ratio is 1.6:1.

The capital costs for the new University Complex have been funded from a variety of sources. Actual and anticipated development expenditures under NDP V are shown in Table 2.45. Recurrent expenditures are financed from four principal sources: tuition and fees, auxiliary enterprises, external support, and government subventions. The relative share of University revenues derived from these sources is estimated in Table 2.46.

As indicated, government's contribution to University revenue is nearly 70 percent. This figure seems to be somewhat of an under-estimate, since student books are charged to the government while bookstore revenues are included under income from Auxiliary Enterprises.

Government support of students at the University of Botswana is generous. Bursaries cover tuition and fees, room and board, books and supplies, as well as an allowance for personal expenses (P300 per annum). Students who apply for bursaries generally receive them. In

TABLE 2.43

TOTAL FULL-TIME ENROLLMENTS AT UNIVERSITY OF BOTSWANA

1979-80/1982-83

	1979-80	1980-81	1981-82	1982-83
Degree Course				
Economic & Social Studies	183	205	318	326
Humanities	127	152	195	196
Science	115	131	148	164
Education (B.Ed.)	54	52	74	73
Total	479	544	735	759
Diploma/Certificate Course				
Statistics	13	22	29	35
Librarianship	14	26	53	45
Diploma in Secondary Educ.	157	165	194	227
Diploma in Adult Educ.	8	8	12	10
Primary Educ. Upgrading Course	-	-	11	19
Total	192	221	299	336
Total Batswana	671	765	904	976
Non-Citizen Students	194	162	130	119
Total Enrollments	865	927	1,034	1,095

Source: University of Botswana, Office of the Registrar, 1983.

TABLE 2.44

STAFF PROFILE, UNIVERSITY OF BOTSWANA
1982-83/1983-84

	1982-83				1983-84			
	Acad.	Non-Acad.	Industrial	Total	Acad.	Non-Acad.	Industrial	Total
Faculties								
Education	33	9	-	42	33	10	-	43
Humanities	30	4	-	34	29	4	-	33
Economic & Social Science	32	5	-	37	36	5	-	41
Science	35	20	1	56	35	21	1	57
Other Academic Programs								
Pre-entry Science	10	4	-	14	10	4	-	14
Staff Development	40	-	-	40	55	-	-	55
NIR	5	6	2	13	6	8	2	16
Community Services								
Continuing Education	2	2	6	10	2	2	6	10
Academic Support								
University Library	9	20	7	36	9	22	8	39
Resource Centre	1	6	-	7	1	6	-	7
Computer Services	-	1	-	1	-	1	-	1
Student Services	1	3	-	4	2	4	-	6
Institutional Support								
Vice Chancellor's Office	2	3	-	5	2	3	-	5
Registrar's Office	10	17	4	31	11	18	4	33
Bursar's Office	6	19	-	25	7	22	-	29
Physical Planner	1	2	-	3	1	2	-	3
Staff Development	-	15	-	15	-	10	-	10
Operation & Maintenance of Plant								
Estates & Maintenance	-	42	51	93	-	50	60	110
Domestic Services	-	1	49	50	-	2	52	54
Auxiliary Services								
Residence	-	3	88	91	-	3	97	100
Reporting	-	8	52	60	-	8	54	62
Bookstore	-	-	-	-	-	1	-	1
Total	217	190	260	667	239	206	284	729

Source: Estimates of Recurrent Income and Expenditure, 1982-83, University of Botswana, 1983, p.3.

TABLE 2.45

UNIVERSITY OF BOTSWANA
ACTUAL AND ANTICIPATED DEVELOPMENT EXPENDITURES
FOR NDP V
(Pula)

Ministry: Education
Department: Headquarters

Approved TEC P15 213 000

Latest Estimate TEC (Current Prices) P10 920 000

Source of Funds Available/Required	Actual Expenditure 1979-80	1980-81	1981-82	Anticipated Expenditure 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
FTBN P8,173,807	-	-	-	112,807	1,418,000	2,350,000	3,880,807	4,293,000
UNICEF P 8,200	-	-	7,269	931	-	-	8,200	-
DDF P2,526,800	-	300,000	1,018,000	1,138,000	70,000	-	2,526,800	-
SIDA P 52	52	-	-	-	-	-	52	-
IBRD P 9,816	3,851	317	-	5,648	-	-	9,816	-
EDF P1,546,000	298,416	436,910	589,735	220,939	-	-	1,546,000	-
BUCA P 518,260	-	240,000	278,260	-	-	-	518,260	-
UK P2,202,001	1,122,484	1,020,000	59,517	-	-	-	2,202,001	-
CIDA P 228,064	-	200,139	27,925	-	-	-	228,064	-
Total (Current Prices)	1,424,803	2,197,366	1,981,706	1,478,325	1,488,000	2,350,000	10,920,200	4,293,000
Total (1982-83 Prices)	2,127,000	2,930,000	2,277,000	1,478,000	1,317,000	1,895,000	12,024,000	-
Recurrent Financial Costs (1982-83 Prices)				56,000	12,000	54,000	122,000	

Status Report:
1) Administration Block complete.
2) Institute of Adult Education moved to Campus.
3) Primary Education Improvement Building Construction under way. To be completed Dec. 82.
4) Provision for 1983-84 and 1984-85 is primarily for the construction of a new library but will also cover smaller works such as a bookstore and general site development.

Source: 1982 Project Review, Ministry of Finance and Development Planning.

TABLE 2.46

REVENUE SOURCES FOR RECURRENT BUDGET,
UNIVERSITY OF BOTSWANA
1983-84

Revenue Source	Amount	Percentage of University Revenue
Tuition not covered by GOB	P 412,450	4.4%
Auxiliary Enterprises	1,887,435	19.9
External Agency Support	613,430	6.5
Government Support		
Lump Sum Transfer	5,521,200	58.3
Student Tuition	996,000	10.5
Other	37,560	0.3

Source: Derived from data in Estimates of Recurrent Income and Expenditure, 1983-84, University of Botswana, 1983.

Note: Column does not sum to 100% due to rounding.

accepting bursaries, students commit themselves to an assignment in the government, private, or parastatal sectors for a term equaling the length of study plus one year. Thus, a student who receives government support for four years will serve in the assigned sector for a five-year period. Sector assignment is made by a special government committee, which contains representatives from both private companies and parastatals as well as government. In addition to their service contracts, students also sign agreements to pay to the government 5 percent of their yearly salaries over the service period.

Batswana subsidized for study abroad accept the same service and reimbursement responsibilities. At the present time, between 80 and 90 students are studying at universities outside Botswana. Bursar's Office estimates of the yearly cost of supporting these students in selected countries are as follows:

Country	Unit Cost Per Year
UK	£9,000
United States	US$20,000
Canada	C$13,000
Tanzania	P6,500
Kenya	P7,000

The major policy question with respect to the University is whether the funds now being invested in foreign study could be better expended on quality enhancement and program expansion at the

University of Botswana. Present conditions indicate that there are not sufficient economies of scale in certain disciplines for high-quality programs in these areas to be offered in Botswana in a cost-effective manner. The absolute expense of the foreign training, however, requires that this issue be re-examined on a periodic basis.

2.5.1.6 Summary Issues

A number of issues have emerged from the preceding discussion describing the enrollments, financial sources, recurrent costs, and capital expenditures associated with the major levels and types of schooling. At the primary level, while government policy has successfully precluded the concentration of untrained teachers in particular locations, the persistence of large numbers of untrained or poorly trained teachers in classrooms continues to devalue current public and private investments in primary education.

The issues at the secondary level are more complex. The lack of parity between government spending levels (and therefore total investments in students) at government schools and the CJSSs is compounded by the quality differences in prior student learning, teachers, and material resources. Although the dual system of junior secondary schooling is the result of a difficult choice between types of equity (a more equitable access to secondary education and a more equitable distribution of inputs), the persistence of such a system beyond the current expansion period may well carry heavy social costs. These costs will be in terms of both foregone opportunities

for alternative educational investments and reduced quality of manpower available in the future.

With few exceptions the chief cost inefficiency in the post-secondary programs is the low student/teacher ratios. While low student/teacher ratios may help compensate for poor instructional quality in some vocational and technical training programs, greater attention needs to be given to improving teacher ability and effectiveness. Although low student/teacher ratios at the University relate to its early stage of institutional development, a ratio of 12:1 is targeted as the optimum goal in years to come. Strategies for gradually increasing this ratio without loss of quality should be sought.

2.5.2 Unit Costs, Cycle Costs, and Rate of Return Analysis

The purpose of the unit cost and rate of return analyses, presented in this subsection, is to provide a framework within which to consider comparative costs and gains. Estimates are provided of the unit cost and cycle or graduation costs of the major levels and types of schooling. In each case, costs include only recurrent budgetary items. No attempt was made to calculate depreciation expense or the implicit interest cost of physical facilities and equipment.

2.5.2.1 Unit and Cycle Costs

Estimates of unit costs for primary schooling, as well as costs

per graduate, are provided in Table 2.47. While the unit cost is relatively low (P189 per annum), the cost of graduating a student with an A or B pass, which would permit continuation to secondary school, is high. The estimate indicates that a single A or B pass "costs" 21.4 years of investment (P4,045); that is, it takes 21.4 years to produce one student who will pass with an A or B. The cost of an A, B, or C pass is much less (P1,1947), one graduate for every 10.3 years of education provided.

Unit costs for secondary schooling, for 1982-83 by type, are shown in Table 2.48. Estimates for the student costs in Government/Aided Schools were derived from information about the relative government/ nongovernment shares, and general costs of such items as uniforms averaged over the years of schooling. The important point of comparison among types of schools is the total amount (public and private) invested in pupils. Almost twice as much is invested in Government School pupils as in Government-Aided School pupils, and two and one half times as much is spent on Government School students as on CJSS students.*

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*Because of the concerns about equity at the junior secondary level, government is instituting a separate fee system for the new CJSSs for 1984. Tuition will be reduced from P90 to P50 per year. The effect is to leave the total day fee for students at the new CJSSs at P200 compared to an average of P127 for those at the Government/Aided schools (with P209 for students at the previously existing CJSSs). The MOE estimates that abolition of the fee system in secondary schools would cost P4.07 million per year. A more likely policy direction is toward greater parity in fees as the distinctions at the junior secondary level among types of schools are eliminated.

TABLE 2.47

PUBLIC PRIMARY SCHOOLING:
ESTIMATES OF UNIT COSTS AND GRADUATION COSTS
1983-84

I. UNIT COSTS

Cost to Parents (uniforms & misc.)	P 15
Cost to Government	
MOE	P136
MLGL	18
Local	20
Subtotal	174
Total Cost	P189

II. GRADUATION COSTS

Year	Pupils per Standard*						
	1	2	3	4	5	6	7
1	1,000						
2		978					
3			969				
4				1,037			
5					882		
6						833	
7							1,083

A. Cost of an A or B pass = 21.4 years or P4,045

B. Cost of an A,B,C pass = 10.3 years or P1,947

* Assumption of progression rates based on Ministry of Finance and Development Planning projections for 1983 forward.

The costs of graduation for secondary schooling by type and level are provided in Table 2.49. The estimates indicate that the average JC Pass (from all types of schools) costs 6.07 years or P3,320. The cost of the Cambridge Certificate shown in Part I of the table reflects attrition from Form III to IV resulting from both the small number of places in Form IV and inadequate performance on the JC. The figures in Part III show that the cost of graduation is much lower when enrollment in Form III is considered the base (P3,039 versus P25,860), highlighting the high selectivity on intake as well as the shorter number of years of study.

The graduation rates for the different types of junior secondary schools point to inefficiencies resulting at least in part from under-investment in the CJSS students. While total monetary investments in the CJSS pupils are 2.4 times less than investments in Government School pupils and 1.3 times less than investments in Government-Aided School pupils, the total CJSS costs are more per graduate produced. This is the case because three times as many student years are required to produce a single CJSS graduate as to produce a graduate at a Government/Aided School. Moreover, while students pay approximately 10 percent of the total cost for Government School, and 14 percent for Government-Aided School, they pay approximately 62 percent of the cost of CJSS.

TABLE 2.48

SECONDARY SCHOOLING: ESTIMATES
OF UNIT COSTS
1982-83

Type	Government			Government-Aided			Community Junior		
	Student Cost	Government Cost	Total	Student Cost	Government Cost	Total	Student Cost	Government Cost	Total
Tuition	P 20			P 20			P 200	P20 (grant)	
Uniforms	10			10			10		
Books & Supplies	35			35			Incl. in tuition		
Exam Fees	5			5			5		
Dinner (day pupils) or Room/Board (boarders)	12 60	76 114							
Teacher Salaries		357						114	
Other Salaries		100							
Other Expenses		238							
Subtotal		809 less tuition (boarders) or 771 less tuition (day pupils)		70	415				
Boarders	130	789	919	-	-	-			
Day Pupils	82	751	833	70	395	465	215	134	349

TABLE 2.49

SECONDARY SCHOOLING: GRADUATION COSTS
1982-83

I. All Secondary

YEAR	Pupils per Form* Junior I	Junior II	Junior III	Senior IV	Senior V
1	1,000				
2		940			
3			799		
4				352	
5					151

A. Junior Cambridge
Cost of a Pass = 6.07 years or P3,320
B. Cambridge Certificate
Cost of a GCE Pass = 40 years or P25,860
Cost of a I, II, III Division Pass = 41 years or P26,507
* Assumptions regarding progression rates based on MFDP projections for 1983 forward. No distinction is made in cost for junior or senior secondary student. Average costs across all types and for both levels are used.

II. Junior Secondary

YEAR	Pupils per Form* Community Junior I	Community Junior II	Community Junior III	Government/Aided I	Government/Aided II	Government/Aided III
1	1,000			1,000		
2		860			980	
3			679			921

A. CJSS
Cost of a JC Pass = 12 years or P4,188
B. Government/Aided
Cost of a JC Pass = 3.9 years or P2,521

* Assumptions regarding progression rates based on MOE data.

III. Senior Secondary

YEAR	Pupils per Form IV	Pupils per Form V
1	1,000	
2		968

Cost of Cambridge
GCE = 4.7 years or P3,039
I, II, III Division = 4.9 years or P3,168

Unit cost figures based on government support for the vocational/technical programs described earlier are as follows:

Program	Unit Cost
1. Brigades	P1,000
2. Botswana Polytechnic	P2,955
3. Automobile Training Trade School	P2,428
4. Botswana Institute of Administration and Commerce	P 987

Total unit costs that would include nongovernment support for the Brigades and ATTS would probably be twice these figures. Both the income from the commercial ventures and the cost of donated services need to be included in the Brigades estimate for even a rough approximation of the total cost per student. What little information is available suggests, however, that Brigade training may not be substantially less expensive than training in the traditional formal educational sector. This is important since it is generally supposed that Brigade training is less costly. The relative cost, however, does not reduce the importance of the Brigades because they provide training to a population (rural primary leavers and junior secondary leavers) who are presently under-served.

With respect to ATTS, the contribution of expatriate salaries by the GDR suggests that the cost sharing between governments for this institution may be relatively equal. BIAC's relatively low per pupil costs result from larger student/teacher ratios than those found in other programs.

The data presented thus far, as well as relevant cost figures for the Teacher Training Colleges and the University, are provided below. A breakdown of University costs by Faculty and degree level at this stage in its development would be misleading, as courses of study are evolving and staff levels and enrollment rates are too variable to provide stable cost estimates. The average cost of University education, including all recurrent expenditures, is estimated at P7,143 per annum of which P3,600 constitutes the per student cost of academic salaries.

	Government	Government-Aided	CJSS
Primary	P 189	NA	-
Junior Secondary (Day Pupils)	833	465	349
Senior Secondary (Day Pupils)	833	465	-
2-3 years Training*	2,123	1000(Brigades)*	-
Teacher Training College	938	-	-
University of Botswana	7,143	-	-

* Government share of operating cost only

Variation in the quality of data and in definitions of operating costs, and the sensitivity of certain of the data to fluctuations in enrollments, require that care be taken in drawing conclusions from the relative, as well as the absolute, levels of these unit costs. Within these limitations the figures tend to re-confirm the problem areas observed earlier. The high unit cost of the vocational/technical programs suggest not only the need for identifying and addressing the underlying causes but also for

developing a data base that permits more accurate cost analyses. With respect to the University, while the budget data are excellent, there appears to be no routinized collection and analysis of enrollments, attrition, or graduation, by gender, age, and other relevant student characteristics. Such information is necessary for efficient decision making.

2.5.2.2 Rate of Return

Calculations of indicative rates of return are difficult, given the present state of the data in some areas and the difficulty of forecasting income differentials by educational level. Nevertheless, an attempt has been made to estimate rates of return, individual as well as total, for graduates of primary education, junior secondary, junior secondary with training, senior secondary, and university.

The rates in Table 2.50 have been calculated by identifying the average direct costs (uniforms, books, etc.) and the earnings foregone by students at each level. The concept of foregone earnings refers to the fact that older students, while engaged in education, sacrifice employment opportunities. While a minor element with respect to primary education, foregone earnings are a major part of private educational costs at the higher levels of education. The rates of return calculated here are keyed to the time of graduation and are exclusive of inflation. Earnings effects are assumed to be horizontal over the worker's life (i.e., the same marginal increase will occur in each year).

TABLE 2.50

INDICATIVE RATE OF RETURN ESTIMATES

Education Level	Direct Private Costs	Foregone Earnings	Total Private Costs	Government Subsidy	Total Costs	Average Annual Increased Earnings	Private Rate of Return	Total Rate of Return
Primary Graduate	P 15	-	P 15	P 174	P 189	P 750	528%**	42%**
Junior Secondary Graduate	P121	P1,250*	P1,371	P 427	P1,798	P1,250	76%	41%
Junior Secondary Graduate Plus training	-	P1,750	P1,750	P 965	P2,715	P1,500	41%	26%
Cambridge Graduate	P74	P2,000	P2,074	P 573	P2,647	P3,500	80%	62%
University Graduate	-	P4,500	P4,500	P7,143	P11,643	P8,000	38%	15%

Source: As discussed in text.

* Incurred only in last year of school.

** Both private and total rates of return are based on the assumed employment of all graduates. Hence, the rates of return for primary graduates may be exaggerated since there is more likely to be a heavier incidence of unemployment in this cohort than among the secondary graduates or the university graduates.

While these assumptions are appropriate given the quality of the data, it should be noted that the absolute level of the rates is sensitive to assumptions concerning foregone earnings and earning increments. Even so, stable patterns of the relative sizes of the rates of return do exist. Primary schooling, because of the low unit cost and lack of foregone earnings, commonly has a very high rate of return. The substantial difference between the individual and total returns results from the large government subsidy of education at the primary level.

It is interesting to note the premium received for formal post-JC training (Cambridge graduation) versus skill training after the JC level. Both are good investments but the higher return to Cambridge degree holders reflects their lower public subsidy and higher wage expectations. The rate of return at the University level is lower than those at the earlier levels but still indicates a profitable investment for most eligible students.

2.6 SUMMARY CONCLUSIONS AND RECOMMENDATIONS

The economic and financial analysis of EHR programs in Botswana leads to a variety of conclusions and recommendations for EHR policy and practice. This final section organizes these conclusions and recommendations in summary fashion and structures them according to their origin in the fiscal capacity, manpower, or unit cost analyses.

2.6.1 Summary Conclusions

2.6.1.1 Fiscal Capacity Analysis

(a) The maintenance of a conservative fiscal performance is a necessity for the 1980s. The degree of variability of the basic GDP determinants combines with Botswana's external dependency to create a situation of macro-economic uncertainty. While general long-term optimism is justified, the experience of recent years supports continued moderation in expenditures, both recurrent and development. New spending plans should be for the short term or designed in a phased format that allows for postponements and/or reductions in expenditure levels from year to year if GDP growth slows.

(b) Donors should be prepared to fund a greater share of development costs. Government's ability to support development expenditures for the remainder of NDP V and into NDP VI will be tied directly to the nation's macro-economic performance. While government will continue to support a responsible share of project costs, it may be necessary for external funding to support a larger proportion of these costs than has been the case to date. Full responsibility for recurrent costs will continue, of course, to be that of government.

(c) Better coordination is necessary among EHR agencies. Because of the probable constraints on aggregate EHR spending by the end of this decade, improved coordination will be necessary among agencies to assure that funds are used effectively. The areas of training and nonformal education are the most in need of a better information

system, more goal-oriented management, and generally improved planning and accountability.

(d) The expansion of secondary education will reduce the availability of funds to enhance quality and provide complementary post-school training. The decision to accelerate expansion of junior secondary education will increase the absolute level of the EHR budget, its rate of growth, and its share of total government expenditures and of GDP. The opportunity cost of this decision is that some other demand-oriented education and training activities may not be financed unless GDP growth exceeds present expectations. In terms of meeting manpower demands, the most important educational investments appear to be in quality improvement, curriculum reform, and provision of post-school training (especially at the secondary levels).

(e) Government should explore the use of private sector resources in providing training. Because of the potential financial constraints, providing training without incurring large, on-going obligations should be given priority. This can be achieved through using private sector firms as providers of training or utilizing private sector facilities as sites for training. While it remains appropriate for training to be conducted under government sponsorship and direction, there is a need to avoid the development and recurrent cost obligations inherent in developing new institutions. In addition, the private sector scheme promotes greater flexibility in the types of training that may be provided.

2.6.1.2 Manpower Analysis

(a) Increased attention should be given to manpower demands in EHR planning. There is a need to restrain education and training initiatives that are primarily in response to social demand. While the accelerated expansion of secondary education will help meet some manpower shortages, it is not primarily designed to alleviate the large problems of manpower surplus that now exist. These same problems are likely to become more severe over the decade.

(b) More specific data on manpower skill supply and demand should be collected. Current information on skill shortage is almost non-existent in the private sector and remains limited even in the public sector. Manpower balances are cast at present in terms of formal educational levels with or without "training," but such "training" is not defined. The fit of supply to demand will not occur unless improved information on specific skill needs is collected and analyzed.

(c) A balanced EHR/manpower develoment approach should consider the needs of both the modern and the traditional sectors of the economy. Recent education and training policy has had the primary effect of dealing with modern sector considerations (when demand issues are dealt with at all). Improved quality of formal education, greater access to nonformal education (in agriculture and health as well as literacy and numeracy training), and preparation in

income-generation skills all are necessary activities for the EHR system.

(d) A more equitable arrangement for sharing highly trained workers between the private and public sectors should be instituted. The present shortage of university graduates and other highly skilled workers available to the private sector restrains efficiency and delays the necesary process of localization. The present system of tax subsidization of training in the private sector appears effective and should be continued.

2.6.1.3 Unit Cost Analysis

This review of educational costs and their relative profitability for individuals and society as a whole leads to the following conclusions:

(a) The priority placed on improving primary schooling will affect the efficacy of all investments at higher levels. Every care should be taken that secondary expansion does not preclude continued investments in improving primary education. Since such improvement is directly related to upgrading teacher quality, attempts should be made to identify those incentives likely to draw able individuals into the field and encourage them to remain as teachers.

(b) Continued underfinancing of the Community Junior Secondary Schools is likely to be more costly in both monetary and social terms than slower expansion characterized by higher quality. One social cost of a rapid expansion of the CJSS model may be a devaluation of

the JC Certificate in the eyes of employers, thereby further reducing the demand for JC leavers who do not have additional training. Every effort should be given to ensuring quality instruction and opportunity at the junior secondary level.

(c) The high public cost of post-junior secondary education and training combined with high rates of return to individual investments suggest that government might consider recapturing some of its investment. This could be done by requiring needs tests for all bursaries or conversion of a share of the grants into long-term, low-interest loans. The reasons for the low student/teacher ratios should be identified and steps taken to increase them where the present levels cannot be justified.

2.6.2 Recommendations

The requirements for improved economic and financial management of the EHR sector are summarized here from the more detailed discussion in the preceding text.

Recommendation 1. Improve the data base for manpower planning.

Data improvements are needed especially in the private sector at the levels of post-Standard 7 and post-Junior Certificate requirements. The specific nature of training and the number of trainees required should be identified for the succeeding year. Short-term specific, not long-term aggregate, training needs should be the focus of this activity.

Recommendation 2. Designate responsibility within government for planning skill training and for utilizing private sector resources in training.

A government unit such as the Department of Labor should be charged with the responsibility for creating training programs to meet the needs identified by improved data collection. These should be courses of training that are free-standing in that they do not have permanently employed personnel. Courses should be repeated only as justified by demand. The managing unit should use the facilities and personnel of private sector firms whenever this is feasible.

Recommendation 3. Give greater priority to quality improvements in primary and secondary education.

Increased relevance of education at the primary and secondary level will require improved achievement in English, mathematics, and science. Skills in these areas will have the additional effect of preparing graduates for job training opportunities in formal education or on-the-job settings. If quality is not improved in the formal system, training will be less efficient and will need to incorporate a large remedial component.

REVISED ESTIMATES OF MANPOWER IMBALANCES
BY EDUCATION LEVEL AND SECTOR
1981-1989

	Year								
	1981	1982	1983	1984	1985	1986	1987	1988	1989
I. Formal Sector Only (Manpower Available Minus Manpower Required)									
Less than Full Primary	293,228	306,327	303,944	300,965	296,186	292,249	288,262	284,334	281,186
Primary Completed, No Training	38,566	50,714	62,306	70,865	81,460	94,760	107,470	117,709	118,969
Jr. Certificate, No Training	9,249	12,118	12,879	13,059	13,181	13,578	15,688	19,548	27,339
Cambridge Cert., No Training	151	-686	-1,534	-2,448	-3,499	-4,380	5,041	-5,527	-5,677
University Degree or Higher	-1,318	-1,240	-1,221	-1,252	-1,271	-1,276	-1,291	-1,321	-1,325
Primary Completed, Plus Training	-5,357	-5,056	-4,686	-4,345	-4,351	-3,900	-3,722	-3,662	-2,125
Secondary Education, Plus Training	-15,734	-14,792	-13,997	-13,428	-13,265	-12,751	-12,569	-12,449	-11,277
II. Formal, Traditional, and Informal Sector (Manpower Available Minus Manpower Required)									
Less than Full Primary	183,728	193,604	187,804	181,311	171,782	163,500	154,481	145,146	138,670
Primary Completed, No Training	18,455	29,937	40,820	48,648	58,215	70,588	82,206	91,265	91,850
Jr. Certificate, No Training	5,630	8,408	9,074	9,155	9,153	9,434	11,412	15,133	22,828
Cambridge Cert., No Training	-477	-1,327	-2,186	-3,111	-4,175	-5,068	-5,741	-6,240	-6,403
University Degree or Higher	-1,523	-1,449	-1,433	-1,468	-1,491	-1,500	-1,519	-1,553	-1,561
Primary Completed, Plus Training	-5,357	-5,056	-4,686	-4,345	-4,351	-3,900	-3,722	-3,662	-2,125
Secondary Education, Plus Training	-15,734	-14,792	-13,997	-13,428	-13,265	-12,751	-12,569	-12,449	-11,277

Source: Ministry of Finance and Development Planning

3.0 MANAGEMENT CAPACITY

3.1 INTRODUCTION

Management capacity is recognized increasingly as a major issue within the education and human resources (EHR) sector. An adequate supply of managerial and administrative skills will promote achievement of the objectives of both the public and the private sectors. A shortage of such skills can be a major constraint to day-to-day efficiency and to long-term development efforts.

The latter constraint is an especially important issue for Botswana. Development projects require a high degree of planning and implementation skills because they often attempt to change attitudes and behavior among those population groups who are least inclined to change. Beneficiary groups for development programs are often the least educated, the least economically advantaged, and the least organized. In addition, the manager of development often must deal with resource scarcity, excessively centralized administrative systems, complex donor requirements, and a policy context in which incentives favorable for some programs are counter-productive for the EHR system.

These problems can give rise to poor planning and poor implementation of development activities. In this chapter, management

issues in Botswana are addressed in terms of the status of the management training system, the evidenced needs for management skills, and present alternatives for improving management. The analysis section reviews the existing constraints on management training programs now in operation. The chapter concludes with a set of recommendations for research and administrative analysis that is needed to create a knowledge base from which long-range management training plans may evolve.

For the purpose of this assessment, managerial capacity is defined as the ability of an individual, a group, or an organization to acquire and use resources (material and human) to achieve individual or collective goals. The terms "management" and "administration" will be used interchangeably. While the management issues extend into the informal private sector of the economy, the focus in this discussion is on formal managerial responsibilities in the modern public and private sectors.

3.2 STATUS

3.2.1 Managerial Constraints

The major form of managerial constraint is the shortage of Batswana prepared to assume professional and technical positions as a basis for eventual promotion to senior administrative positions. The present administrative system of the public sector is characterized by a generally high level of efficiency with rare instances of explicit redundancy, and a workable division of labor among technocrats and

bureaucrats. However, these efficiencies have been purchased at the expense of a substantial and continuing reliance on expatriate personnel.

In 1981, the percentages of management and technical positions filled by expatriate personnel were as follows:

Superscale	-	30%
General Administrative	-	3%
Professional	-	58%
Technical (T1-T3)	-	35%
Technical (T4-T5)	-	2%

These numbers indicate that the localization problem involves an important quality dimension. Within the administrative and technical ranks, the expatriates are concentrated in the more senior or more technically demanding positions. This means that the demands on the EHR system to provide local replacements for expatriates will be especially severe.

The problems of localization of management positions are especially dramatic for the private sector. In the past, university graduates have been bonded for public employment; thus, private sector firms have been the last to receive the most highly qualified Batswana personnel. The situation is only slightly better for the parastatal enterprises. In addition to the aggregate shortage of local candidates for managerial positions, the private sector and parastatals have faced problems with the quality of graduates and the appropriateness of their training. While the greatest need is for graduates trained in economics, management, and science/technology, the persons allocated to the nongovernment sector have been almost

exclusively from other, less appropriate programs (e.g., political science, humanities).

The existing constraints on allocation of graduates are such that the private sector should be prepared to be more self-reliant in dealing with this problem. One alternative is for private sector firms to create their own bursaries for students at the higher education level. Once these students graduate from local or foreign programs, they would then be bonded to the private sector firm that sponsored them. An even more valuable alternative would be for the private sector to provide training to adapt graduates from non-commercial specializations to the job openings the firms have available. It is unrealistic for the private sector in any country to expect the government to provide tailor-made graduates. Given the localization requirements in Botswana, the private sector must do more to meet its own needs for administrative and technical personnel.

A second constraint on development of managerial capacity in Botswana is the issue of unrealistic expectations on the part of graduates. Because of the rapid growth of the public and private sectors of the economy and the extreme scarcity of local management personnel, the previous cohorts of graduates have moved rapidly from entry-level to senior administrative positions. At present, new entry-level management personnel are not as likely to move as rapidly through the system and fewer will reach the top levels. The situation will continue to develop in this manner over the next decade even if localization is accelerated. Accordingly, new entrants are

increasingly likely to be frustrated as their expectations for rapid advancement are not realized. It is important that new entrants to management training be informed of the realistic opportunities that await them. It also may be necessary to consider the incentive and pay structure of the public and private organizations to determine whether the reward and incentive differentials can be reduced between the middle and higher administrative levels.

Another major constraint on further development of management capacity in Botswana is the shortage of effective staff development programs in the various public and private organizations. As part of the Botswana Workforce and Skills Training (BWAST) project, selected government agencies will be producing staff development programs. This activity needs to be generalized throughout government and into the major private and parastatal organizations. Staff development programs should include explicit plans for localization of management positions, formal education prerequisites for each position, the management training required, and an identification of the timing and location of the training program. The existing BWAST training activities relative to management should be subsumed within the management staff development plan of each organizational unit.

Because more effort is needed to determine the kind and duration of the management training required, it is difficult to assess whether existing training programs are adequate to deal with these needs. The Institute for Development Management (IDM), the University of Botswana, and the Botswana Institute of Administration and Commerce

(BIAC) all have training capacity that already is being used for or is adaptable to the pre-service or in-service training of management personnel. The resources of these institutions are most appropriate for low- and middle-level management training rather than for higher level management. The preparation for the highest level positions will continue to depend upon a combination of overseas training opportunities and on-the-job training experiences unless IDM's own program is upgraded.

Management training, while necessary, is not sufficient to remedy management problems in Botswana. The environment of incentives within which managers operate can either constrain or facilitate their ability to use their training effectively. A useful complement to IDM's strong instructional program would be a policy research program to identify and seek solutions for the major constraints to managerial effectiveness in the country.

A final potential management constraint concerns institutional conditions rather than individual characteristics. The issue is whether the organizational structures of the public and private agencies facilitate or constrain the efficiency of the management system. To illustrate, Figures 3.1, 3.2, and 3.3 present the organizational charts of three of the ministries actively involved in the EHR sector: Education, Home Affairs, and Local Government and Lands. In all three cases there is a dramatic convergence of decision-making responsibility at the level of the deputy permanent

Figure 3.1 MINISTRY OF EDUCATION ORGANIZATION

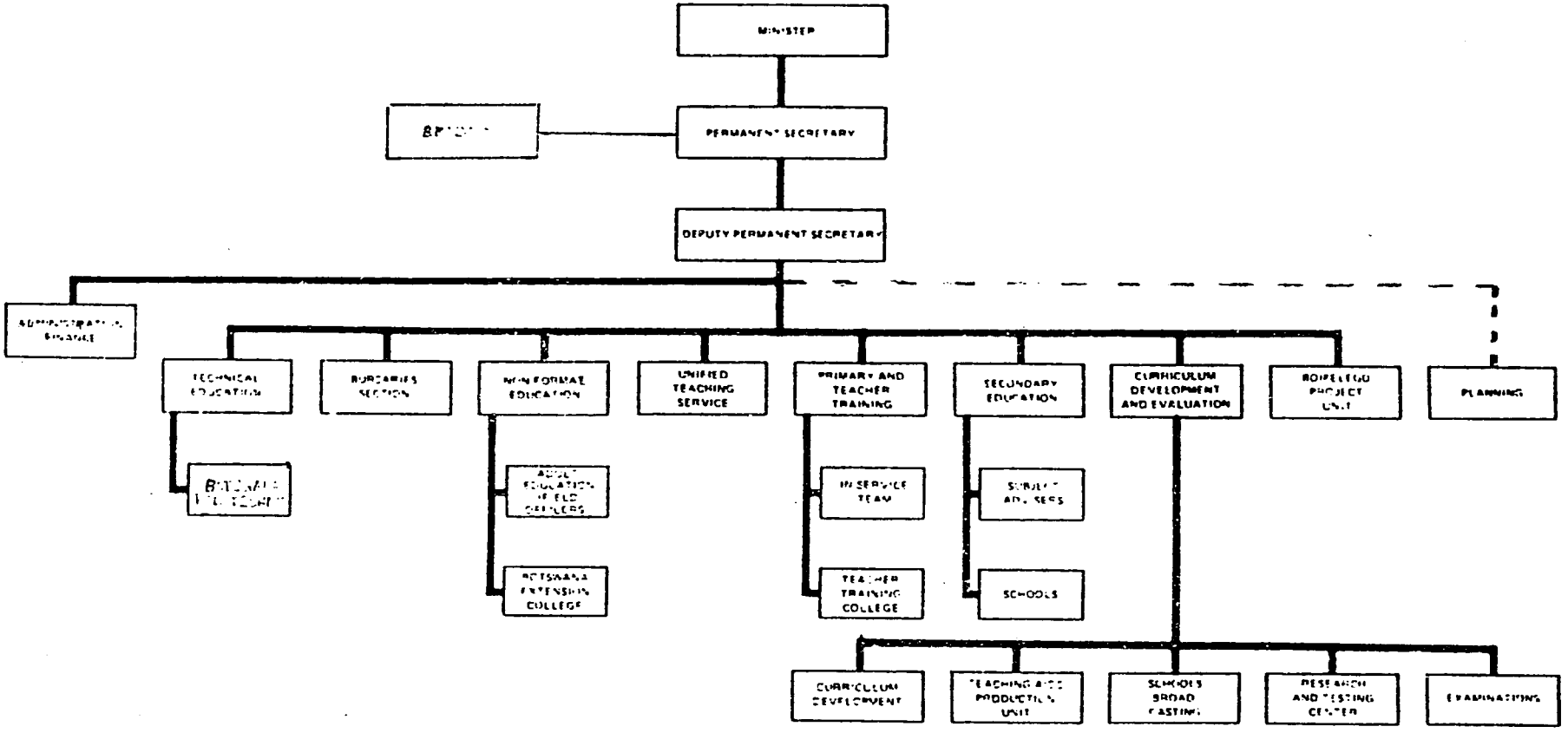


FIGURE 3.2

ORGANIZATION CHART, MINISTRY OF HOME AFFAIRS

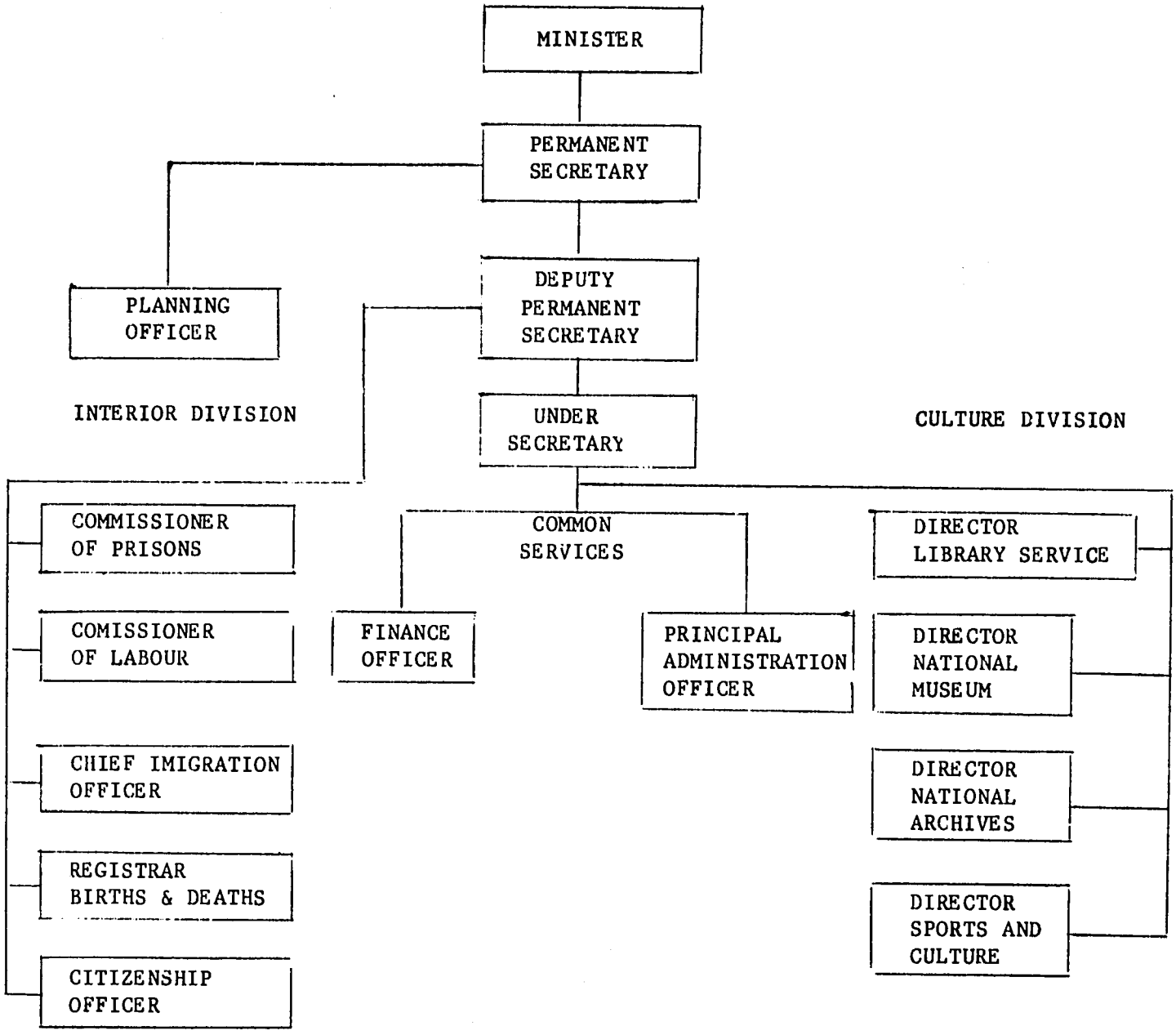
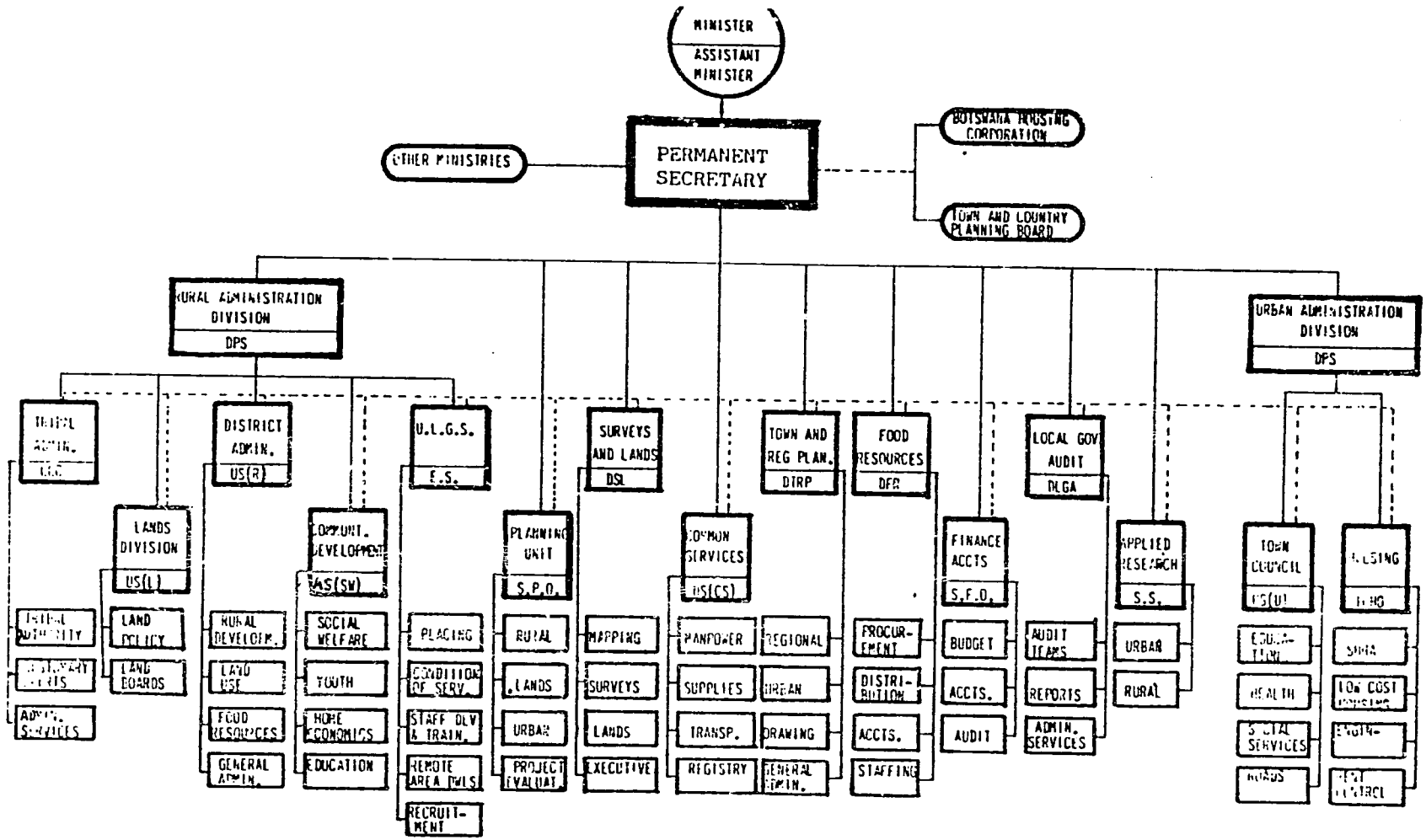


Figure 3.3 ORGANIZATION CHART, MINISTRY OF LOCAL GOVERNMENT AND LANDS



secretary. This is not inappropriate as long as the middle-level management cadre have adequate ability and training to fulfill their tasks, and senior administrators are willing to delegate responsibility. Where this is not the case, the higher level administrators increasingly will become responsible for day-to-day decisions and will have less time in which to address major issues of policy and planning.

When this occurs, there are several negative effects. First, it creates delay in that management decisions are postponed until the higher level administrator is available to make them. Second, the decision-maker is more removed from the actual activity being considered and is thus likely to be less well informed on details than is the lower level administrator. Third, the need to make these lower-level decisions reduces (if it does not exclude totally) the ability of the higher level administrator to deal with the larger managerial issues of interdepartmental concerns and to engage in the long-term planning activities that are the appropriate concern of the senior administrator.

Finally, this form of highly centralized administration does not provide the middle-level managers with the experience necessary to prepare them for more responsibility later in their careers. The problem is not that the system is hierarchical, but that decision-making responsibility is not efficiently allocated among the various levels. It does not appear that the present allocation exists

because of any desire to concentrate authority at the top levels; it is more probably a result of inadequate management skills at the intermediate levels of administration.

3.2.2 Goals and Strategies

The stated objectives of Botswana's development policy are rapid economic growth, economic independence, sustained development, and social justice. While substantial progress has been made toward each of these goals, continued success depends on a strategy involving conservative management of resources, flexible planning to adapt to changing circumstances, and an emphasis on employment creation. The shortage of highly trained manpower is a major barrier to implementing this strategy.

Despite progress made in recent years, the high-level manpower shortage remains. As discussed in the manpower demand section of Chapter 2.0, the increases in supply over the next decade may not be sufficient even to keep up with new demand at these higher levels. Figures from a 1981 survey indicate the scale of the problem:

- 461 senior and mid-level positions in Central Government were vacant (18.5% of all such positions),
- 734 of the senior and mid-level positions were occupied by expatriates (36.1% of the total), and
- 50 percent of Batswana personnel at this employment level were judged to be in need of additional training.

The degree of the management and technical support problem is indicated in Table 3.1 for some selected areas of government and for the private sector. Basically, Table 3.1 indicates two problems: (a) an inability to staff fully the senior and mid-level management cadre, and (b) an excessive dependence on expatriate personnel. What is not shown in Table 3.1 is the need for upgrading of management skills for Batswana who are in or will soon be promoted to positions of administrative responsibility.

The major active program designed to deal with this problem is the Botswana Workforce and Skills Training (BWAST) project (a joint activity of government and USAID). The project, begun in 1982, is designed to help alleviate the critical shortage of skilled manpower (including management personnel) in the public and private sectors. It focuses on the Ministries of Agriculture, Commerce and Industry, Local Government and Lands, and Education as well as on the private sector. Training will emphasize administrative, managerial, and technical skills. Most training will be short term and local, but approximately 70 senior personnel will be sent for long-term training overseas. In addition, the project will provide approximately 26 operational experts to aid in replacing personnel removed from government service for long-term training.

TABLE 3.1

GROUP "A" POSITION VACANCIES AND EXPATRIATE EMPLOYMENT, SELECTED EMPLOYERS, 1981

EMPLOYER	Positions Vacant	Posts Occupied by Expatriates	
		Number	Percent
Ministry of Agriculture	50	122	30
Ministry of Commerce and Industry	44	47	49
Ministry of Local Government and Lands			
Central Government	40	71	44
Unified Local Government Service (ULGS)	190	--	--
Ministry of Education	57	70	25
Private Sector	N/A	N/A	58 (Managerial)
			37 (Technical)

Source: Department of Labor

The financial inputs for BWAST are as follows (in U.S. dollars):

Technical Assistance	$3,560,000
Long-Term Training	4,380,000
Short-Term Training	1,296,000
Commodities	100,000
Contract	2,200,000
SAMDP Residual Training*	1,345,000
Inflation	1,677,000
Total	$14,558,000

An additional $4,796,000 (or about 25% of total project cost) will be provided by government.

In addition to participation in the BWAST program, government has continued its support of managerial skill training through the following means:

- o bursaries and subsidy support of the University of Botswana,
- o support of short-term administrative and managerial training (for government staff) at local training institutions, and
- o subsidization--via tax relief--of private sector training.

The present plans and strategies indicate government's recognition of the severity of the problem and its sincerity in addressing it. As noted earlier, the lack of a refined staff development strategy in the individual ministries (especially those outside the BWAST project) has kept these training efforts from being as effective as desired. In

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* These funds are to complete training for personnel selected originally under the Southern Africa Manpower Development Project (SAMDP), the predecessor to BWAST.

addition, a need remains to clarify the responsibilities of ministries in areas of overlapping programs. This problem is duplicated at the departmental level within the ministries. Finally, the organizational structure of the ministries has not received adequate attention or study but has been identified recently as an area of emerging government concern.

In the following subsection, attention turns to the specific operations of the local institutions and programs that provide administrative and managerial training. The Institute of Development Management is dealt with in detail because it is Botswana's leading institution in the area of management training. Other programs providing training activities are reviewed in briefer form since their operations are discussed in more detail in either the higher education or vocational/technical chapters of this assessment.

3.2.3 Institutions and Programs

3.2.3.1 Institute of Development Management

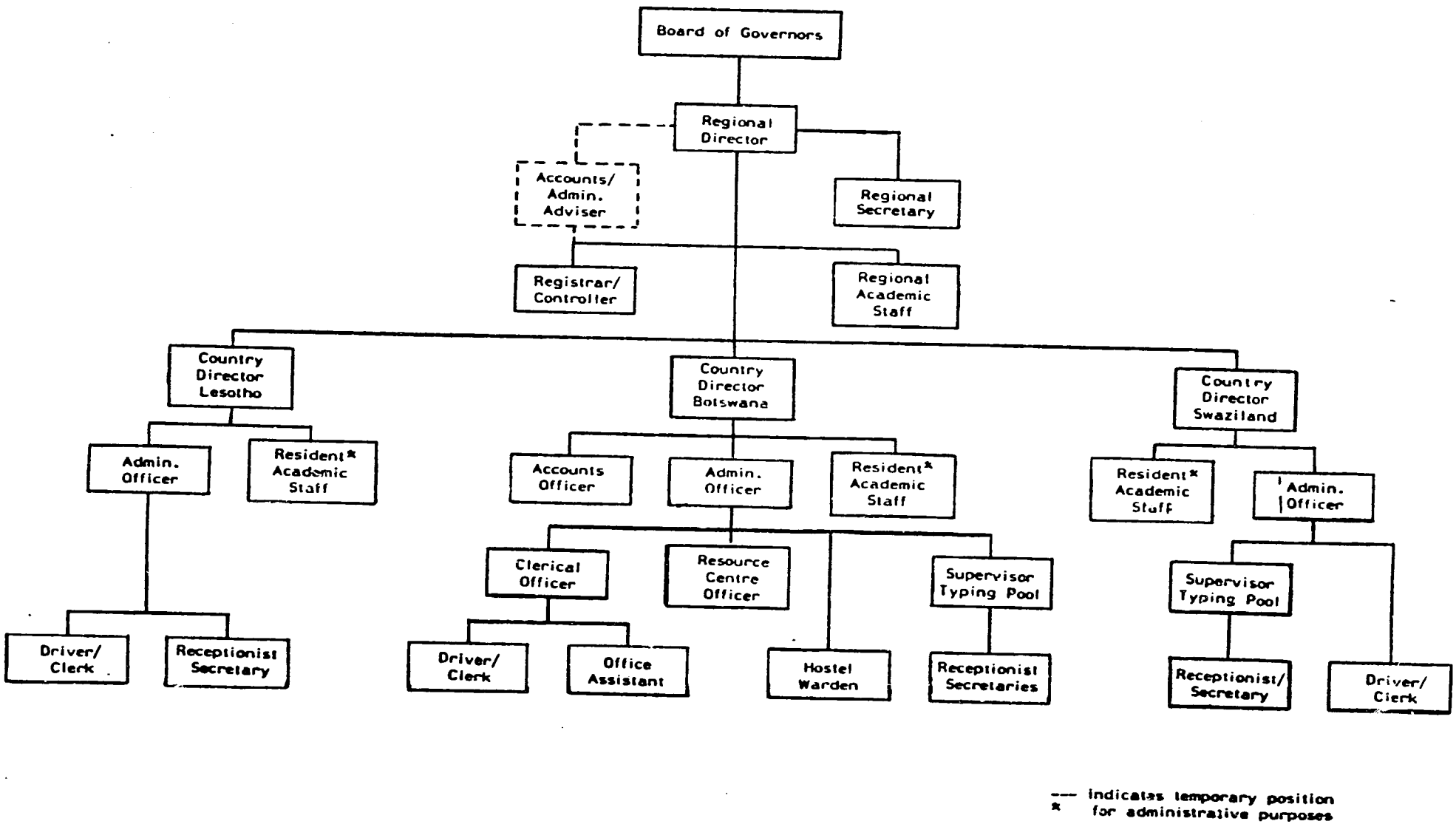
The Institute of Development Management (IDM) was established in 1974 to help meet the training needs of mid-career and senior managers and administrators in all sectors of Botswana, Lesotho, and Swaziland. In addition to its training activities, the Institute maintains a management resource center and undertakes management consultancies and related research to assist management within the three countries to improve the performance of their organizations.

The Institute is autonomous and operates under the direction of a governing board composed of representatives of government and industry from each member country. It maintains offices, classrooms, hostels, and staff in all three countries. The regional office and Botswana facilities are located in Gaborone on the campus of the University of Botswana. The Swaziland facilities are located on the campus of the Swaziland Institute of Management and Public Administration. The Lesotho facilities are located on government property adjacent to the Department of Manpower Planning. The discussion of the IDM is divided into four areas of concern: organizational structure, course structure and enrollments, staffing, and costs.

A. Organizational Structure

The regional and country organization of IDM is illustrated in Figure 3.4. This organizational form was approved in March 1982 by the IDM Board of Governors (consisting of four members from each of the three participating nations, plus the Regional Director. The three universities in the IDM region each have a representative on the Board.) Country directors now have greater administrative control over their respective local programs and a concomitant increase in their accountability for financial matters. The rationale for the reorganization was to increase IDM responsiveness to the specific training needs of its individual member countries.

Figure 3.4 REGIONAL AND COUNTRY ORGANIZATION, INSTITUTE OF DEVELOPMENT MANAGEMENT



However, while decentralizing certain functions, the new system will attempt to maintain the economy of scale advantages in IDM's regional organization. This will be most evident in the continued employment of academic staff on a multi-national basis. While staff members will have a permanent base in one of the member countries, they normally will offer courses in more than one country each year. The central administration of the organization as well as the resource center will remain in Gaborone.

B. Course Structure

Table 3.2 summarizes the course offerings for 1982, including information on participants by number and country of origin. Data from which the gender composition of the classes could be calculated were not available, but the Regional Director estimates that significantly fewer than one-half of all enrollees are females.

The degree to which participants from Botswana make use of the IDM program is indicated in Table 3.2. Of the total of 677 participants in 1982, 409 (60%) were Batswana. Of the 41 courses, 23 (56%) were held in Botswana, partially explaining the proportionally greater participation of Batswana. However, several generic courses (e.g., personnel management statistics) had a majority of Batswana students even though the course was held outside their country. IDM's policy of including travel and support costs as part of the program charges enables students to enroll in courses offered outside their own countries.

TABLE 3.2
IDM COURSES AND ENROLLMENTS, 1982

COURSE	Site	Enrollment	Batswana Enrollment	Length in Weeks
Certificate in Local Admin.	Botswana	20	20	10*
Certificate in Personnel Mgmt.	Swaziland	20	12	24*
Public Relations	Botswana	14	11	1
Basics of Finance	Swaziland	14	13	3
Training of Trainers	Botswana	9	6	10*
Fundamentals of Statistics	Botswana	8	6	2
Manpower Planning	Botswana	12	4	2
Development Planning	Botswana	10	8	6
Job Evaluation	Botswana	9	4	2
Intermediate Finance	Swaziland	13	8	3
Certificate in Management	Botswana	28	26	15*
Headmasters Seminar	Botswana	26	26	(3 days)
Better Work Methods	Lesotho	23	16	2
Principles of Educational Admin.	Botswana	16	16	3
Certificate in Finance Mgmt.	Swaziland Botswana	19	16	16*
Management by Objectives	Swaziland	17	9	1
Certificate in Health/Nursing Adm.	Botswana	17	9	24*
Management Information Systems	Lesotho	14	2	1
L.C.C.U.L. Planning Process	Lesotho	9	-	2
Communications for Middle Managers	Botswana	25	18	4
Training in Management Educators	Botswana	20	1	8
School Administration	Lesotho	25	-	4
Records Management	Lesotho	31	10	1

(Continued)

TABLE 3.2 (Continued)

COURSE	Site	Enrollment	Batswana Enrollment	Length in Weeks
Organizational Behavior	Swaziland	16	6	1
Agricultural Project Prep. FAO/IDM	Botswana	13	3	5
Labour Relations	Botswana	12	11	2
Intermediate Finance	Swaziland	20	12	3
Basics of Finance	Botswana	19	19	3
Basics of Finance	Lesotho	13	1	3
Public Service Induction - Botswana	Botswana	26	26	2
Nursing Unit Management	Lesotho	20	9	2
Production Management and Cost Accounting	Swaziland	8	6	2
Management Statistics	Botswana	13	11	3
Organization and Methods	Botswana	29	20	10
Waterbranch Account Course	Lesotho	28	-	1
Senior Finance	Swaziland	7	2	4
Performance Appraisal Systems	Lesotho	8	2	1
Job Description and Evaluation	Botswana	16	15	2
Interviewing Techniques	Botswana	9	6	1
Basics of Finance	Botswana	11	3	3
Public Finance and Budgeting	Botswana	11	8	3

*Course is offered in non-consecutive weeks.

In 1985, 920 participants received a total of 4,820 person weeks of training at IDM. The current program offers three types of certificates. Courses of two weeks or less result in the award of a Certificate of Attendance. For longer courses, participants must sit for an examination; those receiving a passing grade receive a Certificate of Successful Completion. A Programme Certificate is awarded in those areas where a sequence of study courses is involved as in, for example, Management and Administration of Local Government Administration.

The courses planned by IDM for 1983, including their location and duration, are listed in Table 3.3. The course offerings are arranged around nine curricular areas:

Accounting and Finance
Health Services Management
Communication
Personnel Management
Organization and Methods
Management
Development Planning
Education Administration
Public Administration/Local Government Administration

The courses range from one-week introductory sessions to multi-course sequences leading to certificates in selected management areas. Fees for the courses vary, but a basic guideline for 1983 was an average non-residential charge of P100 per week and an inclusive residental fee of P170 per week. Special courses such as the Certificates in Health Care Management and Nursing Administration have an independent fee structure. The charge for these residential-only

TABLE 3.3
PROPOSED IDM COURSES, 1983

COURSE	Location	Length in Weeks
I. ACCOUNTING AND FINANCE		
Accounting I	B/L/S	3
Accounting II	B/L/S	3
Cert. in Finance Mgmt. I	Swaziland	9
Cert. in Finance Mgmt. II	Swaziland	9
Finance for Non-Accountants	B/L/S	1
Fundamentals of Accounting	L/S	3
Fundamentals of Statistics	Swaziland	4
AAT Level II Special Preparation	B/S	4
Computer Appreciation for Users	B/L/S	1
II. HEALTH SERVICES MANAGEMENT		
Health Services Management	Swaziland	6
Nursing Unit Management	Botswana	2
Cert. in Health Care Mgmt.	Lesotho	26
Cert. in Nursing Administration	Lesotho	26
III. COMMUNICATION		
Public Relations Course	Botswana	2
Public Relations Follow-Up	Botswana	1
Communication for Managers	B/S	4
IV. PERSONNEL MANAGEMENT		
Cert. in Personnel Mgmt.	Swaziland	16
Training for Trainers	Botswana	10
Training of Mgmt. Educators	Botswana	8
Preparing Job Descriptions	Swaziland	1
Manpower Planning	Swaziland	2
Labour Relations Course	Botswana	2
Labour Relations Workshop	Botswana	1
V. ORGANIZATION AND METHODS		
Organization and Methods	Botswana	10
Purchasing Management	Botswana	1
Management Information Systems	Botswana	1
Records Management	Botswana	1
Better Work Methods	Botswana	3
VI. MANAGEMENT		
Cert. in Adm. Office Mgmt.	TBA	20
Cert. in Community Service Mgmt.	TBA	20
Cert. in Management	Botswana	18

(Continued)

TABLE 3.3 (Continued)

COURSE		Location	Length in Weeks
	Organization Behavior	Botswana	2
	Introduction to Management	Botswana	3
	Community Services Organization and Management	Botswana	2 1
	Management by Objectives	B/L	2
	The Managerial Grid	B/L/S	1
	Corporate Planning Workshop	Lesotho	1
	Small Business Consultancy Course	Botswana	3
	Retail Management	Botswana	2
	Library Management	Botswana	3
VII.	DEVELOPMENT PLANNING		
	Development Planning	Swaziland	8
VIII.	EDUCATION ADMINISTRATION		
	Principles of School Administration	B/L/S	TBA
IX.	PUBLIC ADMINISTRATION/LOCAL GOVERNMENT ADMINISTRATION		
	Cert. in Local Government Adm.	Botswana	15
	Government Induction Course	B/L	2
	Local Government Administration	B/L/S	4
	Management Workshop for Permanent Secretaries	Swaziland	1
	Workshop on Decentralization	Lesotho	TBA
	Training of ULGS Trainers	Botswana	12

courses in 1983 was P3,935. The course offerings represent a continued growth in the number and diversity of IDM's program. Most noteworthy in the planning for 1984 are the increasing numbers of advanced level courses and the introduction of new subject areas (e.g., data processing).

The reputation of the Institute is generally quite high. Unfortunately, no formal follow-up of former participants or their employers is conducted, so the specific evaluation of individual courses and instructors is not possible. A need for such data is obvious, and both former participants and their supervisors should be contacted as part of a recurrent evaluation exercise. This suggestion is made in full recognition of the fiscal and manpower limitations which IDM faces. Because of the latter constraint and to ensure objectivity, the evaluation might appropriately be conducted by an outside agency with IDM cooperation. The establishment of data on the effectiveness of IDM training should aid the Institute in maintaining and enhancing its support from government and the private sector.

C. Staffing

For the 1982 program year, the IDM had 23 regional instructional staff, 4 regional administrative staff, and 18 additional administrative staff located at the individual IDM campuses (9 in Botswana, 4 in Lesotho, and 5 in Swaziland). The formal academic qualifications of the instructional staff were as follows:

Diploma	-	1
B.A./B.S.	-	8
L.L.B.	-	2

M.A./M.S.	-	5
M.B.A.	-	1
Ph.D.	-	1
Other Certificate	-	5

As can be seen, fewer than one-third of the staff hold degrees at the Master's level or above, even considering the L.L.B. as an advanced degree. The staff obviously will be constrained in expanding its program beyond the introductory and intermediate-level management orientation of its present program. Given the needs of the labor market, this orientation is appropriate at this time. Hence, while advanced training for staff is desirable, it is not a critical issue immediately.

During 1982, IDM staff members undertook a number of consultancies. In Botswana, a project evaluation was carried out for the Red Cross Society and a seminar was held for the Secondary School Headmasters. Other activities included a USAID-sponsored seminar on communications and a forum to discuss the implications of proposed revisions to the Employment Act. In Kenya, an IDM consultant conducted a workshop for training officers in journalism. Research activity was limited to a study of the administration and organizational practices in two Botswana secondary schools and a follow-up study to determine the impact of the IDM Principles of Education Administration courses.

D. Cost and Financing

The 1980 to 1982 budget figures for IDM are shown in Tables 3.4 and 3.5. Table 3.4 presents the balance sheets for capital use,

assets, and liabilities, and Table 3.5 indicates the major sources of income and categories of expenditure. The significant improvement of the Institute's financial position in the most recent year may be seen in both tables.

Net current assets increased from P52,000 in 1981 to P293,000 in 1982*; in the same period total assets increased from P269,000 to P450,000. Most of this increase was in current rather than fixed assets, although the latter increased by more than 10 percent.

The three major sources of income are student fees, host government subventions, and sponsored posts (62.3, 12.7, and 11.3%, respectively, of total income in 1982). Few students are self-sponsored so it should be recognized that the IDM host governments provide a majority of their support in the form of student fee payments rather than through the direct subsidy allocations.

Staff costs were the largest single expenditure item in 1982 (39.8%), followed by particpants' costs (22.4%). The latter are used, as noted previously, to support travel, room, and boarding expenses of participants in training programs away from their home location.

The only areas of significant declines in finanical support have been consulting income, sponsored posts, and other income. This has been offset by increased host government subventions and reduced

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*In 1983 net current assets again increased to a new total of P422,000.

TABLE 3.4

INSTITUTE OF DEVELOPMENT MANAGEMENT

BALANCE SHEETS

AS AT DECEMBER 31, 1980, 1981, 1982

(P/M/E 000's)

	1982	1981	1980
CAPITAL EMPLOYED			
Capital reserve	207	207	207
Reserve for future localization	63	63	63
Accumulated surplus (deficit)	135	(117)	(100)
TOTAL CAPITAL EMPLOYED	405	153	170
EMPLOYMENT OF CAPITAL			
Fixed Assets	112	101	102
CURRENT ASSETS			
Bank balances and cash	164	134	82
Debtors and accrued income	569	474	546
Less provision for bad debts	(283)	(339)	(275)
Total current assets	450	269	353
CURRENT LIABILITIES			
Bank overdraft	0	19	1
Creditors	157	198	284
Total current liabilities	157	217	285
NET CURRENT ASSETS	293	52	68
TOTAL EMPLOYMENT OF CAPITAL	405	153	170

Source: IDM Annual Report, 1982.

Note: Prior Years Adjustment

The 1981 audited financial statements showed an overstatement of donor support funds and a corresponding overstatement of bad debts expense of P/M/E 60,000. The Balance Sheets and statements of Income and Expenditure for the years 1981 and 1982 have been adjusted to reflect this overstatement.

TABLE 3.5

INSTITUTE OF DEVELOPMENT MANAGEMENT
STATEMENTS OF INCOME AND EXPENDITURE
FOR THE YEARS ENDED DECEMBER 31, 1980, 1981, AND 1982
(P/M/E 000's)

	1982	1981	1980
INCOME			
Student course fees	674	678	594
Seminar and conference income	13	13	15
Consulting income	19	33	20
Subventions from host government	122	98	75
Donor support funds	96	83	37
Sponsored posts	137	164	274
Other income	21	31	39
TOTAL INCOME	1,082	1,100	1,054
EXPENDITURE			
Staff costs	330	260	175
Sponsored posts	137	164	274
Travel and accommodation	46	112	76
Participants' costs	186	276	188
Course expenses	30	72	34
Advertising	11	8	14
Audit and legal fees	5	8	4
Bad debts (recovered)	(56)	64	275
Bank charges and interest	3	1	2
Governing Board fees and expenses	5	17	14
Currency exchange losses	11	-	-
Depreciation	24	24	21
Equipment rental	1	-	2
General expenses	3	9	3
Insurance	2	1	1
Loss on disposal of fixed assets	9	-	-
Motor vehicle expenses	20	22	16
Printing, postage and stationery	30	31	28
Repairs and maintenance	12	4	15
Research costs	4	32	-
Telephone and telex	17	12	12
TOTAL EXPENDITURE	830	1,117	1,154
SURPLUS (DEFICIT) FOR THE YEAR	252	(17)	(100)

Source: IDM Annual Report, 1982.

aggregate expenditures (the latter decreased from P1,117,000 in 1981 to P830,000 in 1982). The greatest savings have come in travel, participants' costs, course expenses, bad debt recovery, and research costs. As a result of these economies, the P18,000 decline in income in 1982 was offset sufficiently to allow for a surplus of P252,000. This compares with deficits of P100,000 in 1980 and P17,000 in 1981.

The recent conservative fiscal management of the IDM is a good basis for its continued maintenance as the leading provider of management training in Botswana. While the issues of administrative burdens and staffing ratios will continue to be of concern, the present management of the IDM appears committed to economic efficiency and fiscal stability in its operations.

3.2.3.2 Other Management Training Institutions

In addition to the IDM, three other agencies in Botswana may be identified as playing a role in the development of management capacity. These institutions are the University of Botswana (UB), the Botswana Institute of Administration and Commerce (BIAC), and the Botswana Agricultural College (BAC). Because these institutions have a primary focus on areas other than management and are dealt with in detail in the appropriate subsector chapters, they will be mentioned only briefly here.

A. University of Botswana

In 1982-83, the UB offered degree courses in economics and other social sciences, certificate courses in statistics, and degree and

diploma courses in education; all of these courses have a direct or prerequisite relationship to managerial training. Enrollments at the University totaled 1,096; expansion of enrollments is limited by hostel space. The University's "mature entry" program serves mid-career employees, and discussions are proceeding on possible joint activities with the IDM. At present, however, the University does not appear to have placed a priority, either quantitatively or qualitatively, on improving managerial capacity in Botswana.

B. Botswana Institute of Administration and Commerce

BIAC is the national training center for entry-level business and administrative skills. With the exception of its accounting sequence, its curricular orientation is toward a level of employee junior to that dealt with by IDM. BIAC offers training for students from the private sector and parastatals but is primarily a trainer of government staff.

BIAC's main contribution to reducing the managerial capacity problem will be its ability to improve the quality of support staff upon whom administrators and managers must rely. The institution appears to be doing an effective job in this area and has the capacity within present resource levels to expand its enrollment in all but the accountancy and secretarial courses.

C. Botswana Agricultural College

BAC currently offers certificate and diploma courses in the areas of agriculture and animal health and a certificate course in community development. Its role in management training is limited to its preparation of entry-level staff for the Ministry of Agriculture.

Expansion of the BAC's role is needed in in-service provision of management training for middle- and senior-level personnel in the Ministry.

3.3 GENERAL MANAGEMENT NEEDS

In this section, the various requirements for improved management and management training are discussed. The categories of need to be reviewed are: data needs, social/institutional reform, staff development planning, informational technology, and planning and coordination.

3.3.1 Data Needs

The first major requirement to enable better planning of management training is for information on the career outcomes of graduates of IDM and other training programs. The value of training needs to be assessed in terms of its applicability to the work tasks assigned to graduates. At present, no discussion of either internal or external managerial efficiency is possible because the details of resource allocation, costs, and training outcomes are lacking.

The second major informational requirement is for an assessment of management needs in public and private sector activities. It is unclear at present whether the immediate needs for Botswana are in general management skills or in specific technical and commercial areas of training. The training programs in management, such as IDM's, were originally designed to meet specific needs. It is

necessary to reassess these needs, identify the new forms of training required, and decide whether the existing training programs can be adapted to meet these needs.

3.3.2 Social/Institutional Reform

A particular need exists in the governmental process for improved institutional management capacity. This capacity is constrained by the organizational structure of the ministries and other government agencies and by the incentive patterns within which managers and administrators must work. In the larger society, the need for continued encouragement of individual responsibility and private sector initiatives remains strong.

Management training is a necessary but far from sufficient condition to improve management practice. Government recognizes the need to restructure positive performance incentives both inside and outside the public sector. In addition, administrative accountability must be reinforced as a consistent expectation in all government agencies. Without this social/institutional structural support, little will be gained from the expansion of management skills.

3.3.3 Staff Development Planning

It is essential that the public and parastatal organizations recognize staff development as a basic obligation of their enterprises. This responsibility can be fulfilled through a combination of in-service, short-course, and long-course programs.

However, staff development should be planned so that there is minimum disruption of the institution's operation.

Each agency should define clear goals and strategies for its staff development activities and should design a staff development plan. The plan should identify what type of training is required; who will receive it, where, and for how long; and what content the course should encompass.

3.3.4 Informational Technology

Improved informational technology is not a substitute for management skills, but it is an important complement to them. By expanding the range of management control, it enables the able manager to administer a wider range of responsibilities. This is valuable for Botswana for two reasons.

First, the present shortage of trained Batswana management personnel means decision-making responsibility is highly concentrated (and often is left to expatriate personnel). This results in delay and increases the probability that decisions may be made on the basis of inadequate information. The informational technology now available can reduce time and increase access to data.

Second, the training of local mangement personnel will result, transitionally, in a greater burden for present administrative staff. As personnel are removed from service for training, the remaining administrators temporarily will have to absorb more responsibility.

Use of information management systems will allow this to be done at a minimum cost to decision making.

An advantage of the current generation of micro-processors is that the training required to use them can be accomplished in a relatively short time. This, when combined with their low initial cost and maintenance expense, makes them ideal tools for Botswana.

3.3.5 Planning and Coordination

Management training needs in Botswana are especially dramatic at the present time, but they may also be expected to continue as a long-term characteristic of the education and human resources system. Both the short- and the long-term dimensions of managment needs require coordination and planning.

There is a need for less fragmentation among the ministries and between the public and private sectors in planning and conducting management training. If IDM is to remain effective, it must be provided with the resources necessary to assess management needs and to design and implement training programs. This activity should be based upon the staff development plans prepared by each government agency or private/parastatal firm.

3.4 ISSUES AND RECOMMENDATIONS

3.4.1 Summary of Issues

The justification for an emphasis on management issues, and specifically on management training, is multi-faceted. It must be

recognized that the demand for management and management training is a derived demand. Managers are needed in order to assure efficient implementation and operation of all major public and private sector activities. Often there is confusion concerning the role of management training within an education and human resource system that is primarily focused on basic skills development. However, the failure to achieve management competency will damage basic skills programs in several ways.

First, the programs themselves must have administrative expertise in design and conduct. Second, other EHR programs must be managed efficiently or fewer resources will be available for basic skills activities. Third, the quality of management of social and economic development will determine the social and economic capacity of the nation and the uses that can be made of basic skills.

Botswana's primary need in education and human resources is for improved quality in the provision of basic education and for more equitable access to it. At the same time, a concomitant focus is needed on management training, covering all three areas noted above: management of basic skills education, management of other education and human resource programs, and management of general development activities.

In the following subsection, the conclusions drawn from the earlier discussions in this chapter, as well as from the discussions of management issues elsewhere in the report, will be organized by three main issue areas of recommended action. These conclusions are

provisional and based upon less than complete data on the Botswana management environment. However, the issues and recommendations offer a clear direction by which government can proceed to a more systematic and effective management structure.

3.4.2 Conclusions and Recommendations

The major issues of management capacity in Botswana may be summarized under three headings: status of needs, status of programs, and commitment to improved management.

3.4.2.1 Status of Present Needs

No meaningful reform of management in Botswana can be achieved without more information on the nature of management responsibilities and the size of the shortfall between the present supply of managers and administrators and the quantity of such personnel that is needed. As noted earlier, the first step in correcting this data problem must be an assessment of management needs at the level of the individual ministries.

In addition to documenting the level and nature of unmet management demand, the assessment must identify the appropriate forms of training necessary to reduce the imbalance in supply and demand. A long-term (5- to 10-year) planning frame is required. Any shorter program would be excessively costly to mount, would remove too many managers from active service, and would not produce the permanent managerial training reforms needed.

3.4.2.2 Status of Present Programs

As indicated earlier, there are a variety of training institutions and other organizations whose programs relate directly to management skills. While IDM is recognized clearly as the leading provider of management training, it can provide only a portion of the actual management training experiences required for managerial reform and localization. Three major types of research are needed on all present programs.

First, a census of management training programs should be conducted. Information on students, staff, equipment, programs of study, and destination and success of graduates should be gathered. This information will permit an initial identification of areas of potential internal and external inefficiency.

Second, the areas where these potential inefficiencies have been identified should be analyzed in detail. The purpose of this analysis is to document the existence of the inefficiencies, if any, and, where they exist, to provide recommendations for removing them or reducing their effects.

Third, policy research should focus on the need for greater planning and coordination of management training. This research would combine the results of the management needs assessment with the detailed information on the training programs' operations and outcomes. A product of this policy research should be to identify the extent to which planning and coordination should take precedence over

program autonomy. In addition, the research should inform policymakers on how to design a systematic planning/coordination system.

This research need not postpone some initial reforms in the management and management training systems. Greater reinforcement of accomplishment, improved promotion and pay incentives, increased use of information management technology, and more systematic accountability standards are obvious needs of the present management structure. Similarly, there are obvious present needs for more training in specific management skills and for more formal in-service management training. However, the integrated research plan is necessary as a basis for the long-term restructuring of management and management training. This long-term reform is necessary to prepare the public and the private sectors for the challenges of the 1990s.

3.4.2.3 Commitment to Improved Management

A major conditioning variable in the management environment is the society's set of attitudes toward bureaucratic employment and management responsibility. The acceptance of meritocratic rather than ascriptive standards for employment and advancement is a basic condition for organizational adaptation.

Because of Botswana's recent emergence as a modern economy, "modern" attitudes toward organizational structures are still developing. Fortunately, government since independence has encouraged traditions that combine individual initiative with social

responsibility. This same combination of attitudes will be necessary to maintain successful bureaucratic systems in government and effective organizational structures in the private sector.

The major question now is how government best can maintain its commitment to managerial improvement without sacrifice of its legitimate concerns for localization. In the past, government has sacrificed the speed of localization to maintain the quality of management. The issue now is whether the time has come to risk some degree of immediate managerial competence in order to place more Batswana in positions where they will receive the experience necessary for management and support of their own governmental structures. This choice, between localization and continued external dependence, involves risks on both sides. What is needed is a detailed strategy that includes realistic expectations of the contribution the EHR system can make to bridging the localization/management quality gap.

4.0 PRIMARY EDUCATION

This chapter concerns the current status and prospects for primary education in Botswana. The primary cycle provides education to 83 percent of all school age children. There are seven years in the primary cycle, and the 502 schools in 1983 enrolled 197,510 students.

Major needs identified in this chapter relate to improving coordination of system components, raising the quality of instruction, and reducing geographical disparities in access and instructional quality. Recommendations based on these needs relate to three principal areas: (a) reviewing the present mechanisms for system coordination as well as the structure and staff available to manage this system; (b) improving instructional quality through more efficient use of existing resources, better supply and distribution of textbooks and related materials, improved instruction in pre-service and in-service teacher training programs, and expanded use of radio support for direct instruction and in-service teacher training; (c) providing better access to remote areas and improving the geographical distribution of quality instruction through consideration of nonformal alternatives to conventional schooling for remote areas, and continued efforts to distribute skilled teachers more evenly.

The present status is first reviewed and programs briefly summarized in terms of their relevance to national goals and strategies for education. An analysis is then made of significant needs that emerge based on a comparison of objectives, programs, plans, and constraints. This analysis focuses on issues in five areas: external efficiency (relevance), internal efficiency, access and equity, administration and supervision, and costs and financing. The information is then used to derive priority-ranked recommendations to more closely coordinate current and planned activities with national goals and objectives.

4.1 STATUS

The goals and strategies of government are presented in this section against a historical background. A description of the structure and organization of the Ministry of Education (MOE) is then followed by descriptions of current programs in primary education, giving basic information on students, teachers, curriculum, examinations, facilities and equipment, costs, and donor support.

4.1.1 Historical Setting

Before the early 19th century all education in the area of Africa that is today Botswana was at the village level. It was about then that formal western education was introduced by the London Missionary Society, which established the first schools. These schools were limited almost entirely to the primary cycle.

The sparse distribution of the population inhibited access to these early schools. Schooling was also made difficult by the three-site system of farming, unique to Botswana and still practiced throughout a large part of the country. This system enables families to live together in villages only during the winter months, from about June to November. For the rest of the year the men and boys live at cattle posts, and the women and girls live on small farms ("the lands") away from the village. Most rural inhabitants still use this system and this has always posed a problem in providing education and other government services.

In 1957 there were only 166 primary schools in Botswana, with 29,000 pupils. At independence in 1966 there were 251 primary schools with a total enrollment of about 72,000 and nine secondary schools with about 1,600 pupils. The quality of instruction tended to be low and the range of standards (grades) was limited. About one-half of the 1,673 primary teachers were untrained, most schools did not offer all levels, and many "schools" consisted of classes held under the trees. The country today has 502 primary schools with an enrollment of 197,510, and 70 percent of all teachers are trained.

The government has a strong commitment to education and has developed a firm institutional base, with the goal of providing universal access to nine years of basic education within the next several years. This goal has been derived from a series of studies and plans. The most significant and recent educational study, Education for Kagisano (kagisano = social harmony), was prepared in

cooperation with a group of international experts in 1977. Results of this study were merged with national policies in a "White Paper" which received formal approval of government. Recommendations in the "White Paper" became major elements of the fifth National Development Plan 1979-1985 (NDP V).

The rapid expansion of primary education following independence has created some difficulties. Although about 83 percent of all school age children are now attending primary school, the quality of the instruction they receive is not as high as desired, and educational opportunities are not equally distributed throughout the land. Constraints to a balanced expansion include uneven quality of instruction, shortages of facilities, inadequate distribution of textbooks and related instructional materials, and severe cost and other problems associated with reaching the 17 percent of the school age children living in remote areas and not now enrolled.

Government now faces a major challenge in primary education. Many of the first steps to meet this challenge have already been taken, including a clearly stated policy and set of objectives in NDP V. To reach these objectives within existing constraints, government will have to approach this complex task systematically for a balanced, effective, and integrated growth of the primary school system. Such an integrated approach to educational policy and operations is important for the effective coordination of all components of the educational system.

4.1.2 National Goals and Strategies

The goals, objectives, and strategies for primary education quoted below are taken from the NDP V and from a paper which updates the Plan. This paper, Updated Goals and Objectives 1984-1991, was prepared by the Ministry of Education and approved by the Economic Committee of Cabinet in September 1983.

Goals. The following broad goals are set forth in the NDP V, and are based on government policy in National Policy on Education (Government Paper No. 1 of 1977):

- to increase educational opportunities, and to reduce inequalities of educational opportunities, so far as resources permit;
- to contribute to the balanced economic development of Botswana by seeking to satisfy manpower requirements for all sectors, emphasizing particularly the needs of rural development and employment generation;
- to promote personal qualities such as respect for national ideals, self-reliance and concern for other people, and to encourage full development of individual talents;
- to extend the role of schools and colleges in the local community, and vice versa.

Objectives. The objectives are derived from the above goals and include the following three general targets:

- Universal access to seven years of primary education, for the 6-13 year age group, by the mid-1980s;
- Improvement of the quality of primary education; and
- Universal access to nine years of primary education for the 6-15 year age group, in the longer run and within a restructured 6-3-3 system of school levels.

The above general objectives have been made more specific, as shown in the following selections from the 11 given for the next several years in Updated Goals and Objectives 1984-1991. These are the objectives of most relevance to primary education:

> Objective 1: By the year 1985, a minimum of 40% of Standard 7 leavers will have access to Form I. By 1991, 75% of all Standard 7 leavers ... will enter Form I.
>
> Objective 3: By the beginning of the year 1986, a new two-year JC curriculum will be instituted.
>
> Objective 9: Beginning in 1987, the gross number of additional teachers needed will be available locally. The shortage of mathematics and science teachers will probably exist to the end of the decade--in gradually reduced numbers--and will require the continued employment of expatriates ....

Strategy. The generally conservative fiscal policy of government is reflected in the strategy proposed for the expansion of basic education to nine years of universal access. The basic strategy is to expand existing school enrollments in the short term, while preparing and implementing a coordinated approach to long-term needs concerning facilities, teacher supply, teacher training quality, curriculum revision, management, and instructional quality.

4.1.3 Structure

The primary system consists of seven standards or grades. There are three terms per year, beginning in January. Pupils begin school in the first January following their sixth birthday. Promotion has been automatic since 1968, although some repetition is allowed in Standards 4 aud 7. Examinations prepared by government are given for

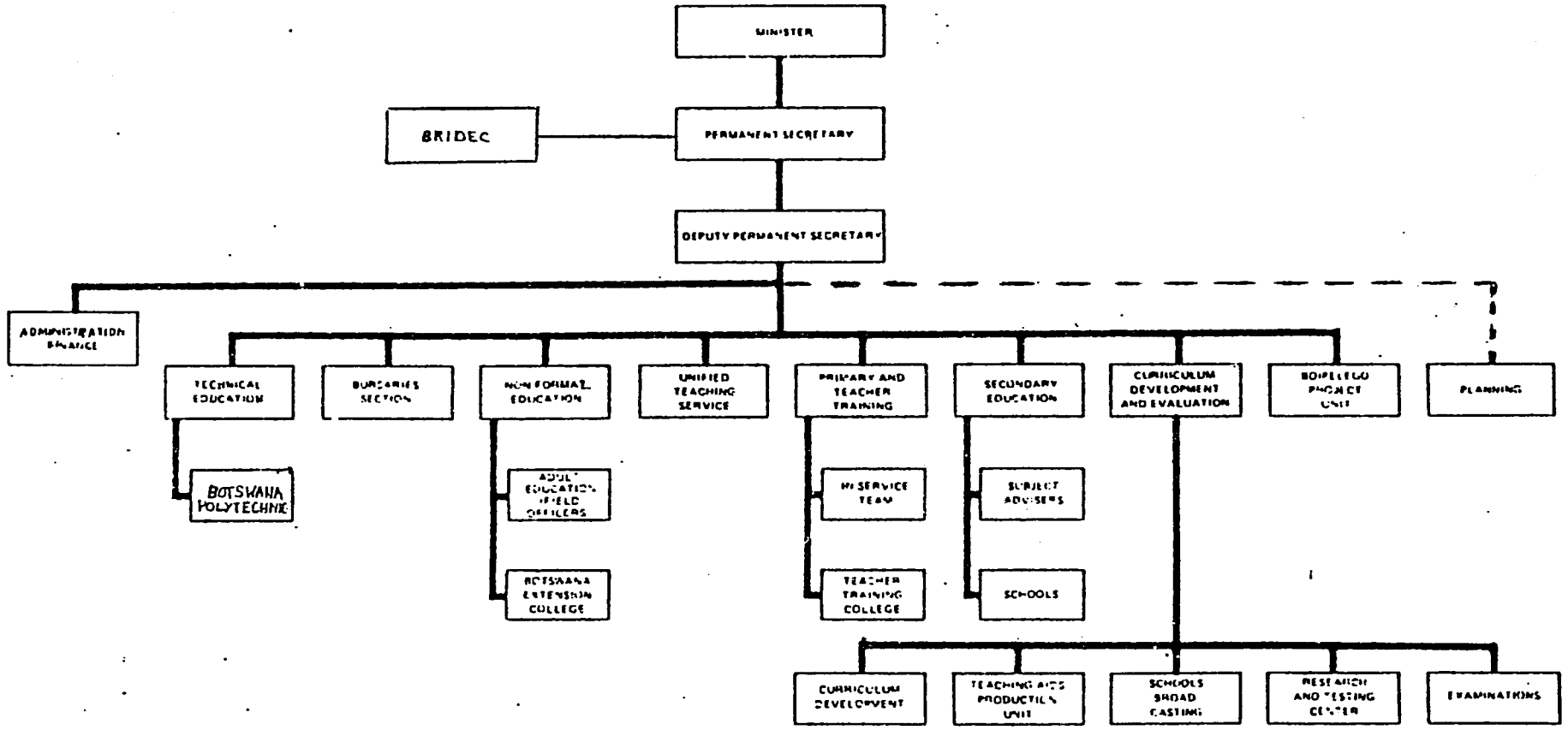
diagnostic purposes at the end of Standard 4 and for selection into secondary education at the end of Standard 7. Setswana is the language of instruction in Standards 1 through 4, and English is taught as a second language in these grades. English is the medium of instruction for Standards 5 through 7.

As explained below, and as discussed more fully in the chapter covering secondary education, the basic education system will gradually be expanded to include nine years. This will comprise seven years of primary school and two years of junior secondary school.

Overall managerial responsibility for primary education is vested with the Ministry of Education, whose organization is shown in Figure 4.1. Enrollments in Government Schools and Government-Aided Schools account for about 98 percent of total primary enrollments. In addition to having managerial responsibility for Government Schools and Government-Aided Schools (here referred to together as Government/Aided), the MOE ensures that private schools comply with government regulations for primary education.

Although overall management is the responsibility of the MOE, operations of the primary system are somewhat decentralized. Responsibilities assigned to the MOE include sector planning, curriculum development, teacher training and appointments, and general administration and supervision. Such other responsibilities as school administration and financial management, however, are under the control of local authorities.

Figure 3.1 MINISTRY OF EDUCATION ORGANIZATION



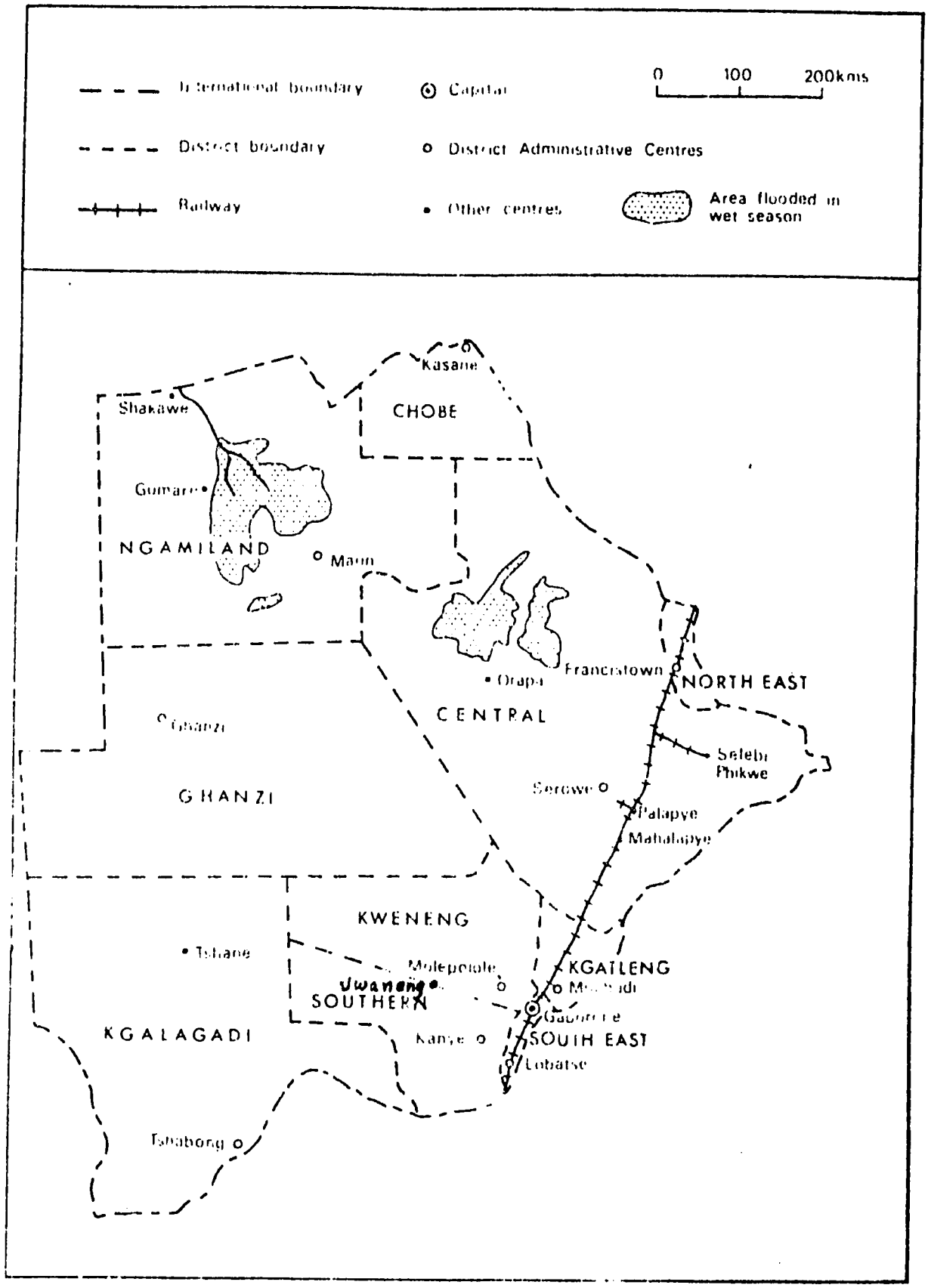
The country is administratively divided into nine districts and five townships. The districts are North East, Central, Kgatleng, Kweneng, Southern, South East, Kgalagadi, Ghanzi, and North West. The five townships are Gaborone, Francistown, Lobatse, Selebi-Phikwe, and (most recently added) Jwaneng. The location of these districts and townships is shown in Figure 4.2; the North West district is shown as Ngamiland and Chobe.

Each district and township has an elected local authority with responsibilities for primary education that include school coustruction, building maintenance, equipment, and some administrative costs. Each local authority has an official designated to oversee these matters.

Significant changes are under way in the structure of the formal education system through secondary school, as well as in the capacity of the system to accommodate greater numbers of pupils. The system now comprises seven years of primary schooling, three years of Junior Secondary School, and two years of Senior Secondary School. This 7-3-2 structure will soon be modified to a transitional 7-2-3 system and eventually become 6-3-3 with universal access proposed for the first two levels (i.e., nine years of basic education).

Proposed changes in system capacity, as cited in Updated Goals and Objectives 1984-1991, are as follows with respect to percentages entering each level:

Figure 4.2 DISTRICTS AND CENTERS



Source: A Geography of Botswana, David May (Gaborone: Macmillan Boleswa, 1983)

Level Completed	Present (1983)	Proposed (1991)
Primary	100%	100%
Junior Secondary	25%	75%
Senior Secondary	5%	12%

4.1.4 Program

An overview of the current program in primary education is presented in this subsection, describing the status with respect to students, teachers, curriculum, examinations, facilities and equipment, and costs and donor support. This information will constitute the basis for the analysis of needs, plans, constraints, and issues in a later section of this chapter.

4.1.4.1 Students

Enrollments as of February 1983 (first term) are presented in Table 4.1, both for all schools and separated by district (and townships), sponsorship of schools (Government, Government-Aided, and Unaided), and sex. All tabled data referenced as Education Statistics (1983) are from a preliminary printout from the Central Statistics Office, October 1983, based on data from 499 of the total population of 502 primary schools.

As indicated in Table 4.1, the total of 197,510 pupils is largely concentrated in the Central District (36%), with significant numbers in the Southern (13%), Kweneng (12%), and North West (7%) districts. As expected, these districts include the more densely populated areas of the country, as shown in the population density map of Figure 4.3.

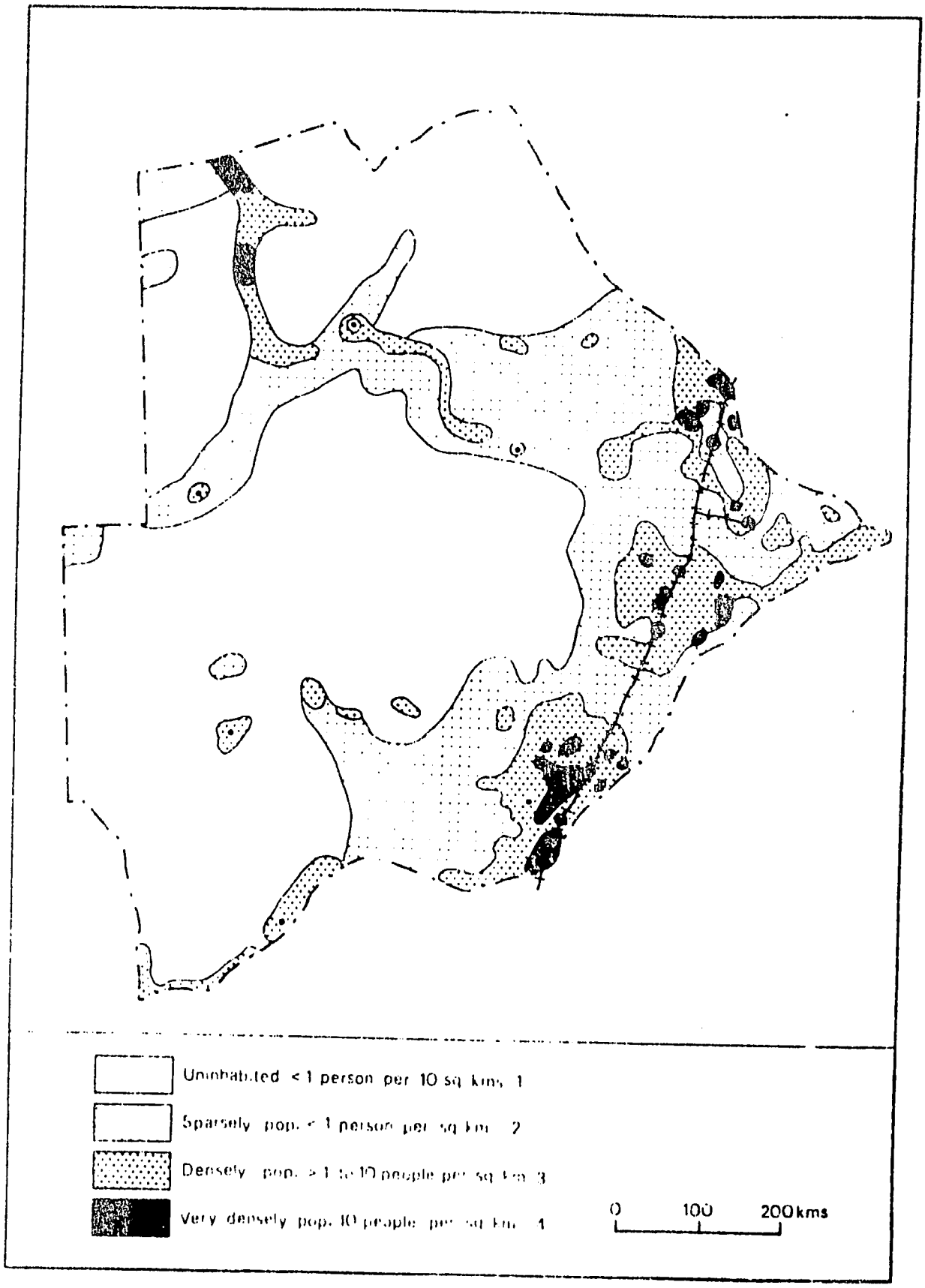
TABLE 4.1

PRIMARY ENROLLMENTS, BY SPONSORSHIP, DISTRICT, NUMBER OF SCHOOLS, AND SEX, 1983

District or Town	Government				Government-Aided				Unaided				All Schools			
	No. Schools	Pupils			No. Schools	Pupils			No. Schools	Pupils			No. Schools	Pupils		
		M	F	Total		M	F	Total		M	F	Total		M	F	Total
North East	31	5,015	4,894	9,909									31	5,015	4,894	9,909
Central (N)	37	8,771	9,016	17,787					1	33	31	64	38	8,804	9,047	17,851
Central (C)	76	16,683	17,983	34,666	3	805	745	1,550	7	825	989	1,814	86	18,313	19,717	38,030
Central (S)	32	6,605	7,129	13,734	2	542	619	1,161					34	7,147	7,748	14,895
Kgatleng	31	4,798	5,560	10,358	1	89	93	182	1	30	18	48	33	4,917	5,671	10,588
Kweneng	57	9,542	13,911	23,453					3	46	91	137	60	9,588	14,002	23,590
Southern	73	11,556	14,425	25,981	1	94	99	193	2	162	210	372	76	11,812	14,734	26,546
South East	10	2,288	2,691	4,979	3	482	544	1,026	1	188	207	395	14	2,958	3,442	6,400
Kgalagadi	19	2,490	2,831	5,321									19	2,490	2,831	5,321
Ghanzi	15	1,458	1,588	3,046	1	120	130	250					16	1,578	1,718	3,296
North West	45	6,925	7,084	14,009					1	60	80	140	46	6,985	7,164	14,149
Gaborone	26	5,048	5,883	10,931					2	157	198	355	22	5,205	6,081	11,286
Francistown	8	2,613	2,941	5,554	1	335	405	740					9	2,948	3,346	6,294
Lobatse	5	1,505	1,721	3,226	1	267	340	607	1	159	196	355	7	1,931	2,257	4,188
Selebi-Phikwe	5	1,963	2,129	4,092					1	208	210	418	6	2,171	2,339	4,510
Jwaneng	2	328	329	657									2	328	329	657
Total	466	87,588	100,115	187,703	13	2,734	2,975	5,709	20	1,868	2,230	4,098	499	92,190	105,320	197,510

Source: Educaion Statistics (1983), Central Statistics Office

Figure 4.3 POPULATION DISTRIBUTION



Source: A Geography of Botswana, David Hay (Gaborone: Macmillan Boleswa, 1983)

The less densely populated areas have proportionately fewer of the total enrollments: Kgalagadi (3%), and Ghanzi (2%). There are some geographical disparities when percentage of total population in districts and townships is compared with percentage of total pupil enrollments, but these are not striking. As shown in Table 4.2, these suggest the North East, Central, and Kgatleng districts are somewhat over-served and the Kweneng, North West, Gaborone, and Selebi-Phikwe areas slightly under-served.

TABLE 4.2

DIFFERENCES BETWEEN ENROLLMENT AND POPULATION PERCENTAGES

District	Percent of Enrollments	Percent of Population	Difference
North East	5.0	3.9	1.1
Central	35.8	34.7	1.1
Kgatleng	5.4	4.8	0.6
Kweneng	11.9	12.5	-0.6
Southern	13.4	13.4	0.0
South East	3.2	3.3	-0.1
Kgalagadi	2.7	2.5	0.2
Ghanzi	1.7	2.0	0.3
North West	7.2	8.1	-0.9
Gaborone	5.7	6.4	-0.7
Francistown	3.2	3.2	0.0
Lobatse	2.1	2.1	0.0
Selebi-Phikwe	2.3	3.0	-0.7
Jwaneng	N/A	N/A	N/A

Most of the students are in the 466 Government Schools (95%) or in the 13 Government-Aided (3%) Schools, with very few in the 20 Unaided Schools (2%). Enrollments are almost equally divided among males (47%) and females (53%), with no meaningful differences in gender participation among the schools of different sponsorship.

The enrollment ratio is about 83 percent, according to the Ministry of Education, meaning that this percentage of all school age children is currently enrolled. Many of the remaining 17 percent are located in rural areas, but some are disabled, and some are discouraged by their parents from attending in order to work. Extending the current system to include most of these children will be complex and costly.

Much of the proposed system expansion will be required to accommodate the following projection of enrollments from the present through 1991:

Year	Projected Enrollments
1983	198,000
1984	203,000
1985	212,000
1986	220,000
1987	227,000
1988	235,000
1989	244,000
1990	253,000
1991	264,000

These projections, provided by the Ministry of Finance and Development Planning (MFDP), reflect an annual increase of 4 percent for pupils entering Standard 1. When compared to the 3.3 percent assumed rate of

population increase within these projections, this indicates a modest proposed reduction in the 17 percent of school age children not now enrolled in primary school.

Enrollments by district and standard are given in Table 4.3. The increase of 12 percent between Standard 3 (29,530) and Standard 4 (33,183) is due to repetitions by students who score low on a centrally developed achievement test given at the end of Standard 4. The more dramatic increase of 26 percent between Standard 6 (21,633) and Standard 7 (27,240) is a result of the large numbers who do not score high enough on the Primary School Leaving Examination (PSLE) to be admitted into secondary school and who repeat Standard 7 for another opportunity to take the examination.

The many repeaters, especially at Standards 4 and 7, comprise a significant cost. The numbers of repeaters, by district and standard, and by school sponsorship and standard, are presented in Table 4.4. Of the total enrollment of 197,510 primary students in 1983, 12,803 (6.5%) were repeaters. As noted, most of these were in Standard 4, where 12 percent were repeaters, and Standard 7, where 28 percent were repeaters.

With respect to repeaters among schools of different sponsorship, there are significantly more repeaters, as a pecentage of total students, in Unaided (9.2%) than in Government (6.4%) or Government-Aided (5.7%) schools.

TABLE 4.3

ENROLLMENTS, BY DISTRICT AND STANDARD, 1983

District/ Town	STANDARD							TOTAL
	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	
North East	1,616	1,379	1,420	1,326	1,271	1,393	1,504	9,909
Central (N)	3,100	2,678	2,386	2,948	2,136	2,149	2,454	17,851
Central (C)	5,845	5,327	5,692	6,555	4,925	3,947	5,739	38,030
Central (S)	2,234	1,991	2,181	2,750	2,007	1,598	2,134	14,895
Kgatleng	1,501	1,495	1,550	1,822	1,359	1,373	1,488	10,588
Kweneng	4,259	3,916	3,541	4,014	2,726	2,213	2,921	23,590
Southern	4,355	4,236	3,912	4,813	3,279	2,644	3,307	26,546
South East	896	918	935	987	939	836	889	6,400
Kgalagadi	925	763	754	1,070	627	488	694	5,321
Ghanzi	695	457	519	525	432	303	365	3,296
North East	2,332	2,280	2,615	2,278	1,535	1,438	1,671	14,149
Gaborone	1,841	1,756	1,712	1,588	1,334	1,388	1,667	11,286
Francistown	1,022	826	910	1,016	756	746	1,018	6,294
Lobatse	675	502	602	717	485	550	657	4,188
Selebi-Phikwe	740	651	706	685	569	504	655	4,510
Jwaneng	162	107	95	89	64	63	77	657
Total	32,198	29,282	29,530	33,183	24,444	21,633	27,240	197,510

Source: Education Statistics (1983), Central Statistics Office

TABLE 4.4

REPEATERS, BY DISTRICT AND STANDARD,
AND BY SPONSORSHIP AND STANDARD, 1983

District	STANDARD							Total
	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	
North East	-	-	2	47	5	8	349	411
Central (N)	2	3	3	389	-	2	693	1,092
Central (C)	26	26	13	802	16	17	1,734	2,634
Central (S)	13	6	3	415	2	21	598	1,058
Kgatleng	6	4	6	256	4	40	398	714
Kweneng	47	79	66	504	33	45	809	1,583
Southern	9	25	18	693	17	10	1,000	1,772
South East	2	6	8	28	5	15	100	164
Kgalagadi	35	5	21	218	15	4	266	564
Ghanzi	23	2	2	74	1	18	97	217
North West	22	10	10	286	10	14	499	851
Gaborone	34	23	46	119	34	43	388	687
Francistown	1	4	13	108	3	30	264	423
Lobatse	4	13	-	87	8	32	172	316
Selebi-Phikwe	-	-	-	52	-	-	239	291
Jwaneng	3	4	2	-	-	-	17	26
Total	227	210	213	4,078	153	299	7,623	12,803
Sponsorship								
Local & Gvmt.	181	162	187	3,933	134	210	7,294	12,101
Aided Schools	13	6	10	103	2	49	143	326
Unaided Schools	33	42	16	42	17	40	186	376
Total	227	210	213	4,078	153	299	7,623	12,803

Source: Education Statistics (1983), Central Statistics Office.

The number of dropouts is given in Table 4.5, by district and standard. The dropout figures were determined by comparing the current school register with the prior year's register, as reported by each school on the annual survey. Table 4.5 shows that the total of 5,096 dropouts is only about 2.6 percent of total enrollments, and suggests that this is not an area of significant inefficiency in the primary system. The wastage reflected in the number of repeaters, however, should be considered carefully in unit cost analyses and in planning for general system improvement. In addition to examining causes for the higher repetition rate within the Unaided Schools, some attention could be given to the different rates across all schools. The information in Tables 4.3 and 4.4, for example, reveals especially high repetition rates for Kgalagadi (10.60%), Central (N) (9.48%), Lobatse (7.55%), and Central (S) (7.10%).

The system-wide student/teacher ratio is about 31.2:1, with a relatively small variation among the different areas. This shows an efficient use of class space, and would permit a small expansion of capacity in crowded areas without a significant reduction in level of achievement.

Enrollments by standard, by age and sex, are shown in Table 4.6. These figures reflect a reasonable progression of age groups through all standards, with no systematic male-female differences in age. The modal age for males and females is the same at each standard, beginning with age 7 for Standard 1 and increasing by one year for

TABLE 4.5

DROPOUTS, BY DISTRICT AND STANDARD, 1983

District	STANDARD							Total
	STD 1	STD 2	STD 3	STD 4	STD 5	STD 6	STD 7	
North East	10	15	17	21	17	24	29	133
Central (N)	34	120	110	100	127	55	54	600
Central (C)	76	147	138	186	164	194	71	976
Central (S)	7	51	53	57	48	58	34	308
Kgatleng	10	47	53	45	38	29	50	272
Kweneng	53	119	108	97	82	51	98	608
Southern	33	139	155	173	136	146	105	887
South East	3	5	1	9	5	3	4	30
Kgalagadi	16	23	26	34	26	18	14	157
Ghanzi	5	2	3	8	5	6	4	33
North West	88	54	64	58	44	40	24	372
Gaborone	18	31	21	22	37	22	12	163
Francistown	2	15	30	19	9	8	7	90
Lobatse	3	25	23	13	18	12	43	137
Selebi-Phikwe	59	57	29	56	43	52	4	300
Jwaneng	-	6	6	6	6	3	3	30
Total	417	856	837	904	805	721	556	5,096

Source: Education Statistics (1983), Central Statistics Office.

TABLE 4.6

ENROLLMENTS, BY STANDARD, AGE, AND SEX, 1983

Age	STD 1		STD 2		STD 3		STD 4		STD 5		STD 6		STD 7		Total		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M & F
Under 6	259	331	16	18	-	-	-	-	-	-	-	-	-	-	275	349	624
6	2,605	3,170	242	329	12	19	-	2	-	-	4	7	-	-	2,863	3,527	6,390
7	6,543	7,069	2,692	3,365	451	635	19	42	-	-	33	49	-	-	9,738	11,160	20,898
8	4,361	4,373	5,685	6,253	3,178	3,930	499	752	12	18	20	16	-	-	13,755	15,342	29,097
9	1,488	1,209	3,700	3,490	5,215	6,037	3,038	3,950	316	587	20	30	-	-	13,777	15,303	29,080
10	295	259	1,387	1,123	3,281	3,207	5,447	6,297	1,925	2,954	326	485	10	37	12,671	14,362	27,033
11	63	45	359	276	1,145	1,041	3,914	3,869	3,459	4,627	1,361	2,282	241	484	10,542	12,624	23,166
12	14	18	97	77	471	335	1,735	1,430	2,810	2,966	2,984	3,781	1,626	2,745	9,737	11,352	21,089
13	16	14	39	43	185	145	762	644	1,677	1,503	2,865	3,159	3,405	5,088	8,949	10,596	19,545
14	2	13	17	18	54	59	283	193	534	470	1,298	1,390	3,401	4,424	5,589	6,567	12,156
15	5	-	13	4	24	17	91	58	201	174	508	469	1,771	2,150	2,613	2,872	5,485
16	2	1	10	1	45	12	63	35	124	44	249	133	763	669	1,256	895	2,151
Over 16	32	11	17	11	18	14	35	25	23	20	91	73	209	217	425	371	796
Total	15,685	16,513	14,274	15,008	14,079	15,451	15,886	17,297	11,081	13,363	9,759	11,874	11,426	15,814	92,190	105,320	197,510

Source: Education Statistics (1983), Central Statistics Office.

each subsequent standard. The mean starting age is virtually identical for males (7.4) and females (7.3) and increases evenly for both sexes through Standard 7 to 13.7 and 13.5, respectively.

Ages are not excessively dispersed within standards. If such a dispersion existed, it could make the choice of instructional techniques more complex. For both sexes at all standards, however, the modal age plus and minus one year includes at least 74 percent of the students. Thus the extreme over-age and under-age students account for only 26 percent of the students at most. The actual ranges are under 6 to 17 plus for Standards 1 and 2, 6 to 17 plus for Standards 3 and 6, 7 to 17 plus for Standard 4, 8 to 17 plus for Standard 5, and 10 to 17 plus for Standard 7. Adult evening school accounts for some of the upper ages. There are no male-female differences in range.

As mentioned earlier, female enrollments account for 53 percent of all pupils. Data in Table 4.6 show a generally increasing percentage of female enrollments from Standards 1 through 7 as follows: 51.4%, 51.3%, 52.3%, 52.1%, 54.7%, 54.9%, and 58.1%. As discussed in the chapter on Secondary Education, this trend generally continues through Junior Secondary School and is reversed at Senior Secondary School.

Progression rates through the primary cycle were calculated from the data on enrollments given in Chapter 2.0 of this assessment.

These rates are based on the data in Table 2.23, and explained in the discussion accompanying the table. The rates (net of attrition and repetition) are as follows:

Standard	Progression Rates
2	.978
3	.991
4	1.070
5	.850
6	.945
7	1.27-1.33

These rates indicate a reasonably good progression through the primary cycle. Further information is needed on the success rates of the repeaters at Standards 4 and 7, to determine whether the funds spent on this 6.5 percent of total primary pupils might be more effectively spent for other purposes.

The significant hurdle in the progression through the formal school system is at the end of the primary cycle. In 1983 about 24 percent of the Standard 7 completers entered Form I of the secondary cycle. In an effort to expand access to secondary schooling (discussed in Chapter 5.0 on Secondary Education), this percentage is to be increased to 41 percent in 1984 and progress to about 61 percent by 1991.

4.1.4.2 Teachers

The availability of suitable numbers of skilled teachers is essential to effectively implement the planned program of expansion

within the primary cycle. The distribution of primary teachers is shown by district and sex in Table 4.7, which indicates that the teaching force of 6,333 is predominantly female (76%). This percentage is not evenly divided among districts and townships, with female teachers ranging from 54 percent in Ghanzi to 90 percent in Gaborone. The localization of the primary school teaching force is practically complete, with 96 percent in 1983 being Batswana.

The number of trained and untrained teachers is shown by district and type of preparation in Table 4.8. These data show that 70 percent of the current teaching force have had formal teacher training. The attractions of cities make it easier to find and retain qualified teachers for schools in the urban corridor along the "line of rail" (Figure 4.2) at the eastern edge of the country. The percentage of trained teachers is thus lower in the more remote and sparsely settled areas, such as the North West District (65%) and the Kgalagadi District (65%), when compared with townships, such as Francistown (86%), Lobatse (84%), and Gaborone (68%).

In general, as shown in Table 4.8, the majority (59%) of the 4,439 trained teachers have a Primary Teaching Certificate (PTC), awarded after two years of study at a Primary Teacher Training College (PTTC). Most (62%) of the 1,894 untrained teachers have completed only Standard 7.

TABLE 4.7

PRIMARY TEACHERS, BY DISTRICT AND SEX, 1983

District	Male	Female	Total
North East	111	222	333
Central (N)	126	404	530
Central (C)	313	892	1,205
Central (S))	126	344	470
Kgatleng	63	296	359
Kwangeng	158	589	747
Southern	177	695	872
South East	30	161	191
Kgalagadi	65	125	190
Ghanzi	59	69	128
North West	169	309	478
Gaborone	37	331	368
Francistown	24	151	175
Lobatse	19	100	119
Selebi-Phikwe	20	113	133
Jwaneng	5	30	35
Total	1,502	4,831	6,333

Source: Education Statistics (1983), Central Statistics Office.

TABLE 4.8

TEACHER QUALIFICATIONS, BY DISTRICT, 1983

District	Untrained					Trained												
	Std 7	JC	Matric	Degree	Total	ETC	ETC/JC Matric	PL	PL+D WWJC	Sec/	PL+ Matric	PTC	PH	PH+ Matric	Post Matric	Deg+ Dipl	Total	Grand Total
North East	35	75	17		127	37	5	25	16		1	107	12	3			206	333
Central (N)	121	25	24		170	68	12	34	20		2	204	16	4			360	530
Central (C)	273	58	20	3	354	160	16	103	35		2	495	24	13		3	851	1,205
Central (S)	108	16			124	53	6	50	17		1	192	21	4	1	1	346	470
Kgatleng	63	45	6		114	34	4	45	8		3	133	17	1			245	359
Kweneng	153	53	28		234	61	8	47	14		2	355	20	5		1	513	747
Southern	174	72	33		279	42	1	92	16			413	28	1			593	872
South East	16	10	3		29	14	2	34	18		3	74	15	1	1		162	191
Kgalagadi	33	18	16		67	17		25	3			77	1				123	190
Ghanzi	9	8	22		39	8	3	17	2		55	2			2		89	128
North West	84	67	16		167	40	5	20	8		1	230	5		1	1	311	478
Gaborone	60	46	11	1	118	12	3	44	16		4	115	17	4	16	19	250	368
Francistown	17	7			24	12	2	25	8		4	74	13	2	10	1	151	175
Lobatse	6	9	3	1	19	1		16	12		2	45	15	8		1	100	119
Selebi-Phikwe	15	13	1		29	6	2	12	7			54	4	19			104	133
Jwaneng	—	—	—	—	—	1	—	4	—		—	14	—	12	—	4	35	35
Total	1,167	522	200	5	1,894	566	69	593	200		25	2,637	210	77	31	31	4,439	6,333

Source: Education Statistics (1983), Central Statistics Office.

The capacity of the system to train teachers over the next several years, as shown below, is sufficient to maintain the present student/teacher ratio. However, the present and projected training capability will not be able to replace the 1,804 untrained teachers at a fast rate.

The information in Table 4.9, for 1983 through 1992, estimates the additional trained primary teachers needed each year to maintain current class sizes. This increase is compared to the annual number of graduates of the three PTTCs at Francistown, Serowe, and Lobatse and the new PTTC which will begin at Tlokweng in 1984. The last column shows the excess of supply over demand before adjustments for teachers leaving.

TABLE 4.9

TRAINED PRIMARY TEACHER DEMAND AND SUPPLY, 1983-1992

Year	Enrollments	Teacher Needs at S/T=31.187:1	Increase Per Year	PTTC Graduates	Excess(Supply - Demand)
1983	197,510	6,333	-	455	-
1984	203,265	6,518	185	455	270
1985	212,375	6,810	292	455	163
1986	219,854	7,050	240	600	360
1987	227,053	7,280	230	600	370
1988	234,921	7,533	253	600	347
1989	243,866	7,819	286	600	314
1990	253,476	8,128	309	600	291
1991	263,571	8,451	323	600	277
1992	274,100	8,789	338	600	262
Total (1984-1992)			2,456	5,110	2,654
Average			273	568	295

As shown in Table 4.9, an average increase is required of 273 teachers, against a projected supply of 568, for 1984 through 1992. This represents an unadjusted excess of 295 teachers annually, which should meet the country's needs through 1992. It will more than cover attrition expected in the primary teaching force. The MOE reports for 1981-1983, for example, a net average gain of 199 after adjustments for all types of attrition and increases (253 for 1981, 177 for 1982, and 166 for 1983). Analysis of the components of the movements for 1983, shown in Table 4.10, gives an overview of the gains and losses.

A more detailed analysis of teacher supply and demand, for primary as well as other levels of education, is given in other chapters of this assessment. For the present, it is sufficient to note that the present pre-service training capacity will be able to maintain the present level of trained primary teachers over the next several years.

The Department of Primary and Teacher Training of the Ministry of Education is responsible for the supervision of teaching through its inspectorate. Staff responsible for supervision include a Chief Education Officer and four professionals at Headquarters and a field staff of four Regional Education Officers, 32 Education Officers (inspectors of schools), and an Editor of Primary Publications. Three general problem areas are cited in the 1982-83 annual report of this Department: insufficient transportation to allow fully effective supervision, an inadequate number of Headquarters staff, and difficulty in attracting career employees to become Education Officers.

TABLE 4.10

PRIMARY TEACHER MOVEMENT, BY REASON, 1983

District	Teachers Joining						Teachers Leaving						
	TRANSFERS FROM OTHER SCHOOLS	FROM BOTSWANA TTC	UNQUALIFIED FROM NON-TEACHING JOB OR SCHOOL LEAVER	EXPATRIATE QUALIFIED TEACHER	OTHER	TOTAL	TRANSFER TO OTHER SCHOOLS	RESIGNED TO ATTEND BOTSWANA TTC	RESIGNED TO NON-TEACHING JOB	DISMISSED	ILLNESS	OTHER	TOTAL
North East	53	10	12	2	6	83	44	21	2	1	1	8	84
Central (N)	79	32	9	-	6	126	73	22	9	1	1	8	115
Central (C)	151	56	19	8	3	237	146	42	15	5		9	232
Central (S)	53	13	4	-	3	73	55	17	12	7	1	6	101
Kgatleng	26	6	19	1	1	53	19	13	13	1		9	59
Kweneng	94	57	27	1	10	199	102	20	11	4	2	8	152
Southern	104	115	44	2	4	269	127	28	23	17	4	12	214
South East	23	4	2		3	32	20	3	1	1		1	30
Kgalagadi	20	16	13	1		50	27	5	5		1	5	51
Ghanzi	6	11	12		1	30	17	1	2	1		1	24
North West	51	84	9	1		145	49	28	7	6	1	5	98
Gaborone	42	16	30	10	3	101	43	6	11		2	5	84
Francistown	32	5	1	4		42	25	10	2				42
Lobatse	8	4	4	1	8	25	2	2	3			10	22
Selebi-Phikwe	16	2	4	2		24	8	1	4	1	1		20
Jwaneng	6	9				15	2						10
Total	764	450	209	33	48	1,504	759	219	128	45	14	87	1,338

Source: Education Statistics (1983), Central Statistics Office.

4.1.4.3 Curriculum

The composition of the curriculum at the primary level is best understood within the wider context of the system of external achievement examinations used in all the schools. The curriculum content at the Senior Secondary level is determined by the syllabus and examinations for the Cambridge Overseas School Certificate (COSC), prepared and graded in the UK. The curriculum content at the Junior Secondary level is indirectly influenced by the COSC syllabus and examination, and directly influenced by the syllabus and content of the Junior Certificate (JC) examination. The JC examination is prepared, administered, and graded by the Ministry of Education. Given the importance of the COSC and the JC for admission to higher levels of education and for employment, the Primary School Leaving Examination (PSLE), prepared and administered by the MOE at the end of Standard 7, aims at preparing students for progress through this system of assessment hurdles.

Subjects taught at primary school are English, Setswana, social studies, mathematics, religious education, and science. The syllabi for these subjects were reformed in 1969, and have since been further updated and redesigned by the Curriculum Development Unit within the Curriculum Development and Evaluation Department of the Ministry of Education. The current design, which includes teacher guides and instructional materials, emphasizes discovery-oriented approaches to ensure student participation in learning as well as mastery of content.

The revised syllabi were introduced into the schools at the beginning of the 1982 school year (religious education, science, and social studies) and the 1983 school year (English, mathematics, and Setswana). Teachers guides are now available for all subjects at all standards except for science and mathematics, which so far have guides only for the first four standards.

The mastery of English is important for primary school pupils, and it is a difficult task because the vast majority of the pupils learn it as a second language. For the first four standards instruction is in Setswana, which itself is a second language for students of minority ethnic groups in some peripheral areas. During these first four years English is taught as a second language. For the last three years of primary school all instruction is expected to be in English.

Although objective evidence is scarce concerning the extent to which English is actually used for instruction at the upper three standards, informed opinion suggests that achievement in English is limited by the considerable use of Setswana in the schools. In many schools English is used only in the classroom, and is not used outside of class by teachers, students, or parents. At Form I, the first year of Junior Secondary School, remedial instruction in English is often necessary. The same is reported for some beginning students at the PTTCs.

Part of the difficulty with teaching English is related to limited English language fluency on the part of many primary

teachers. This is illustrated by preliminary results from the Primary Education Survey 1983. As part of the survey, 756 teachers were selected for a study from a stratified national sample of 60 primary schools. When asked "How would you rate your skill in understanding spoken English?", the following responses were given to the four choices:

1% - I have great difficulty.

19% - I have difficulty but am able to catch the general meaning.

41% - I understand most conversation with a little difficulty.

39% - I understand most conversations without difficulty.

When asked "How would you rate your skill in speaking English?", they responded as follows:

1% - I have great difficulty.

23% - I have some difficulty but am able to convey my general message.

38% - I can make myself understood with a little difficulty.

37% - I can make myself understood without difficulty.

4.1.4.4 Examinations

The PSLE, as mentioned above, is taken by all students at the end of Standard 7. A student must perform well on the PSLE to be accepted into Junior Secondary School, as this is the basic selection criterion.

The PSLE is developed by the Research and Testing Center (RTC), formerly the Regional Testing Center and now under the Department of

Curriculum Development and Evaluation within the MOE. The written section of the PSLE consists of an essay and a letter in English and Setswana; a multiple-choice format is used for the remainder, including measures of aptitude as well as achievement. Three scores are reported: Setswana, English Achievement, and Aggregate. The Aggregate score is classified as A, B (further subdivided into B-1, B-2, and B-3), C, or D. All students having scores of A and B-1 are accepted into government secondary schools, as are a few scoring B-2. No students scoring B-3 and below are accepted. Results of the PSLE for 1982 are presented in Section 4.1.4.7, as part of a discussion of quality of instruction.

The Standard 4 achievement test is a mixed essay and multiple-choice examination prepared by the Curriculum Development Unit. It was re-introduced in 1980, after an absence of more than 15 years, as a measure of basic skills in literacy (English and Setswana) and numeracy. The purpose of this examination is to identify those students who require remedial teaching in basic skills and should repeat Standard 4. These decisions are made at the individual school level. As shown in Tables 4.3 and 4.4, Standard 4 repeaters in 1983 comprised 4,078 (12%) of the total enrollment of 33,183 at that level.

4.1.4.5 Facilities and Equipment

The distribution of current schools was given in Table 4.1 by district and by ownership. The 499 schools are comprised of 466 (93%) Government, 13 (3%) Government-Aided, and 20 (4%) Unaided Schools.

Many students currently enrolled are being taught in space not designed to support instruction. The estimated shortage of classrooms is shown by district in Table 4.11, indicating a total of 1,620.

Most schools offer all seven standards. The information in Table 4.12 indicates that 443 (89%) of the 499 schools have classes through Standard 7. Only 32 (6%) of the schools have instruction at or below Standard 4 as their highest level offered. These tend to be new schools and are expected to gradually expand.

An overview of the facilities available in the schools can be obtained from the Primary Education Survey 1982 referred to previously. The 60 Head Teachers in the sample were asked to indicate which of the following facilities were available at their schools, with these results:

7% - electricity
72% - piped water
83% - school garden
75% - desk and seat for each pupil
87% - radio
10% - tape recorder
50% - spirit duplicator
53% - TAPU (Teaching Aids Production Unit) supplied materials
8% - book boxes from National Library Service

On availability of textbooks, the 756 teachers in the survey were asked "How many pupil textbooks do you have for each subject?" These

TABLE 4.11

ESTIMATED CLASSROOM SHORTAGE (1983)

District	Shortage
North East	85
Central (N)	131
Central (C)	274
Central (S)	106
Kgatleng	78
Kweneng	213
Southern	344
South East	13
Kgalagadi	46
Ghanzi	28
North West	193
Gaborone	51
Francistown	7
Lobatse	30
Selebi-Phikwe	21
Jwaneng	-
Total	1,620

Source: Education Statistics (1983), Central Statistics Office.

TABLE 4.12

SCHOOLS BY HIGHEST STANDARD TAUGHT, 1983

District	Standard							Total
	Std. 1	Std. 2	Std. 3	Std. 4	Std. 5	Std. 6	Std. 7	
North East		3	1	3		2	22	31
Central (N)			1	1		2	34	38
Central (C)			1				85	86
Central (S)				2			32	34
Kgatleng				2			31	33
Kweneng	1			3	2	2	52	60
Southern			1	3	3	4	65	76
South East					1		13	14
Kgalagadi							19	19
Ghanzi	2			2	2		10	16
North West			3	3	5	1	34	46
Gaborone							22	22
Francistown							9	9
Lobatse							7	7
Selebi-Phikwe							6	6
Jwaneng							2	2
Total	3	3	7	19	13	11	443	499

Source: Education Statistics (1983), Central Statistics Office.

teachers, whose average class size was 32 students, indicated the following approximate number of textbooks available:

Average Number of Textbooks	Subject
20	Setswana
20	English
20	Mathematics
1	Science
7	Social Studies

Further information on facilities is given by district in Table 4.13. This indicates an average school size of 396 pupils, with a range from 206 (Ghanzi) to 699 (Francistown). A rough index of the level and range of the supply of desks and chairs can be obtained by calculating the average number of chairs per 100 students. This average is only 65, with a range from 43 to 90. The information on school size and chairs per 100 students, derived from Table 4.13, is given below by district:

District	Average Pupils per School	Average Chairs per 100 Pupils
North East	320	88
Central (N)	470	57
Central (C)	442	64
Central (S)	438	55
Kgatleng	320	66
Kweneng	393	65
Southern	349	58
South East	457	71
Kgalagadi	280	88
Ghanzi	206	84
North West	308	58
Gaborone	513	81
Francistown	699	43
Lobatse	598	48
Selebi-Phikwe	752	89
Jwaneng	238	90

TABLE 4.13

FACILITIES AND ENROLLMENTS, BY DISTRICT, 1983

District	No. of Schools	Pupils	Desks			Tables	Chairs	Black-Board
			Single Seat	Double Seat	Others			
North East	31	9,909	23	173	159	4,538	8,747	633
Central (N)	38	17,851	32	403	182	4,974	10,215	771
Central (C)	86	38,030	200	862	149	10,888	24,409	1,593
Central (S)	34	14,895	-	362	64	4,232	8,140	611
Kgatleng	33	10,588	176	584	-	3,469	6,987	447
Kwaneng	60	23,590	89	587	34	6,941	15,263	890
Southern	76	26,546	85	853	322	7,348	15,459	1,019
South East	14	6,400	13	170	21	2,428	4,564	328
Kgalagadi	19	5,321	-	49	7	2,192	4,666	286
Ghanzi	16	3,296	32	31	-	1,566	2,783	182
North West	46	14,149	19	237	61	4,218	8,240	631
Gaborone	22	11,286	196	121	72	2,280	9,126	363
Francistown	9	6,294	296	182	40	707	2,717	202
Lobatse	7	4,188	205	102	40	443	2,024	86
Selebi-Phikwe	6	4,510	139	16	-	1,450	4,005	131
Jwaneng	2	657	56	-	-	61	594	33
Total	499	197,510	1,561	4,742	1,151	57,735	127,939	8,206

Source: Education Statistics (1983), Central Statistics Office.

4.1.4.6 Costs and Donor Support

The costs of primary education are essentially all paid by the Central Government. Most costs are paid directly; some are covered by grants to the District and Township governments. Beginning in 1976, when the Unified Teaching Service was introduced, responsibility for teachers' salaries was transferred from the District Councils to the Ministry of Education. There have been no primary school fees since 1980.

Primary school finances, including analyses of unit costs and the rate of return, have been discussed fully in Section 2.5 of this assessment. The total recurrent budget for primary education during the 1983 year was P26,700,000, giving a per-student annual cost of about P166 (US$154). This is a reasonable unit cost as compared to amounts spent by developing countries in similar circumstances.

Donor support has been largely responsible for most of the new school construction. Under the Third Education Project the World Bank (Loan 2057-BT), for example, will finance the construction and equipping of about 500 primary classrooms and related teacher quarters.

4.1.4.7 Quality of Instruction

The information so far presented on the status of the school system at the primary level has focused on the infrastructure: managerial responsibility, enrollments, teachers, curriculum, examinations, facilities and equipment, and costs. The product of all

of these elements--the overall goal of the system--is the learning that actually takes place as a result of an effective coordination of these components. This section on the status of the primary system closes with a discussion of this product.

The PSLE is a common measure of teaching effectiveness which is annually applied to all schools. Possible grades are A (very good), B (good), C (average), and D (below average). The number of candiates in these categories, for the 1982 PSLE, was as follows:

Grade	Number	Percent
A	1,431	5.1
B	7,208	25.6
C	10,360	36.7
D	9,206	32.6

The average grade for all candidates was 2.03, which is slightly over C (average), with numerical values assigned to the grades for calculation purposes (A = 4, B = 3, C = 2, D = 1). The average PSLE grade by district can be compared to the percent of trained teachers in each district as shown below:

District	1982 PSLE	1983 Percent Trained Teachers
North East	2.18	61.9
Central	1.88	70.6
Kgatleng	2.07	68.2
Kweneng	2.23	68.7
Southern	1.93	68.0
South East	2.32	84.8
Kgalagadi	2.07	64.7
Ghanzi	1.78	69.5
North West	1.75	65.1

Gaborone	2.57	67.9
Francistown	2.30	86.3
Lobatse	2.19	84.0
Selebi-Phikwe	2.10	78.2
Jwaneng	-	-
Average	2.03	70.1

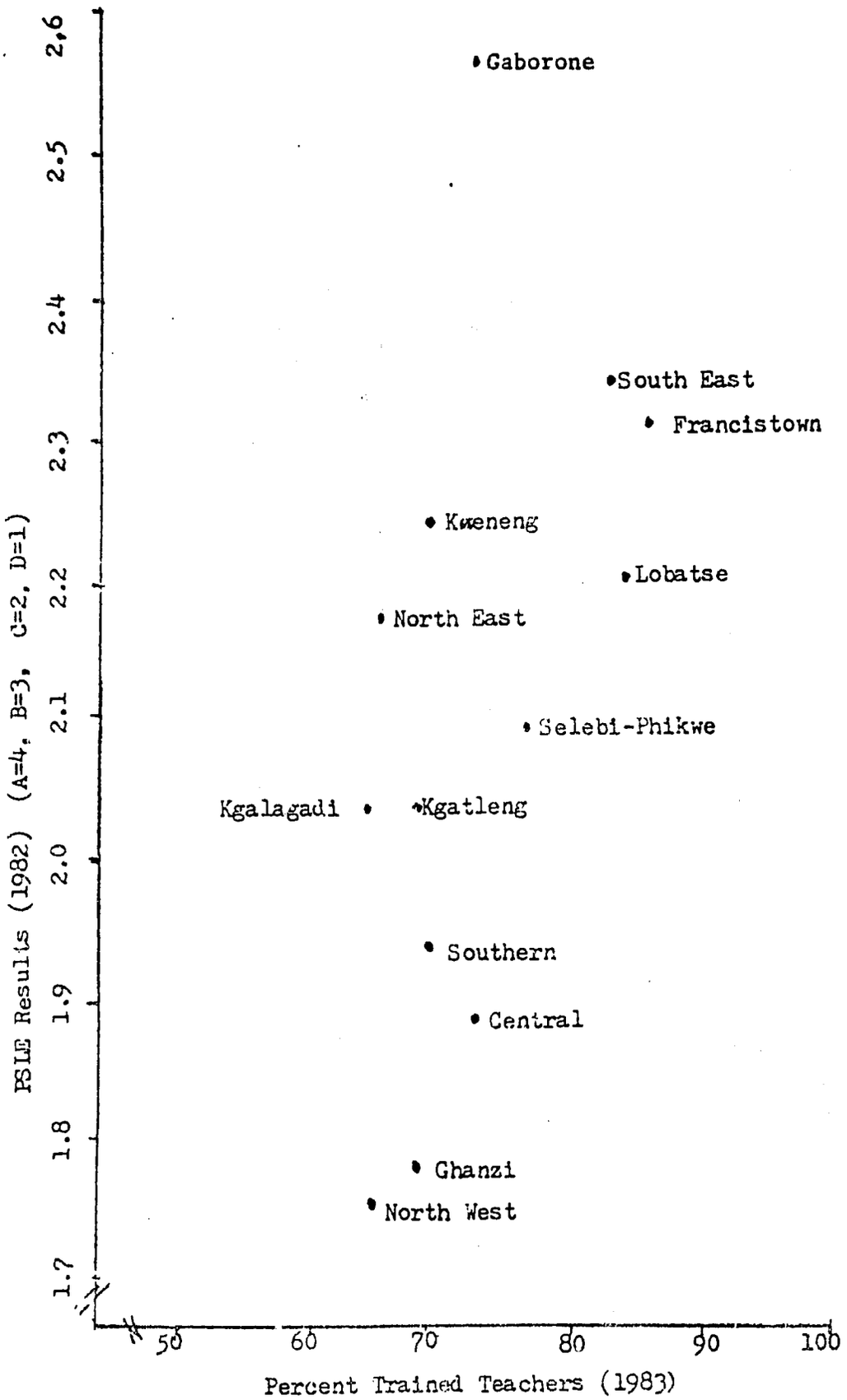
The relationship between the PSLE scores and percent of qualified teachers in each district is displayed in Figure 4.4, and a number of observations can be made on the basis of this information.

In overall achievement, students in Gaborone far exceed those in all other districts and townships. Below Gaborone there are three clusters of districts with progressively lower average PSLE scores. The first group comprises South East (2.32), Francistown (2.30), Kweneng (2.23), Lobatse (2.19), and North East (2.18). The second includes Selebi-Phikwe (2.10), Kgaladadi (2.07), and Kgatleng (2.07). The lowest grouping is composed of Southern (1.93), Central (1.88), Ghanzi (1.78), and North West (1.75).

In view of this extensive attention given to teacher qualifications, the data in Figure 4.4 provide information of interest. When the districts are ranked both on the basis of PSLE achievement and on percent of qualified teachers, a Spearman rank correlation coefficient of 0.33 is obtained. This indicates that there is no statistically meaningful relationship between these two variables, based on the sample data.

FIGURE 4.4

RELATIONSHIP BETWEEN TEACHER QUALIFICATION (1983)
AND PSLE RESULTS (1982)



This statistic is not offered as evidence that teacher qualifications and training are not significant factors in instruction. These data are grouped by district, and it is likely that certain well-prepared and effective teachers within individual districts and schools are achieving good results. Also, recent shifts of trained teachers to some areas may not be fully reflected in this analysis. In the absence of a more detailed analysis, the data do highlight a possible fruitful area for a further and more precise investigation of the overall relationship between teacher qualifications and student achievement.

The available information on quality of instruction raises several questions. Do the criteria for defining teacher qualifications include adequate measures of teaching skills? Are there improvements in instructional support items (e.g., textbooks and teacher guides) that can raise achievement? Can pre-service and in-service teacher training be improved? Can the disparities among achievement levels of the districts be reduced? Can the schools with better records be studied to isolate the factors contributing to their good performance?

Some of these topics will be treated in the remainder of this chapter, including a discussion of several needs and issues. Finally, a number of recommendations will be offered as a means to improve the overall operations of the primary system.

4.2 ANALYSIS

This section begins with a presentation of several needs which have been identified on the basis of information so far cited. These form the foundation for a subsequent discussion of issues in the areas of external efficiency (relevance), internal efficiency, access and equity, administration and supervision, and costs and financing.

4.2.1 Needs

Major needs identified relate to quality of instruction, access and equity, and administration and supervision. These are discussed separately below.

Quality of Instruction. There is a significant opportunity to improve the quality of instruction at the primary level as shown by the wide range in achievement recorded in the PSLE. Student performance is especially poor in the North West, Ghanzi, Central, and Southern Districts. There are many teachers in the country (30%) with no formal teacher training, and the performance of some qualified teachers is less than might be expected.

Teacher training, both pre-service and in-service, could be examined with a view to improving teacher preparation. Particular attention could be paid to selection, curriculum content, and completion examinations. The level of proficiency in English, which has been shown to be below that desired for primary school teachers, is an area of special concern.

Textbooks are not available in sufficient quantities to support a strong instructional program, on the basis of data from the Primary Education Survey 1982, and this should be examined as a possible highly cost-effective way to improve achievement. Availability, appropriateness, and distribution are important areas for attention. Considerable research has shown that in many developing countries textbooks can be the single most cost-effective component of an instructional system.

The 12,803 repeaters at the primary level in 1983 comprised 6.5 percent of the total enrollment (including 28% of Standard 7 and 12% of Standard 4). Given the absence of information on the success rates of these repeaters, this area needs to be examined. Government should have available the information needed to determine whether the benefits received justify the costs of having these pupils repeat the standard.

Radio support for direct instruction at the primary level, and for in-service teacher training, can be a highly cost-effective element of an instructional system. The distance teaching operations of the Schools Broadcasting Unit (SBU), within the Department of Curriculum Development and Evaluation of the MOE, are designed to prepare and deliver services in both of these areas. The SBU has accomplished much, given its limited staff and logistics support, and the Unit's operations could be expanded to improve the quality of instruction.

Access and Equity. The remote areas of the country have limited access to the formal primary education system, and the quality of instruction in these parts of the country could be improved. Efforts to make education available to these areas by providing boarding facilities at primary schools, as discussed in the financial chapter of this assessment, require very high unit costs. The problem of remote area access needs to be examined from the perspective of whether some alternate delivery system might be more appropriate and cost-effective than a continued expansion of the present formal system.

Administration and Supervision. The educational system at the primary level consists of many complex and diverse elements, all focusing on producing achievement based on the government-approved curriculum, but managed by separate administrative units. An effective system needs a well-managed coordination of these units. Activities related to capacity, teacher quality and supply, teacher assignments, preparation and distribution of textbooks and related support materials, teacher supervision, and examinations all could benefit from closer coordination at a high level.

Related to this overall coordination is the need to examine the present organizational structure and composition with respect to educational planning, management, and operations. An appropriate structure and staff at this level is essential for the effective coordination of all elements of the educational system.

4.2.2 Plans

At the national level, there are no major formalized and approved primary-cycle plans that require funding. The planned expansion at the secondary level, which has significant funding implications, is discussed in Chapter 5.0.

The planned growth rate of 3 to 4 percent for primary enrollments, which government has projected for the next decade, can be handled adequately within the normal growth expected for the economy. There is a need, however, for more formalized planning for this growth.

4.2.3 Constraints

Several constraints to improving operations of the primary school system have been referred to previously. One constraint is related to the quality of instruction, and includes the problem of teacher qualifications. The present system for preparing teachers does not seem to facilitate improved classroom achievement as measured by the PSLE. A major constraint to system operations, therefore, is the present structure and operation of the teacher training program.

A second constraint is the high cost of reaching the 17 percent of the school age children not now enrolled. For the portion of this group in remote areas, the formal system cannot be used to make quality education available at a reasonable cost.

The uneven distribution of instructional quality is a third constraint to overall system improvement. Without a basic change in the distribution of educational opportunities of high quality, pupils in the sparsely populated areas of the country will continue to receive a below average education. Some steps have been taken in this regard, to more evenly distribute qualified teachers throughout the country.

The fourth major constraint is the need for improved coordination of all components of the education system so that government goals for primary education can be addressed more effectively.

4.2.4 Issues

On the basis of the preceding presentation of current status, needs, plans, and constraints, several issues that deserve attention can be identified.

4.2.4.1 External Efficiency

External efficiency refers to the relevance of the education program to anticipated activities of school leavers. Because the curriculum has recently been revised to closely reflect government educational goals at the primary level, there are no major issues in

this area. This curriculum is now being implemented in the primary schools, and suitable accompanying textbooks and instructional support materials are being developed. (Particular work remains on the science component.)

4.2.4.2 Internal Efficiency

Internal efficiency issues relate to the degree to which the educational system is making the best use of resources and operating in a cost-effective manner. Internal efficiency topics considered in this assessment include student flow (wastage), class size, teacher effectiveness, instructional materials, quality and language of instruction, examinations, and aspects of curriculum organization.

Student flow is generally satisfactory, given the policy of automatic promotion generally applied at the primary level. The one issue here relates to repeaters, which account for 6.5 percent of the total primary enrollments and costs.

Class size is not an issue, as the current average class of about 32 students is appropriate. There is capacity for a small increase in enrollments in crowded areas, and this would probably not affect achievement adversely.

Teacher effectiveness is of uneven quality, and there are possibilities for improvement in teacher training. This has been discussed with respect to varied PSLE performance among the districts. The emphasis on formal qualifications raises some

questions as to how qualification specifications and pupil achievement are related.

The availability of instructional materials in sufficient quantitites and delivered on time is an issue. Evidence indicates an uneven supply of textbooks among subjects. Although information on the wide range of support materials required for efficient instruction is not at hand, the per pupil annual allotment of P16 (soon to be increased to P18) may not be sufficient to provide a set of books and all of the related materials this sum is expected to purchase.

A major internal efficiency issue that has been discussed in detail is quality of instruction. This is closely related to teacher effectiveness. Quality of instruction appears to be unevenly distributed, according to a number of related indices such as teacher preparation, class size, facilities, and PSLE performance. Pupils in some of the more remote areas receive a lower quality education than those in the more densely populated areas.

Related closely to the quality of instruction are problems associated with the language of instruction. Many primary teachers, by their own estimation, have a less adequate capability in English than is needed to teach it as a second language in Standards 1 through 4 and to use it as a medium of instruction in Standards 5 through 7.

The system of examinations does not comprise an issue of internal efficiency for the primary cycle. The PSLE is carefully prepared and trial tested each year, and it is closely tied to the curriculum. The Standard 4 examination could be improved by having better guidelines

for its application and by having normative information provided for its interpretation.

Finally, the curriculum has been recently revised and is well structured for application by teachers. Teacher guides have been prepared and are being made available to all teachers.

4.2.4.3 Access and Equity

Access to primary education is now available to about 83 percent of the children of primary school age. This is an impressive achievement and reflects the concern of government with basic education. The issue associated with access relates to difficulties in reaching the remaining 17 percent of the school age population. The high costs of extending the formal system to the population in remote areas make this expansion almost prohibitive.

Equity with respect to access by females is not a problem is Botswana, as documented earlier. Access for children in remote areas constitutes a serious equity problem, related to costs. Also, a problem in equity is reflected in the lower quality of instruction received in some of the sparsely populated areas, as shown on PSLE performance.

4.2.4.4 Administration and Supervision

An issue of administration and supervision concerns the overall coordination within the primary system, whose components are individually managed by separate units both within and outside the

Ministry of Education. Coordination and general managerial effectiveness might be improved by a review of the structure and staffing responsible for system-wide operations.

4.2.4.5 Costs and Financing

The major cost issue concerns extending the formal system to include that segment of the school age children, not now enrolled, who reside in remote areas of the country. High costs are associated with boarding facilities and small schools. A less compelling but significant financial issue is that of costs and logistics associated with school facilities (maintenance and repair as well as non-school building facilities).

4.2.5 Conclusions

The following 12 conclusious regarding primary education are derived from the information summarized above. They are grouped into the same topical areas used for the discussion of issues.

External Efficiency

Conclusion 1. The revised curriculum is appropriate with respect to content, organization, and structure. Suitable support materials exist.

Internal Efficiency

Couclusion 2. Textbooks and related instructional support materials are not currently available in sufficient quantities at all schools.

Conclusion 3. Pre-service teacher training could benefit from improved selection procedures.

Conclusion 4. Pre-service teacher training would be more effective with an appropriate and common curriculum more fully implemented at all PTTCs.

Conclusion 5. All in-service teacher training programs should be reviewed to determine their impact on teaching practices and student achievement. Those programs found effective could then be expanded to include a larger number of teachers.

Conclusion 6. Radio is not fully utilized for distance teaching and as a support for in-service teacher training.

Conclusion 7. The cost of repeaters is high and may not be justified, on the basis of evidence currently available.

Access and Equity

Conclusion 8. School age children in remote areas are seriously under-served.

Conclusion 9. The formal education system cannot be extended at a reasonable cost to serve remote populations adequately.

Conclusion 10. Instructional quality is not evenly distributed.

Administration and Supervision

Conclusion 11. The present administrative structure may not be appropriate to current and projected requirements.

Costs and Financing

Conclusion 12. Present unit costs are reasonable when compared with other countries in similar circumstances.

4.3 RECOMMENDATIONS

The following nine recommendations for primary education are grouped in priority order according to their emphasis on the areas of administration and supervision, internal efficiency, and access and equity.

4.3.1 First Priority - Administration and Supervision:

Recommendations 1-2

These recommendations focus on the overall coordination and management of the primary sytem. The first relates to the coordinating mechanism and the second to the implementing structure.

Recommendation 1. Improve the coordination for all elements of the primary cycle.

While all components for an effective and extensive primary education system are in place, what is most needed is a review of the present means for coordinating these components to address major government goals. The role of means such as the Interministerial Committee on Primary Education should be carefully reviewed with a view to further improving the present coordination.

Recommendation 2. Review the structure and staff needs of the Ministry of Education.

The organizational structure and staff requirements should be reviewed, following the implementation of Recommendation 1. The review of structure should be made within the framework of needs for a

more fully coordinated operation, and the review of staff should be based on functional requirements and should specify staff numbers as well as levels of training and skills.

4.3.2 Second Priority - Internal Efficiency: Recommendations 3-7

These recommendations relate to improving instructional quality by making more efficient use of existing resources and structures.

Recommendation 3. Improve the supply and distribution of textbooks and related instructional material.

The effectiveness of the newly revised curriculum can be improved significantly by a better supply and distribution of textbooks and teachers' guides. Many of these are now in place in the schools, and making them more widely available on a timely basis would be a highly cost-effective improvement in the quality of instruction.

Recommendation 4. Raise the instructional skills of teachers trained at the PTTCs.

The training capacity of the PTTCs is sufficient for the long-term requirements for the current level of trained teachers. The quality of graduates from these PTTCs, however, could be increased in three ways. One would be to review the selection procedures to improve the potential of entering trainees. This could be done by an increased emphasis on English skills for applicants and by a review of the validity of selection interviews now used along with entrance examinations. A second possibility would be to review the academic preparation of the PTTC staffs, many of whom have been trained as

secondary school teachers instead of as tutors. A third possibility for improving PTTC graduates would be to have an appropriate and common curriculum more fully implemented at the PTTCs.

Recommendation 5. Evaluate and improve the in-service teacher training program.

The Education Centers, in coordination with existing in-service programs and the Primary Education Improvement Project (PEIP), offer an excellent opportunity to consolidate efforts to improve teaching skills of qualified aud unqualified teachers in the system. All current and developing programs for in-service training should be reviewed carefully for their impact on teaching skills, with a view to expanding those programs found most effective.

Recommendation 6. Improve and expand radio support for direct instruction and in-service teacher training.

The Schools Broadcasting Unit (SBU) can be more fully mobilized to support and improve the quality of instruction. Radio has in many countries been found to be a powerful support tool for instruction, and can be especially effective in reaching remote-area populations. It has generally proved to be cost-effective. There are four areas for possible improvement of radio support: (a) review of the SBU organization and staff to be sure that it is sufficient to support expanded operations; (b) expansion of the coverage to include all subject areas, and a general improvement of the programming; (c) continued development of the teachers' materials now being

prepared to support the radio instruction; and (d) coordination of radio support with in-service programs.

Recommendation 7. Evaluate the cost-effectiveness of allowing repeaters at Standards 4 and 7.

Since repeaters at these standards comprise nearly 6.5 percent of the total primary enrollments, their success rate should be carefully reviewed. On this basis of this information, a decision should be made about the continuation of this practice. This decision should reflect government policy on extending educational opportunities to students who require more than the usual time estimated for primary school completion, and the amount available to be spent on making these opportunities available.

4.3.3 Third Priority - Access and Equity: Recommendations 8-9

The final recommendations focus on improving the distribution of quality instruction among the districts and townships and providing access to the more remote areas.

Recommendation 8. Improve the distribution of quality instruction.

Current efforts to improve the geographical distribution of instructional quality concentrate on a more equitable distribution of qualified teachers. Since the present formal teacher qualifications may not be strongly related to pupil achievement, an attempt should be made to identify the more skilled teachers on the basis of other criteria, such as performance of pupils on the PSLE. The current

program, to ensure that the more skilled teachers are distributed more evenly throughout the districts and townships, should be modified to reflect teaching skills as well as formal qualifications. In addition, other contributors to improved instruction (e.g., print and non-print materials) increasingly should be developed, provided, and demonstrated to supplement teacher instruction.

Recommendation 9. Consider nonformal instructional alternatives for providing instruction to remote areas.

Available evidence suggests that remote and sparsely settled groups cannot be given access to the formal educational system in a cost-effective manner. A study should be conducted of the possibilities for using nonformal education to deliver basic education in remote areas and to those currently not served by primary school.

5.0. SECONDARY EDUCATION

This chapter examines secondary education, a five-year sequence following seven years of primary school. Secondary education is divided into Junior Secondary School (Forms I, II, and III) and Senior Secondary School (Forms IV and V). Secondary education is offered through Government Schools, Government-Aided Schools, and Community Junior Secondary Schools. Government Schools are funded and operated directly by the Ministry of Education (MOE). Government-Aided Schools are mission schools that have come to be subsidized by the Central Government which now finances nearly 95 percent of their recurrent budgets. Community Junior Secondary Schools (CJSS), also referred to as Unaided Schools and Private Schools, are run by local communities through a local board of governors. Despite their designation as Private Schools, Community Junior Secondary Schools do receive some subsidy from the MOE.

Botswana has attained nearly universal access to primary school, with a current participation rate of 83.5 percent. The overriding educational goal of government for the next ten years is to provide universal access to an expanded basic education which would continue through Junior Secondary School. Consequently, secondary education in Botswana is on the brink of a major expansion. The MOE plans to

increase the percent of Standard 7 leavers entering Form I from 25 to 40 percent in 1984 (an increase from 7,255 students to 11,025), and to continue increasing enrollments until near universal access to Form I is reached by the early 1990s. This rapid expansion will require additional teachers and facilities, as well as revisions to the present curriculum.

The principal needs identified for secondary education are improved articulation of educational planning with projected national manpower needs, an increased number of qualified teachers, and a reduction in the difference in quality of instruction between Government and Government-Aided (Government/Aided) Schools and Community Junior Secondary Schools. At the end of this chapter, recommendations are presented to address each of these needs.

5.1 STATUS

This section briefly describes the development of secondary education in Botswana. It then reviews national goals, strategies, and the current structure of the subsector. Specific areas described are enrollments, teachers, curriculum, examinations, administration, facilities and equipment, and cost and donor support.

5.1.1 Historical Setting

At the time of independence in 1966, there were nine secondary schools with 1,565 students. Secondary schools then could accept

fewer than 20 percent of all primary school leavers. Only 200 students earned a Junior Certificate in 1966, and 50 received a School Certificate. Since independence, secondary education has become a high priority of government. By 1982, 41 secondary schools were serving more than 20,520 students.

The current commitment to provide universal access to junior secondary education has fostered considerable planning and debate. While many issues surface in the consideration of the proposed expansion, four dominate the discussion. First, the present schooling structure comprises seven years of primary, three years of junior secondary, and two years of senior secondary, for a total of 12 years. Government wishes to extend universal access to include junior secondary schooling but cannot afford to do so for the full three-year period. As a consequence, the MOE will recast junior secondary schooling as a two-year program for 1986. This will change the educational sequence according to the following schedule:

	Number of Years by Level		
	1983	1988	1991
Primary	7	7	6
Junior Secondary	3	2	3
Senior Secondary	2	3	3
Total	12	12	12

Second, the reblocking of the junior and senior secondary structure creates a need to redesign the secondary curriculum. A

major curriculum development project is now under way and phasing in of new curricular materials is scheduled to begin with Form I in 1986. There are questions about what content should be included.

Third, government has made a decision to increase the percentage of primary school leavers continuing on to Form I from 25 to 40 percent, beginning with the 1984 school year. This will result in a wider range of student ability in the secondary school, and it presents new challenges in terms of curriculum development and teaching strategies suitable for this new group of students.

Fourth, the increased enrollment will require a substantial expansion in classroom space and related facilities. Construction of 54 new schools is planned to be completed by 1991; the increase planned for the number of teachers is more modest since there is currently some excess among those now employed. These increases come at a time when the MOE, as well as other ministries, cannot expect substantial increases in allotments of the national budget. Hence, these shifts will need to make effective use of existing levels of resources.

Aside from these major considerations, other challenges need to be met in planning and implementing the expansion. One is the coordination and logistics required to accommodate such rapid change, and a second is the challenge of maintaining academic quality during such rapid growth. Another is the continued need to ensure that secondary education is relevant to national manpower needs. Last is

the impact of these changes on localization, the effort of government to reduce its dependence on expatriate personnel.

5.1.2 National Goals and Strategies

The primary goal of government is to extend educational access and, at the same time, provide an education that prepares students to meet the manpower needs of the country. Specifically, government is committed to providing universal access to at least two years of junior secondary education and expanding senior secondary enrollments. To do this, government proposes to restructure the schooling pyramid. Using Standard 7 leavers as the base, the pyramid provides an estimate of the proportion expected to continue their education:

Present-1983	Level	Proposed-1992
100%	Standard 7 Leavers	100%
25%	Entering JC	100%
5%	Entering Cambridge	12%
2%	Entering Higher Education	5%

To accomplish these goals, government has identified a timetable for 11 specific objectives for 1984-1991 (MOE, Updated Goals and Objectives, 1984-1991):

1. By 1985, provide access to Form I for a minimum of 40 percent of Standard 7 leavers.

2. By 1987, double the present number of Form V leavers to about 3,000.

3. By the beginning of 1986, institute a new two-year JC curriculum.

4. By the end of 1987, provide two concurrent JC examinations: one for the three-year program (being phased out) and one for the two-year JC program (being phased in).

5. In 1987, graduate the first class from the new junior secondary teacher training college at Molepolole.

6. By 1986, increase the enrollment of secondary schools to 45,000 from the present 22,000 by using existing facilities (including primary schools converted to secondary schools).

7. By mid-1984, complete a new low-cost, educationally adequate junior secondary school design.

8. By 1991, construct 54 schools and put them into use.

9. Beginning in 1987, hire the additional number of needed teachers locally.

10. By 1983, provide sufficient staff housing for teachers at the majority of all Government/Aided secondary schools. Sufficient staff housing at the CJSSs will be provided through the partnership of government and local communities.

11. By 1986, operate existing schools at full capacity through efficient timetabling.

To manage this growth, the MOE has developed standards of teacher load, class size, and facilities use to guide the construction, staffing, and operation of secondary school facilities (Figure 5.1). While present practices may not achieve these levels, these standards provide assistance in planning for the proposed expansion.

5.1.3 Structure

Secondary education is provided by 19 Government Schools, 4 Government-Aided Schools, and 20 Community Secondary (Unaided)

Figure 5.1

INTENDED STANDARDS FOR SECONDARY SCHOOL OPERATION

Criterion	Intended Standard
Teacher load	30-32 periods/week
Class size (JC)	40 per class
Class size (Cambridge)	30 per class
Classroom capacity (regular)	40 students
Classroom capacity (laboratory)	40 students
Suggested classroom space	50-54 sq. meters
Special classrooms	20-40 students
Class period	40 minutes

Source: Ministry of Education

Schools. The sector is managed from within the MOE by the Department of Secondary Education. Currently, there is a three-year junior secondary course comprising Forms I, II, and III and culminating in a Junior Certificate (JC) examination. The examination scores are used to select students into a two-year senior secondary course which follows the Cambridge Overseas School Certificate curriculum and leads to the Cambridge examination. With only two exceptions (Maru-a-Pula and Selebi-Phikwe), Community Secondary Schools offer only a junior secondary course.

The Unaided Schools generally are established and run by local communities through a local board of governors. There are, however, three types of private schools. The most common (numbering 19) is the Community Junior Secondary School. A second type is represented by the single independent school, Maru-a-Pula in Gaborone. It is the only school in Botswana offering Cambridge A-Level courses. The third category will be increased in 1984 when the MOE converts 14 primary schools to Community Junior Secondary Schools. They will differ from existing CJSSs because government will pay non-recurrent costs of the conversion (furniture, equipment, supplies) before turning them over to the local community, which will then pay recurrent costs. As a result, these schools may be better equipped than the typical CJSS.

The growth of the secondary school system is shown in Table 5.1 by summarizing the increases in the number of schools, classes, and teachers between 1974 and 1982. Each of these dimensions of growth will be examined more closely.

TABLE 5.1

SELECTED INDICATORS OF SECONDARY SCHOOL GROWTH AND EFFICIENCY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
Number of Schools									
Govt/Aided	15	15	15	15	18	20	22	22	22
Private	NA	NA	17	17	17	16	16	19	19
Total			32	32	35	36	38	41	41
Number of Teachers									
Govt/Aided	350	397	443	443	505	570	634	666	684
Private	142	172	211	206	235	208	217	255	259
Total	492	569	654	649	740	778	851	921	943
Number of Students	Govt/Aided		7,055	8,434	9,558	10,219	11,136	12,175	13,424
14,348 14,500									
Private	NA	NA	4,429	5,277	4,950	4,561	4,901	5,300	6,020
Total			13,987	15,496	16,086	16,736	18,325	20,148	20,520
Number of Classes									
Govt/Aided	223	252	276	291	313	334	376		
Private	80	84	84	112	116	117	120		143
Total	303	336	360	403	429	451	496		
Number of Streams									
Govt/Aided								403	401
Private			112	117	115	115	120	140	
Total									
Number of Classrooms									
Govt/Aided			276	289	310	338	366	426	388
Private			105	127	125	117	121	141	
Total			381	416	435	455	487	567	
Ave. No. of Students per Teacher									
Govt/Aided	20.15	21.24	21.57	23.07	22.05	21.36	21.17	21.54	21.20
Private			21.0	25.6	21.0	21.9	22.6	22.75	23.24
Ave. No. of Teachers per Class									
Govt/Aided	1.61	1.58	1.61	1.52	1.53	1.66	1.67		
Private	1.78	2.05	1.88	1.65	2.03	1.78	1.81		
Ave. No. of Classes per School									
Govt/Aided	14.5	16.8	18.4	19.4	17.2	17.2	17.2		
Private			4.9	6.6	6.8	7.3	7.5		
Ave. No. of Teachers per Classroom									
Govt/Aided			1.66	1.53	1.63	1.69	1.73	1.56	1.76
Private			2.01	1.62	1.38	1.78	1.79	1.81	

SOURCE: Compiled with data from Central Statistics Office and Ministry of Education

5.1.4 Programs

Since 1976 secondary school enrollments have increased 68 percent, from 13,987 students in 32 schools to 20,520 students in 41 schools. At present, 25 of every 100 Standard 7 leavers enter Form I, and four eventually earn a Cambridge Overseas School Certificate (COSC), while another 2.6 earn a General Certificate of Education (GCE). This sub-section describes programs of the secondary school system by examining student enrollments, teachers, curriculum, examinations, administration, facilities, and cost to both student and government. The discussion focuses on current status and the projected impact of the enrollment increases planned for secondary education. The data presented in this sub-section form the basis for the later analysis of needs.

5.1.4.1 Enrollments

Enrollments by school for 1976-1981 are reported in Tables 5.2 and 5.3. Most Government and Government-Aided (Government/Aided) schools show a steady increase in enrollments over this period; private schools appear to have much more erratic enrollments from year to year. Only one private school, Ramotswa, has shown a gradual increase over the years. The pattern of increasing enrollments is not surprising, since the number of Standard 7 leavers has been increasing each year but no new secondary schools have been built since 1979.

Students are admitted to Form I based on their scores on the Primary School Leaving Examination (PSLE). Essentially, students are

TABLE 5.2

STUDENT ENROLLMENT IN GOVERNMENT AND AIDED SECONDARY SCHOOLS, 1976-1981

Group	1976	1977	1978	1979	1980	1981	Day/ Boarding	No. of Forms Offered
Gaborone Sec. School	982	985	985	1,003	1,003	1,011	B	5
Kgosi Kgari School	790	366	394	384	355	556	B	5
Lobatse Sec. School	648	709	811	826	897	947(E)	B	5
Moeng College	567	579	582	567	572	556	B	5
Molefi Sec. School	813	873	900	914	913	926	B	5
Moshupa Sec. School	-	-	-	-	197	473	B	3
Seepapitso Sec. School	715	734	374	357	350	381	B	5
Selebi-Phikwe Sec. School	425	446	527	575	580	582	B	5
Shashe River Sec. School	699	746	727	713	705	718	B	5
Swaneng Sec. School	762	317	340	375	349	343	B	5
Tlhume Mcconnell Sec. School	490	509	532	530	582	574	B	5
Francistown Sec. School	-	-	130	181	428	437	D	3
Kagiso Secondary School	-	-	134	401	471	486	B	3
Naledi Secondary School	-	-	155	320	465	460	D	3
Matshekge Sec. School	-	-	-	143	291	433	B	3
Letlhakane Sec. School	-	-	-	112	298	448(E)	B	3
Madiba	153	584	585	582	582	585	B	5
Matsha Sec. School*	-	-	-	-	-	-		
Palapye Sen. Sec. School	-	-	-	-	276	419	B	5
Mater Spei Sec. School (Aided)	697	727	726	846	830	909	B	5
Maun Sec. School (Aided)	400	484	533	543	586	593	B	5
Moeding Sec. School (Aided)	610	613	623	634	641	655	B	5
St. Joseph's College (Aided)	446	492	538	564	553	564	B	5
Total	9,198	10,219	11,136	12,175	13,424	14,056		

* Opened in 1983

Source: Central Statistics office

TABLE 5.3

STUDENT ENROLLMENT IN UNAIDED SECONDARY SCHOOLS, 1976-1981

Group	1976	1977	1978	1979	1980	1981	Day/ Boarding	No. of Forms Offered
Ngwaketse Contin., Kanye	202	374	231	143	204	207	D	3
Mahalapye Secondary	492	575	510	523	567	650	D	3
Tshegetsang, Molepolole	361	370	306	201	336	345	D	3
Itireling, Lobatse	327	423	458	434	461	445	D	3
Capital Contin., Gaborone	351	374	385	423	403	364	D	3
Mafetsakgang, Bobonong	269	320	297	320	328	333	D	3
Palapye Continuation	211	223	221	254	228	232	D	3
Setlalekgosi, Francistown	337	385	354	318	363	363	D	3
Linchwe II, Mochudi	253	258	254	259	274	249	D	3
Itekeng, Ghanzi	184	159	163	207	225	314	D	3
Maru-a-Pula, Gaborone	204	234	261	286	272	263	D	5
Tsalegang, Lobatse	374	392	388	293	384	332	D	3
Manaana, Moshupa	155	121	121	63	107	151	D	3
Ramotswa Secondary	276	278	286	309	323	329	D	3
John Nswazwi, Marapong	114	194	193	168	169	196	D	3
Maclala Contin., Tlokweng	80	170	222	270	257	309	D	3
St. Philip's Inst., Palapye	243	427	300	-	-	-	D	3
Maun Junior	-	-	-	-	-	95	D	3
Boipelego Junior, Serowe	-	-	-	-	-	206	D	3
Seleb-Phikwe Junior School	-	-	-	-	-	124	D	3
Gomare,* Okavango	-	-	-	-	-	-	D	3
Total	4,433	5,277	4,950	4,561	4,901	5,557		

* Opened in 1983

Source: Central Statistics Office

rank-ordered by score. Using this list, headmasters from Government and Aided Schools have the first opportunity to select students and typically choose students with the highest scores. The availability of boarding facilities at most of these schools means that students do not have to attend a school near their home. Community Junior Secondary Schools choose from the remaining students until all student places are filled. This procedure has resulted in a pattern in which the more able students attend Government and Aided schools while less academically able students end up in a CJSS, if they live close enough to commute. The effects of this difference in selection will be considered in more detail in Section 5.2.4.3. The MOE is considering a new selection procedure for 1984 that would have students attend the secondary school closest to their home.

Enrollments may be examined in terms of students' flow through the education system. Three measures indicate the efficiency of that flow: continuation rate, progression to senior secondary (Form IV), and examination pass rates. The continuation rate is the ratio of the enrollment in a given Form in one year to the enrollment in the preceding Form in the previous year. This measure is not ideal because it merges attrition and repetition rates, but is appropriate when these more specific indicators are not available. Table 5.4 reports Form-to-Form continuation rates, Form III-Form IV progression rate, and the percent of Form V enrollment who passed the Cambridge examination for the period 1972-1980. The continuation data for CJSS

TABLE 5.4

SECONDARY SCHOOL CONTINUATION AND PASS RATE, 1972-1980

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Continuation Rate									
Form I to Form II									
Govt/Aided	.98	.96	.98	.99	.98	.98	1.00	.97	.99
Comm Junior	.95		.97	.90	.87	.84	.85	.85	.86
Total	.97	1.26	.99	.95	.94	.92	.93	.93	.95
Form II to Form III									
Govt/Aided	.93	.96	.93	.95	.93	.95	.95	.96	.94
Comm Junior	.72	1.21	.73	.77	.72	.85	.77	.68	.79
Total	.89	1.01	.86	.88	.86	.91	.88	.85	.90
Percent Form III Passes									
Govt/Aided	73	80	84	89	86	88	88	79	79
Comm Junior			40	38	39	44	24	29	34
Total percent	61	59	71	72	71	75	66	63	67
Overall Form III to Form IV Progression Rate	.39	.38	.35	.39	.36	.35	.34	.34	.40
Continuation Rate Form IV to Form V (Govt/Aided Only)	.95	.94	.96	.98	.97	.96	.95	.95	.96
Percent Form V Passes									
I, II, III Div. Passers	59	48	45	53	48	67	54	47	54
Percent GCE Passers	25	37	38	34	48	32	45	38	55
Failed or did not sit for the exam	16	15	17	13	4	1	1	15	1

Source: Ministry of Finance and Development Planning

prior to 1974 show some discrepancies; however, the data have been relatively consistent since 1974.

These data point to a wide variation between the continuation rates of Government/Aided and Community Junior Secondary Schools. A far greater percentage of students drop out of CJSSs before completion. To further highlight this difference, Table 5.5 shows the continuation rates for Government/Aided Schools and CJSSs computed from Form I to Form III (a two-year interval) for 1973 to 1982. During this time, the loss rate in class size over two years ranged between 4 and 9 percent for Government/Aided Schools and between 24 and 42 percent for Unaided Schools. Depending on the year, Unaided Schools have a loss rate of three to ten times that of Government/Aided Schools.

Two reasons appear to account for the high dropout rates. The reason most commonly cited is that students begin schooling but cannot afford to continue paying tuition. Since tuition is higher at CJSSs than at Government/Aided Schools, this differentially influences dropout by school type. A second reason is pregnancy. MOE officials estimate the number of student pregnancies in Government/Aided Schools at around 300 for 1982. (CJSS data on pregnancy are not available.) CJSSs enroll a higher proportion of female students, thus may be disproportionately affected by pregnancy as a reason for dropout. If a student is discovered to be pregnant, she is required to leave school immediately and remain out for at least one year. If and when she returns, she must return to a different school than the one she

TABLE 5.5

PROFILE OF PROGRESSION COMPARISON, GOVT/AIDED SCHOOLS AND CJSSs

Form	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
GOVERNMENT/AIDED										
Form I	1826	2362	2812	2861	2902	3345	3653	3929	4062	3947
Form II	1776	1792	2334	2746	2800	2891	3259	3613	3841	3851
Form III	1494	1650	1694	2206	2566	2650	2783	3072	3393	3766
Number lost	-	-	132	156	246	211	119	273	260	
Loss rate	-	-	7.2	6.6	8.7	7.3	4.1	8.2	7.1	
Retention Rate	-	-	92.8	93.4	91.3	92.7	95.9	91.8	92.9	
CJSS										
Form I	1083	1487	1483	2126	2182	1667	1796	2152	2548	
Form II	973	1058	1338	1297	1776	1848	1417	1547	2048	
Form III	555	708	817	959	1107	1364	1257	1122	1125	
Number lost	-	-	266	528	376	762	525	545	671	
Loss rate	-	-	24.6	36.6	25.4	35.8	42.4	32.7	37.4	
Retention Rate	-	-	75.4	63.4	74.6	64.2	57.6	67.3	62.6	

Source: Ministry of Education

left. In practice, few women return after their one-year expulsion. Some evidence suggests that women who left school for pregnancy did not wish to become pregnant or to leave school.

The differences in continuation rates among types of schools have implications for what assumptions should be used in developing future enrollment projections. To accept such disparities in dropout rates poses a political problem, that of condoning inequities. To use a lower dropout rate means either a commitment to improving the flow through CJSSs or running the risk of projections that seriously over-estimate the demand for CJSS. In fact, the Ministry of Finance and Development Planning, in projecting secondary school enrollments to 1995, uses the average 1974-1980 continuation rate. A change in the academic quality of schooling could cause a higher continuation rate, more pressure on existing facilities, and a consequent reduction in the number of new students who could be admitted. This example illustrates the trade-offs that may be experienced between access and quality.

Generally, 65 to 70 percent of Form III students pass the Junior Certificate Examination (Table 5.4). However, there are only enough places in Form IV (senior secondary school) to accommodate 35 to 40 percent of Form III students in Form IV as indicated in Table 5.6. Once students are enrolled, however, the continuation rate to Form V is quite high, averaging 96 percent. Form V culminates in the COSC Examination. Over the seven-year period, 1974-1980, 55 percent of

TABLE 5.6

JC COMPLETERS WHO ENTER FORM IV
1972-1981

Year	Form III Govt/Aided	Form III CJSS	Total	Form IV Following Year	Percentage
1972	1,230	N/A	N/A	554	N/A
1973	1,494	555	2,049	720	35.1
1974	1,650	708	2,358	891	37.8
1975	1,694	817	2,511	878	35.0
1976	2,206	959	3,165	1,094	34.6
1977	2,566	1,107	3,673	1,207	32.9
1978	2,650	1,364	4,014	1,306	32.5
1979	2,783	1,257	4,040	1,557	38.5
1980	3,072	1,122	4,194	1,557	37.1
1981	3,393	1,125	4,518	-	-

Source: Ministry of Education

Form V students received high enough scores to entitle them to receive the COSC. Another 36 percent, scoring lower, received a General Certificate of Education. While the percentage of students either not sitting for or failing the examination has fluctuated during this time, the number of those taking and passing the examination has increased. In 1980, only one percent of Form V students did not receive a certificate.

Over the last seven years, the median age of secondary students has tended to drop, from 16 years and four months to 16 years and one month of age. The median age of secondary students by form and gender for 1973 and 1980 is reported in Table 5.7. Though Form I students are about the same age in both years, there has been a tendency in 1980 for students in the higher Forms to be younger. While the reason for the age decline is not clear, the younger age of senior secondary students may have implications for the design of curriculum and instruction. Table 5.7, also reveals that the female students are younger than the male students within both years.

Projections of continued enrollments offered in the National Development Plan V, 1979-1985 (NDP V) have been changed substantially by recent decisions of the MOE and Cabinet. In September 1983 government decided to increase the percentage of primary leavers continuing to Form I from 25 percent to 40 percent effective by January 1984. This will increase Form I enrollment from 7,255 in 1983 to 11,025 in 1984--the largest increases in secondary education in Botswana's history.

TABLE 5.7

MEDIAN AGE OF STUDENTS BY GENDER AND FORM, 1973 and 1980

Form	1973			1980		
	Males	Females	Overall	Males	Females	Overall
I	15/1	14/10	15/0	15/2	14/8	14/11*
II	16/4	15/10	16/1	16/0	15/8	15/10*
III	17/6	16/8	17/1	17/0	16/7	16/10*
IV	18/6	17/6	18/0	17/0	16/5	16/9*
V	19/5	18/7	19/0	17/8	17/3	17/6*
Average	16/7	15/0	16/4	16/4	15/9	16/1

* Extrapolated

Source: Central Statistics Office

The trajectory of secondary school expansion through 1995 is shown in Table 5.8. The projection is based on the assumption that senior secondary enrollments will increase by 600 places per year. It is not computed as the percentage of Standard 7 leavers, although that is the way in which the increase tends to be described. One consequence of basing the projections on estimated spaces available is that the goal of universal access to Forms I and II by the early 1990s may not be reached. Indeed, the percent of students enrolled in Standard 7 going on to Form I reaches only about 70 percent through the end of the century. However, if the proportion of repeaters (28% presently) is excluded, there is almost full transition of Standard 7 non-repeaters to Form I in the early 1990s. The table also reflects the shift of Form III from junior secondary to senior secondary school in 1988.

5.1.4.2 Teachers

Tha MOE assigns teachers to Government and Aided Schools and pays their salaries. In Unaided Schools, however, hiring is initially the responsibility of the school's Board of Governors. If the local Board cannot secure enough teachers, the MOE will then assign teachers from their own pool to make up the difference. Pay scales are higher in Government/Aided Schools so teachers generally prefer employment in those schools. This gives the MOE better selection in hiring, resulting in Government/Aided Schools getting the better qualified teachers and private schools having the less well qualified.

TABLE 5.8

PROJECTED ENROLLMENTS, BY FORM AND YEAR, 1982-1995

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Enrollment														
Form I	6,551	7,500	11,000	11,000	11,500	13,000	17,000	19,000	21,000	23,000	25,000	27,000	29,000	31,000
Form II	6,231	6,500	7,058	10,474	10,474	10,913	12,229	15,739	17,494	19,249	21,005	22,760	24,515	26,270
Form III	5,178	5,500	5,854	6,372	9,336	9,386	-	-	-	-	-	-	-	-
Total Junior Secondary Enrollment	17,960	19,500	23,912	27,846	31,360	33,299	29,229	34,739	38,494	42,249	46,005	49,760	53,515	57,270
Enrollment														
Form III	-	-	-	-	-	-	5,313	5,938	6,563	7,188	7,813	8,438	9,063	9,688
Form IV	1,625	1,500	2,100	2,700	3,300	3,900	4,500	5,100	6,300	6,900	7,500	8,100	8,700	9,300
Form V	1,498	1,574	1,453	2,034	2,616	3,197	3,778	4,359	4,941	6,104	6,685	7,266	7,847	8,428
Total Senior Secondary Enrollment	3,123	3,074	3,553	4,734	5,916	7,097	13,591	15,397	17,804	20,192	21,998	23,804	25,610	27,416
Total Secondary School Enrollment	21,083	22,574	27,465	32,580	37,275	40,395	42,820	50,136	56,298	62,441	68,003	73,565	79,126	84,686
Increase over previous year	-	1,491	4,891	5,115	4,695	3,120	2,425	7,317	6,161	6,143	5,562	5,561	5,562	5,560

Source: MOE estimates (October 1983)

Qualifications. To be considered qualified by the MOE, a teacher must have completed at least some formal teacher training. The distribution of teachers by educational preparation for 1981 is shown in Table 5.9. The lowest level of qualification held by a secondary school teacher is the Elementary Teaching Certificate (ETC), followed by the Primary Lower Teacher Training Certificate (PL), Primary Higher Teacher Training Certificate (PH), up through a university degree. In 1980, 27 percent of the secondary school teachers (232 out of 850) were listed as not qualified.

While 87 percent of teachers employed in Government/Aided Schools were considered qualified, only 31 percent of those in Unaided Schools were so classified. Among qualified teachers, those in Unaided Schools tend to have achieved a lower level of formal training. For example, 65 percent of the qualified teachers in Government/Aided Schools have at least a Bachelor's Degree; only 13 percent of teachers in Unaided Schools have achieved that level. Further, Government/Aided Schools have shown a gradual trend (1974-1980) toward improved teacher qualifications. This has not been the case in Unaided Schools, which show a somewhat erratic pattern and have not particularly improved. The projection of teacher supply, however, must consider the distribution of teachers across subject areas as well as by qualifications.

The number of teachers in Government/Aided Schools over the last six years (1975-1980) has increased by 63 percent, while the number in

TABLE 5.9

TEACHER QUALIFICATIONS FOR GOVERNMENT/AIDED AND UNAIDED SECONDARY SCHOOLS, 1973 1981

Group	1973	1974	1975	1976	1977	1978	1979	1980	1981
Government/Aided Secondary Schools									
JC	3	1	1	1	5	-	2	1	-
Matric	20	18	24	34	20	24	10	31	45
Degree	104	112	112	94	67	45	76	50	21
Total Untrained	127	131	137	129	92	69	88	82	66
PL 4	1	1	5	-	2	5	-	-	-
PL 4 Matric	3	-	2	1	-	-	-	1	7
PH	4	9	6	1	3	2	2	-	3
PH 4 Matric	6	9	3	6	3	-	9	2	-
Post Matric	40	72	108	79	73	4	5	8	-
ATC				46	54	144	112	180	149
Degree & Diploma	116	114	112	150	195	250	175	235	422
H. Degree & Diploma	14	14	24	31	20	31	172	125	19
Total Trained	184	219	260	314	350	436	475	551	600
Percentage Trained	59.2	62.6	65.5	70.9	79.2	86.3	84.4	87.1	90.0
TOTAL TRAINED & UNTRAINED	311	350	397	443	442	505	563	633	666
Unaided Secondary Schools									
Standard 7	-	-	-	-	-	1	-	-	-
JC	4	3	2	-	3	146	1	-	1
Matric	41	77	108	136	125	12	85	102	135
Degree	13	14	21	15	6	-	45	48	40
Total Untrained	58	94	131	151	134	159	131	150	176
ETC	-	-	-	-	1	-	1	-	2
ETC + Matric JC	-	-	-	1	-	-	1	5	4
PL	2	3	3	3	1	1	3	-	-
PL 4	1	3	3	2	3	2	2	2	1
PL 4 Matric	2	3	2	8	1	3	3	4	4
PTC	-	-	1	-	-	3	1	4	3
PH	11	11	7	5	8	1	12	7	1
PH 4 Matric	8	6	5	8	4	8	3	6	6
ATC	9	11	6	6	13	11	8	11	15
Post Matric	-	-	-	6	12	13	4	-	-
Degree & Diploma	10	9	12	20	21	21	21	25	33
H. Degree & Diploma	2	2	2	1	8	4	18	3	10
Total Trained	45	48	41	60	72	67	77	67	79
PERCENTAGE TRAINED	44	34	24	28	35	30	37	31	31
TOTAL TRAINED & UNTRAINED	103	142	172	211	206	226	208	217	255

Source: Central Statistics Office

Unaided Schools shows a smaller and less even change (Table 5.9). Across both types of schools, the student/teacher ratio has generally ranged between 21:1 and 23:1.

With the expansion of Form I intake in 1984, the demand for secondary school teachers will accelerate sharply and continue to increase as the surge in enrollment works its way through the system. Currently some excess capacity in teaching staff exists in some of the schools. A recent MOE study indicated that a substantial number of secondary teachers are teaching less than the 32 classes per week specified by their terms of employment. In some cases this is caused by subject specialization and/or school size. In other cases, however, it reflects a true capacity to absorb additional enrollments without additional faculty. The MOE estimates that at least 100 of the additionally required teachers can be met from excess capacity of those already employed. Nonetheless, there is still an overall need for new teachers. The teacher demand posed by the secondary school expansion program is assessed in Table 5.10.

The recruitment of these teachers is restricted by the mix needed in particular subject areas. On the basis of existing curriculum guidelines for Form I, for example, each 100 teachers would need to be distributed as shown in Table 5.11. However, when Form III becomes part of senior secondary school in 1988, a new curriculum will be introduced in Form I. One challenge that faces the MOE is the identification of teacher needs by subject area for the new curriculum in time to prepare teachers appropriately.

TABLE 5.10

TEACHER DEMAND, BY LEVEL, 1983-1989

EDUCATION LEVEL	1983	1984	1985	1986	1987	1988	1989
II JUNIOR SECONDARY EDUCATION							
No. of Students	19,500	23,912	27,846	31,359	33,298	29,229	34,739
Increase from Previous Year	1,540	4,412	3,934	3,513	1939	-4,069	5,510
No. of Teachers Required	731	897	1,044	1,176	1,249	1,096	1,303
Increase from Previous Year	58	166	147	132	73	-153	207
III SENIOR SECONDARY EDUCATION							
No. of Students	3,074	3,553	4,734	5,916	7,097	13,591	15,397
Increase from Previous Year	-49	479	1,181	1,182	1,181	6,494	1,806
No. of Teachers Required	154	178	237	296	355	680	770
Increase from Previous Year	-2	24	59	59	59	325	90

Source: Ministry of Education and Ministry of Finance and Development Planning

TABLE 5.11

DISTRIBUTION OF 100 TEACHERS NEEDED
ACCORDING TO SUBJECT AREA - FORM I
(ASSUMES CURRENT CURRICULUM)

Subject Area	Number of Teachers Required
English	22.5
Mathematics	15.0
Science	15.0
Setswana	10.0
History	10.0
Geography	10.0
Practical Subjects	12.0
Other	5.0
Total	100.0

Source: Ministry of Education

The MOE does not anticipate a problem recruiting teachers for 1984 except in mathematics and science where recruiting qualified personnel has been a continuing problem. Recruitment draws on four sources: (a) the University of Botswana, which graduates approximately 150 students a year with a Diploma in Secondary Education; (b) donor agencies, which provide a substantial number of instructors; (c) local recruitment, which often involves hiring non-citizens; and (d) Tirelo Setshaba, a program in which Form V graduates complete a year of national service.

Despite the expected availability of teachers for the planned expansion, three particular challenges arise. First, as already indicated, current demand already exceeds the surplus of qualified teachers. Second, the hiring of teachers is restricted by the lack of staff housing at the schools. Third, the use of expatriate teachers, while a necessary temporary measure, delays the goal of localization. These issues will be examined more fully in Section 5.2.

Teacher Training. The training of secondary school teachers is accomplished in three ways. The Faculty of Education at the University of Botswana offers both a four-year Bachelor's Degree in Education and a three-year Diploma in Secondary Education. The diploma program is the one typically pursued by individuals going into secondary school teaching. For entry into these programs, students generally need a high pass (third division) on their COSC examination and/or satisfactory completion of the Pre-Entry Science Program.

Those who plan to teach practical subjects, except agriculture and home economics, in secondary schools receive their preparation at the Botswana Polytechnic in Gaborone. The program consists of three years of full-time study comprising educational foundations, methodology (e.g., curriculum development, instructional technology, educational measurement), practical skills, and supervised student teaching. The practical skills include woodworking, technical drawing, and metalwork. Agriculture and home economics teachers receive training primarily in Swaziland. Plans are eventually to shift the agricultural training under the Faculty of Agriculture when it is instituted at the University of Botswana.

5.1.4.3 Curriculum

The curriculum of junior secondary school consists of seven subjects: English, Mathematics, Science, Setswana, History, Geography, and Practical Subjects. Practical Subjects are essentially those which require manual or digital dexterity, with Agriculture, Home Economics, and Woodworking the most common subjects offered in this category.

The curriculum of Government/Aided and Unaided Schools is essentially the same, with one exception. Because of the lack of adequate laboratory facilities at the Unaided Schools, they tend to offer Human and Sociological Biology instead of the Integrated Science course offered in Government/Aided Schools. Efforts are underway to

provide laboratories to some CJSSs through the Boipelago Education Project Unit supported by the World Bank. While the junior secondary school curriculum is developed by the MOE working with national advisory groups of teachers, the content selection is heavily influenced by the Cambridge curriculum used in the senior secondary level. The allocation of class periods to religious moral education in the secondary school has increased. Past and current practice has been to offer instruction in these areas by volunteer teachers. However, about 60 students are enrolled in the Department of Theology at the University of Botswana with the intention of teaching at the secondary level.

Despite the inclusion of practical subjects in junior secondary school, the curriculum at both junior and senior levels is weighted heavily in favor of university-bound students. However, the expansion of junior secondary school enrollments is expected to affect the curriculum at that level. The expanded access to junior secondary school will result in a broader range of student abilities, with an increase in the number of students who are not as well prepared academically. This means that curricular materials will need to be appropriate for a wider distribution of student ability, and instructional stategies will need to include techniques to involve students at all ability levels.

Also, the absolute number of senior secondary places will not expand as fast as junior secondary places. About 65 percent of the

junior secondary students will terminate their formal education at Form III (Form II after 1988) and seek entry into the job market, increasing the basic education level of the work force. This presents a particular challenge to provide high quality junior secondary schooling for both those students who will continue on to senior secondary and those who enter the workforce.

Anticipating these developments, the MOE has begun a major revision of the junior secondary school curriculum. Objectives include better integration of primary and secondary curricula and a broadening of the curricula to include more emphasis on practical subjects. A National Curriculum Coordination Committee has been formed with representation from both primary and secondary education. In turn, this committee convenes content committees of teachers from across the country who will develop course syllabi and teachers' guides. Local writers eventually will be asked to develop textbooks and instructional materials and/or adapt materials already available from other countries.

The new syllabi and teachers' guides are scheduled to be completed by 1986. The present curriculum will remain in effect until the new one is implemented. Between 1984, when rapid increase in Form I intake will begin, and 1986, when the new curriculum is to be implemented, many students for whom the old curriculum is inadequate will still be using it. This will pose a further instructional problem during this transition period.

5.1.4.4 Examinations

The Junior Certificate Examination is developed each year by the Examination Office of the MOE. In 1983 examinations were available in 18 subject areas. Tests typically use multiple-choice items, although essay items are also used on the language test and a practical examination is available in Agriculture.

The Cambridge School Certificate Examinations, administered at the end of senior secondary school (Form V), are developed by an examining board associated with Cambridge University in the UK. Many of the tests are locally adapted and draw on content specific to the country. Tests are, however, scored in the UK. Use of the Cambridge Examinations provides an external and internationally recognized standard of student ability.

5.1.4.5 Administration

The local administration of secondary schools is the responsibility of the headmaster who frequently is assisted by a deputy and, occasionally, by additional assistants. Based upon a 1981 survey of 38 secondary schools, Table 5.12 provides a demographic profile of school administrators.

Localization of administrative staff has moved rapidly and most staff members are now Batswana (83% in 1981). Most are male (91%) and, due to the recent progress in localization, are quite young.

TABLE 5.12

PERSONAL CHARACTERISTICS OF SCHOOL ADMINISTRATORS, 1981

	Headmaster	Deputies	Assistants	Community School Headmasters	TOTAL
Gender					
Male	21	18	15	14	68
Female	1	3	2	0	6
Nationality					
Motswana	17	18	16	12	63
Expatriate	5	3	1	2	11
Age					
25-29	0	1	8	2	11
30-34	6	5	6	1	18
35-39	4	3	2	2	11
40-44	2	5	0	0	7
45-49	3	3	1	3	10
50-54	3	3	0	1	7
55+	3	1	0	3	7
Average	39	42	31	45	-
Education					
BA Degree	19	10	12	4	45
Diploma	2	2	3	3	10
Certificate	1	9	2	3	15
GCE	0	0	0	2	2
Administrative Training					
None	5	8	7	12	32
Unit Course	5	2	4	0	11
IDM Course	6	8	5	0	19
IDM Certificate	3	3	1	0	7
UK or US Certificate	5	0	0	0	5

Source: Ministry of Education

Government/Aided School headmasters average 39 years of age; Community School headmasters average 45. One consequence is that personnel now in administrative positions within the schools are likely to remain for some time.

Almost all headmasters have Bachelor's degrees while fewer than 40 percent of the deputy administrators have degrees. Yet, nearly 70 percent of Batswana assistant administrators have degrees. This profile suggests that the present pool of candidates for promotion to headmaster is less educationally qualified than are the current headmasters. Second, status conflicts may occur as senior personnel without degrees are promoted to head staffs comprised largely of university graduates, or as junior administrators with degrees are promoted over the heads of more senior staff with fewer formal credentials.

5.1.4.6 Facilities

Between 1974 and 1980 the number of Government/Aided Schools increased 45 percent (15 to 22), and the number of Unaided Schools dropped by one (17 to 16). The increase in schools and classrooms since 1974 is summarized in Table 5.1.

One of the primary stresses on the educational system posed by the rapid expansion of junior secondary schools concerns facilities to accommodate the additional students and teachers. The expansion is planned to involve mainly recurrent costs, with new construction not

expected for at least two years. To accomplish this, the MOE is pursuing a two-part strategy. First, 14 primary schools will be converted into Community Junior Secondary Schools (non-boarding). Each school is expected to enroll between 80 and 240 students depending on the facilities available for Form I in 1984, and to expand to Form III by 1986. Second, selected existing secondary schools will have additional classrooms built as necessary.

A major constraint to expansion is staff housing. The MOE has set a policy of one housing unit per staff member with no distinction between citizen and expatriate staff housing. While living in staff housing is optional for the teacher, the MOE currently estimates there is a shortage of more than 70 staff units at Government and Aided secondary schools alone. Local communities normally are responsible for the construction of staff housing at CJSSs. However, since many communities are having difficulty raising funds for staff housing, it is expected that MOE may provide some financial assistance.

5.1.4.7 Costs and Financing

Government, Aided, and Unaided Schools each are financed in a somewhat different manner. Estimates of the annual unit costs for each type are presented in Table 2.48, in Section 2.5, which also differentiates between costs borne by government and those borne by the student or family.

In Government Schools, the annual cost for a non-boarding student is estimated at about P833 of which government pays about P751 (90%) and the student about P82. For boarders, the cost is about P919 of which government pays about P789 (86%). Students pay P20 per year for tuition (a tuition rate that has not changed since 1966), and an additional P60 if they are also boarding at the school. Students pay for their own books (up to P100 per year, but figured at an average of P35 per year). Beyond that, students must buy their own uniforms (approximately P30, but estimated at an average of P10 per year), and pay an examination fee at the time they take their Junior Certificate and Cambridge examinations (approximate annual average P5).

In Government-Aided Schools, the annual cost for a student (non-boarding) is about P465 of which government pays about P395 (85%) and the student about P70.

In Community Junior Secondary (Unaided) Schools the annual cost for a student (non-boarding) is about P349 of which government pays about P134 (38%) and the student about P215. Students attending CJSSs pay an average of P200 tuition. Tuition varies by school, depending on the amount of government aid the school receives and the local priorities. The government subsidy of the community schools is P20 per student plus the teacher's salary <u>if</u> the teacher is officially qualified and <u>if</u> the community provides the teacher with housing. The subsidy will be increased to P40 in 1984. Student tuition covers the salaries of unqualified teachers, books, supplies, and support

services (e.g., school typist, bursar, gardener). Many students cannot afford to attend community secondary schools, and lack of funds is cited as a primary reason for student attrition. Since books and supplies are the responsibility of the school, they are generally not as available in CJSSs as in Government and Aided Schools.

Secondary school expansion has been assisted by donor support primarily in two ways. Both the first and the second World Bank Education Project Loans helped finance construction of new school facilities. Additionally, several donor countries provide teachers who are assigned to secondary schools.

5.2 ANALYSIS

5.2.1 Needs

The critical needs for secondary education are to (a) maintain educational quality while access is rapidly extended to students with a wider range of academic ability; (b) identify means of equalizing quality across different types of secondary schooling; and (c) develop a closer link between secondary education and the human resource needs of the country while refining and clarifying those needs.

5.2.2 Plans

Government plans to provide universal access to junior secondary schooling and expanded access to senior secondary schooling. In 1984 junior secondary enrollments are expected to rise from 25 to 40

percent of Standard 7 leavers. To support this change, the duration of primary, junior, and senior secondary education will be reblocked from the current 7-3-2 pattern to a 7-2-3 pattern in 1988 and eventually to a 6-3-3 pattern in 1992. At the same time, the junior secondary curriculum will be revised to articulate more smoothly with the primary curriculum and to accommodate the wider range of student ability.

5.2.3 Constraints

The primary external constraint to secondary education is the limitation posed by recent drought conditions and by the general worldwide recession with its associated reduction in prices and demand for Botswana's mineral and agricultural exports. A lack of real economic growth in the national economy will limit government's ability to finance educational expansion at the planned rate. The primary internal constraints to secondary education include the high proportion of unqualified teachers and poor facilities in some schools, and their consequent quality differentials.

5.2.4 Issues

This subsection draws on the earlier discussion to identify a series of issues government will face in the continued development of secondary education. The discussion concludes with a set of recommendations.

5.2.4.1 External Efficiency

External efficiency is examined along two dimensions. First, to what extent are the secondary schools producing sufficient numbers of graduates to meet the manpower demands of the country? To what extent are they providing students with adequate preparation for further study or training? Second, to what degree is training appropriate to the education and skill demands of employment?

The first dimension can be considered as the discrepancy between projections of national manpower requirements and the anticipated number of educated personnel available. This is not to suggest that manpower requirements should be the sole consideration, or even the most important one, in the decision to expand secondary enrollments. Nonetheless, the Midtern Review of NDP V (May 1983) identifies the shortage of skilled manpower as the major constraint to economic and social development in Botswana.

An examination of projected manpower imbalances can highlight the issue of external efficiency of secondary education. Government's projections of the manpower requirements through 1995 are presented in Table 5.13. These estimates are based on new 1981 census data and on the annual employment surveys conducted by the Central Statistics Office and a set of assumptions about economic and population growth of the country. (Previous projections reported in National Manpower Development Planning, 1982 were based on 1971 census data and some

TABLE 5.13

ESTIMATED MANPOWER REQUIREMENTS,
1981-1995

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
FORMAL SECTOR															
No Education	29,774	32,206	34,494	36,647	40,427	43,543	47,729	52,108	53,230	57,136	61,355	65,913	70,819	76,164	81,924
Primary	12,882	13,404	14,088	15,005	16,549	17,900	19,579	21,513	22,570	24,339	26,254	28,326	30,[illegible]	32,998	35,628
JC	4,479	4,729	4,998	5,319	5,820	6,273	6,830	7,453	7,792	8,374	9,001	9,678	10,407	11,195	12,045
Cambridge	3,092	3,252	3,442	3,652	3,926	4,182	4,461	4,786	5,066	5,399	5,754	6,134	6,539	6,973	7,437
Degree	1,945	1,982	2,103	2,231	2,389	2,540	2,707	2,896	3,066	3,264	3,476	3,702	3,943	4,200	4,476
No Education & Training	4,973	5,082	5,352	5,663	6,236	6,574	7,219	7,838	7,926	8,471	9,061	9,699	10,379	11,136	11,945
Primary & Training	15,404	16,438	17,684	18,805	20,645	22,171	24,131	26,291	27,059	29,017	31,127	33,402	35,856	38,503	41,369
Secondary & Training	24,816	26,363	27,968	29,721	32,152	34,360	36,971	39,827	41,779	44,642	47,713	51,010	54,559	58,350	62,432
Total	97,365	103,456	110,129	117,043	128,144	137,743	149,627	162,712	168,488	180,642	193,741	207,864	223,[illegible]	239,519	257,247
TRADITIONAL AGRICULTURE															
No Education	83,174	86,165	89,262	92,471	95,796	99,240	102,808	106,504	110,333	114,299	118,409	122,666	127,075	131,644	136,377
Primary	13,606	14,095	14,601	15,126	15,670	16,233	16,817	17,422	18,048	18,697	19,369	20,065	20,787	21,534	22,308
JC	3,089	3,209	3,325	3,444	3,568	3,696	3,829	3,967	4,109	4,257	4,410	4,569	4,733	4,903	5,080
Cambridge	643	666	690	715	740	767	794	823	853	883	915	948	982	1,017	1,054
Degree	209	217	225	233	241	250	259	268	278	288	298	309	320	331	343
No Education & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Primary & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Secondary & Training	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	100,730	104,352	108,103	111,989	116,015	120,186	124,507	128,984	133,621	138,424	143,401	148,557	153,897	159,429	165,162

(Continued)

TABLE 5.13 (Continued)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
SELF-EMPLOYED															
No Education	3,352	4,705	5,057	5,437	5,844	6,282	6,753	7,259	7,803	8,388	9,017	9,693	10,419	11,200	12,040
Primary	5,559	7,802	8,387	9,016	9,691	10,418	11,199	12,038	12,940	13,910	14,953	16,074	17,279	18,574	19,966
JC	587	823	885	951	1,023	1,099	1,182	1,270	1,365	1,468	1,578	1,696	1,823	1,960	2,107
Total	9,498	13,330	14,329	15,404	16,558	17,799	19,134	20,567	22,108	23,766	25,548	27,463	29,521	31,734	34,113
OTHER EMPLOYED															
No Education	24,751	26,607	28,601	30,745	33,050	35,527	38,190	41,052	44,130	47,437	50,993	54,816	58,924	63,341	68,089
Primary	1,238	1,330	1,430	1,537	1,652	1,776	1,909	2,053	2,206	2,372	2,550	2,741	2,946	3,167	3,404
Total	25,989	27,937	30,031	32,282	34,702	37,303	40,099	43,105	46,336	49,809	53,543	57,557	61,870	66,508	71,493
MPROMPTS 83 GRAND SUMMARY															
No Education	141,052	149,683	157,415	165,300	175,116	184,692	195,480	206,923	215,496	227,261	239,773	253,086	267,258	82,350	298,430
Primary	33,284	36,631	38,507	40,684	43,562	43,329	49,505	53,026	55,765	59,318	63,125	67,206	71,581	76,273	81,307
JC	8,163	8,762	9,208	9,715	10,411	11,069	11,841	12,690	13,267	14,099	14,989	15,942	16,964	18,058	19,231
Cambridge	3,735	3,918	4,132	4,366	4,666	4,949	5,256	5,609	5,919	6,282	6,669	7,081	7,521	7,990	8,491
Degree	2,154	2,198	2,327	2,464	2,630	2,789	2,966	3,164	3,344	3,552	3,774	4,010	4,262	4,532	4,819
No Education & Training	4,973	5,082	5,352	5,663	6,236	6,674	7,219	7,838	7,926	8,471	9,061	9,699	10,389	11,136	11,945
Primary & Training	15,404	16,438	17,684	18,805	20,645	22,171	24,131	26,292	27,059	29,017	31,127	33,402	35,856	38,503	41,360
Secondary & Training	24,816	26,363	27,968	29,721	32,152	34,360	36,971	39,827	41,779	44,642	47,713	51,010	54,549	58,350	62,432
Total	233,581	249,075	262,593	276,718	295,418	313,012	333,369	355,369	370,555	392,642	416,231	441,436	468,380	497,192	528,015

Source: Ministry of Finance and Development Planning

TABLE 5.14

ESTIMATED EDUCATED LABOR FORCE AVAILABLE, 1981-1995

(Adjusted for those enrolled in education or training)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Primary not Completed	124,206	126,807	130,563	134,893	139,247	143,562	148,076	152,786	157,731	162,942	168,436	174,225	180,325	186,752	193,251
Primary Completed	44,479	56,700	69,654	78,679	87,843	102,258	114,386	125,997	134,308	143,953	153,989	164,577	175,408	187,752	204,730
Primary Completed Plus Training (Not in Total)	10,047	11,382	12,998	14,460	16,294	18,271	20,409	22,630	24,934	27,320	29,787	32,332	34,956	37,658	40,435
Junior Certificate	14,295	15,654	17,376	18,514	19,244	19,426	21,125	24,149	25,544	26,914	28,207	29,422	30,550	31,592	32,549
Junior Certificate Plus Training (Not in Total)	5,617	6,916	8,253	9,453	10,776	12,168	13,642	15,172	16,860	18,641	20,399	22,133	23,844	25,532	27,196
GCE Completers	2,606	3,247	3,854	4,435	4,986	5,809	6,837	8,182	9,778	11,613	13,690	16,265	19,069	22,091	25,335
Cambridge	4,944	5,170	5,409	5,632	5,916	6,405	7,167	8,278	9,673	11,340	13,283	15,790	18,564	21,594	24,886
Post-Sr. Sec. Plus Training (Not in Total)	1,495	2,403	3,305	4,235	5,299	6,418	7,565	8,841	10,109	11,358	12,593	13,807	15,009	16,192	17,361
Higher Post-Secondary	1,077	1,377	1,555	1,763	1,988	2,215	2,403	2,589	2,773	2,955	3,135	3,314	3,490	3,665	3,838
University Degree or Higher	627	741	882	979	1,118	1,264	1,416	1,575	1,742	1,914	2,094	2,280	2,472	2,671	2,877
Total Educated Labor Force Available	192,234	209,696	229,293	244,895	260,342	280,930	301,410	323,556	341,549	361,631	382,834	405,873	430,278	456,117	483,479
Uneducated Labor Force Available	203,769	216,810	209,100	207,536	202,321	196,940	192,155	187,378	179,104	171,053	162,481	153,698	144,302	134,251	123,499
Total Labor Force	396,003	426,506	438,393	452,431	462,663	477,870	493,565	510,934	520,651	532,684	545,315	559,571	574,580	590,369	606,978

Source: Ministry of Finance and Development Planning

preliminary 1981 census data.) Formal sector employment is increasing rapidly, and by 1990 formal sector demand is expected to exceed agricultural demand by 23,000 people.

Projections of the educated labor force available through 1995 are presented in Table 5.14 by level of education and/or training. The projections assume a 3.3 percent rate of population growth and the estimates of school graduates/leavers at each level reported earlier in Table 5.4. When employers completed the Employment Survey, they were asked what level of qualifications they would require for workers they currently employ (e.g., JC, secondary education with additional training, etc.). However, employers were not pressed to say how much more they would be willing to pay for that extra training in new workers, nor were they asked how many of their current workforce were below educational specifications for the jobs they now held. It is likely, then, that the needed number of workers with additional training at each education level is only an approximation of actual demand. Nonetheless, the data provide some basis for estimating demand. The table distinguishes graduates with academic credentials alone from those who also have training.

Tables 5.13 and 5.14 contribute to an estimate of manpower imbalances in the formal sector requirements. Table 5.15 reports the manpower available minus the estimated manpower required for 1983-1995. The data indicate that through 1995 the growing number of primary and junior certificate completers without additional training

TABLE 5.15

ESTIMATED MANPOWER IMBALANCE WITH RESPECT TO THE FORMAL SECTOR REQUIREMENTS

(Manpower Available Minus Manpower Required)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Less than Full Primary	293,228	306,327	299,817	300,120	294,906	290,184	285,283	280,319	275,679	268,388	260,501	252,312	243,400	233,703	223,152
Primary Completed Without Training	21,550	31,914	42,569	49,215	55,000	66,087	74,398	81,854	86,804	92,294	97,949	103,919	110,282	117,096	124,410
Junior Certificate Without Training	6,805	7,255	7,979	8,175	7,635	6,794	7,489	9,705	10,670	11,512	13,497	13,876	15,367	16,957	18,643
Cambridge Without Training	357	-485	-1,337	-2,255	-3,310	-4,195	-4,859	-5,349	-5,503	-5,417	-5,064	-4,150	-2,984	-1,570	87
University Degree or Higher	-1,318	-1,240	-1,221	-1,252	-1,271	-1,276	-1,291	-1,321	-1,325	-1,350	-1,382	-1,422	-1,470	-1,529	-1,599
Primary Completed Plus Training	-5,357	-5,056	-4,686	-4,345	-4,351	-3,900	-3,722	-3,662	-2,125	-1,696	-1,340	-1,069	-899	-845	-924
Secondary Education Plus Training	-16,628	-15,668	-14,856	-14,269	-14,089	-13,359	-13,361	-13,225	-12,037	-11,687	-11,586	-11,756	-12,206	-13,962	-14,036

Source: Ministry of Finance and Development Planning

will be in excess of what is required by the labor market. At the same time, there will be a shortage of Cambridge completers (with and without additional training) and Junior Certificate (JC) completers with additional training. That shortage will persist through 1995. Indeed, the projected shortage of Cambridge graduates (without additional training) in 1989 exceeds by over 30 percent the number of students expected to take the Cambridge examination that year.

These projections point to a continuing shortage of (a) secondary school graduates (at both levels--JC and Cambridge) with additional training, as well as (b) Cambridge graduates without additional training. At the same time, the supply of JC graduates without further training will be growing rapidly relative to positions available for their employment.

These analyses support the observations that graduates with Junior Certificates need additional skill training if they are to compete effectively in the labor market. In that respect, expanding access from seven to nine years of basic education may defer for two years the problem of unemployed primary leavers. Present predictions suggest the economy will be unable to absorb the numbers of JC graduates being produced, resulting in substantial unemployment of junior secondary completers without additional training. At the same time, there may be as many as 20,000 jobs requiring higher levels of skill training which will go to skilled expatriates or to Batswana who lack the necessary training, simply because there are not enough

skilled Batswana to fill the positions. The former would be politically undesirable; the latter would undermine proper management of the economy. Some express concern that the planned expansion of junior secondary education may diminish resources for higher levels of education and training where need is particularly acute.

The decision to expand junior secondary enrollment emerges from two key considerations. First, the commitment to expand at this level principally arises from humanistic values and the position that basic education, to the extent feasible, is a human right. The value of education obviously lies not solely in its contribution to economic gain, but is also a good in itself, enriching lives and opening many opportunities beyond those of employment. Moreover, nine years of schooling is believed to be a minimum base for children to gain the skills necessary to engage effectively in society, including the fast-emerging modern sector. A JC certificate is prerequisite to most types of supplemental skill training available in the country. The additional two years of schooling operates as a bridge to other opportunities not now available to the Standard 7 leaver. A second reason for the decision to expand secondary enrollments has been social demand. Parents want more schooling for their children as a means to a better livelihood, and government's support of this goal has social and political benefits.

Developments arising from rapid expansion at the junior secondary level could, however, require a re-evaluation of the speed of

implementation. As junior secondary expansion outpaces the ability of the economy to absorb JC graduates, pressure may mount to slow Form I entry in favor of other alternatives. More emphasis might be given, for example, to ensuring a greater supply of persons with higher and/or technical training, or to more directly aligning education and training to particular manpower needs. Chapter 2.0 provides a more detailed analysis of this point.

One issue that needs further study is the accuracy of the yearly Employment Survey and the resulting manpower projections that highlight the need for further skill training beyond the JC. A survey in which employers must assign a cost they would be willing to pay for workers with the additional training and/or a current tracer study of JC completers might help confirm and refine the estimates of the JC surplus. Additional studies on this topic are being undertaken by the MFDP.

If the manpower projections are confirmed, improving the relevance of the secondary school curriculum will be a major challenge to Botswana's human resource development. It will be particularly important to ensure that the short-term gains do not come at the expense of potentially more severe longer term problems. Because the supply of JC completers will exceed the capacity of the economy to absorb them, particular attention should be directed to post-JC training tailored to specific manpower needs. Resources for this job-specific training will be in somewhat short supply while funding

emphasis is on secondary expansion. Further, the expansion may have the side effect in the short run of increasing the country's reliance on foreign expertise. The expansion plan approved by Cabinet was the one (of three presented) that placed the least reliance on expatriate employment. Nonetheless, some suggest that if money being spent on junior secondary expansion were spent instead on either technical or senior secondary education, the percent of expatriates in the private sector would drop more quickly. The total percent of expatriate workers in the workforce is expected to increase from 5.7 percent in 1981 to 6.9 percent by 1989 as a result of insufficient numbers of more highly educated, skilled, and managerial-level Batswana.

The extent to which secondary education is appropriate to the skill demands of the workplace is not clear. The annual Employment Survey does not ask the employers for specific skill requirements of the jobs they anticipate needing to fill. Few other data that examine manpower needs at specific occupational and skill levels are available. This lack of information poses a serious problem in education and manpower planning. Further, the new curriculum for junior secondary school has not yet been specified, so its implications for manpower planning cannot yet be assessed. However, the new curriculum is not scheduled to be implemented until 1986.

In considering the present curriculum, some educators express concern that at both junior and senior secondary school levels, it is too academic. Its emphasis is on providing the knowledge students

need to gain admission to the next level of education, while too little attention is given to the skills and knowledge students may need for immediate entry to the work force. The concern is more severe at the junior than the senior level. At senior secondary school, the Cambridge curriculum and examinations are generally well regarded and the advantages of the more internationally recognized standard provided by the Cambridge examination are accepted. Further, Cambridge leavers appear to have no trouble securing employment.

At the junior secondary level, however, the enrollment increase will probably cause a drop in the mean level of students' prior academic achievements--as more places are available to less proficient students. Because a larger supply of students will be terminating their education with the Junior Certificate and going directly into the job market, this may be reflected in a heightened demand for a more practically oriented curriculum, at least for many students. These demands will become particularly acute if JC completers are unable to find employment, despite their added years of schooling. The difficulty, though, is that no evidence is available on whether a more practically oriented curriculum would prepare students for employment better than the traditional curriculum offered at a higher level of quality.

Shortening the junior secondary curriculum from three to two years may have further impact on student qualifications to enter the job market. Junior certificate completers after 1988 will have one

year less education than their predecessors. The shortened time may serve to devalue the Junior Certificate if employers show reluctance to hire JC completers because they consider them under-prepared. This, in turn, may increase the demand for more schooling and add more pressure for senior secondary admission.

A final issue in the external efficiency of secondary schools is the degree to which secondary graduates who go on to higher education are able to perform college-level work. This question will be deferred to Chapter 7.0, where the prior preparation of university-bound secondary school graduates will be discussed.

In summary, the forthcoming expansion of junior secondary school is based on humanistic, social, and economic reasons. The economic benefits are indirect--a Junior Certificate is a necessary prerequisite to most other forms of training. At the same time, estimates of labor demand by level of education suggest that JC completers without additional training will have difficulty finding jobs. The degree to which current education provides the particular knowledge and skill needed in the labor market is unclear. On one hand, more data are needed on employer demand for particular skills to support education and manpower planning. On the other, development of the new JC curriculum is not far enough along for the skill level of graduates to be assessed. The current curriculum is regarded by some as being too academic, particularly at the junior secondary level, and not adequately attuned to the needs of students terminating at Form III. However, the extent of the market demands for students to have

more practical skills or a better grasp of basic skills is still unclear. When the junior secondary curriculum is reduced to two years in 1988, students may graduate at a lower education and skill level than now. This could lead both to greater difficulty for JC completers in finding jobs and to an increased demand for additional schooling.

5.2.4.2 Internal Efficiency

In the course of the large-scale expansion of junior secondary education, the ability of the MOE to manage many changes simultaneously, and to respond quickly and effectively to problems that will inevitably arise, represents the major operational challenge. Enrollment, curriculum, and the division of primary, junior secondary, and senior secondary schooling all will undergo major change within the next five years and will require effective coordination within the larger education system.

This context provides a framework within which five specific issues of internal efficiency are considered: (a) student flow into and through secondary education; (b) the adequacy of students' prior preparation for secondary schooling; (c) educational quality; (d) adequacy of teachers' preparation; and (e) the coordination among offices and agencies in managing rapid expansion of secondary enrollments.

Student Flow. The efficiency of student flow through the school system is particularly influenced by two constraints: (a) the bottleneck experienced between Standard 7 and Form I, leading to a high repetition rate in Standard 7 and waste of young talent as Standard 7 leavers are unable to find employment, and (b) the accuracy and validity of the criteria to determine who may continue schooling.

Botswana has achieved remarkable success in providing nearly universal access to primary education. Secondary education has expanded less rapidly. Even when it does begin rapid growth in 1984, it will take until at least 1992 (under the most optimistic estimates) to reach the level of access that primary education has already achieved. The result is a serious bottleneck at the point of Form I entry and the expectation that the bottleneck will persist for at least the next six years. This bottleneck has several impacts on the internal efficiency of both primary and secondary education.

Younger (13 or 14 years old) Standard 7 leavers not admitted to Form I have virtually no formal employment alternatives. They are too young to enter the labor market, as labor law sets the minimum work age at 15, and very few alternatives remain for productive activity in the formal economy. Most return to traditional agriculture, to informal economic activities, or migrate, and some attend school outside Botswana.

One result of this situation is an increase in Standard 7 repeaters, generally those students who only narrowly missed receiving

scores on the PSLE that would have secured their admission to Form I. Repeating serves two purposes: It gives each repeater a second chance to compete for a place in Form I and it offers an alternative to a potentially idle year. Table 5.16 reports the number and percent of Standard 7 repeaters among Standard 7 leavers for the period 1973-1983.

This Form I bottleneck results in two inefficiencies. It means a cost in talent as those not admitted to Form I at least temporarily are unable to enter the formal sector job market. Further, the high repetition rate poses a considerable financial burden.

Another set of issues in student flow concerns the accuracy and validity of the criteria used to determine who may continue their schooling and of the procedure used to determine which school students will attend. The first aspect is concerned with the validity of the major examinations students take; the second is closely tied to issues of equity, and will be discussed later in the section.

Progression from Form to Form is largely automatic except at three key test points: (a) the PSLE, the basis on which students are selected into secondary school; (b) the JC examination, by which students are selected into senior secondary school; and (c) the Cambridge examination, used to determine the level of graduation certificate students receive, and ultimately which students will be admitted to university study.

The PSLE and JC examinations are developed and scored in Botswana; the Cambridge examinations are developed and scored in the

TABLE 5.16

NUMBER AND PERCENT OF STANDARD VII REPEATERS, 1973-1983

Year	Standard VII Enrollment Year Before	Number of Standard VII Repeaters	Percentage of Standard VII Enrollment Year Before
1973	9,748	1,284	13
1974	12,002	2,159	18
1975	13,811	3,084	22
1976	14,449	3,107	22
1977	13,602	2,769	20
1978	12,790	2,431	19
1979	14,395	2,967	21
1980	18,334	4,311	24
1981	21,332	5,334	25
1982	25,287	6,000 (E)	24
1983	25,114	6,000 (E)	24*

Source: Ministry of Education
(E) = estimate

*MFDP revised estimates for 1983 indicate the rate may now be as high as 28 percent.

UK. New forms of all three examinations are developed each year. Both rely on essay as well as multiple-choice items. The MOE reports that studies have been made of the relationship of PSLE scores to student performance in secondary school, and likewise of the JC examination scores to students' continued performance in senior secondary school. No recent studies have been conducted, however, and specific data were not available for this assessment.

In a system where grade progression is automatic, except at Standard 4, and the enforcement of academic standards rests heavily on only three major examinations over five years, it is critical that those measures of performance be accurate and valid. Inaccurate or inappropriate classification of student ability produces both a serious inefficiency and an inequality in the education system, to the degree that able students may be denied the opportunity to pursue their studies or that unprepared students are promoted.

The test development procedures, as they currently operate, help assure content validity. The issues that need investigation are (a) the reliability of the essay scoring procedures, and (b) the equalization of test difficulty from year to year. Only as test difficulty can be equated across years can there be assurance that educational quality is being maintained. This issue of test comparability will become particularly important as the range of students' ability at the junior secondary level increases with the enrollment expansion.

Adequacy of Students' Prior Preparation. One major component in the efficiency of secondary education is the adequacy of the preparation with which students enter secondary school. Three issues are of particular concern. First, quality of instruction that students receive in primary school may be a weak foundation for their continued schooling. The National Commission on Education found that the quality of both trained and untrained teachers was generally low and that over half had some difficulty in speaking and understanding English--circumstances that could have damaging effects on primary student achievement. Additionally, the Commission reported results of the International Educational Assessment (IEA) that indicated that achievement of Batswana students is below grade level relative to students in some other countries.

A related aspect is that many students enter Form I with limited English language fluency. Primary school is taught in Setswana for the first four years, after which instruction is in English. A substantial number of students have not achieved full functional fluency in English by the time they take the PSLE and expect to enter Form I. This situation imposes particular hardship on students from rural areas where English is less likely to be used outside the classroom, and on students whose first language is neither Setswana nor English and who must learn two new languages in the course of primary schooling. Both groups are at a relative disadvantage in competing for Form I places and successfully completing Form I work.

A third issue in prior preparation is that there has been only modest formal alignment of the primary and secondary curriculum. The primary school curriculum is generally geared toward preparing students to pass the PSLE, but the alignment of specific subject/course content between Standard 7 and Form I should be reviewed. The plans for curriculum redesign as part of the secondary school expansion should provide the necessary coordination of content across this break, but that process has only begun. When the new curriculum is scheduled to be implemented in 1986, only the course syllabi and teachers' guides will be available. Instructional materials are likely to lag several years after that.

The extent of students' prior preparation, language facility, and articulation of the curricula all influence student flow through the system and have implications for the development of the new curriculum. The enrollment of a larger number of students with limited proficiency will require curricular and instructional materials and strategies able to encompass the broad range of student ability--even at a time when (a) pressure from class size may result in teachers having less time for remedial work, and (b) the pressure for expanded enrollments may require the use of less qualified teachers than desired.

Quality of Education. The emphasis on expanding educational access has some trade-offs with educational quality. The development of the CJSSs has created a two-tiered system with respect to quality,

with CJSSs having fewer trained teachers, enrolling less academically prepared students, and reporting lower JC scores than Government and Aided Schools. Further, for all school types (Government, Aided, Unaided), the increased Form I intake in 1984 will mean that more students with lesser proficiency will enroll at the same time that teachers, faced with heavier workloads, may have less time for remedial work. The pressure on quality is further complicated by the automatic promotion policy from Form to Form, and the difficulty of equating formal outcome measures (PSLE, JC, Cambridge exam) across years. The challenge will be to preserve an appropriate level of quality at the secondary level to ensure that the more able students receive adequate preparation for subsequent study or training while the needs of the growing number of students with lesser preparation or ability are also addressed.

Teacher Preparation. To consider the impact of teacher preparation on educational efficiency, four issues are addressed: (a) the capacity of teacher training to keep up with the demand for trained teachers, (b) the opportunities available for presently unqualified teachers to become qualified, (c) the demands placed on teachers by the introduction of the new curriculum in 1986, and (d) the adequacy of in-service teacher education.

(a) Teacher supply and demand. The University of Botswana currently graduates about 150 students annually with a Diploma in Secondary Education and 20 with a Bachelor's Degree in Education. If

the Diploma program is transferred to the new Teacher Training College at Molepolole in 1985, the output will remain at about 150 graduates per year. Against this anticipated supply is the forecast of demand for new teachers through 1989, presented earlier in Table 5.10. This demand estimate is based entirely on the additional numbers of teachers needed to accommodate increasing student enrollments. It does not consider replacement demand due to teacher retirement or attrition or expatriate turnover. The relative youth of the teaching corps means retirement will be less significant than resignation. However, the heavy reliance, until recently, on expatriate teachers with short-term contracts (i.e., planned termination rather than attrition) means that there is little experience on which to base attrition estimates. Exclusive of retirement and attrition, it appears that the supply of new teachers will keep up with demand, except in science and mathematics and at the senior secondary level.

The apparent adequacy of teacher supply is confounded in two ways: First, teacher assignment will become more complex as junior secondary is reduced to two years and senior secondary increased to three years in 1988, and as junior secondary is again expanded to three years in 1992. Schools that have a complete Form I to Form V cycle will be able to accommodate the shift with transitional teacher assignments to the upper Forms. Junior Secondary schools will face a more difficult problem, since teachers may have to be transferred across schools. These problems can be minimized by good planning and sufficient time to ensure a smooth transition.

Second, the relative balance of projected teacher supply and demand assumes that the present proportion of unqualified teachers will continue or, alternatively, that more expatriates will be hired. The former has continuing negative consequences on instructional quality; the latter impedes the goal of localization and is more costly.

(b) Upgrading of teacher qualifications. Currently employed unqualified teachers, for the most part, will be unable to gain the formal training and credentials they need to become qualified, because most lack the necessary Cambridge scores to enter the University. It is unlikely that competition for places at Molepolole Teacher Training College will be less severe. However, administrators at Molepolole are contemplating the possibility of reserving some places for unqualified teachers who wish to upgrade their credentials. Still, the positions they vacate may have to be filled by other unqualified teachers or expatriates.

(c) Introduction of the new curriculum. When the new curriculum is introduced in 1986, the Curriculum Development Committees expect to have the new syllabus and a teacher's guide available in each subject. The development of instructional materials may lag by several years. This raises two issues, both depending on the extent to which the new curriculum differs from the present one.

First, the interest and massive effort going into curriculum revision provides the opportunity to effect the basic changes the

curriculum committee identifies as necessary. On the other hand, the changes pose a challenge for teachers who must quickly come to understand the content and instructional strategy of the new curriculum. This may pose particular difficulty for unqualified teachers (and even qualified teachers) who may lack sufficient background in the subject area to teach the new content.

Second, the pressure on teachers is heightened by the lag in development of the instructional materials that support the new curriculum. Textbooks, in particular, tend to be the primary vehicle of much instruction. Without the new textbooks, teachers may have to assume more responsibility for content presentation. The old textbooks may continue to be used and full implementation of the new curriculum slowed, or the quality of instruction may drop.

(d) In-service teacher education. Currently, in-service teacher education is provided during the breaks between the three school terms. This typically is in the form of two-week workshops offered in one of the larger cities or in village centers. These workshops introduce new teaching methods and strategies as well as new content and materials. They provide one mechanism by which unqualified and/or weak teachers can upgrade their skills. These workshops also will serve to introduce teachers to the new curriculum. Hence, the level of implementation of the new curriculum will partly depend on the adequacy and effective use of a relatively short period of time. Depending on the extent to which the new curriculum requires

presentation of new content and/or substantially different instructional strategies, teachers may need further support and assistance. While time is sufficient to provide effective in-service training, it will be important to ensure its optimum use to promote proper implementation of the new curriculum.

Coordination of Secondary School Expansion. The MOE has developed careful projections and detailed plans to manage the secondary school expansion scheduled to begin in 1984. This work provides an excellent base from which to implement such a far-reaching shift in the educational system; the high quality of the planning will help ensure an efficient expansion.

Among other things, the planning helps identify the range of components--more teachers, classrooms, staff housing--that must be coordinated if expansion is to progress smoothly. The expansion plan is challenging, involving sweeping changes in enrollment and curriculum and restructure of the primary-secondary sequence, within a span of five years. Government and donors should recognize that changes of this magnitude involve risks, and almost inevitably will encounter some snags and delays. One of the biggest challenges in the transition will be the need to maintain a broader perspective on the purposes of the expansion program while working out any misalignments that may occur.

Within this perspective, two issues take on special importance. First, forces outside the education system could alter the social

demand for education, and potentially slow the expansion. Continued drought, depressed mineral and/or livestock prices, and economic or political instability in bordering countries could lead to a reassessment of government's budgetary priorities. While this is beyond control of the MOE, any meaningful shift in priorities will certainly influence the efficiency of the expansion program. Second, the secondary school expansion requires rather complex coordination across ministries as well as across units within the MOE. The comprehensiveness of present planning speaks to the high level of cooperation already received. Efficiency in the actual implementation of the expansion will depend to a considerable degree on government's ability to quickly resolve issues and bottlenecks as they arise.

Summary. The challenges to internal efficiency should be understood within the context of rapidly expanding access to secondary education. The major challenge will be to coordinate and articulate the various changes in enrollment and curriculum, as well as the restructuring of primary and secondary schooling. Some snags are inevitable, and the problems that arise must be given a chance to be resolved. At the same time, a series of specific issues have been identified as points for particular attention. These include:

- the waste of talent and cost of repetition as a result of the Standard 7 - Form I bottleneck;
- the accuracy and validity of the criteria used to determine who may continue their schooling;
- the quality of students' prior preparation, particularly as it is influenced by teacher quality in the primary schools,

language proficiency, and inadequate articulation of the primary and secondary curricula;

- the ability of the MOE to supply qualified teachers to serve the growing enrollments;
- the opportunities for currently unqualified teachers to gain the necessary qualifications;
- the challenges to teachers posed by the introduction of the new curriculum; and
- the adequacy of opportunities for in-service teacher preparation.

5.2.4.3 Access and Equity

Providing universal access to nine years of basic education remains one of the highest priorities of government. Indeed, it has nearly achieved universal access to primary schooling and is now moving to realize universal access to the junior secondary level. Further, this opportunity has been extended to students of both sexes, who have participated in roughly equal proportions. At the same time, secondary education is a two-tiered system with respect to quality. CJSSs provide a substantially lower quality education than do Government Schools and at a considerably higher cost to the student. This discussion examines the distribution of secondary school opportunity by geographical location, gender, and educational quality.

Geographical Location. To what degree do school age youths have equal access to secondary school opportunity across regions of the country? Equity of geographical access can be assessed by comparing the regional distribution of enrollments in 1981 with the school age

population as indicated by the 1981 census results. These data, presented in Table 5.17, are based on three assumptions: (a) the percentage of secondary school age youth in a district is roughly comparable to the percentage of youth 5 to 14 years old in that district, (b) educational quality is comparable across regions, and (c) population and enrollment figures have not changed at a disproportionate rate since 1981. However, these assumptions may not hold; it is unlikely that educational quality is similar across regions and it is probable that the distribution of population by district has shifted since 1981.

The data show substantial differences in enrollment by region, ranging from 2.4 percent of the school age population enrolled in secondary school in Lobatse, to 13.8 percent enrolled in Kgatleng. The statistics are somewhat misleading, to the extent that some areas have a higher concentration of schools yet serve a much larger geographical area through boarding facilities. Tables 5.2 and 5.3, presented earlier, indicate which Government Schools provide boarding facilities. CJSSs do not provide boarding facilities. One consequence is that students who do not receive high enough PSLE scores (generally an A, B1, or B2) to attend a Government School have less access to secondary school. Access also is limited by whether they live close enough to a CJSS to commute or have relatives who live near a CJSS with whom they can stay.

TABLE 5.17

SECONDARY SCHOOL ENROLLMENT AS A PERCENT OF POPULATION BY DISTRICT

Location	Enrollment			District as Percent of Total Enrollment	School Age Population	District as Percent of Total School Age Population	Secondary School Enrollment as a Percent of School Age Population
	Govt & Aided	Community Sec. School	Total				
North East	1,069	-	1,069	5.3	11,835	4.4	9.0
Central	5,362	1,366	6,728	33.4	99,160	36.8	6.8
Kgatleng	1,133	882	2,015	10.0	14,613	5.4	13.8
Kweneng	1,889	345	2,234	11.0	35,776	13.3	6.2
Southern	1,760	207	1,967	9.8	33,164	12.3	5.9
South East	866	329	1,195	5.9	9,242	3.4	12.9
Kgalagadi	298	-	298	1.5	7,142	2.6	4.2
Ghanzi	117	314	431	2.1	4,840	1.8	8.9
North West	781	177	958	4.8	17,344	6.4	5.5
Gaborone	299	627	926	4.6	10,554	3.9	8.8
Francistown	259	363	622	3.0	7,513	2.8	8.3
Lobatse	227	827	1,054	5.2	4,365	1.6	2.4
Selebi-Phikwe	42	167	209	1.0	5,850	2.2	3.6
Other	246	196	442	2.2	8,317	3.1	5.3
Total	14,348	5,800	20,148	100	269,715	100	7.5

Source: Ministry of Finance and Development Planning

Gender. One of the noteworthy characteristics of secondary education in Botswana is the equity of access by gender in Government and Aided Schools. As Table 5.18 indicates, male and female students have enrolled in roughly equivalent numbers each year since 1974, with females having a slight edge since 1977. In Community Junior Secondary Schools, females have had a more substantial advantage; females in 1982 accounted for 63 percent of enrollments. A possible explanation is that the opportunity cost of going to a lower quality secondary school is greater for males than females. Males have higher income-producing alternatives, notably in mining and agriculture. It is unclear, then, whether the discrepancy in enrollment by gender in CJSS is primarily an issue of equity or of academic quality.

The distribution of teachers by gender (Table 5.19) shows that 60 percent of Government/Aided Secondary School teachers are male. From 1974 to 1981, female teachers increased from 30 to 40 percent of the teaching staff in Government/Aided Schools. Since the 1981 enrollment in UB's Diploma program in Secondary Education comprised 387 women and 635 men, the present ratio of male to female teachers in secondary schools might be expected to persist, depending on the percent of DSE graduates who enter teaching.

There is a more subtle gender discrepancy in that a larger percentage of the female teachers in Government/Aided Schools are unqualified, as reported in Table 5.20. This means that a larger proportion of women earn a lower salary and have less job security.

TABLE 5.18

DISTRIBUTION OF STUDENTS BY GENDER
IN GOVERNMENT AND AIDED SCHOOLS,
1974-1981

Group	1974	1975	1976	1977	1978	1979	1980	1981
Total Pupils	7,055	8,434	9,558	10,219	11,186	12,175	13,424	14,343
Male Pupils	3,654	4,321	4,744	5,046	5,450	5,868	6,420	6,892
Female Pupils	3,401	4,113	4,814	5,173	5,736	6,307	7,004	7,454
Percentage Male	52	51	50	49	49	48	48	48
Percentage Female	48	49	50	51	51	52	52	52

Source: Central Statistics Office

TABLE 5.19

DISTRIBUTION OF TEACHERS BY GENDER
IN GOVERNMENT AND AIDED SCHOOLS
1974-1981

Group	1974	1975	1976	1977	1978	1979	1980	1981
Total Teachers	350	397	443	443	505	570	654	666
Male Teachers	244	266	295	289	317	365	397	400
Female Teachers	106	131	148	154	188	205	257	266
Percentage Male	70	67	67	65	63	64	63	60
Percentage Female	30	33	33	35	37	36	37	40

Source: Central Statistics Office

TABLE 5.20

PERCENT OF QUALIFIED AND UNQUALIFIED GOVERNMENT/AIDED SECONDARY SCHOOL TEACHERS BY GENDER
1981

STATUS	Male	Female
Qualified	365	235
Unqualified	35	31
Total	400	266
Percent Unqualified	9.59	16.65

Source: Data compiled from Central Statistics Office

Together, these data suggest that women are somewhat at a disadvantage relative to men with respect to securing necessary teacher qualifications and a subsequent teaching position.

The statistics for CJSSs show roughly the same proportion of men and women teachers as found in the Government/Aided Schools. In 1981, 39 percent of the teachers were women; 61 percent were men. Data on qualification level by gender are not readily available.

Academic Quality. The discrepancy in academic quality between Government/Aided and Community Junior Schools, discussed earlier, is the major issue of equity and access in secondary education. The problem has several dimensions, but the clearest indicator of the discrepancy is in the JC examination pass rates across schools (Table 5.21). In 1982, 83.1 percent of the students in Government/Aided Schools passed the examination at the end of Form III but only 37.5 percent of CJSS students passed. The problem is even more subtle in that the variation in pass rateS among CJSSs is far greater than among Government/Aided Schools, as indicated in Table 5.22. For example, CJSS pass rates in 1982 ranged from 9 to 81 percent; Government/Aided Schools ranged from 61 to 93 percent.

These differences are related to several inequalities in resource allocation:

- CJSS students tend to be of lower academic ability. Government School headmasters have the first opportunity to select Standard 7 leavers for admission to their schools and generally choose the best. CJSS admissions include students with lower PSLE scores, who live (or can find accommodation) near the school, and who can afford the tuition.

TABLE 5.21

DISTRIBUTION OF JUNIOR CERTIFICATE EXAMINATION SCORES FOR GOVERNMENT/AIDED AND UNAIDED SCHOOLS, 1981 AND 1982

Outcome	Government/Aided		Unaided		Total	
	1982	1981	1982	1981	1982	1981
Merit	.002	.001	.000	.000	.002	.001
First	.015	.022	.002	.004	.012	.018
Second	.349	.321	.060	.042	.268	.254
Third	.465	.438	.313	.291	.422	.402
Fail	.169	.217	.625	.662	.296	.324
Pass	.831	.783	.375	.338	.704	.676
Total Candidates	3,491	3,378	1,347	1,066	4,838	4,440
Percent Pass	83.1	78.3	37.5	33.8	70.0	67.6

Source: Data compiled from Central Statistics Office

TABLE 5.22

DISTRIBUTION OF JC PASSES BY SCHOOL FOR
GOVERNMENT/AIDED AND UNAIDED SCHOOLS
1981 and 1982 data

(1981 Results given in brackets)

SCHOOL	FAIL		PASS		TOTAL		%PASS	
GOVERNMENT AND GOVERNMENT-AIDED SCHOOLS								
Gaborone	28	(28)	202	(194)	230	(222)	88	(87)
Kgari Sechele	70	(42)	159	(179)	220	(221)	68	(81)
Lobatse	38	(76)	186	(148)	224	(224)	83	(66)
Madiba	13	(25)	131	(124)	144	(149)	91	(83)
Mater Spei	69	(86)	108	(116)	177	(202)	61	(57)
Maun	27	(24)	108	(123)	135	(147)	80	(84)
Moeding	19	(8)	135	(142)	154	(150)	88	(95)
Meoing	13	(16)	140	(123)	153	(139)	92	(88)
Molefi	25	(29)	183	(188)	208	(217)	88	(87)
St. Joseph's	10	(6)	136	(115)	146	(121)	93	(95)
Seepapitso	39	(58)	156	(158)	195	(216)	80	(73)
Shashe River	19	(29)	161	(144)	180	(173)	89	(83)
Swaneng Hill	38	(36)	158	(152)	196	(188)	81	(81)
Tutume	23	(39)	118	(104)	141	(143)	84	(73)
Selibe-Phikwe	19	(18)	119	(127)	138	(145)	86	(88)
Matshekge	20	(22)	117	(102)	137	(124)	85	(82)
Naledi	11	(23)	132	(110)	143	(133)	92	(83)
Francistown	52	(53)	89	(76)	141	(129)	63	(59)
Kagiso	28	(56)	118	(102)	146	(158)	81	(65)
Letlhakane	18	(44)	119	(96)	137	(140)	87	(69)
Moshupe	12	(15)	134	(18)	146	(33)	92	(55)
Total	591	(733)	2909	(2641)	3491	(3374)	83.1	(78.3)
COMMUNITY JUNIOR SECONDARY SCHOOLS								
Bobonong	43	(23)	18	(18)	31	(41)	58	(44)
Ipelegeng	64	(61)	37	(42)	101	(103)	37	(41)
Itireleng	24	(33)	86	(49)	110	(82)	78	(60)
Linchwe II	64	(27)	23	(16)	87	(43)	26	(37)
Mahalapye	114	(117)	37	(22)	151	(139)	25	(16)
Mmanaana	30	(27)	6	(2)	36	(29)	17	(7)
Ramotswa	56	(23)	22	(33)	78	(56)	28	(59)
Setlalekgosi	64	(70)	25	(24)	89	(94)	28	(26)
Tsegetsang	77	(50)	20	(15)	97	(65)	21	(23)
Capital Cont.	29	(24)	28	(28)	57	(52)	49	(54)
Ngwaketse Cont.	29	(28)	11	(2)	50	(30)	22	(7)
Papapye	27	(38)	32	(22)	59	(60)	54	(37)
Itekeng	13	(40)	57	(48)	70	(88)	81	(55)
Matlala	10	(37)	29	(9)	39	(46)	74	(20)
Orapa Centre	23		6		29			
John Nswazwi	30	(30)	27	(14)	57	(44)	47	(32)
St. Anthony's	8	(12)	2	(4)	10	(16)	20	(25)
Selibe-Pikwe PVT	8	(31)	16	(6)	24	(37)	67	(16)
Maun Private	34	(35)	11	(6)	24	(41)	24	(15)
Boipelego Sec.	115		12		127		9	
Total	862	(706)	505	(360)	1326	(1066)	37.5	(33.8)

Source: Central Statistics Office

- CJSSs have a higher proportion of untrained teachers. Table 5.9, presented earlier, reveals that 90 percent (1981) of the Government/Aided School teachers are qualified compared with only 31 percent of the CJSS teachers.

- CJSSs have lower quality facilities and equipment. One specific consequence is that the Integrated Science course is offered in all Government/Aided Schools, but is generally not taught in CJSSs. The CJSSs instead teach a non-laboratory course in Human and Social Biology. This puts CJSS students at a disadvantage in the competition for a place in the University, where math and science are priority areas. This point is developed further in Chapter 7.0.

- As demonstrated earlier in Section 2.5, the cost to the student or family to attend a CJSS is considerably higher--about P82 per year for a non-boarder in Government Schools, about P70 in Government-Aided Schools, and about P215 in CJSSs--although the quality of instruction and facilities are lower in the CJSSs.

Government is aware of these disparities and the complexities in ameliorating them. Cost is a major factor. Total investment per student for a year of CJSS is only about 42 percent that of a student in a Government School, as illustrated in Table 5.23. The average estimated investment per student in CJSSs was P349 in 1982, compared to P833 for a non-boarder in a Government School.

Given limited government resources, CJSSs provide many students with an opportunity to pursue a secondary education who would otherwise have no post-primary schooling. The argument is that some opportunity, even if of lower quality, is better than no opportunity at all. The quality differential can be understood as the social cost of expanded access within limited financial resources.

TABLE 5.23

SUMMARY COMPARISON OF PER STUDENT

COST FOR GOVERNMENT AND UNAIDED SCHOOL,

1982

	CJSS	Government School	
		Non-Boarder	Boarder
Cost to Student	P215	P 82	P130
Cost to Government	P134	P751	P789 (net of tuition)
Total Cost	P349	P833	P919

Source: Summarized from Table 2.48

This trade-off of quality may come at a higher cost than may appear. Since it takes more than five times as many students to yield 100 graduates in a CJSS (63% retention rate for 1979 entrants) as it does in a Government/Aided School (93% retention for 1979 entrants), as can be seen in Table 5.5, the real cost of a CJSS completer is probably closer to double that of a Government School completer. In terms of producing junior secondary leavers, the CJSSs constitute an inefficient system. The issue is not solely the trade-off between quality and access, where both the quality (or lack of it) and the access are equally distributed. Rather, the issue is the equity of a two-tiered system, where less qualified students pay more to get less. The improvement of quality in CJSSs represents one of the major challenges to secondary education in Botswana.

5.2.5 Conclusions

The issues identified in the preceding analysis are grouped into three areas and form the framework for three basic conclusions. These lead to the specific recommendations in the final portion of this chapter.

Conclusion 1. Mechanisms should be developed to coordinate secondary education expansion with anticipated manpower needs. At the same time, procedures should be implemented for collecting more refined estimates of specific training and skill needs.

There is concern that educational expansion, particularly at the junior secondary level, will not respond to projected national human resource needs. In particular, junior secondary expansion may exceed the capacity of the economy to absorb JC completers. More information is needed on specific training requirements, to help refine estimates of JC "surplus" and to identify occupational and skill areas for additional training. The annual Employment Survey does not ask the employers for specific skill requirements of the jobs currently available.

Conclusion 2. A quality improvement strategy is needed to accompany the expanded access to secondary schools.

The expansion will make secondary school admissions available to a larger number of less academically proficient students. Yet, pressures on class size and/or teaching load will allow teachers less time for individual and remedial work. Introduction of the new curriculum in 1986, providing closer coordination with the primary curriculum, will place even further demands on teachers to become familiar with materials and/or learn ways to present familiar content differently. Also, many schools will have to continue to employ untrained teachers.

Conclusion 3. A strategy should be identified for equalizing cost and quality between Community Junior and Government/Aided Secondary Schools.

CJSSs currently enroll less academically qualified students, employ a higher percentage of untrained teachers, have less well equipped facilities, and yield a smaller percentage of students passing the JC examination. Yet, CJSS costs the student two and a half times as much as Government/Aided Schools.

5.3 RECOMMENDATIONS

The recommendations for secondary education are discussed in relation to the main conclusions presented above.

5.3.1 First Priority - External Efficiency: Recommendations 1-4

Recommendation 1. Continue to monitor the secondary school expansion as it relates to national human resource needs.

Possible action steps: If junior secondary expansion exceeds the capacity of the economy to absorb JC graduates, pressure may mount to reduce Form I entry in favor of other alternatives. Such a shift would require careful planning and reallocation of resources. An early indication that these shifts might be required will be essential to enable this planning to occur. While much of this planning is informal, a formal mechanism may be a useful vehicle to encourage wider participation. This mechanism might take the form of an Inter-Ministerial Task Force that would collect, evaluate, and integrate data on changes in manpower projections, results of tracer studies, data from the Employment Surveys, and other data from

relevant ministries. The Task Force would advise the MOE of trends that will influence the speed of secondary school expansion. The National Employment Manpower and Income Council may be able to serve this purpose.

Recommendation 2. Conduct tracer studies of recent school leavers.

Possible action steps: The tracer studies being undertaken or planned at the Standard 7, JC, and Cambridge levels should be encouraged. The assumption behind a tracer study is that school leavers will go where the jobs are and, to understand the current labor market, it is useful to see where recent leavers find employment. These studies can thus help confirm manpower and labor market projections. Government has experience with these studies, but more current data are now needed. Moreover, the speed with which both the educational system and the formal employment section are growing makes frequent updating of these studies necessary.

Recommendation 3. Identify specific occupational and skill areas in high demand by employers.

Possible action steps: The annual Employment Survey should continue to be revised and extended to collect more specific data on a regular basis. At the same time, it may be necessary to develop ways to assist employers (particularly in the private sector) to identify those needs within their own businesses, given the limited experience of many employers in developing this type of information.

Recommendation 4. Implement a study to determine whether the market demand for JC leavers is for students having more practical skills (than now taught in the secondary school curriculum) or a better grasp of basic knowledge and skills.

Possible action steps: This could be conducted as a longitudinal study on a sample of JC completers. A more efficient design might be to select several employers across major employment categories and study the experience of JC graduates with different areas of emphasis within their JC programs.

5.3.2 Second Priority - Internal Efficiency: Recommendations 5-8

Recommendation 5: Give strong support to secondary school curriculum revision activities.

Possible action steps: The MOE has begun curriculum review and redesign. These activities should address at least three objectives:

- Align the secondary school curriculum with students' prior academic preparation,
- Meet the needs of students not bound for senior secondary school, and
- Assist teachers who may be teaching students with a wider range of academic abilities, given the secondary school expansion.

If the new curriculum is to be implemented in 1986, the new curriculum and associated pilot materials need to be finished by late 1984 to allow time for field testing, revision, and teacher training

associated with implementation of the curriculum. Considerable support and assistance will be necessary for the Curriculum Development Unit to meet these deadlines.

Recommendation 6: Expand opportunities for untrained secondary school teachers to become qualified.

Possible action steps: Additional opportunities for untrained teachers might be created through expanded in-service training programs and/or special admissions opportunities to enter formal training programs.

Recommendation 7: Expand in-service education opportunities for currently employed trained teachers.

Possible action steps: In-service teacher education might focus on two areas. First, the introduction of the new curriculum in 1986 will require that many trained and untrained teachers will need to learn new content, sequencing, and instructional strategies to implement the new curriculum. Second, since the number of unqualified teachers is likely to remain at current levels or higher during the secondary school expansion, in-service opportunities should be extended to assist them.

The opening of Molepolole Teacher Training College offers several new options for teacher training. Molepolole may be able to offer and/or coordinate expanded in-service work directly. The University of Botswana may wish to further develop capacity for in-service training at the University.

Recommendation 8: Implement procedures to assure the validity of the PSLE and JC examinations and to equate test difficulty from year to year.

Possible action steps: Essay scoring procedures might be monitored by inter-rater reliability studies. Low inter-rater reliability generally can be remedied through rater training programs. Multiple-choice items can be improved through expanded use of trial items in the year prior to actual use. Test difficulty can be equated across years through the use of Rausch analysis (i.e., latent trait analysis) in which the items unique to a year are calibrated against a smaller subset of items that appear on the tests in two or more years. Rausch analysis also provides a better measure of item validity than the information typically provided by conventional item analysis procedures.

To measure quality of student performance from year to year, it is necessary to equate test difficulty across years. Student scores within any given year have to be weighted so that differences in scores across years reflect differences in student achievement rather than differences in the test difficulty.

5.3.3 Third Priority - Access and Equity: Recommendations 9-10

Recommendation 9. Identify means for improving the quality of CJSSs without reducing the quality of Government/Aided Schools.

Possible action steps: The MOE has considered several means of improving the quality of CJSSs. The first would have all students attend the secondary school closest to home. This would require some of the academically stronger students to enroll in CJSSs, although it would not directly respond to the discrepancies in the quality of teachers or facilities. Another possibility would be the temporary use of more qualified expatriates, particularly as they are provided and/or subsidized by donor agencies. A third possibility being discussed is that all junior secondary schooling be offered through CJSSs and Government Schools providing only senior secondary education. While this might equalize quality across each of those levels, it is not clear how it would improve quality. Other possibilities need to be considered.

Recommendation 10. Encourage the expanded enrollment of women in the Diploma Program in Secondary Education.

Possible action steps: The proportion of untrained women teachers is considerably greater than that of men at the CJSSs. Special programs might be considered to encourage more women to participate in teacher training.

5.3.4 Fourth Priority - Cost and Financing: Recommendation 11

Recommendation 11. Identify means of equalizing cost to the student between CJSSs and Government/Aided Secondary Schools.

Possible action steps: Plans to reduce student cost will necessarily interact with efforts to improve educational quality and access to the CJSSs. Government might implement a study to identify ways that student costs and educational quality can be equalized across CJSSs and Government Schools.

5.3.5 Fifth Priority - Administration and Supervision: Recommendations 12-13

Recommendation 12. Implement a study of the structure and organization of the MOE.

Possible action steps: The rapid expansion of the educational system constantly poses new challenges and pressures for the central management of the educational system. Structures and organizational patterns need to be reviewed at regular intervals to assure that the MOE remains optimumly responsive to problems in the field, maintains appropriate lines of communication with other ministries, and maintains effective working relationships among offices within the Ministry. The review might be conducted most effectively by an external review committee.

Recommendation 13. Expand and upgrade the training of local school administrators.

Possible action steps: The MOE might implement special in-service training programs for headmasters, deputies, and assistant headmasters. Special scholarship and sabbatical programs might be

developed to encourage deputy and assistant headmasters to seek advanced university training. These steps can help ensure a supply of trained administrators to fill the positions created by the construction of new junior secondary schools and the eventual retirement of headmasters in existing secondary schools.

6.0 TEACHER EDUCATION

This portion of the assessment covers pre-service and in-service teacher education for primary and secondary school teachers. Most pre-service training for primary teachers takes place in two-year courses at the three Primary Teacher Training Colleges (PTTCs), and for secondary teachers in a three-year diploma course at the University of Botswana (UB). Teacher supply and demand are in reasonable balance, as discussed more fully below and in Chapter 2.0, except at the senior secondary level. There is a wide range of in-service programs at the primary level, and some at the secondary level.

Prominent needs identified in this chapter concern improving the coordinating mechanisms for teacher education within the context of a more fully integrated development plan, increasing relevance of the curricula of the programs, and enhancing quality of instruction within these programs. Principal recommendations derived from these needs are in three areas: (a) developing and implementing a fully integrated plan for teacher education; (b) reviewing, and if necessary revising, the teacher education programs to coordinate them with objectives of the plan; and (c) improving the quality of instruction and increasing the capacity of the teacher education programs. Specific action steps are suggested with each of the recommendations.

The current status of teacher education is initially presented, followed by a brief summary of the programs in terms of their relevance to national goals and objectives. An analysis then cites significant needs which emerge from a comparison of objectives, programs, plans, and constraints. This analysis concerns issues in the five thematic areas used throughout this assessment. All of the above information is used to derive the group of priority-ranked recommendations given at the end of the chapter.

6.1 STATUS

The goals and strategies of government in the field of teacher education are presented in this section. This is followed by a description of the location and structure of government units responsible for implementing these strategies.

6.1.1 National Goals and Strategies

Goals. Broad goals for education, also presented in Chapter 4.0 (Primary Education) of this assessment, are derived from current government policy. This policy is set forth in the fifth National Development Plan 1979-1985 (NDP V) and in National Policy on Education (Government Paper No. 1 of 1977). The goals are:

- to increase educational opportunities, and to reduce inequalities of educational opportunities, so far as resources permit;

- to contribute to the balanced economic development of Botswana by seeking to satisfy manpower requirements for all sectors, emphasizing particularly the needs of rural development and employment generation;

- to promote personal qualities such as respect for national ideals, self-reliance and concern for other people, and to encourage full development of individual talents;

- to extend the role of schools and colleges in the local community, and viceversa.

General Objectives. The three following general objectives have been derived from the above goals, and have implications for the supply and quality of primary and secondary school teachers:

- Universal access to seven years primary education, for the 6-13 year age group, by the mid-1980s;

- Improvement of the quality of primary education; and

- Universal access to nine years of basic education for the 6-15 age group, in the longer run and within a restructured 6-3-3 system of school levels.

Specific Objectives. The above general objectives have implications for the supply of teachers and the design of teacher training curricula. These are reflected in the following selection of four specific objectives from the 11 given for the next several years in Updated Goals and Objectives 1984-1991, a paper prepared by the Ministry of Education and approved by the Economic Committee of Cabinet in September 1983.

Objective 1. By the year 1985, a minimum of 40 percent of Standard 7 leavers will have access to Form I. By 1991, 75 percent of all Standard 7 leavers (all A's, B's, and C's [on the Primary School Leaving Examination]) will enter Form I.

Objective 2. By the year 1987, the number of Cambridge leavers will be at least 3,000, twice the present (1983) number.

Objective 3. By the beginning of the year 1986, a new two-year JC (Junior Certificate) curriculum will be instituted.

Objective 9. Beginning in 1987, the gross number of additional teachers needed will be available locally (emphasis added). The shortage of mathematics and science teachers will probably exist to the end of the decade--in gradually reduced numbers--and will require the continued employment of expatriates. A special programme of training experienced teachers of other subjects to teach mathematics and science is being considered.

Strategies. Government has identified and is implementiug several specific strategies to achieve the following three general objectives: the short-term achievement of universal basic education (primary schooling) for the 6-13 age group by the middle-1980s, improvement of the quality of basic education, and long-term attainment of nine years of basic education (primary and junior secondary schooling) for the 6-15 age group.

The Ministry of Education has done several things to improve the quality of teaching at the primary level and to increase the supply of trained teachers. A recent expansion of the capacity of the three Primary Teacher Training Colleges (PTTCs) at Serowe, Lobatse, and Francistown, for example, was financed by the UK Overseas Development Administration. To further increase primary teaching capacity, a new PTTC is under construction at Tlokweng; it is financed under the Third Education Project of the World Bank (Loan 2057-BT) and will open in January 1985. Education Centers in rural areas are being used to improve the teaching skills of trained and untrained teachers

participating in the MOE's in-service training program. These Education Centers are located at Maun, Serowe, Mochudi, Molepolole, Lobatse, and Mahalapye.

Two other strategies include using Form V graduates as teaching assistants and requiring teaching experience before starting formal teacher education. The first of these is the Tirelo Setshaba plan. It is based on a year of community service for Form V graduates, prior to entering University, and includes possible service as a teaching assistant. Tirelo Setshaba is now voluntary but there is a proposal that it be made compulsory. The second strategy requires candidates for the PTTCs to teach primary school for one year before beginning their training.

The primary school curriculum has recently been revised to help improve teaching. This revision, carried out by the Curriculum Development and Evaluation Department of the MOE, includes teacher guides plus instructional materials. Teachers are also supported by materials and in-service training provided through the Teaching Aids Production Unit (TAPU), established by the MOE with assistance from UNICEF and DANIDA.

A major institutional development effort to improve teacher education is the USAID-sponsored Primary Education Improvement Project (PEIP), a five-year undertaking now at its mid-point. The objective of PEIP is to give basic assistance with pre-service and in-service training for the PTTC staff, Head Teachers, and senior teachers. The

PEIP pre-service component is based on a newly established Department of Primary Education at the University of Botswana. This program will produce about 20 graduates annually from a four-year Bachelor of Education course, and these graduates are most likely to pursue careers in the administration of education. The program also will prepare about 10 graduates annually within a two-year Diploma in Primary Education course, leading to employment as Head Teachers (principals), senior teachers, and Education Officers (inspectors). The PEIP in-service program will directly train about 30 three-person groups of Head Teachers and senior teachers to conduct workshops for a large number of primary school teachers.

Government is now constructing a Teacher Training College at Molepolole, which will open in January 1985 and offer a three-year course leading to the Diploma in Secondary Education (DSE). This program will replace or supplement the DSE capacity of the University of Botswana and will provide about 150 graduates annually. These graduates will help to alleviate the heavy dependence on expatriate teachers at the secondary level.

6.1.2 Structure

All teacher education is under the overall managerial responsibility of the Ministry of Education. The MOE's Department of Primary and Teacher Training manages the pre-service and in-service programs.

The pre-service program for primary teachers takes place at the three PTTCs, which jointly graduate about 450 students each year from a two-year Primary Teacher's Certificate (PTC) program. A new PTTC at Tlokweng will open in January 1985 and graduate an additional 150 primary teachers each year. The PTTCs are affiliated with the Faculty of Education of the University of Botswana, which is the certifying authority for the PTC. The responsibilities of the University under this arrangement include admission regulations, curriculum, and assessment procedures. A National Council for Teacher Education serves as an advisory body.

The pre-service program for secondary teachers is the DSE course at the University of Botswana, which annually graduates about 90 students. This program will either be replaced or supplemented by Molepolole Teachers College, now under construction and expected to offer a three-year course for junior secondary teachers. It will open in January 1985 and have the capacity to graduate 150 students annually.

The in-service program takes place primarily at the six Education Centers, located at Mahalapye, Serowe, Lobatse, Maun, Molepolole, and Mochudi. In addition to courses at the Centers, the Department of Primary and Teacher Training in special cases also offers in-service training at individual schools. In-service workshops are offered by the Curriculum Development Unit as well as by the Teaching Aids Production Unit, both within the MOE's Curriculum Development and

Evaluation Department. The in-service component of the PEIP program, mentioned above and discussed more fully in the next section, is located within the Department of Primary and Teacher Training.

6.1.3 Programs

The topics covered in this sub-section include the primary and secondary pre-service and in-service programs. The PEIP program is discussed separately because it includes both pre-service and in-service activities and because of its institutional development aspects. All tabled data in this section on PTTC staff and enrollments are from preliminary tabulations from the Central Statistics Office in October 1983 and are referenced as Education Statistics (1983).

This section provides an overview of the programs in teacher education. It will serve as the basis for a later analysis of needs, plans, constraints, and issues.

6.1.3.1 Pre-Service: Primary Teacher Training Colleges

The source of trained teachers for students in primary school is the Primary Teacher's Certificate (PTC) program. An overview of the current enrollments, staff, and facilities of the three PTTCs (Serowe, Lobatse, and Francistown) is presented in Table 6.1. This table gives for each PTTC the number of classrooms, enrollments by sex and year, and levels of training, numbers, and sex of the teaching staff.

TABLE 6.1

OVERVIEW OF STUDENTS, TEACHERS, AND FACILITIES
AT THE PTTCs, 1983

College	No. of Class-rooms	Students							Teachers					
		Year 1		Year 2		Years 1 & 2			Sex			Level of Training		
		M	F	M	F	M	F	Total	M	F	Total	ACC	Higher Degree and Diploma	Total
Serowe	15	-	181	-	153	-	334	334	13	8	21	1	20	21
Lobatse	10	36	135	26	135	62	270	332	12	6	18	5	13	18
Francistown	10	33	118	31	100	64	218	282	14	6	20	5	15	20
Total	35	69	434	57	388	126	822	948	39	20	59	11	48	59

Source: Education Statistics (1983), Central Statistics Office

The three PTTCs have a total of 948 students, of whom 503 (53%) are in the first year and 445 (47%) in the second year. Progression rates from the first to the second year have varied between 90 and 95 percent over the past several years: 92% for 1977-78, 95% for 1978-79, 91% for 1979-80, and 90% for 1980-81.

The number of graduates expected in 1983 was about 445, as there are virtually no failures. This number is roughly cousistent with past graduates (e.g., 461 in 1981 and 535 in 1982).

Most of the students are female (87%), and the PTTC at Serowe has all female students. The percentage of female students is similar from year one to year two. Despite the predominance of female students, there are no indications of any systematic exclusion of males from the PTTCs. The fact that the Serowe PTTC is exclusively for females, however, does reduce access by males to some extent.

The teaching staff are all classified as "qualified." Of the total of 59 tutors, 11 (19%) have completed the Advanced Teachers Course (ATC) and 48 (81%) have a higher degree and a diploma. Most of the teachers are male (66%). Although all of the tutors are formally qualified, some officials interviewed as part of this assessment maintain that many of the staff are subject specialists who have been trained only as secondary school teachers rather than also as teacher tutors. In the opinion of some of these individuals, the program is influenced by the background of the staff and sometimes reflects the instructional content of a secondary school rather than a teacher training college.

The combined student/teacher ratio for the three schools is about 16:1. This ratio varies somewhat among the three schools; it is about 16:1 for Serowe, 18:1 for Lobatse, and 14:1 for Francistown. This variation is not meaningful as all ratios are adequate for instruction and supervision of teaching practice.

Facilities, as reflected in the number of students per classroom, are not equally distributed. The student/classroom ratio is highest at Lobatse (33:1), and lower at Francistown (28:1) and Serowe (22:1). As found with the student/teacher ratios, however, all of these appear adequate. The relatively low student/teacher ratios and the modest class sizes indicate that some additional capacity is available within the system.

Enrollments are given in Table 6.2 by the districts in which the students' parents normally reside and by sex. This table also shows the percent of students from each district, the percent of the total population living in each district in 1981, and the difference between these two percentages.

Many students are from the Central (39.0%) and the Southern (17.9%) discricts. These two districts also have large populations, 34.7 percent of the total for the Central District and 13.4 percent for the Southern District. The last column of Table 6.2 lists the district enrollments compared to population. This shows a slight over-representation for the Southern, Central, and North East districts and a minor under-representation for the Gaborone Township,

TABLE 6.2
PTTC 1983 ENROLLMENTS BY SEX AND DISTRICT,
COMPARED TO 1981 DISTRICT POPULATIONS

District	Sex				Percent of Enrollments	Percent of Population	Difference
	M	F	Total	% F			
North East	11	59	70	84.3	7.4	3.9	3.5
Central	37	333	370	90.0	39.0	34.7	4.3
Kgatleng	15	45	60	75.0	6.3	4.8	1.5
Kweneng	5	91	96	94.8	10.1	12.5	-2.4
Southern	27	143	170	84.1	17.9	13.4	4.5
South East	4	42	46	91.3	4.9	3.3	1.6
Kgalagadi	3	15	18	83.3	1.9	2.5	-0.6
Ghanzi	-	12	12	100.0	1.3	2.0	-0.7
North West	19	37	56	66.1	5.9	8.1	-2.2
Gaborone	-	5	5	100.0	0.5	6.4	-5.9
Francistown	-	15	15	100.0	1.6	3.2	-1.6
Lobatse	5	22	27	81.5	2.8	2.1	0.7
Selebi-Phikwe	-	3	3	100.0	0.3	3.0	-2.7
Total	126	822	948	86.7	99.9	99.9	0.0

Source: Education Statistics (1983), and 1981 Population and Housing Census, Central Statistics Office.

Kweneng District, and North West District. These variations are not regarded as reflecting any significant geographical disparity with regard to access.

The percent of female students for each district can be compared to the overall percent of 86.7. This shows a higher representation of female students in groups from the townships of Gaborone (100%), Francistown (100%), and Selebi-Phikwe (100%), and a lower representation in the groups from the Kgatleng (75.0%) and North West (66.1%) Districts.

The age distribution of the 948 current PTTC students is given by sex in Table 6.3. The modal age of 20 years is the same for males and females and there do not appear to be any meaningful differences between the sexes in the 19-21 year range. For students aged 25 years and over, this range includes 26 percent of the male students and 31 percent of the female students. A large number of the students, comprising 351 and 37 percent of the total, are in the 19-21 year range. This cluster of ages is composed of those students who entered teacher training after completion of the Junior Certificate course (Forms I-III). A second cluster of students, comprising 288 and 30 percent of the total, represents those who entered teacher training from the current teaching force after several years of teaching experience.

Staff of the PTTCs are heavily dominated by expatriate tutors. The distribution of the staff at the three PTTCs is given by

TABLE 6.3

PTTC ENROLLMENTS BY AGE, 1983

Age	Sex			Percent of Total
	M	F	M & F	
17	1	13	14	1.5
18	7	33	40	4.2
19	16	99	115	12.1
20	20	112	132	13.9
21	13	91	104	11.0
22	17	65	82	8.6
23	9	86	95	10.0
24	10	68	78	8.2
25 and over	33	255	288	30.4
Total	126	822	948	99.9

Source: Education Statistics (1983), Central Statistics Office.

nationality and terms of employment in Table 6.4. As shown in this table, 30 of the 59 staff (51%) are expatriate and predominantly British. Problems encountered with staffing are discussed in the 1982-1983 Annual Report of the Department of Primary and Teacher Training. This report indicates that part of the staffing problem is associated with Batswana staff being away for staff development, PEIP workshops, and special education. Particular difficulties are experienced in recruiting staff in the fields of science and mathematics.

Admission requirements for the PTTC include the Teacher Training College (TTC) Selection Examination and a brief screening interview conducted by staff of the schools. Beginning in January 1984 about 80 percent of the beginning students will be required to have the JC or COSC plus one year of experience as an unqualified teacher at a primary school. The number of JC and COSC beginning students has been lower in past years, and the one-year teaching requirement is being instituted for the first time. The remaining 20 percent of the beginning students, under new procedures, will be composed of current unqualified primary school teachers who have two or more years of teaching experience and who are recommended by their Head Teacher (principal) and Education Officer. Most of the teachers in this group will have completed only Standard 7.

The curriculum of the PTTCs is established by the Faculty of Education of the University of Botswana. The program consists of Foundation Studies (method) and Curriculum Studies (content). The

TABLE 6.4

PTTC TEACHERS, BY NATIONALITY AND TERMS OF EMPLOYMENT, 1983

Terms of Employment	Nationality						Total
	American	British	Canadian	Danish	Batswana	Other	
Mennonite	1						1
Contract	1	6					7
Permanent					29		29
Temporary		1					1
DANIDA				5			5
OSAS		8					8
CUSO			1				1
Others	—	—	1	—	—	6	7
Total	2	15	2	5	29	6	59

Source: Education Statistics (1983), Central Statistics Office.

Foundation Studies include Education, English, Setswana, Mathematics, and Science; the Curriculum Studies include English, Setswana, Mathematics, Science, Social Studies, Art and Craft, Music, Physical Education, Health Education, Scripture, and one or both of (a) Agriculture and/or Woodwork, and (b) Home Economics and/or Needlework.

In actual practice, according to some individuals interviewed, the teaching at the PTTCs is not closely coordinated with the syllabus specified by the University. The de facto curriculum is viewed by some educators as largely determined by individual staff members at the PTTCs, many of whom are trained exclusively as subject specialists rather than also as tutors. It is regarded as having considerable variation among the three colleges.

Examinations are used for selection into the PTTCs and for certification at the end of the two-year course. The MOE Department of Curriculum Development and Evaluation reports three recent studies of the relationship between scores on the TTC Selection Examination and scores two years later on the Primary Teacher's Certificate (PTC). Correlations between the two tests were .43 for Francistown, .36 for Lobatse, and .58 for Serowe.

These values represent a meaningful predictive validity for the TTC Selection Examination, but they also reflect significant opportunity for improving the selection process. The square of these values, for example, is an estimate of common variance between the two examinations. The estimated variance which is common to both tests is 18 percent for Francistown, 13 percent for Lobatse, and 34 percent for

Serowe. These data suggest that many characteristics of applicants associated with success on the PTC are not being measured by the TTC Selection Examination. Other information in the above reports, beyond the scope of this chapter, indicates that the predictive accuracy of the TTC Selection Examination varies for applicants with different levels of education and teaching experience.

The PTC examination, as currently graded, has no significant effect on the quality control of students graduating from the PTTCs. For all practical purposes, virtually no students fail this examination. Grades on the examination determine results of the certificate as follows: Pass with Distinction (70% or above), Pass with Credit (60-69%), Pass (50-59%), and Fail (49% or below). On the recommendation of the moderators, however, a student who has failed certain parts of the program can repeat the relevant courses and/or examinations three times. Although complete data are not readily available, indications are that practically all students who complete the two-year course become certified as qualified teachers. The distribution of grades on the certificate for three PTTCs combined, for all candidates who took the examination from 1977 to 1982, is as follows:

Grade	1977	1978	1979	1980	1981	1982
Pass with Distinction	5.7	3.6	3.6	5.4	7.0	5.6
Pass with Credit	67.0	63.8	78.4	67.5	69.8	73.9
Pass	17.0	12.9	6.6	9.9	8.8	11.2
Partial Pass	10.4	19.7	11.4	17.2	14.3	9.2
Fail	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.1	100.0	100.0	100.0	99.9	99.9

The facilities and equipment of the three PTTCs are generally adequate for the numbers of students presently enrolled. This judgment is based on a visit to the Lobatse PTTC by members of the assessment team and information provided by the Ministry of Education in "Report of the Professional Visits to Teacher Training Colleges: Francistown, Serowe, Lobatse - 21-29 March 1983." The report recommends improvements in some areas, such as student accommodations and kitchen facilities, but no serious deficiencies were cited.

6.1.3.2 Pre-Service: Diploma in Secondary Education

The Diploma in Secondary Education (DSE) is awarded by the Faculty of Education of the University of Botswana at the end of a three-year course. This program currently has 92 students enrolled in the first year, 76 in the second year, and 85 in the third year.

This is an important program because the secondary school teaching force now is heavily dependent on expatriate teachers. Of the 666 secondary school teachers reported in 1981 for all Government and Government-Aided Secondary Schools, 281 (42%) were expatriates. In that same year, 441 (66%) of these teachers are reported as having the diploma, 422 (64%) in conjunction with a degree and 19 (3%) with a higher degree.

The capacity of the above program to handle the proposed expansion of junior secondary education, as well as the capacity of

the PTTCs to provide for the projected growth at Standards 1 through 7, will be discussed in Section 6.1.4. The new training facilities at Tlokweng and Molepolole will also be discussed in that section.

6.1.3.3 In-service Programs

Activities of the in-service programs are described in the Annual Report of the MOE Department of Primary and Teacher Training. Although summary data on participation in the various programs are not given, the report provides a good overview of the broad range of in-service activities. The portion of that report abstracted here excludes description of the PEIP activities, which are covered in a separate section below.

Individual Education Officers conducted in-service programs in their respective districts. This was in addition to their inspection duties and consisted of courses that dealt with areas of need as determined by the participants. Such courses are generally held after school hours and on weekends.

Education Center Workshops were held in centers at Lobatse, Molepolole, Mochudi, Serowe, Mahalapye, and Maun. The major focus of these workshops has been at the primary level.

A third type of training is the In-service by Exception program, comprised of courses held in response to special requests from schools in rural areas which have limited access to in-service programs closer to population centers. In 1982-83 such courses were held at Kasane, Tsabong, and Ghanzi.

Special-interest in-service programs were also conducted around special themes. Two lower primary teachers from each of 20 schools, for example, attended a course on art, lesson planning, and record keeping. Other themes included Setswana and remedial language instruction.

The Curriculum Development Unit of the Department of Primary and Teacher Training conducted in-service workshops in selected schools to introduce the revised syllabi to Head Teachers and other teachers. Workshops of this type were conducted in Maun and Kasane.

The Teaching Aids Production Unit (TAPU) of the same department conducted ten courses to prepare teachers for making teaching aids and to instruct them in the operation and applications of duplicating equipment.

Estimates of the influence of the in-service programs on improving classroom teaching skills are not available, nor is a full report available on program participation. Some indication of the services actually delivered, however, is available from preliminary results of a survey of 756 teachers within a stratified national sample of 60 primary schools (the Primary Education Survey 1982). As part of this survey, questionnaires were completed by the 60 Head Teachers as well as the 756 teachers.

When asked "Have you or any of your teachers had in-service workshops this year?" the 60 Head Teachers gave the following responses to the six choices:

25% - Curriculum Development Unit

40% - TAPU

30% - Education Officer - at your school

25% - Education Officer - at Education Centre

27% - PEIP

10% - Other (what?).

These responses indicate a broad coverage for the programs with respect to the number of schools participating in workshops.

The degree of participation was examined by a question answered by 754 of the 756 teachers in the 60 schools: "How many days of workshops have you had this year from each of the following?" Responses were requested for the same six categories. The responses of all teachers are reported in Table 6.5, giving the number and percentages for the days of participation.

These data indicate a relatively low participation rate for the sample. A large majority of the teachers indicated that they had not participated in any workshops, and much of the reported participation was at the lower end of the 1-5 day range. Except for the PEIP workshops, fewer than 2 percent of the teachers reported participation of over five days. A clearer picture is given by the following further compression of the data in Table 6.5:

Days	CDU	TAPU	EO/S	EO/EC	PEIP	Other
0	87%	89%	74%	92%	76%	92%
1-5	11	10	23	7	12	7
6-10	1	0	2	1	8	1
11-30	1	0	0	0	4	0

TABLE 6.5

ESTIMATE OF IN-SERVICE PARTICIPATION, 1982

Days of Participation	Number						Percentage					
	Curriculum Development Unit	TAPU	Education Officer - at School	Education Officer - at Ed. Cent.	PEIP	Other	Curriculum Development Unit	TAPU	Education Officer - at School	Education Officer - at Ed. Cent.	PEIP	Other
0	657	673	561	693	572	694	86.9%	89.0%	74.2%	91.7%	75.7%	91.8%
1	37	19	67	27	5	20	4.9	2.5	8.9	3.6	0.7	2.6
2	8	3	49	8	14	5	1.1	0.4	6.5	1.1	1.9	0.7
3	7	4	30	10	14	8	0.9	0.5	4.0	1.3	1.9	1.1
4	11	13	15	2	40	0	1.5	1.7	2.0	0.3	5.3	0.0
5	23	39	13	8	20	20	3.0	5.2	1.7	1.1	2.4	2.6
6	1	1	5	0	30	6	0.1	0.1	0.7	0.0	4.0	0.8
7	1	2	7	1	2	0	0.1	0.3	0.9	0.1	0.3	0.0
8	1	0	0	1	9	0	0.1	0.0	0.0	0.1	1.2	0.0
9	0	0	0	2	5	0	0.0	0.0	0.0	0.3	0.7	0.0
10	4	0	4	0	11	1	0.5	0.0	0.5	0.0	1.5	0.1
11-15	3	0	2	2	22	1	0.4	0.0	0.3	0.3	2.9	0.1
16-20	1	0	0	0	3	1	0.1	0.0	0.0	0.0	0.4	0.1
21-25	0	0	1	0	4	0	0.0	0.0	0.1	0.0	0.5	0.0
26-30	0	0	0	0	3	0	0.0	0.0	0.0	0.0	0.4	0.0
Omits	2	2	2	2	2	0	0.3	0.3	0.3	0.3	0.3	0.0
Total	756	756	756	756	756	756	99.9	100.0	100.1	100.2	100.1	99.9

Source: Primary Education Survey - 1982, preliminary analysis, MOE

The above data reflect a possible shortcoming with regard to the full utilization of the in-service mechanisms now in place within the Ministry of Education. They also suggest the need for a more detailed system for reporting participation in these training activities.

6.1.3.4 Primary Education Improvement Project (PEIP)

PEIP is discussed separately because of its broad institutional aspects and because it has both pre-service and in-service components. This project addresses a high-priority need in the country, that of improving the quality of instruction at the primary school level by preparing better qualified teachers.

The pre-service aspect of PEIP has taken the first steps to establish a Department of Primary Education at the University of Botswana. This department began operations during the 1981-82 academic year, staffed by Ohio University under a contract funded by USAID. When this department is fully established, it will produce about 20 graduates annually in the Bachelor of Education program and 10 in the Diploma in Primary Education program. Several Batswana will have been trained in the United States to continue the program after the departure of the Ohio University staff. Attention should be given to the requirements for fully institutionalizing this capability, especially with regard to the level of training and teaching experience of the participants being prepared to replace the Ohio team.

The in-service component of PEIP is rather complex. It is based on training 30 workshop teams of three persons each, utilizing a

two-year cycle of 12 one-week training sessions. Ten workshops of the first cycle have taken place, with the last scheduled in January 1984. Each of these three-person workshop teams is scheduled to conduct a similar workshop at their own school and at one other school. This process is designed for delivery of in-service training to large numbers of trained and untrained teachers at the primary level.

This approach has a number of possible limitations as currently implemented, some conceptual and some managerial. At the conceptual level, it may be difficult to effectively train teachers in content and in procedures to transmit that content to others, all within a single workshop. This may be especially evident when participants (Head Teachers and senior teachers) do not have a broad academic background. Further, the basic training workshops last five days, but the workshops conducted by these three-person groups of trainers have been lasting for much shorter periods. Although complete data on the second-tier workshops are not readily available, reports indicate that many of these last only one or one and one-half days.

This project is still in its early stages, but at the managerial level attention is needed to ensure a sound institutional structure for effective continuation of the program after donor assistance terminates. Localization has only recently begun, with participation of Batswana staff in the conduct of the first-tier training workshops. A related managerial concern is the high turnover among the three-person groups of trainers.

Many of the above potential problems could be alleviated by implementing a strong formative evaluation component for this activity. Such an evaluation could provide useful and constructive feedback on institutionalization, management of the in-service component, turnover among the training teams, participation in second-tier workshops, and changes in teaching skills of primary teachers as a result of program participation.

6.1.4 Capacity

This section discusses the relationship between the demand for primary and secondary school teachers and the capacity of the current pre-service training facilities to meet that demand. A detailed analysis of the supply and demand is presented in Section 2.4.4. Incorporating the new facilities at Tlokweng and Molepolole into the supply estimates, the conclusion is that teacher supply and demand are in reasonable balance, except at the senior secondary level. The above analysis does not deal with the capacity of the in-service training program.

The primary pre-service training capacity can provide adequate numbers of trained teachers to maintain current student/teacher ratios for the next several years, as shown in Section 2.4.4., and can provide a surplus to replace teachers leaving the service as well as increase the proportion of qualified teachers. An average of 250 additional primary teachers will be needed each year for the period 1983 to 1989 to meet the projected annual increase in primary

students. This is exclusive of replacement needs due to departure from the profession. The three PTTIs together produce about 500 graduates per year and a fourth PTTI will add about 150 to that number beginning in 1988. The analysis in Section 2.4.4 indicates an average surplus of supply over demand of 293 teachers per year for the 1983-1989 period. Given the 1,894 untrained primary teachers now in service, the current training capacity theoretically would take 6.5 years to replace the unqualified teachers if this were desirable. With an adjustment for attrition it would take longer. Given that the quality of instruction at the primary level is in need of improvement, as discussed in Chapter 4.0 of this assessment, the choice is to increase the present pre-service training capacity on a short-term basis or to bolster the in-service training of under-qualified teachers.

The adequacy of the junior secondary pre-service training capacity will be affected by the sharp increase in the Form I enrollments that will start in 1984. The required number of junior secondary teachers will almost double from 1983 to 1989, as shown in Table 2.26 of Section 2.4.4, from 731 to 1,303, but this demand will not exceed the training capacity of the system with the opening of the new Teachers College at Molepolole. The University of Botswana's diploma course in education, which was designed to prepare junior secondary teachers, produces about 70 to 90 graduates per year. If the new Molepolole program replaces the UB diploma course, the annual output of junior secondary teachers will be about 150. The projected

number of junior secondary teachers required for the rest of the decade, and the increase from the previous year, is as follows:

	1984	1985	1986	1987	1988	1989
Required	897	1,044	1,176	1,249	1,096	1,303
Increase	166	147	132	73	-153	207

The sharp drop in 1988 reflects government's plan to change Form III from junior secondary to senior secondary starting that year.

It should be noted that to regard the present and projected training capacity at this level as adequate assumes a continued heavy dependence on expatriate teachers, especially in the areas of mathematics, science, and English. The delayed localization of the junior secondary teaching force should be weighed carefully against the costs of increasing the pre-service training capacity at this level.

Senior secondary pre-service training capacity is not sufficient to meet projected demands, according to the data presented in Table 2.26 and the analysis in Section 2.4.4. The 20 annual graduates from the degree program at the University of Botswana will not meet the demand even in the initial part of the proposed expansion period. There are about 50 students annually who receive a B.A. with a Concurrent Certificate in Education (CEE) and some of these also enter secondary teaching, at least during their period of bonding. The projected number of senior secondary teachers required for the rest of the decade, and the increase from the previous year, is as follows:

	1984	1985	1986	1987	1988	1989
Required	178	237	296	355	680	770
Increase	24	59	59	59	325	90

The dramatic increase in 1988 is caused by the planned shift of Form III from junior secondary to senior secondary. There will be a continued dependence on expatriate teachers at this level, and on the use of teachers without formal teaching qualifications. Considerable planning is needed to ensure quality of instruction at the senior secondary level. If donors are requested to provide teachers, for example, careful specifications should be prepared with regard to the desired educational backgrounds and experience of these individuals. This should be done well in advance of needs to allow adequate time for internal donor planning, recruitment, and selection.

The management and utilization of the in-service training program is considered by some to be a significant issue within the Ministry of Education. The 1,894 (30%) untrained teachers at the primary level, according to several sources interviewed as part of this assessment, represent an under-estimate of the level of in-service training needs in the primary teaching service. According to some educators, many of the remaining 70 percent of teachers classified as qualified are in fact under-trained in terms of teaching effectiveness.

A wide range of in-service training services for teacher improvement is potentially available through the Ministry of Education. There is some evidence, however, that many of these services are not now widely available. Given the high potential for short-term impact on instructional quality, as compared with investments in pre-service programs, improvement of the in-service

program offers an excellent opportunity to enhance various skills of teachers generally and of unqualified and under-qualified teachers particularly.

6.2 ANALYSIS

Several needs which have been identified on the basis of the above information are presented in this section. These needs then form the basis of a discussion of issues in the five thematic areas used throughout this assessment.

6.2.1 Needs

Major needs presented below are for an improvement of the coordinating mechanisms for teacher education within the context of a more fully integrated plan, an increased relevance for curricula of the programs, and an enhanced quality of instruction.

Administration and Supervision. The system for teacher education has numerous elements, directed toward multiple goals. In some cases these goals are in competition for scarce resources. At the primary level, for example, expansion of the system capacity will require more teachers while improvement of instructional quality will require better teachers. At the secondary level demands for expansion compete with demands for localization of the teaching force. Similar competing demands throughout the system of teacher education, for scarce financial as well as human resources, can best be resolved by integrating the planning approach more fully. This is a prominent

need; such a plan should incorporate projected costs for program elements as balanced against reasonable expectations for internal income as well as donor support.

A related need is for a review of the present coordinating mechanisms and organizational structure in the light of the integrated plan. Are these mechanisms and the structure adequate, for example, given the changing requirements over the past years and the projected long-term needs?

Program Review. Are the current pre-service and in-service teacher education programs fully coordinated? There appears to be a need for closer coordination among the programs, and for better coordination with teaching force requirements. In the training of secondary teachers, for example, why are there shortages of science and mathematics teachers? Why might the DSE program at the University of Botswana be discontinued after the program at Molepolole begins, given the current and projected heavy dependence on expatriate teachers at that level? (It is reported that this decision is being reconsidered.)

A need to improve and activate the capacity of the Ministry of Education to monitor and evaluate the many current programs is apparent. The report of in-service activities by the Department of Primary and Teacher Training, for example, provides no overview of the number of participants for the various courses and workshops; nor is there an estimate of program effectiveness. As an example from pre-service, the PTC Examination does not serve as an effective

quality control mechanism over instructional effectiveness at the PTTCs because virtually all students eventually pass the examination.

Quality of Instruction. There is an apparent need to improve the quality of instruction for both pre-service and in-service programs. Tutors at the pre-service level should be well prepared to teach the foundations of pedagogy as well as subject area content, with less dependence on staff who have been trained solely as subject specialists. There is also a need to provide better pre-service training in science, mathematics, and English. The selection procedures for the PTTCs could be improved and, while not directly improving the instructional capacity of the colleges, this would enhance the capability of the students to benefit from the existing program.

6.2.2 Plans

The significant plans for teacher education include the new facilities at Tlokweng and Molepolole for pre-service teacher education, and the PEIP project for institutional support in both pre-service and in-service training.

These plans all have been discussed in earlier sections of this chapter. The new PTTC at Tlokweng will open in January 1985 and will graduate its first class in December 1986, adding 150 annually to the primary-level pre-service training capability. The new Teachers College at Molepolole also will open in January 1985, and three years later will replace or supplement the DSE training capacity of the

University of Botswana with 150 graduates per year. The PEIP project will provide basic assistance for pre-service and in-service training of PTTC staff, Head Teachers, and senior teachers. If successfully institutionalized, this project has the potential for delivering in-service training to large numbers of unqualified and under-qualified primary teachers on a continuing basis.

6.2.3 Constraints

Several constraints to improvements of teacher education have been referred to throughout this chapter. Three principal constraints concern present organizational structure and staff, instructional staff for pre-service and in-service programs, and costs for an expanded in-service program.

The present organizational structure and staff evolved to serve the needs of a smaller and less complex system. It is now heavily dependent on expatriate staff and there does not appear to be a fully coordinated and tightly focused program of training for localization in the immediate future.

The instructional staff of the pre-service programs, and of the in-service portion of the PEIP program, is also highly dependent on expatriate staff. In addition to the need to localize pre-service tutors, many of these positions are filled by staff who have been trained as secondary school teachers. The localization and institutionalization aspects of the PEIP in-service component raise several questions about continued program operations.

A major opportunity for improving instructional quality at the primary level is through expanding the more effective in-service activities. A review of current programs could estimate effectiveness initially by means of immediate criteria such as participation rates, end-of-course competencies, and studies of instructional processes within the courses. Ultimate effectiveness could be determined by measures of classroom achievement. Given such a review of present programs to select the most effective ones for expansion, costs may constrain this expansion. These costs are mainly in three categories. The first category is recurrent costs for the program, including direct costs for instruction, travel, and food and lodging of participants. The second concerns release time for teachers if any program extends beyond the duration of normal vacations. The third relates to increases in teacher salaries associated with any credential-based program of upgrading, an incremental recurrent cost often overlooked.

6.2.4 Issues

Attention is now given to several issues based on the above presentation of status, needs, plans, and constraints. These are discussed with reference to the five thematic areas used as a framework for this assessment.

6.2.4.1 External Efficiency

The two issues related to external efficiency concern the

relevance of the curriculum at the PTTCs and certification aspects of an expanded in-service program at the primary level. These are discussed separately.

Given the significant opportunities for raising the quality of instruction at the primary level, as discussed fully in Chapter 4.0 of this assessment, improving the present curriculum of the PTTCs may be one way to prepare more effective teachers. Although some aspects of teaching effectiveness may be associated with non-school factors or with shortcomings in the internal efficiency of the PTTCs, other aspects are probably related to the curriculum content. The de facto curriculum, as discussed earlier in this chapter, is strongly influenced by the preparation of the tutors, many of whom are trained as subject specialists rather than as instructors of teachers.

The need for an expanded in-service program, to improve the quality of instruction in the short term, raises an issue concerning program design. The design aspect focuses on the need to provide a meaningful and practical certification as part of the upgrading process. For teachers to be sufficiently motivated to begin and successfully complete an in-service program, the goal of certification and its associated salary increase must be perceived as meaningful and attainable within a reasonable time. A consultant's recent recommendation for a 10-year certification program, for example, was rejected on the basis of the unpracticality of such a lengthy course. Also related to program design is the need to identify and package an effective program for improving skills at the classroom level, matched

to the entry-level skills of the untrained and under-trained teachers now in the teaching force. Given the demands of the design considerations, considerable initial planning will be necessary to develop an effective in-service program.

6.2.4.2 Internal Efficiency

Three issues concern internal operations of the teacher education system: internal design of the curriculum at the PTTCs, staff training for tutors, and the system of examinations at the PTTCs. These issues focus on the extent to which system operations make the best use of resources to operate cost-effectively.

The PTTC curriculum does not appear to be common to the three colleges, and perhaps could benefit from a fuller integration of content and methodology. The individual syllabi vary in the detail provided for tutors of the various subjects, and their effectiveness for instructional guidance would, in some cases, be improved by a revision providing an expanded scope and sequence of topics.

Training in pedagogy for the tutors at the PTTCs would better prepare them for their duties. Given the limited in-country training capacity for preparing tutors, this constitutes a significant issue. Increased reliance on expatriate staff is a possible short-term solution, but the long-term need for in-country training capacity should be addressed.

The system of selection and certification examinations at the PTTCs offers an inexpensive opportunity to improve the quality of

teachers completing the programs. While not directly related to internal operations at the PTTCs, such improvements nevertheless can raise the quality of the graduates. At the selection point, as discussed in this chapter, the quality of the beginning students could be improved. At the certification (exit) point, a closer coordination of the examination with the relevant syllabis, plus consistent application of meaningful standards, could improve the quality of new teachers.

6.2.4.3 Access and Equity

There are no substantive issues with respect to access to the PTTCs, based either on sex or on district of origin. There are more females (87%) than males enrolled at the three PTTCs, and the one at Serowe is exclusively for females. Female enrollments are 82 percent at Lobatse and 77 percent at Francistown. The fact that the Serowe PTTC is open only to females does represent some reduction in the overall access for males. There are no indications, however, that this disparity is associated with any systematic exclusion or discouragement of male applicants.

For the DSE course at the University of Botswana, the estimated percentages of female graduates of the 1982 through 1984 classes, based on 1981 enrollments, are 34 percent, 40 percent, and 21 percent, respectively. There are no indications that female students are denied access to this program.

Access based on district of origin is not a major issue because the three PTTCs have boarding facilities. Table 6.2 data indicate higher representation from some districts and lower respresentation from others, but these variations are not regarded as reflecting any systematic restriction of access.

6.2.4.4 Administration and Supervision

A significant issue concerns the need for a closer and more integrated approach to managing the complex elements and constraints related to teacher education. This is especially critical given the proposed expansion of the system of basic education to include nine years (i.e., Standards 1 through 7 plus two years of junior secondary). This issue has two aspects, one related to the need for a fully integrated plan and the other to an organizational structure and trained staff suited to implementing the plan.

Tradeoffs between system capacity and quality of instruction should be specified clearly so that policy decisions can be made on the basis of this information. Related to this is the issue of localization of managerial staff within the Ministry of Education as well as within the teaching staffs of the teacher training institutions.

6.2.4.5 Costs and Financing

A major issue related to costs and financing concerns the training costs for replacing the large number of untrained teachers in

the primary teaching force in the long run, and for upgrading the teaching skills of the many untrained and under-trained teachers in the short run. A subsidiary issue relates to the staff training costs for localization of the tutors at the teacher training institutions, and the current lack of a sufficient in-country training capacity to meet this need. The Primary Education Improvement Project is in the process of building this capacity for training primary tutors, however.

6.2.5 Conclusions

The following six conclusions with regard to teacher education are based on the information presented and reviewed in the above sections.

Conclusion 1. There is a need to review the capabilities of the existing mechanisms, organizational structure, and staff to manage and coordinate the full range of activities for teacher education.

Conclusion 2. Current pre-service and in-service teacher education programs should be reviewed with a view to strengthening the more effective ones to support the proposed expansion of basic education.

Conclusion 3. The many untrained and under-trained teachers in the primary schools constitute a significant barrier to improving the quality of instruction at the primary level. Present in-service programs do not appear to have extensive enough coverage to address this shortcoming adequately.

Conclusion 4. Current capacity to train primary and secondary tutors, and present activities within the in-service program, is not sufficient to localize teacher training staff within the next five years. The PEIP program may meet this need at the primary level if implemented successfully, but there will still be a shortage at the secondary level.

Conclusion 5. The quality of instruction at the primary level can be increased most effectively in the short term by an improved and expanded program of in-service training associated with an appropriate upgrading plan.

Conclusion 6. The quality of instruction at the primary and secondary levels can be improved most effectively in the long term by an enhanced capability for pre-service training.

6.3 RECOMMENDATIONS

The following six recommendations for teacher education are in priority order according to their thematic emphases on administration and supervision, external efficiency, and internal efficiency.

6.3.1 First Priority - Administration and Supervision: Recommendations 1-3

These first three recommendations concern the overall focus and coordination of activities for teacher education. The first relates to an improved plan, the second to coordinating mechanisms, and the third to administrative structure and staff.

Recommendation 1. Develop a fully integrated and costed plan for teacher education, with a short-term emphasis on in-service training and a long-term emphasis on pre-service training.

Virtually all of the structural components for such a plan are in place. Preparation of this plan should emphasize the more effective coordination of these components to meet the teacher education needs for the planned expansion of the system as well as improve the instructional quality of the teacher training programs. Localization of the teacher training staff should receive particular attention in the plan.

Recommendation 2. Review existing teacher education coordinating mechanisms with respect to the objectives identified in the plan.

Existing mechanisms for coordination have evolved in response to earlier needs, and should be reviewed in light of projected requirements for teacher education.

Recommendation 3. Review existing organizational structure and staff with respect to objectives identified in the plan.

This review should emphasize a study of the organizational structure amd staff training requirements, in the light of functional needs.

6.3.2 Second Priority - External Efficiency: Recommendation 4.

This recommendation concerns the relevance of program content with regard to classroom skills required of trained teachers.

Recommendation 4. Review curricula of current pre-service and in-service training programs and revise them as required.

The review should begin by specifying teaching skills and subject knowledge requirements for effective teaching at the primary and secondary levels. If revisions are needed, when these requirements are compared with existing pre-service curricula and in-service programs, the curricula of the training programs should be revised to accommodate the educational levels of the expected trainees as well as the capabilities of available training staff.

6.3.3 Third Priority - Internal Efficiency: Recommendations 5-6

The final two recommendations will improve the quality of instruction at the primary and secondary schools, by enhancing the instruction and capacity of the teacher training programs.

Recommendation 5. Review current in-service training programs and expand those found to be effective and consistent with the plan.

By increasing the emphasis on the most effective and relevant in-service programs, existing resources will be used more efficiently. This review should begin with estimates of participation in the various programs, and eventually should include measures of changes in instructional effectiveness as reflected in student achievement. Improvements in the pre-service programs should recognize the need for motivation of participants through some form of upgrading associated with increased salaries, but any award of

credentials should be based on demonstrated end-of-program competencies rather than simply course attendance.

Recommendation 6. Review existing pre-service programs with respect to curricula, staffing, facilities, and selection and certification examinations, and revise as required in light of identified plan objectives.

This review should include a full study of the pre-service curricula at the training colleges, current and projected staffing requirement, and the examinations system.

7.0 HIGHER EDUCATION

Higher education is provided by the University of Botswana (UB), the Botswana Agricultural College (BAC), and three Primary Teacher Training Colleges. It also will include the Secondary Teacher Training College to be opened in Molepolole. In addition, about 200 students study abroad each year, primarily in subject areas not provided at UB or BAC. This chapter discusses UB, BAC, and the foreign study opportunities available to Batswana students. Teacher education is discussed in Chapter 6.0.

For a Motswana student, a university education is a rare opportunity. Only about five of every hundred Standard 7 leavers undertake higher education. Most of these will attend the University of Botswana. Those who complete a university education are virtually assured employment opportunities at high levels of business and government.

The University of Botswana is one of Africa's two newest universities, having received full University standing in 1982. However, its lineage extends from 1963, when the University of Botswana, Lesotho, and Swaziland was established. This history provides UB with tradition and experience, while, as a new institution, it has opportunity to re-examine its institutional mission, policies, and procedures. BAC has a briefer history but also

is characterized by rapid expansion. The growth of these two institutions has emphasized the need for greater inter-institutional coordination and prompted questions about the allocation of students between domestic and foreign study opportunities.

The principal needs identified in this chapter concern the adequacy of supply relative to the demand for university graduates in the workforce, the efficiency of student flow through the higher education system (particularly in science and mathematics), support mechanisms for assisting entering students who lack necessary preparation, and the formulation of policies and procedures to guide coordination across higher educational institutions and opportunities.

7.1 STATUS

After describing the historical development of higher education in Botswana, this section reviews national goals and strategies, structure, and current programs. Five specific areas are described: enrollment, academic staff, curriculum, facilities, and cost and donor support. The section concludes with a description of BAC, a summary of foreign study, and a discussion of the long-term plans for UB.

7.1.1 Historical Setting

In 1963 the University College of Roma in Basutoland (now Lesotho) became the University of Basutoland, Bechuanaland, and Swaziland. When these three territories received independence, the name was changed to the University of Botswana, Lesotho, and Swaziland

(1) The University will seek to respond to the nation's development needs. The Plan emphasizes that government should have the final say in defining those needs. They are mainly, but not exclusively, manpower needs with the most serious shortages relating to occupations based on mathematics, science, and technical subjects.

(2) The early 1980s will be a period of consolidation and less rapid growth than in the past. This is intended to help improve student performance standards and to enable a greater proportion of students to enter diploma level courses.

(3) Botswana will seek a greater degree of self-sufficiency in university education. This reflects the increased cost of overseas training and difficulty of securing positions in foreign universities. At the same time, government recognizes the continued need for foreign study since some specialized programs would not be cost effective to operate in-country.

Within these general guidelines, government identified a series of specific plans for the Gaborone campus:

- New degree-level programs in business administration and commerce, and demography, will be introduced.
- Diploma and certificate programs in librarianship and adult education will be introduced in 1984.
- A number of related programs in the Faculty of Education for teacher training of college tutors, primary school teachers, and Ministry of Education inspectors will be introduced.
- Entry into the Pre-Entry Science Program will be expanded to increase the number of Form V leavers qualified for science and mathematics.
- The present first degree plus concurrent certificate in education will be replaced by a one year-postgraduate certificate in education to be taken after completion of a four-year degree program.
- The Diploma in Secondary Education will be phased out beginning in 1984 when it is anticipated that the college for training teachers for junior secondary schools (Molepolole) will accept its first students.

Additionally, government provides the following guidelines for intake into particular faculties and courses:

- Entrants into the Faculty of Science will be increased as more qualified candidates become available.
- Steps will be taken to encourage more suitably qualified students to become teachers of mathematics and science.
- Intakes into degree courses in the Faculty of Humanities and the Faculty of Economics and Social Sciences will be held at levels of 50 and 65 Batswana students a year, respectively.

7.1.3 Structure

A university education can be attained in three ways: by attending the University of Botswana (UB) or the Botswana Agricultural College (BAC), or by university study abroad. In 1983-84, a total of 1,652 students were enrolled in one of these three options.

7.1.3.1 University of Botswana (UB)

The University of Botswana, located in Gaborone, is composed of four Faculties--Education, Humanities, Science, and Economics and Social Sciences. Academic programs within the Faculties are offered at the certificate, diploma, and degree levels. In addition to these four Faculties, the Institute for Adult Education (IAE) and the National Institute for Development and Cultural Research (NIR) are also located within the University.

The University is governed by the University Council, whose membership includes leading figures nationally and from the University community. The Council has wide powers to make statutes, lay down

policy, approve programs, and determine governance procedures for the University. Academic matters are handled by the University Senate, composed of senior members of the academic staff and student representatives. The Senate has responsibility for the general control and direction of teaching and research activities, examinations, and the conferment of degrees.

The chief academic and administrative officer of the University is the Vice Chancellor, who is chairman of the Senate and is responsible to the University Council. He is assisted by a Deputy Vice Chancellor. The Dean of each Faculty, the Directors of the IAE and the NIR, and the senior administrative staff all are responsible directly to the Vice Chancellor.

The student body of the University is organized through the Students' Representative Council, which promotes student welfare. Non-academic staff are represented by the Non-Academic Staff Association, registered as a trade union. Academic staff are represented by the Academic Staff Association.

The academic year is divided into two semesters, the first running from late August to early December, and the second from early January to mid-May. A full academic load for a first-year student typically would be comprised of four courses, each consisting of at least three hours of lectures per week, plus laboratories when appropriate. Student load varies considerably, however, by year and course of study.

(UBLS). While the main campus was in Lesotho, each country had a University College within its borders.

Lesotho withdrew from this confederation in 1975, leaving the University of Botswana and Swaziland (UBS). The withdrawal precipitated a financial crisis and prompted a national fund-raising campaign, sometimes referred to as "One Man, One Beast," in which citizens contributed cattle, crops, and cash. Nearly one million pula was raised through these local contributions. The campaign helped extend and enlarge the campus and also served to engender a widespread sense of pride and ownership toward the University among many citizens.

At the time Lesotho withdrew, it was expected that the two remaining campuses would eventually become autonomous, but it also was intended that cooperation and exchange of students between Botswana and Swaziland would continue. In 1982 the formal separation occurred, making the University of Botswana (UB) one of the newest universities in Africa.

7.1.2 National Goals and Strategies

In the National Development Plan V, 1979-1985, government identifies two goals that particularly relate to university education in Botswana. First, university programs should closely link with community needs and, second, education at all levels should coordinate and cooperate with national manpower requirements. Government offers three guidelines for University development through the 1980s:

The Institute for Adult Education (IAE) is primarily concerned with extending the University's resources beyond the campus and with adult education. It has two main functions:

- to support the development of adult education services through training, research, and experimentation; and
- to help make the resources of the University more widely known and available to the general public.

In 1983-84, the IAE is being divided into an academic Program in Adult Education, which will be located in the Education Faculty, and an Extension Service.

The National Institute of Research (NIR) was established in 1975 within the University. Its main purpose is to promote, coordinate, and conduct research that will ultimately benefit large and less privileged parts of the population, as well as the country as a whole. The Institute is divided into four sections: research, documentation, library, and administration/printing. Major activities include research, seminars, training, publications, and other special services.

The University of Botswana Calendar (1983-84) describes priority activities for the NIR in each of these areas. The research activities focus on questions of socio-economic, environmental, and cultural development. However, priority activities are those which contain a training component for University students and are related to the training activities of the University Faculties. There is also an effort to focus on research that will improve the living conditions of less privileged groups and areas within the country. The

documentation library collects and analyzes materials related to development issues and makes them available through the NIR library. The library, which focuses on Botswana and Southern Africa development literature, has approximately 3,500 titles. The NIR publishes four main series of publications:

- Working Papers (44 titles by mid-1983)
- Working Bibliographies (12 titles)
- Research Notes (8 titles)
- Seminar Proceedings (4 titles)

7.1.3.2 Botswana Agricultural College (BAC)

BAC trains students in agriculture primarily to serve as agricultural extension demonstrators (AEDs), and in animal health primarily to serve as veterinary assistants (VAs). Located outside of Gaborone, BAC offers both Certificate and Diploma programs, described in Section 7.1.4.6. Upon completion, the AEDs are assigned to the Department of Agricultural Field Services and the VAs are assigned to the Department of Veterinary Health, both within the Ministry of Agriculture. (A more complete discussion of their subsequent work is presented in Chapter 9.0 on Nonformal Education.) Students enter BAC after completing junior secondary school (Form III). The BAC curriculum stresses practical training; students in both programs spend about half of their time in the field and the other half in classroom study.

7.1.3.3 Students in Foreign Universities

While capacity for university study in Botswana is growing, the size of UB necessarily limits its range of curricular offerings. Consequently, Botswana will continue to rely on colleges and universities outside Botswana to provide education and training in specialty areas. For example, while doctors and veterinarians are essential for continued national development, the numbers needed do not justify the establishment of local programs.

Responsibility for foreign study is divided between the Directorate of Personnel and the Ministry of Education. The Directorate of Personnel deals primarily with short-term in-service training of civil servants. The Bursaries Committee, within the MOE, handles the allocation of government bursaries (i.e., scholarships) mostly for the long-term study of those not already in government service.

7.1.4 Programs

This discussion focuses first on the University of Botswana, then turns to Botswana Agricultural College and foreign study opportunities.

7.1.4.1 Students

Between 1970 and 1980, higher education enrollments climbed from 204 to 1,458 students, an increase of 715 percent. Table 7.1 summarizes enrollments by year (1970-1981), combining both domestic and foreign study. Across the major areas of study, the sharpest

TABLE 7.1

HIGHER EDUCATION ENROLLMENTS BY FIELD, 1970-1981

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Degrees												
Education	27	45	54	65	80	88	89	107	30	54	54	62
Business & Admin.	12	17	17	7	9	13	5	35	34	61	71	139
Econ. & Soc. Sciences	13	17	13	33	50	98	130	125	164	193	197	183
Humanities	10	7	3	1	1	1	1	1	5	130	152	110
Agriculture	16	13	12	12	11	11	11	13	14	56	44	4
Science	13	16	19	15	6	3	4	9	19	53	66	32
General	20	29	12	31	55	61	52	39	232	115	131	128
Law	19	22	17	21	21	20	16	21	20	43	27	10
Medicine	10	10	15	11	14	8	8	9	11	23	20	7
Nursing	0	0	0	0	0	0	0	0	1	8	6	2
Other	0	0	5	4	4	0	2	1	0	3	1	2
Diploma & Certif.												
Education	5	5	0	0	18	42	72	86	151	172	192	197
Business & Admin.	5	6	8	6	7	6	7	6	5	215	153	128
Econ. & Soc. Sciences	1	1	0	0	0	0	1	2	0	9	4	0
Agriculture	26	31	23	28	25	40	52	52	72	149	87	24
Engineering 1	0	0	3	3	3	2	8	44	72	119	54	21
Engineering 2	8	14	36	37	42	31	35	2	47	60	58	16
Science	5	4	12	29	29	7	17	9	15	40	44	21
Medicine	7	8	2	1	0	4	6	23	2	5	0	0
Nursing	3	4	2	0	0	2	0	12	0	0	0	0
Other 1	2	2	6	7	7	9	20	22	32	67	77	43
Other 2	2	3	2	2	2	4	4	2	2	6	20	23
Tot. Dip. & Certif.	64	78	94	113	133	147	222	260	398	842	689	473
Total Degrees	140	176	167	200	251	303	318	360	530	739	769	679
Total Third Level	204	254	261	313	384	450	540	620	928	1,581	1,458	1,152

Sources: Office of Manpower Development Planning
Ministry of Finance and Development Planning

Note: This table does not include primary teacher training.

increases in enrollment have been in the Faculty of Economics and Social Sciences and in the Faculty of Humanities, the lowest increases in Science and Engineering. This pattern does not optimumly support government's development plan, which gives priority to study in mathematics and science as more directly relevant to national development.

The enrollments in UB from 1979-80 to 1983-84 are reported in Table 7.2 for degree, diploma, and certificate programs by Faculty. These data help demonstrate the growth of enrollment by program and how programs have been phased in (e.g., Bachelor of Commerce) or out (e.g., Bachelor of Education). By tracking each cohort group through its programs, the table also provides information on progression rates, which are discussed in greater detail later.

Two additional points of interest within the enrollment data are enrollments by gender and by nationality. The 1981-82 and 1982-83 data for both are summarized in Table 7.3. Women account for 40 percent of the total enrollment each year and this proportion is constant for both Batswana and non-Batswana students. There are, however, notable differences by Faculty in the percent of women enrolled. In 1982-83, enrollment in the Faculty of Science was 21 percent female while that in the Faculty of Education was 48 percent female.

Botswana citizens account for 83 percent of the UB students with the remainder coming primarily from other Southern African countries, predominantly Zimbabwe, the Republic of South Africa, and Swaziland.

TABLE 7.2

UNIVERSITY OF BOTSWANA STUDENT ENROLLMENT, BY YEAR AND PROGRAM
1979-80/1983-84

	1979-80					1980-81					1981-82					1982-83					1983-84				
	1	2	3	4	Total	1	2	3	4	Total	1	2	3	4	Total	1	2	3	4	Total	1	2	3	4	Total
Degree Programs																									
Education																									
B.Ed.	-	18	13	9	40	-	-	20	13	33	-	-	-	20	20	-	-	-	-	-	-	-	-	-	-
B.Ed. (Nursing)	-	-	12	6	18	-	10	12	6	28	-	14	9	11	34	-	9	13	10	32	-	15	8	11	34
B.Ed. (Primary)	-	-	-	-	-	-	-	-	-	-	20	-	-	-	20	21	20	-	-	41	21	21	19	-	61
Humanities																									
B.A.	40	53	22	32	147	59	42	48	28	177	57	62	30	46	195	59	53	55	29	196	70	54	51	53	228
FESS																									
B.A.	62	72	76	56	266	62	58	61	59	240	45	58	51	58	212	46	44	54	47	191	71	38	42	66	217
B.Comm.	-	-	-	-	-	30	-	-	-	30	40	30	-	-	70	40	33	25	-	98	35	30	45	18	128*
L.L.B.	-	-	-	-	-	-	-	-	-	-	20	14	-	-	34	17	20	-	-	37	15	16	-	-	31
Science																									
B.Sc.	56	35	16	8	115	81	55	10	38	184	60	54	25	10	149	69	52	23	20	164	106	34	25	13	178
Diploma Programs																									
Education																									
Dip.Sec.Educ)Hum	36	46	34	-	116	45	34	48	-	127	56	50	30	-	136	53	51	47	-	151	44	50	51	-	145
)Sc.	20	10	11	-	43*	20	14	9	-	43	30	14	14	-	58	31	30	15	-	76	48	26	34	-	108
Dip.Adult Educ.	8	-	-	-	8	-	9	-	-	9	12	-	-	-	12	-	10	-	-	10	12	-	-	-	12
Dip.Educ.(Primary)	-	-	-	-	-	-	-	-	-	-	11	-	-	-	11	9	10	-	-	19	10	9	-	-	19
Humanities																									
Dip.Library	8	-	-	-	8	9	4	-	-	13	20	17	-	-	37	13	17	-	-	30	25	12	-	-	37
FESS																									
Dip.in Stats.	6	5	-	-	11	9	3	-	-	12	8	7	-	-	15	9	12	-	-	21	10	5	-	-	15
Certificate Programs																									
Humanities																									
Cert. in Library	11	-	-	-	11	16	-	-	-	16	14	-	-	-	14	15	-	-	-	15					
FESS																									
Cert. in Stats.	15	-	-	-	15	12	-	-	-	12	14	-	-	-	14	14	-	-	-	14					

Source: Registrar's Office, University of Botswana

* Figures need checking

TABLE 7.3

UNIVERSITY OF BOTSWANA STUDENT ENROLLMENT, BY GENDER AND NATIONALITY OF STUDENT, (1981-82 and 1982-83)

	1982-83 Economics and Social Sciences			1982-83 Humanities			1982-83 Education			1982-83 Science			Grand Total 1982-83			Grand Total-Previous Year, 1981-82		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Botswana	195	121	316	107	91	198	170	146	316	111	34	145	583	392	975	454	315	769
Swaziland	-	-	-	2	6	8	-	-	-	-	-	-	2	6	8	26	26	52
Lesotho	1	1	2	6	2	8	-	4	4	-	-	-	7	7	14	2	7	9
Rep. S. Africa	15	6	21	6	-	6	2	1	3	6	-	6	29	7	36	23	12	35
Zimbawe	12	4	16	8	2	10	-	6	6	11	-	11	31	12	43	45	12	57
Uganda	-	-	-	1	0	1	-	-	-	2	-	2	3	-	3	-	1	1
Malawi	5	-	5	4	-	4	-	-	-	-	-	-	9	-	9	-	-	-
Tanzania	-	-	-	1	-	1	-	-	-	-	-	-	1	-	1	-	1	1
Ghana	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
Nigeria	-	-	-	2	-	2	-	-	-	-	-	-	2	-	2	-	-	-
India	-	-	-	1	-	1	-	-	-	-	-	-	1	-	1	-	-	-
Namibia	-	-	-	-	1	1	-	-	-	-	-	-	-	1	1	-	-	-
Jordan	-	-	-	-	1	1	-	-	-	-	-	-	-	1	1	-	-	-
Other																1	2	3
Total	229	132	361	138	103	241	172	157	329	130	34	164	669	426	1095	551	376	927
Females as a percent of total		37%			43%			48%			21%			39%			41%	

Source: Registrar's Office, University of Botswana

Between 1981-82 and 1982-83 there was a decline in foreign students as a percent of total enrollment, from 17 percent to 11 percent. This corresponds to the separation of UB from UBS and to Zimbabwe's independence and suggests a longer term trend toward an estimated 8 to 10 percent foreign enrollment.

Opportunities for part-time student enrollment are generally limited to three programs--the certificate and diploma programs in Accountancy and Business Studies and the Diploma in Theology by Extension. Part-time enrollments are reported in Table 7.4.

7.1.4.2 Academic Staff

The increase in faculty size from 1976-77 to 1983-84 is summarized in Table 7.5. Rapid growth in faculty occurred in 1981-82 around the time that UB split from UBS and the facilities and academic programs in Gaborone were expanded. Table 7.6 presents the more specific allocation of academic staff by Faculty and program for the last two years, and how that compares to the projections made in the National Development Plan V, 1979-1985. In all but the Faculty of Humanities, the number of academic staff exceeds the original projections. Reflecting national priorities for graduates in science and mathematics, the combined staff of the Faculty of Science and the Pre-Entry Science Program (45 staff) represents the largest concentration of faculty.

One important objective guiding the staff increases is localization. Between 1979 and 1981, the percent of Batswana citizens

TABLE 7.4

PART-TIME STUDENT ENROLLMENTS,
UNIVERSITY OF BOTSWANA
1980-81 and 1982-83

Program	1980-81	1982-83
Certificate in Accountancy and Business Studies	85	174
Diploma in Accountancy and Business Studies	30	27
Diploma in Theology by Extension	—	21
Total	115	222

Source: Central Statistics Bureau and University of Botswana

TABLE 7.5

ENROLLMENT AND STAFFING AT UNIVERSITY OF BOTSWANA
1976-1984

Group	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84
Number of teachers	62	70	85	90	94	118	140	143
Number of students	533	622	762	860	928	1,034	1,095	1,232
Student/teacher ratio	8.6:1	8.9:1	9.0:1	9.6:1	9.9:1	8.8:1	7.8:1	8.6:1

TABLE 7.6

ALLOCATION OF ACADEMIC STAFF, BY FACULTY AND PROGRAM
UNIVERSITY OF BOTSWANA,
1982-83 and 1983-84

Expenditure	POSTS			
	1981-82	1982-83	1983-84*	NDP
ACADEMIC TEACHING				
Faculty of Education				
Faculty Office	-	-	-	-
Languages & Social Science	6	5	5	6
Science Education	5	6	6	6
Foundations of Education	5	7	7	6
Nursing Education	3	4	4	4
Primary Education	-	5	5	-
Adult Education	7	6	6	6
Total	26	33	33	28
Faculty of Humanities				
Faculty Office	-	-	-	-
African Language & Literature	2	5	5	5
English	8	9	9	9
History	4	5	5	5
Theology & Religious Studies	4	4	4	4
French	2	2	2	2
Library Studies	3	4	4	4
Psychology	1	1	-	2
Total	24	30	29	31
Faculty of Economic and Social Sciences				
Faculty Office	-	-	-	-
Economics	4	5	6	6
Political & Admin. Studies	7	6	6	6
Sociology	3	4	4	5
Accountancy	6	6	8	8
Statistics	5	6	6	5
Demography	1	1	2	2
Law	1	4	4	1
Total	27	32	36	33
Faculty of Science				
Faculty Office	-	-	-	-
Faculty Workshop	-	-	-	
Biology	8	6	6	7
Chemistry	6	6	6	7
Environmental	5	-	-	-
Science	7	6	6	6
Mathematics	7	7	7	7
Physics	6	6	6	7
Geology	1	4	4	2
Total.	40	35	35	36
Other Academic Programs				
PESC	-	10	10	7
CABS, DABS	-	-	-	-
Total	-	10	10	7
Total Academic Staff (C/Fwd)	117	140	143	135

Source: Estimates of Recurrent Income and Expenditure, 1983-84, University of Botswana.

*Estimates

TABLE 7.7

FULL-TIME ACADEMIC STAFF, BY NATIONALITY,
UNIVERSITY OF BOTSWANA
1979-1981

Subject	1979		1980		1981	
	Batswana	Others	Batswana	Others	Batswana	Others
Faculty of Education						
Language & Social Science	2	4	2	4	2	4
Science Education	1	6	-	5	15	5
Foundations of Education	2	4	2	3	2	3
Nursing Education	1	1	2	1	2	1
Institute of Adult Education	5	6	2	5	3	4
Education Resource Centre	-	-	-	1	-	1
Faculty of Economic & Social Sciences						
Accountancy & Law (ACC)	-	3	3	6	-	6
Economics	1	4	1	3	1	3
Political & Admin. Studies	-	6	1	6	1	6
Sociology	1	1	1	2	1	2
Statistics	1	5	1	4	-	5
Demography	-	-	-	1	-	1
Law	-	-	-	-	-	1
Faculty of Humanities						
African Languages & Literature	-	3	2	1	1	1
English	-	4	1	7	1	7
French	-	6	-	1	-	2
History	1	1	1	4	25	4
Theology & Religious Studies	1	5	-	4	-	4
Library Studies	-	-	-	3	-	3
Psychology	-	-	-	-	-	1
Faculty of Science						
Biology	2	5	2	4	3	5
Chemistry	-	5	1	6	-	6
Environmental Science	-	4	1	2	1	4
Geology	-	1	1	1	15	1
Mathematics	-	5	1	7	15	7
Physics	1	6	1	5	1	5
Pre-Entry Science	-	5	1	5	-	7
Total	19	90	27	91	89*	99
Batswana as percent of total	17%		23%		47%	

Source: Central Statistics Office

* The majority are staff development fellows.

Need to explain differences with Table 7.5. Some double counting.

on the academic staff (including the IAE and the NIR) increased from 17 percent to 47 percent, as indicated on Table 7.7.

In planning for University expansion, government and the University set a target student/academic staff ratio of 10:1 during the years of rapid development with the expectation that it would level out at 12:1 once enrollments stabilized. The lower ratio at the beginning recognizes that once academic staff are hired in a new program, it may take several years for student enrollment to reach intended levels. This pattern is demonstrated in Table 7.5, which reports student/academic staff ratios and their change over time. The ratio dropped to its lowest point (1982-83) during the time of most rapid program development and then began to increase as the new and expanded programs attracted student enrollments. Nonetheless, the student/staff ratio since 1981-82 has been well below the target level and contributes to a very high unit cost for university education.

In addition to the academic staff, 26 people are employed in the NIR, the Library/Resource Center, and Central Administration. The distribution of administrative staff by department is reported in Table 7.8.

7.1.4.3 Curriculum

The University of Botswana currently offers programs leading to the:

- Master's Degree in Education

TABLE 7.8

FULL-TIME SENIOR ADMINISTRATIVE STAFF BY NATIONALITY
UNIVERSITY OF BOTSWANA, 1979-1981

Staff	1979			1980			1981		
	Batswana	Other	Total	Batswana	Other	Total	Batswana	Other	Total
National Institute of Research	-	6	6	1	5	6	1	5	6
Library	2	7	9	3	5	8	3	5	8
Resource Center	-	1	1	8	7	15			
Administration	6	9	15	-	1	1	8	4	12

Source: Central Statistics Office

- Bachelor's Degrees in Arts, Commerce, Education, Science, and Law (in conjunction with the University of Edinburgh)
- Diplomas in Accounting and Business, Adult Education, Library Studies, Primary Education, Secondary Education, Statistics, and Theology
- Certificates in Accounting and Business, Adult Education, Library Studies and Statistics.

Specific programs within each faculty are shown in Table 7.6.

The curriculum comprising each program is formulated by the respective Faculty with the approval of the University Senate. Selection of specific content, instructional materials, and instructional strategy is the responsiblity of the individual instructor. At the end of each year students take a written examination in the courses in which they were enrolled. Based on their examination scores, students are allowed to proceed to the next level, repeat the present level, or are failed and either transfer to another Faculty or leave the University. Faculty increases have been targeted toward expanding areas of specialization and existing offerings within departments, rather than toward creating new curricular directions, as Table 7.6 illustrates.

Applicants for the Master's program must have a Bachelor's Degree or equivalent. The general requirement for entrance to a Bachelor's program is a first or second division Cambridge Certificate with credit in English. Applicants to the Science program must also have credit in mathematics and successfully complete a six-month pre-entry course. Entry to a diploma program requires at least a third division

Cambridge Certificate; entry to a certificate program requires at least a Junior Certificate.

The chief exceptions to these general entrance requirements are the Mature Age Scheme and government's program for upgrading primary school teachers. The Mature Age Scheme permits admission of applicants who are over 25 years of age, have been out of school five years or more, and hold a Junior Certificate or equivalent. The University also accepts about 30 primary school teachers a year--20 for the B.Ed. program, and 10 for the diploma program.

7.1.4.4 Facilities

The UB campus has 29 classroom lecture theaters with a total of 1,356 seats. The campus also has science laboratories, faculty offices, an academic library, and a Student Union building. Most of the students board and are accommodated in facilities that currently have 1,012 beds in 33 blocks and another 112 temporary beds. The boarding facilities at the University are currently filled to maximum capacity and overcrowding is due to a shortage of hostel space. UB is increasing its enrollments by encouraging all students who possibly can, to live off campus. Long-term plans are to expand gradually from the present 1,237 students to a maximum capacity of 3,700 students by the year 2000.

7.1.4.5 Cost and Financing

University costs are high because of Botswana's small population and the numbers now enrolled, and because of the research, educational support, and outreach activities for such an institution to undertake.

Recurrent expenditures for UB are derived from four sources--tuition and fees, auxiliary enterprises, external support, and government subventions--as indicated in Table 7.9. With lump sum transfer and student tuition, government contributes nearly 70 percent of University revenues. These data are discussed in more detail in Section 2.5.

Tuition at UB is P1,000 for a Motswana, P2,600 for a non-citizen. However, in 1982-83, 82 percent of the Batswana students received a government bursary. Another 14 percent were privately sponsored, by their families or by the companies in which they are employed. The remaining 4 percent were foreign students, as reported in Table 7.10. Government bursaries cover tuition, fees, room and board, books, supplies, and a personal allowance of P300 per year. Government has generally been willing to pay for up to one additional year of university education for bursary students who, for academic reasons, have to repeat a year.

In return, students who receive bursaries are bonded to work for government for a term equaling their length of study plus one year. Their assignment is determined at the time of graduation by an

TABLE 7.9

REVENUE SOURCES FOR RECURRENT BUDGET, UNIVERSITY OF BOTSWANA
1983-84

Revenue Source	Amount	Percent of University Revenue
Tuition not covered by GOB	P 412,450	4.4
Auxiliary Enterprises	1,887,435	19.9
External Agency Support	613,430	6.5
Government Support		
Lump Sum Transfer	5,521,200	58.3
Student Tuition	996,000	10.5
Other	37,560	0.3

Source: Derived from data in Estimates of Recurrent Income and Expenditure 1983-84, University of Botswana, 1983.

TABLE 7.10

DISTRIBUTION OF UNIVERSITY OF BOTSWANA STUDENTS BY SOURCE OF FUNDING
1982-83 AND 1983-84

Funding Source	1982-83 Actual		1983-84 Estimated	
	Number	Percent	Number	Percent
Government Bursary	919	82	996	83
Corporate Sponsor	36	3	60	5
Private	122	11	120	10
Foreign	43	4	24	2
Total	1,120	100	1,200	100

Source: University of Botswana

allocation committee with a membership from several ministries located within the Directorate of Personnel. In addition, students on bursaries must pay 5 percent of their salary back to government for the duration of their bonding period. Students studying abroad accept the same responsibilities with their bursaries.

Donor support for higher education has been substantial, most of it directed to capital costs and/or sponsored posts. For example, major donors to new construction at UB between 1979 and 1984 are:

United Kingdom	P2,202,001
European Development Fund	P1,546,000
Canadian International Development Agency	P 228,064

Additional support has come from UNICEF, the Swedish International Development Agency, and the World Bank.

Donor contributions to the recurrent budget are primarily to support expatriate academic staff. UB estimates of gifts and grants for its 1983-84 recurrent budget are P1,500 of unrestricted monies and P611,930 of restricted funds. Contributors include the international development agencies of Canada, Norway, Holland, Sweden, UK, France, and the United States. UB also receives assistance through UNDP and the Fulbright program.

7.1.4.6 Botswana Agricultural College

Enrollments by program at BAC are reported in Table 7.11. The rapid increase in enrollments, 300 percent from 1979 to 1983, is due

TABLE 7.11

ENROLLMENTS AT BOTSWANA AGRICULTURAL COLLEGE
1979 to 1984

Program	1979			1980			1981			1982			1983*			1984*		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture Certificate																		
Entrants	22	8	30	32	0	32	41	11	52	40	11	51	55	22	77	46	31	77
Graduates	20	5	25	23	0	23	38	9	47	32	7	39	40	12	52	28	17	45
Annual Health Certificate																		
Entrants	35	0	35	36	0	36	55	0	55	59	2	61	67	5	72	72	4	76
Graduates	26	0	26	31	0	31	54	0	54	49	1	50	48	5	53	56	4	60
Community Development Certificate																		
Entrants	15	10	25	9	15	24	11	22	33	16	18	34	17	17	34	15	16	31
Graduates	10	8	18	7	14	21	10	12	22	15	16	31	10	16	26	11	11	22
Diploma in Agriculture																		
Entrants							19	0	19	16	2	18	13	8	21	NA	NA	NA
Graduates							18	0	18	13	1	14	11	7	18	NA	NA	NA
Diploma in Animal Health																		
Entrants							19	0	19	16	10	26	20	2	22	NA	NA	NA
Graduates							16	0	16	13	0	13	16	2	18	NA	NA	NA
Total																		
Entrants	72	18	90	77	15	92	145	33	178	147	43	190	172	54	226	NA	NA	NA
Graduates	56	13	69	61	14	75	136	21	157	122	25	147	125	42	167	NA	NA	NA

Source: Botswana Agricultural College

* Estimated numbers

largely to the importance government places on improving the agricultural sector, and to donor assistance that has targeted BAC for expansion. In 1981, the three Certificate programs (Agriculture, Animal Health, and Community Development) were supplemented with Diploma courses in Agriculture and in Animal Health.

Within these enrollments, the proportion of women is low (24% in 1983) and has not improved much since 1979. Two reasons account for the low female enrollment. BAC does not accept many women into its programs and there is a relatively high dropout due to pregnancy. Women were not admitted to the Certificate Program in Animal Health until 1982 and then only two out of 61 entrants were female.

The number and qualification of the academic and technical staff at BAC (1983) are reported in Table 7.12. Fourteen of the 30 academic staff (47%) have Master's or Doctor's degrees; 16 (53%) have only a Bachelor's degree. Eight of the staff who have lower levels of educational attainment are on leave for further training. The number of academic staff who have less than a Master's degree poses a problem in planning a merger of BAC into UB, since individuals with only a Bachelor's degree will have difficulty securing an academic appointment at the University.

During 1983, the student/academic staff ratio was 7.5:1. This is well below the 10:1 ratio used as a target at UB.

TABLE 7.12

NUMBER AND QUALIFICATION OF STAFF AT BOTSWANA AGRICULTURAL COLLEGE, 1983

Highest Level of Education	Academic Staff	Technical Staff	Staff in Training	Total
Doctorate	2	-	-	2
Master's	12	-	-	12
Bachelor's	16	-	2	18
Diploma	-	10	5	15
Certificate	-	3	1	4
Total	30	13	8	51

Source: Botswana Agricultural College

7.1.4.7 Foreign Study

The number of Batswana students studying abroad, 1979-1981, is reported in Table 7.13. The sharp decrease between 1980 and 1981 reflects the separation of UB from UBS with the consequent drop in students studying in Swaziland. An estimate of the students studying abroad for 1983-84 is reported in Table 7.14, but these figures have not been finalized nor do they include students sponsored by private companies or by their own families.

Most Batswana students study in the United States, Kenya, Canada, the UK, and the USSR (in order of numbers of students). The number of students in foreign institutions by subject and the expected year of completion is reported in Table 7.15. The number returning varies widely from year to year. This poses little problem for planning, since government can anticipate the numbers in advance. However, it further illustrates the long-term nature of planning for localization at this level of education. National needs must be anticipated many years in advance.

Foreign study may increase slightly with the implementation in 1982 of the Botswana Workforce and Skills Training Project (BWAST) funded by government and USAID. BWAST provides training for public and private sector participants in administrative, managerial, and technical skills. Under this project, 72 high-level managers and technicians will go for long-term training overseas and another 37 for short-term training overseas, and 1,000 will participate in short-term in-country training through existing institutions. The project is funded through 1986.

TABLE 7.13

BATSWANA STUDENTS IN FOREIGN INSTITUTIONS, BY COUNTRY, 1979-1981

	1979		1980		1981	
	First Degree	Certificate Diploma	First Degree	Certificate Diploma	First Degree	Certificate Diploma
Australia	2	-	4	-	-	-
Canada	3	37	19	20	6	12
Kenya	13	77	11	80	-	28
Malawi	-	30	0	7	-	-
Nigeria	5	4	4	4	-	-
Swaziland	117	226	73	143	-	32
Tanzania	2	22	2	16	-	4
UK	22	21	18	31	47	26
USA	62	19	59	10	22	12
USSR	24	5	20	5	5	-
Other	6	17	8	6	-	-
Total	256	458	218	322	80	114

Source: Compiled from data from Central Statistics Office

TABLE 7.14

STUDENTS STUDYING ABROAD, BY SPONSORSHIP
1983-84

Country	Funded by Government	Funded by Foreign Donors	Total
Canada	13	18	31
Ghana	-	1	1
India	-	1	1
Kenya	31	4	35
New Zealand	2	-	2
Nigeria	1	-	1
Romania	1	-	1
Tanzania	24	-	24
USA	1	65	66
USSR	-	25	25
UK	28	-	28
Total	101	114	215

Source: Ministry of Education

TABLE 7.15

BATSWANA STUDENTS IN FOREIGN INSTITUTIONS,
BY SUBJECT AND YEAR OF COMPLETION
1981

	Year of Completion						
	1981	1982	1983	1984	1985	1986	Total
First Degree							
Accountancy, etc.	-	1	2	-	-	-	3
Administration	-	-	-	2	-	-	2
Agriculture, Animal Health etc.	-	2	2	-	-	-	4
Architecture	-	-	-	-	-	-	-
Dentistry	-	-	-	-	-	-	-
Economics	-	-	-	-	-	-	-
Education	-	-	-	-	-	-	-
Engineering	-	-	2	4	3	13	22
Geology	-	-	-	-	-	-	-
Law	-	1	-	-	-	9	10
Management	-	-	-	-	2	-	2
Medicine	-	-	-	-	-	2	2
Nursing	-	-	-	-	-	-	-
Nutrition	-	-	-	-	-	2	2
Planning	-	-	-	-	2	1	3
Radio & Electronics	-	-	-	-	1	-	1
Veterinary Science	-	-	-	-	-	-	-
Communications	-	-	-	-	-	-	-
Maths & Computer Science	-	-	-	-	1	-	1
Pharmacy	-	-	-	-	1	3	4
Physiotherapy	-	-	-	-	-	1	1
Telecoms	-	-	-	-	1	-	1
Anthropology	-	-	-	-	1	-	1
Electrical	-	-	-	-	1	-	1
Surveying	-	-	-	-	-	4	4
Mapping	-	-	-	-	2	-	2
Other	1	1	7	3	2	-	14
Total	1	5	13	9	17	35	80
Certificate Diploma							
Accountancy	-	2	1	-	-	-	3
Agric., Animal Health etc.	-	1	22	-	-	-	23
Air Traffic Control	-	-	7	-	-	-	7
Architecture	-	-	1	-	-	-	1
Construction	-	-	-	-	-	-	-
Communications	-	-	-	-	-	-	-
Computer Science	1	-	-	1	-	-	2
Cartography	-	-	-	-	-	-	-
Development	-	-	-	-	-	-	-
Education	-	1	-	-	-	-	1
Engineering	1	-	8	9	-	-	18
Geology	-	-	-	-	-	-	-
Home Economics	-	-	10	-	-	-	10
Journalism	-	-	4	-	-	-	4
Lab. Technology	-	-	-	-	-	-	-
Mechanics	-	-	-	-	-	-	-
Metereology	-	-	-	2	-	-	2
Planning	-	-	-	-	-	-	-
Railways	-	-	-	9	7	-	16
Secretarial Instruction	-	-	-	-	-	-	-
Electrical Tech.	-	-	1	1	-	-	2
Weather Forecasting	-	3	-	-	-	-	3
Archeology	-	-	-	1	-	-	1
Library	-	-	1	-	-	-	1
Wildlife	-	-	-	-	1	-	1
Other	-	6	9	4	-	-	19
Total	2	13	64	27	8		114

Source: Central Statistics Office

7.1.4.8 Long Term Plans for UB

In collaboration with the Ministry of Finance and Development Planning and the Ministry of Education, the University is actively engaged in planning for the period 1986-1990. New proposals under consideration include:

- the establishment of a Pre-Entry Program similar to PESC for the Faculties of Education, Economics and Social Sciences, and Humanities;
- the development of a comprehensive B.Ed. program;
- the establishment of a Teaching Unit for the improvement of University teaching and learning; and
- the establishment of part-time programs leading to various Certificate, Diploma, and Degree qualifications.

Each faculty has developed enrollment and staffing projections to 1990 and identified new program areas and emphases. For example, the Faculty of Education is considering expanding its M.Ed. program and starting a Department of Educational Psychology. The Science Faculty is considering an M.Sc. program, an Applied Science Option at the Bachelor's level, new course offerings (including Botany, Zoology, ar Geophysics), and the appointment of Teaching Assistants. While these plans are tentative, they demonstrate the commitment of UB to systematic, long-term planning.

Although enrollment projections provided by each Faculty, reported as Table 7.16, are preliminary, they provide a sense of the planning currently under way. These early estimates suggest that 1990 enrollments will be close to 2,400 students. Projected staffing (provided by each Faculty) to support that enrollment is presented as

Table 7.17. Staff projections are based on a formula which uses the course unit method for determining the number of full-time equivalent students per course and assumes a 12:1 student/staff ratio. A need for substantial increases in academic staff size is anticipated, particularly in the Faculties of Education and Science. If the projected enrollment and staffing plans were to be implemented as currently presented, the student/academic staff ratio would be 10.7:1. This remains below the target ratio of 12:1, largely because some programs do not have 12 full-time equivalent students enrolled, bringing down the overall average.

TABLE 7.16

PROJECTED UNIVERSITY OF BOTSWANA STUDENT ENROLLMENTS FOR 1990
BASED ON PRELIMINARY LONG-RANGE PLANNING

Program	Projected Enrollment
Social Science	
Accounting	225
Economics	108
Demography	22
Law	60
Political & Administrative Studies	140
Sociology	67
Statistics	122
Subtotal	744
Science	
Biology	88
Chemistry	80
Environmental Science	101
Geology	26
Mathematics	113
Physics	80
Post-graduate	75
Subtotal (excludes PESC)	563
Education	
Post-graduate	120
Degree Programs	345
Diploma/Certificate Programs	114
Subtotal	579
Humanities	
African Languages & Literature	85
History	108
Theology/Religious Studies	78
English	184
Library Studies	37
French	7
Subtotal	499
Estimated total 1990 enrollment	2,385

Source: University of Botswana and Ministry of Education

TABLE 7.17

PROJECTED UNIVERSITY OF BOTSWANA STAFFING AS PROPOSED IN PRELIMINARY LONG-RANGE PLANNING

	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91
Education						
Language & Social Science	5	7	8	8	8	8
Science Education	6	8	8	8	8	8
Foundations of Education	7	15	18	20	21	21
Nursing Education	4	6	6	6	6	6
Primary Education	8	8	8	8	8	8
Adult Education	6	6	7	7	8	8
Subtotal	36	50	55	57	59	59
Science						
Biology	7	8	8	8	8	8
Chemistry	7	8	9	10	10	10
Environmental Science	7	8	8	8	8	8
Geology	4	5	6	6	6	6
Mathematics	7	8	9	10	10	10
Physics	7	8	9	9	9	9
PESC	10	10	10	10	10	10
Subtotal	49	55	59	61	61	61
Social Science						
Accounting	14	14	15	15	15	-
Economics	7	7	8	8	8	-
Law	8	8	8	8	8	-
Political and Administrative Studies	8	10	10	12	12	-
Statistics	8	9	9	9	9	-
Sociology	6	6	6	6	6	-
Demography	2	2	2	2	2	-
Subtotal	53	56	58	60	61*	**
Humanities						
African Languages & Literature	-	-	-	-	-	7
History	-	-	-	-	-	9
Theology/Religious Studies	-	-	-	-	-	7
English	-	-	-	-	-	15
Library Studies	-	-	-	-	-	4
French	-	-	-	-	-	2
Subtotal	-	-	-	-	-	42*
Estimated Total 1990 Staffing						223

Source: University of Botswana and Ministry of Education

* Figures need Checking.

** Uses 1989-90 subtotal to compute 1990-91 total.

7.2 ANALYSIS

This section builds on the previous review of the higher education system to provide an analysis of needs, plans, constraints and primary issues affecting the continued development of higher education institutions and opportunities. This analysis is summarized in a set of conclusions which form the basis for the recommendations that later follow.

7.2.1 Needs

The principal needs in higher education are for procedures to better align the supply of graduates to national demand for particular skill areas, to assist entering students who lack adequate preparation, to reduce student attrition in science-related areas, and to develop effective coordination among the higher education institutions and opportunities now availabe to Batswana students.

7.2.2 Plans

Government plans to expand opportunities for citizens to receive higher education in Botswana, while ensuring an adequate supply of highly trained personnel in skill areas requiring foreign study. Special attention will be given to encouraging students into scientific fields. Government will continue to encourage coordination and cooperation among existing post-secondary institutions.

7.2.3 Constraints

The primary constraints to the development of higher education and to program expansion are posed by the small population size of the country, weaknesses in students' prior preparation especially in science, and the high unit cost of university education.

7.2.4 Issues

7.2.4.1 External Efficiency

The University of Botswana and Botswana Agricultural College, as new institutions, are still formulating many of the policies and procedures that will guide their continued development. Likewise, they are establishing relationships and linkages with other institutions, agencies, and sectors of Botswana society that will shape their future role and functions within the country. This context provides a framework within which three issues of external efficiency will be considered. These are (a) the adequacy of present and projected higher education output given projected manpower demand; (b) the relevance of the education students receive to the work settings in which they are employed; and (c) the adequacy of the present bonding system.

A. Adequacy of Supply Relative to Demand

The adequacy of University output to meet the manpower needs of the country can be estimated by comparing projections of national manpower demand with anticipated supply. Estimates of national manpower demand are developed from data collected in an annual Employment Survey conducted by the Ministry of Finance and Development Planning. In it, employers are asked to estimate the number of jobs they will have open and the education requirements for those jobs. Projections of educated manpower available are based on 1981 Census data and a set of assumptions about the growth of the education system.

The resulting estimates of manpower imbalances, reported in Table 7.18, suggest that there will be an increasing shortfall of university-educated personnel every year through 1995. The shortfall ranges from 1,221 in 1983 to nearly 1,600 by 1995. Many of these jobs are at higher levels of management in industry and government and cannot be left unfilled. Consequently, either these positions will go to expatriates, or they will be filled by citizens without the desired educational background. The first alternative slows localization and is politically undesirable, the second may impede the efficient management of the economy.

These projections suggest a need for greater investment in higher education over the next decade to support localization and manpower development needs of the country. However, during that same time, it is probable that resources available to the MOE will remain relatively

TABLE 7.18

PROJECTED MANPOWER SUPPLY AND DEMAND FOR PERSONS WITH UNIVERSITY DEGREE OR HIGHER, 1981-1995

Year	Estimated Manpower Requirements	Estimated Labor Force Available	Estimated Manpower Imbalance
1981	1,945	627	-1,318
1982	1,982	741	-1,241
1983	2,103	882	-1,221
1984	2,231	979	-1,252
1985	2,389	1,118	-1,271
1986	2,540	1,264	-1,276
1987	2,707	1,416	-1,291
1988	2,896	1,575	-1,321
1989	3,066	1,742	-1,324
1990	3,264	1,914	-1,350
1991	3,476	2,094	-1,382
1992	3,702	2,280	-1,422
1993	3,943	2,472	-1,471
1994	4,200	2,671	-1,529
1995	4,476	2,877	-1,599

Source: Ministry of Finance and Development Planning

constant as a percent of the national budget. Government has already made a substantial commitment to rapid expansion of the secondary education system which may limit educational resources for the development of higher education in areas of greatest manpower need.

B. Relevance of Education to Work Settings

The relevance of UB education to the positions graduates hold is difficult to assess for four reasons. First, the allocation of recent graduates under the bonding system does not always result in an assignment in a student's area of preparation. Problems stemming from misallocation of personnel must not be interpreted as evidence of curricular irrelevance.

Second, the need for highly educated personnel is so great that all UB graduates and students returning from foreign study are virtually assured of a job, even if it is not well aligned with their academic preparation. Lack of relevance is not likely to show up as unemployment.

Third, recent graduates often move very rapidly into important, high-level positions in government and industry. Graduates with education but little or no work experience often are expected to assume high-level responsibilities quickly. Difficulties they encounter in their jobs may be attributed erroneously to their educational preparation rather than to their relative inexperience at these levels of responsibility. College graduates in more developed countries often move up through the ranks more slowly, gaining valuable work experience along the way.

The fourth reason is related to the third. As part of the localization scheme, recent graduates moving into high-level positions are often replacing expatriates who may have postgraduate training and considerably more work experience. It is not unusual for the transition from expatriate to citizen to be marked by partial loss of efficiency and productivity, sometimes reflecting poorly on the citizen and, indirectly, on the university as inadequate education is blamed for the deficits in the work setting. A fair assessment of the relevance of UB education must be modified by recognition that the norm against which the graduates are compared may be one of far greater education and experience.

While these confounding factors are recognized, the relevance of UB education to the work setting of its graduates remains an issue of concern. This is raised in terms of both appropriateness of skills and knowledge acquired and the role of government in curriculum decisions.

Relevant skills and knowledge. UB lacks data on the employment of its graduates. While a small tracer study of graduates returning from foreign study was conducted in 1978, no systematic tracer study of UB graduates has yet been undertaken. Further, UB needs data on the skills and knowledge graduates need in their employment. To date, no such follow-up study has been conducted. Such a study could collect employers' and graduates' judgments about the relevance and applicability of their education in enough detail that the data could be used in subsequent curriculum revision and/or planning.

Role of government in curriculum decisions. There is a continuing discussion over the extent to which government should influence university curriculum. In the NDP V, government asserts that the University should seek to respond to the nation's development needs and emphasizes that government should have the final say in determining those needs. The Presidential Commission on Economic Opportunities, in a May 1982 report, found "scant justification for devoting resources to fields that have little relevance to Botswana's manpower needs." The Commission recommended:

- that future courses offered at the University be clearly related to Botswana's manpower priorities, as indicated by the manpower planning system, and

- that the numbers of humanities and social science places available be severely limited.

Both government and the University recognize the important role of UB in national development. However, some contend that because manpower planning is often inexact and there is no way to anticipate changes in technology that could radically affect manpower demand, the most efficient use of University resources is to provide a well-rounded and diversified higher education. How directly UB curriculum should be related to the manpower needs of the country is an issue of judgment that must be re-examined and refined over time. It is encouraging that appropriate mechanisms exist for open and earnest deliberation of this issue.

C. Bonding System

The bonding system, whereby university students receiving government bursaries are committed to working for government at the end of their studies, provides an important return on public investment in higher education. Students are committed to government employment for a term equal to the number of years of their bursaries plus one. Two issues in the administration of bursaries affect the external efficiency of university education--the inadequate availability of graduates to the private sector, and the sometimes less than optimum alignment of graduates' preparation with the demands of the positions to which they are assigned.

Nearly 83 percent of Batswana students at UB and studying abroad are on government bursaries and bonded to work in the public sector upon graduation. Moreover, many of the remaining "private" students at UB are sponsored by larger companies to which they are committed upon graduation. This leaves the rest of the private sector without much access to university graduates--particularly smaller, intermediate-size, and newer companies that may not be able to wait four years. This scarcity of highly trained individuals available to the private sector slows its development and the process of localization there.

The President's Commission on Economic Development points to three other effects of the present system of concentrating the most highly educated citizens in Central Government:

- It has created a danger of mistrust between government and a relatively underlocalized private sector.
- It deprives the local government service of high-quality personnel.
- It has created an attitude that government is obligated to employ the people it trains. In some instances there is danger that people will be employed by government simply because they have been trained and not because they are needed.

In an effort to address these problems, the personnel allocation committee has included quotas for both the private sector and local governments. While this provides some help toward more equitable distribution, early experience has been mixed. Private companies, like government ministries, are not always able to clearly identify their manpower needs and, when they are, often they require personnel with specific training and experience beyond a Bachelor's Degree. This has resulted in several cases of misallocation. Continued efforts to provide the private sector with access to recent university graduates will be important to continued localization and economic development in the country.

The second constraint in the present bonding system is the less than ideal allocation of graduates to jobs within government. The allocation committee solicits requests from government agencies and private companies and tries to match those with available graduates. Ministries that request people with particular professional or technical training may be assigned graduates with humanities or social science backgrounds. This sometimes results in dissatisfaction on the

part of both the graduates and the ministries involved. To the extent that mismatches of people and positions may result in loss of productivity, it would constitute a waste of human and financial resources and an external inefficiency in the system.

7.2.4.2 Internal Efficiency

Post-secondary education in Botswana has made tremendous gains in a very short period of time. This stands as a tribute to the quality of leadership, the dedication of students and faculty, and the level of national pride associated with the University. Within this context, the separation of UB from UBS and the subsequent rapid increase in student enrollment, academic staff, and facilities pose both an opportunity and a need to examine the internal efficiency of university education in the country. Additionally, the emergence of other post-secondary opportunities places new demands on the coordination of higher education. The discussion of internal efficiency addressess three primary issues: (a) the adequacy of students' prior preparation; (b) student flow through the post-secondary system; and (c) the extent of coordination among post-secondary institutions in the country.

A. Adequacy of Students' Prior Preparation

A major component in the efficiency of higher education is the adequacy of the preparation with which students enter their university program. To the degree that entering students' preparation may be

weak, the University has the difficult task of maintaining internationally recognized standards of excellence while working with students who may lack fundamental skills and knowledge necessary for higher education. Use of the Cambridge Examination in University admissions, which offers an internationally recognized standard, helps reduce this problem.

Nonetheless, four sources of evidence suggest many students enter UB in need of stronger academic preparation. First, the analysis of secondary education in Chapter 5.0 suggests that many secondary school students have problems with English and this tends to slow instruction. Further, the shortage of Batswana teachers in science and mathematics probably relates to weak backgrounds in these areas among university students.

Second, students in some of the larger, donor-supported foreign study programs attend UB for two years prior to entering the first year of study at a foreign institution. To the extent that the two-year stint serves as a bridge for students to reach the level of achievement necessary to do the work at the foreign university, it functions as a supplemental program and creates a discrepancy between the achievement levels of first-year university students in Botswana and those in selected other countries. (Only one school, Maru-a-Pula, offers the A-level studies which are required for entry to most European universities, so this work must be completed at UB.)

Third, students entering the University in science have been lacking in prerequisite basic skills and are required to attend a six

month Pre-Entry Science Program. The other Faculties are now considering implementing similar programs.

Fourth, the high rate of attrition in certain programs is cited by some as evidence of students' inability to do university-level work, presumably due to weak academic backgrounds. However, the issue of attrition is complex, and will be discussed more fully later.

The development of pre-entry programs demonstrates that UB is responding positively to the problem of weak student preparation. Strengthening students' capacity to succeed with higher education will pose a continuing challenge for the University's internal efficiency.

B. Student Flow

The efficiency of student flow through UB is influenced by two factors--high student attrition in some subject areas and the loss of some of the best students to foreign study after their second year at UB.

Student attrition. Enrollment by year and progression rates for the baccalaureate programs at UB are reported in Table 7.19. Attrition is highest in the Faculty of Science, lowest in the Faculty of Economics and Social Sciences. These progression rates suggest that, of every 100 male students entering the Science Faculty in 1978, only 15 were enrolled in the fourth-year program in 1981. Of every 100 women entering the science program in 1978, only 9 were enrolled in the fourth-year program.

Interpretation of progression rates is difficult, however, for two reasons. First, in 1982-83, UB switched from a course unit system

TABLE 7.19

PROGRESSION RATES FOR UNIVERSITY OF BOTSWANA STUDENTS
(Cohort Group in Year 4 in 1983-84)

		Year 1	Year 2	Year 3	Year 4	Progression Rate
Education						
B.Ed. (Primary)	1979-80					
	1980-81					
	1981-82	20	-	-	-	
	1982-83	21	20	-	-	
	1983-84	21	21	19	-	.95
B.Ed. (Nursing)	1979-80	-	9	5	-	
	1980-81	-	5	9	6	
	1981-82	-	14	9	11	1.22
	1982-83	-	9	13	10	.50
	1983-84	-	15	8	11	.79
B.Ed.	1979-80	-	18	13	9	
	1980-81	-	-	20	13	
	1981-82	-	-	-	20	1.11
	1982-83	-	-	-	-	
	1983-84	-	-	-	-	
Economics and Social Sciences						
B.A.	1979-80	62	72	76	56	
	1980-81	62	58	61	59	
	1981-82	45	53	51	58	
	1982-83	46	44	54	47	.76
	1983-84	71	38	42	66	1.07
B. Comm.	1979-80	-	-	-	-	
	1980-81	30	-	-	-	
	1981-82	40	30	-	-	
	1982-83	30	43	25	-	.83
	1983-84	35	30	45	-	1.13
L.L.B.	1979-80	-	-	-	-	
	1980-81	-	-	-	-	
	1981-82	20	14	-	-	
	1982-83	17	20	-	-	1.00
	1983-84	15	16	-	-	.94
Humanities						
B. Humanities	1979-80	40	-	-	-	
	1980-81	59	42	-	-	
	1981-82	57	62	30	-	
	1982-83	59	53	55	29	.725
Science						
B.Sc.	1979-80	67	-	-	-	
	1980-81	81	55	-	-	
	1981-82	60	54	25	-	
	1982-83	69	52	23	20	.30
	1983-84	104	34	25	13	.19

Source: Compiled from data from Registrar's Office, University of Botswana.

to a subject system to provide greater flexibility in regulating student progression. Under the course unit system, students who fail a particular subject are required to repeat the year, including those subjects which they passed. Under the subject system, students who fail a subject generally repeat only it. Consequently, progression rates typically would be lower under the course unit system. Students who entered UB under the course unit system complete their program under that system. One implication of the switch is that different progression rates across classes may reflect a difference in the rules being applied rather than a difference in student ability. However, the current system is expected to permit greater flexibility and descretion in judging student attainment.

Second, class size sometimes increases in later years rather than decreasing as might be expected due to attrition. This increase is due to students repeating a year to retake examinations and/or to transfer students who did not succeed in another Faculty. It was not possible to separate these data for Table 7.19. Despite these difficulties in interpretation, rates seem relatively high except in the Science Faculty.

While Table 7.19 includes all students, Table 7.20 provides a more comprehensive look at progression rates of Batswana citizens at UB. Again, progression rates were lowest in Science, with women having lower progression rates than men. Moreover, the pattern was generally consistent across the six years covered by the table (1976-1981). Progression rates in the certificate and diploma

TABLE 7.20

UNIVERSITY OF BOTSWANA STUDENT PROGRESSION RATE, BY PROGRAM

	B.A. (excl. Education)				B.A. - Education				B. Sc.				Diplomas				Certificates			
	Enrollment		Progression Rate		Enrollment		Progression Rate		Enrollment		Progression Rate		Enrollment		Progression Rate		Enrollment		Progression Rate	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1976																				
Year 1	31	11	-	-	15	5	-	-	4	2	-	-	6	0	0	0	22	11	-	-
Year 2	33	12	-	-	15	12	-	-	18	4	-	-	4	0	0	0	10	12	-	-
Year 3	23	8	-	-	15	8	-	-	3	2	-	-	0	0	0	0	9	8	-	-
Year 4	10	2	-	-	8	10	-	-	2	2	0	0	0	0	-	-	-	-	-	-
1977																				
Year 1	35	28	-	-	0	0	0	0	20	2	-	-	0	0	0	0	21	17	-	-
Year 2	53	15	1.71	1.6	0	0	0	0	10	2	.714	1.0	0	0	0	0	21	10	.955	.909
Year 3	34	27	1.03	2.25	0	0	0	0	10	1	.556	.25	1	0	.25	0	9	13	.9	1.08
Year 4	35	16	1.52	2.00	0	0	0	0	2	2	.667	1.0	0	0	0	0	0	0	0	0
1978																				
Year 1	78	42	-	-	2	1	0	0	33	11	-	-	36	34	0	0	2	1	-	-
Year 2	38	21	1.09	.75	8	12	0	0	32	8	1.6	4.0	36	18	0	0	0	0	0	0
Year 3	28	26	.528	1.73	5	2	0	0	11	1	1.1	.5	14	14	0	0	0	0	0	0
Year 4	48	13	1.41	.481	0	0	0	0	3	1	.3	1.0	0	0	0	0	0	0	0	0
1979																				
Year 1	57	27	-	-	0	0	-	-	36	20	-	-	46	23	-	-	8	9	-	-
Year 2	75	40	.962	.952	7	19	3.5	NA	25	10	.758	.909	34	26	.944	.765	0	0	0	0
Year 3	31	26	.816	1.24	9	10	1.13	.833	11	5	.344	.625	28	17	.78	.944	0	0	0	0
Year 4	30	24	1.07	.923	7	2	1.4	1.0	7	0	.636	0	0	0	0	0	0	0	0	0
1980																				
Year 1	78	58	-	-	0	5	-	-	54	15	-	-	50	38	-	-	10	17	0	0
Year 2	52	28	.912	1.04	0	0	0	0	32	15	.889	.75	40	21	.870	.913	0	0	0	0
Year 3	59	38	.787	.95	8	20	1.14	1.05	5	3	.2	.3	28	24	.824	.923	0	0	0	0
Year 4	29	20	.935	.769	9	9	1.0	.9	5	2	.445	.4	0	0	0	0	0	0	0	0
1981																				
Year 1	92	58	-	-	12	8	-	-	47	10	-	-	61	27	-	-	10	17	-	-
Year 2	33	56	1.06	.966	1	9	0	1.8	35	12	.648	.8	40	34	.8	.895	0	0	0	0
Year 3	40	23	.769	.821	0	3	0	0	10	8	.313	.533	32	13	.8	.619	0	0	0	0
Year 4	58	35	.983	.921	10	18	1.25	.9	5	1	1.0	.333	0	0	0	0	0	0	0	0

Source: University of Botswana

programs are generally comparable to those of the baccalaureate programs other than Science.

It is important to note that the extent to which differences in enrollment across years for the same cohort (as evidenced in Tables 7.19 and 7.20) are the result of failures, repetition, or incoming transfers cannot be determined from the data available. This poses a difficulty in interpreting the data--a high incoming transfer rate could mask a high attrition rate. Further, while these tables provide information on progression rates, they do not provide data on graduation rates. In partial response to both concerns, examination results in selected programs for 1982-83 are reported in Table 7.21; more complete data were not readily available. Table 7.21 shows the highest failure rate in Science, with the greatest proportion of students encountering difficulty at the end of the first year. Both Humanities and Social Sciences students are often required to take an examination over (i.e., supplement), but most eventually proceed to the next level. Very few students in the Faculty of Education fail.

The attrition in science and mathematics is a particular problem because government estimates that the greatest manpower shortages are in those areas. Indeed, the National Policy on Economic Opportunities (December 1982) encourages the University to place greater emphasis on science relative to Humanities and Social Sciences.

Responding to these concerns, the University instituted a Pre-Entry Science Course (PESC) in 1977. This is a six-month program to provide entering students with science and mathematics required for

TABLE 7.21

STUDENT PROGRESSION BASED ON EXAMINATION RESULTS IN SELECTED PROGRAMS, 1982-83

Program	Year	Proceed/Pass	Proceed with Restrictions	Fail/ Discontinue	Fail/ Repeat	Supplement	Outcome of Supplemental Test
Education							
B.A. (Nursing)	2	6			1	2	2 proceed
	3	10					2 proceed
	4	10				3	1 proceed w/restrictions
						1	low pass
B.A. (Primary)*	1	21					
	2	19					
Humanities							
B.A.	1	43	8	1	5		
	2	20	19	2		13	3 failed 7 proceed 3 proceed w/restrictions
	3	30					12 proceed
	4	31			2	20	8 proceed w/restrictions
						3	not applicable
Social Sciences							
B.A. Comm.	1	25		1	3		
	2	28		1	2	12	all proceed
	3	12			7	6	all proceed
Science							
	1	31		14	18		
	2	14		9	1		
	3	7			4	7	4 failed 3 proceed
	4	17				5	not applicable

Source: University of Botswana

regular university study. PESC selects from about 600 Form V completers the top 180 students in science and mathematics subjects. Attrition from PESC has been high. The progression of Batswana students enrolled in the PESC (1977-1981) is reported in Table 7.22. Data through 1983 were collected from program records; data for 1984 and beyond represent current projections of the student yield from the PESC. Of the 180 students entering PESC in 1983, only 70 enrolled in UB.

The high attrition in science has fostered considerable concern, particularly since the cause of the attrition is not clear. There are two points of view. On one hand, the high attrition can be interpreted as evidence of students' inadequate preparation and ability to do college-level work in this area. On the other, UB selects from the best students in the country. If the best students cannot do the work, it may mean that academic standards at the University are not appropriately applied. Attrition represents a waste of human and financial resources and, at a time of rapid national development, Botswana cannot afford the loss of so many of its best students to attrition. The level of instruction and rigor may be misaligned with the needs of the students and the country. The evidence is not yet clear on whether the high rate of attrition in science is primarily attributable to issues of student preparation or institutional responsiveness. More study of this issue will be important to the continued development of the Science Faculty. At

TABLE 7.22

PROGRESSION OF BATSWANA STUDENTS ENROLLED IN THE PRE-ENTRY SCIENCE COURSE, 1977-1981, WITH PROJECTIONS THROUGH 1987

Calendar Year	PESC		BSC Year 1 Study Abroad	BSC Year 1 UB		BSC Year 2 Study Abroad	BSC Year 2 UB		BSC Year 3 Available For Study Abroad	BSC Year 3 UB
1977 Enrollment	111	.44		49			36			11
Drop Out/Fail	31				.89					
Other Faculties	22									
Transfer Abroad		.08	8							
1978 Enrollment	115	.39		45			34			3
Drop Out/Fail	30				.89			.62		
Other Faculties	9									
Transfer Abroad		.27	31							
1979 Enrollment	110	.45		53			40		21	15
Drop Out/Fail	26			(3)	.89			.58		
Other Faculties	31									
Transfer Abroad		.08	8							
1980 Enrollment	115	.49		57			45		21	10*
Drop Out/Fail	19			(6)	.89			.48		
Other Faculties	25									
Transfer Abroad		.12	14							
1981 Enrollment	150	.29		48			48		22	25*
Drop Out/Fail	30			(8)	.78			.50		
Other Faculties	46									
Transfer Abroad		.21	31							
1982 Enrollment	181	.30		45			32		24	18
Drop Out/Fail	20			(13)	.81			.33		
Other Faculties	52			7**						
Transfer Abroad		.18	27					.58		
1983 Enrollment	176	.39		69			37		19	11
Drop Out/Fail					.85			.33		
Other Faculties	75									
Transfer Abroad		.18	28					.58		
1984 Enrollment	180	.39		70			50		21	12
Drop Out/Fail					.85			.33		
Other Faculties	81									
Transfer Abroad		.18	29					.50		
1985 Enrollment	180	.39		70			80		34	19
Drop Out/Fail					.85			.33		
Other Faculties	81									
Transfer Abroad		.16	29					.50		
1986 Enrollment	180	.39		70			80		35	20
Drop Out/Fail					.85			.33		
Other Faculties	81									
Transfer Abroad		.16	29					.50		
1987 Enrollment	180	.39		70			80		35	20
Drop Out/Fail					.85			.33		
Other Faculties	81									
Transfer Abroad		.13	29					.50		

* Includes foreigners
** Privately sponsored

Source: Manpower Planning Unit, Directorate of Personnel, March 1983.

present, the high attrition in science represents a serious loss of internal efficiency.

Loss of students to foreign study. A primary reason for the attrition of science students in the first two years at UB is students' inability to do the academic work. However, after the second year many of the best students are offered foreign study opportunities. For example, of the 54 science students completing their second year in 1983-84, 19 proceeded to the third year of their program, 21 failed, and 14 of the most qualified students went abroad for further study. The attrition of these students who go abroad is not a loss to the country since these students will return with training. However, it does pose consequences for the University. As the most qualified students are drawn off from the Faculty of Science, it undercuts both the quality of the advanced program and the morale of faculty and students.

7.2.4.3 Access and Equity

Geographical location is generally not a barrier to higher education access. Both UB and foreign study opportunities are awarded on the basis of Cambridge Examination scores; geographical location is a barrier only to the extent that Cambridge scores are unevenly distributed across districts. Further, the availability of bursaries to 83 percent of the students means that those with modest economic means can still receive higher education.

There does appear to be some disparity by gender. Table 7.3, reported earlier, shows considerable variation in the percent of female enrollment by Faculty--ranging from 21 percent in Science to 48 percent in Education. This imbalance is carried over into foreign study, since many of the foreign study opportunities are in science-related areas. An MOE study of Batswana studying abroad found no hesitation on the part of women to go abroad. Rather, male-dominated fields tended to be the ones targeted for foreign study.

7.2.4.4 Administration and Supervision

This analysis addresses three issues concerning the administration and supervision of higher education: (a) coordination among post-secondary institutions, (b) allocation of student places between UB and foreign study, and (c) type and consistency of data collected to describe and monitor the higher education system.

A. Coordination Across Institutions

One of the recommendations emerging from a University Development Consultancy team studying the long-term development of UBC in 1978 was that the most relevant role of UB in the 1980s is that of an "umbrella type" institution. In that role, UB would help government coordinate the missions of all of Botswana's post-secondary institutions which still would maintain their respective autonomy. (Already the principals of the major institutions meet several times a year to discuss areas of common concern.). While this proposal has received

considerable support, it may not be legally feasible and a number of issues have emerged focusing on three specific applications of this idea.

First, the relationship of BAC to UB is currently under discussion, with plans for BAC to be subsumed within UB as a Faculty of Agriculture in 1985. The proposal has encountered some opposition, partly because some of the current BAC faculty may not qualify for academic appointments at UB. The source of staff for the proposed Faculty of Agriculture at UB is unclear.

Second, discussions are under way regarding a joint engineering program between the Polytechnic and UB. However, a set of policy issues concerning student flow and financial management have yet to be decided.

Third, the proposed transfer of the Diploma program in Secondary Education to Molepolole Teacher Training College raises questions about the long-term role of UB in secondary teacher training and about the relationship of the Faculty of Education to it and to the primary teacher training institutions. One concern is that if UB were to continue training secondary school teachers, a status distinction might emerge in which training at Molepolole would be regarded as "second class." On the other hand, pressure for UB to continue its DSE program may mount as a means of providing more qualified teachers during a time of rapid secondary school expansion.

The manner in which these three questions are resolved will be particularly important for future relationships among UB and other

post-secondary institutions. Consequently, care must be taken to resolve these questions in a way that will guide future post-secondary expansion.

B. Allocation Between UB and Foreign Study

Three issues in the allocation of students between UB and foreign study are addressed. The high rate of transfer of UB science students to foreign institutions after the second year, causing problems of quality and morale in UB's upper division science program, has already been mentioned. A second issue is the tendency for foreign study opportunities to be offered to the most qualified students completing Form V. This sometimes leaves less qualified students available for admission to post-secondary opportunities within the country. A third issue is posed by a policy proposal currently under discussion that would require students to take their first degree (i.e., baccalaureate) in Botswana.

All three of these issues center on a fundamental choice. An important means of building institutional quality in Botswana is to enroll the best-qualified students. This argues for in-country training. On the other hand, if the quality of the in-country program is not yet fully developed, training the best students in-country may not maximize their talent for longer term national development. The choice will vary by program and will need to be re-evaluated every few years. It will be important that mechanisms be available to re-evaluate foreign study allocation procedures and that blanket

policies of government or the University not preclude judgments about individual programs and areas of study.

Another, related issue in foreign student allocation is ensuring that students are sent for further training in areas that support the manpower needs of Botswana. Available foreign scholarships need to be increasingly targeted toward fields of high national priority.

C. Data Collection

The recent history of UB, marked by its separation from UBLS and UBS has meant that institutional size, organizational structure, and academic programs have continued to change. As with any new institution, it will take time for data needs to become clear and reporting structures to stabilize. It is important, however, that the data collection methods and procedures be planned and implemented in anticipation of the long-term data needs of the institution. This planning should involve major data users outside the University, for example, the MOE and MFDP.

7.2.4.5 Costs

Average unit cost of a UB education is P7,143 (US$6,643) per year. This rate is based on the average direct cost (P3,600 constitutes the per student cost of academic salaries) and students' foregone earnings. It includes only recurrent budget items; no attempt is made to include depreciation on facilities and equipment.

This unit cost compares favorably to the cost of educating a student abroad. For example, per year costs, not including foregone

earnings, are estimated at £8,500 for the UK, $22,000 for the United States, $13,000 for Canada, and P6,500 for Kenya. This reverses a pattern observed by the MOE several years ago that it was less expensive for students to study abroad. The change is due largely to the rapid increase in higher education costs in Europe and North America. While the academic and cultural benefits of investing in UB are obvious, it should be mentioned that about 30 percent of staff costs return to government in the form of taxes. Investment in UB also has considerable spin-off for local commerce and industry.

Graduation cost refers to the number of years of university education it takes to produce one graduate. Even if unit cost is reasonable, the graduation cost will be high if repetition and/or attrition rates are high, resulting in more years of education being required to yield a graduate. Graduation costs cannot be directly computed because of the problems described earlier in breaking out attrition and repetition data within each year. However, such data are important in the allocation decisions between domestic and foreign study.

Moreover, recognition of graduation cost helps highlight the financial cost of attrition. For example, based on data in Table 7.19, to get 10 UB graduates with a Humanities degree, 14 students would have to begin the degree program. To get 10 UB graduates with a science degree, 52 students would have to begin the program.

A more complete discussion of unit cost and rate of return on public and private investment in higher education is provided in Section 2.5.

7.2.5 Conclusions

The preceding analysis forms the basis for five general conclusions. These conclusions form the foundation for the specific recommendations advanced in the final section of this chapter.

Conclusion 1. An open and continuing discussion should be encouraged on the role of higher education in national development, particularly as it relates to resource flow.

As one of the newest universities in Africa, UB is now developing policies and procedures that will guide it for many years. The high cost of higher education, domestically and abroad, may force choices between breadth of program offerings and specific foci most consistent with national development needs.

Conclusion 2. Continued expansion of higher education opportunities should be based on evidence of a demand for the skills and knowledge being developed.

At present, there is inadequate information on the work settings into which graduates go and the skills and knowledge they are most likely to apply in those settings. Yet, the high opportunity cost of higher education suggests that continued expansion of higher educational facilities and enrollments should be tied to clearly identified needs in the economy and society. At the same time, there

need to be incentives to encourage students into university majors most related to national manpower needs.

Conclusion 3. Need exists for a series of intervention programs which would improve student flow through the higher education system.

The preceding analysis suggests four points at which student flow could be improved. Students entering higher education without adequate prior preparation need bridging programs to provide them with academic prerequisites. Once the student is enrolled, an attrition reduction program might help reduce the loss of students, especially in science; such a program would combine an assessment of the reasons for student attrition with a program of personal counseling, academic remediation, and special group work targeted at the students most likely to drop out, in an effort to encourage their retention. Upon graduation, career information and advising programs may help improve students' transition from an academic to a more applied setting. Lastly, new policies and programs will need to be developed as students seek joint programs (e.g., engineering at UB and the Polytechnic) or wish to transfer among higher education institutions.

Conclusion 4. UB and BAC should undertake a close examination of staff/student ratios.

At present, staff/student ratios at both institutions are well below target levels in many program areas. Further, the target levels themselves seem low. A major component in the unit cost of higher education is instructional time. If staff/student ratios can be increased without a loss in educational quality, higher education

could be extended to more people without much additional cost or, alternatively, the resources could be used to extend educational opportunity at other levels of the educational system.

Conclusion 5. A long-term plan for inter-institutional coordination should be developed.

The program expansion at existing institutions and the development of additional teacher training facilities raise new questions about joint programs, shared staff, student transfers, and overall system coordination. New policies and procedures to guide program, staff, and facilities coordination need to be devised. One input to this planning should be a higher education data management system that will allow educational planners and administrators rapid access to and analysis of current educational data.

7.3 RECOMMENDATIONS

The recommendations are discussed in relation to the five main conclusions presented above.

7.3.1 First Priority - External Efficiency: Recommendations 1-3

Recommendation 1. Conduct a training needs survey of the government and industry fields that graduates are likely to enter.

Possible action steps. The purpose of this study would be to identify the particular skills and knowledge typically required within the major sectors of employment graduates tend to enter. This information could be used by the University in instructional

development activities and by the Personnel Allocation Committee in their placement of graduates.

Recommendation 2. Conduct a tracer study of University leavers.

Possible Action Steps: This study should be conducted in two parts. First, a sample of graduates from each Faculty at intervals of one, two, and four years out of higher education should be surveyed to determine their current employment and the career path followed. The same study should collect data on graduates' perceptions of their university experience and its relevance to their current employment, especially as that information can be used in instructional and curricular planning at the University.

The second part of the study should track students who attended UB or BAC, but who left the institution prior to graduation. This study should investigate the extent to which attending UB or BAC contributes to enhanced career and life opportunities even if the individual does not graduate. Such information would aid academic and career counseling of current and prospective students.

Recommendation 3. Encourage bonded students to enter private sector employment, particularly in smaller commercial and industrial enterprises.

Possible action steps. The high percentage of university students bonded to government employment severely limits the number of highly educated graduates available to the private sector, particularly because government can easily absorb all these graduates in public service. While the private sector does receive an

allocation of bonded students, it is not sufficient to meet the demand. A careful study of private sector needs should be conducted, and a long-range plan of private sector allocations should be developed to allow private industry to anticipate the number of highly educated personnel that will be available over the next decade. As part of this allocation procedure, it may be necessary to help ministries and businesses clarify their needs in terms of specific skill needs rather than job titles.

7.3.2 Second Priority - Internal Efficiency: Recommendations 4-8

Recommendation 4. Extend systematic collection and analysis of data on student flow.

Possible action steps. Develop a record keeping and data management system that allows for the easier and more rapid analysis of student flow patterns. This data system should provide for the early identification of attrition and of students needing remediation. It should allow for the rapid tabulation of data in formats not now reported, in order to support new information needs associated with program development and evaluation. Specification of data needs should involve primary data users outside of the University. The feasibility of operating the data system with a microcomputer should be considered.

Recommendation 5. Study staff time allocation.

Possible action steps. Faculty load should be evaluated in terms of actual allocation of UB and BAC faculty time rather than determined

as a fixed comparison with other universities. The student/staff ratio should be allowed to vary by Faculty, rather than a single ratio being applied across the institution. The study of staff time will also be useful in describing faculty contribution to research and community service.

Recommendation 6. Develop pre-entry programs to provide remediation in Faculties other than Science.

Possible action steps. These pre-entry programs might be patterned after PESC and would be targeted toward preparation for the degree programs at UB. These programs would provide students with prerequisite academic skills, and also with more information on their academic and career options prior to their choice of a course of study. Program development should employ systematic procedures of instructional design. In particular, the programs must be based on assessment of student abilities upon entry and of academic program prerequisites.

Recommendation 7. Develop a career advisement program.

Possible action steps. A career advisement program should provide information on the career ladders associated with various types of work as they apply to people with different levels of education and training. This career information should be targeted to students entering higher education who must choose a course of study and to higher education graduates who are seeking a position that uses their training. This advisement program might also include workshops in which graduates can analyze the work-related difficulties they

encounter and, at the same time, offer the educational institutions information on how they might make their coursework more relevant to graduates' work settings.

Recommendation 8. Implement an attrition reduction program.

Possible action steps. This program should provide an early identification of students intending to drop out and should provide personal and career counseling and academic remediation as needed. An effective intervention program to reduce attrition can result in substantial savings in both human and financial resources.

7.3.3 Third Priority - Administration and Supervision: Recommendation 9

Recommendation 9. Develop a long-term plan for the coordination of higher education.

Possible action steps. Implementation of this recommendation has two parts. First, develop a plan and procedures for coordinating programs across higher education institutions in tandem with national manpower needs and priorities. Consider an "umbrella role" for UB with respect to the larger educational system, one aspect of which would involve periodic assessment of the mechanisms for coordinating higher education programs and student flow. Second, develop a plan to be used in negotiations with donors in an effort to direct foreign study opportunities into the specialization areas of highest priority in national development. Such a plan also could help guide the allocation of government funds between domestic and foreign study opportunities.

8.0 VOCATIONAL AND TECHNICAL EDUCATION

This chapter examines vocational and technical education and training offered at the post-primary, post-secondary, and higher education levels through a variety of programs and institutions, operated within the public and the private sectors.

In this discussion vocational education is considered as that training oriented toward craft skill development whereas technical education consists of academic and occupational training aimed at higher order skills, usually involving integration of several technical skills. It is recognized that the distinction between vocational and technical education is often blurred.

An overview of vocational/technical education in Botswana reveals at least 38 units offering training. Most of the training is vocational rather than technical in nature. While the majority of the trainees have been males, except in the clerical skills, health, and public service areas where the majority of trainees are female, this gap is closing. Most of the programs are in the Gaborone area and are directed toward the modern sector.

8.1 STATUS

8.1.1 Historical Setting

Vocational and technical education are relatively new in

Botswana. In 1962, the Department of Education opened a Trade School in which students were instructed in bricklaying, carpentry, and auto mechanics. In the same year the Public Works Department Training Organization was established. These two organizations were merged in 1964 into the Botswana Training Centre, which also included the Commerce and Adult Education School. Over time, the organization evolved into the Botswana Institute of Administration and Commerce, and trades training was assumed by new institutions such as the Botswana Polytechnic and the new, post-independence government ministries.

Developments in vocational/technical education were not limited to the modern sector, however. In the mid-1960s the emergence of the Botswana Brigades signaled serious attention to training for the rural sector as well. Since that time, training organizations such as the government-supported Botswana Enterprise Development Unit (BEDU) and the Rural Industries Innovations Centre have begun to offer, in particular, vocational training directed toward rural workers.

8.1.2 National Goals and Strategies

Botswana's primary goal in vocational/technical education is to increase the number of trained craftspeople and technicians in the country. Trained personnel are needed to meet the country's manpower demands, generated by public and private organizations in the modern and the rural sectors.

Government is particularly interested in emphasizing rural development and employment generation. Its overall strategy has been to encourage vocational/technical training through a variety of means. It has developed training institutions, supports the initiatives of local and outside organizations and donors, encourages in-service training (particularly through tax incentives), and has instituted policies intended to make provision of training a viable entrepreneurial activity. In the National Development Plan V, government made specific commitments related to improving technical education. It promised to invest resources in the improvement of post-secondary education (especially at the country's major technical training institution, the Botswana Polytechnic), assist the Brigades movement in its contribution to rural development, and introduce a system of apprenticeship training. Since completing the Plan, government has decided to develop four Vocational Training Centers (at Palapye, Maun, Selebi-Phikwe, and Jwaneng) where individuals at the craft (rather than technical) level, will be trained.

8.1.3 Structure of the Vocational/Technical Subsector

At least 38 institutions and organizations offer vocational and/or technical training in Botswana. These institutions represent both public and private sectors and offer in-school and out-of-school training programs with an estimated combined enrollment of more than 4,900 individuals in 1983. Of these, 2,080 are trained in formal institutions. The largest institution in terms of number of students

is the Botswana Institute of Administration and Commerce with more than 1,100 students in 1983. The institutions provide a wide range of training in industrial, construction, and business skills. Most skills training is at the vocational rather than the technical level.

There is also a substantial amount of on-the-job training which is largely ad-hoc and firm specific. However, some sophisticated private sector programs exist which include discrete training facilities. Total private sector training output in the industrial trades alone has been estimated at about 1,500 per annum.

Currently there is no legislated mechanism for coordinating all of Botswana's vocational and technical education activities. The coordination of private sector training, and trades test standards, is provided for under the recently enacted Apprenticeship and Industrial Training Act. Attempts are being made to improve information on, and linkages between, various training activities, and an administrative scheme that includes the private sector is being formulated for coordinating vocational and technical training. A planned national manpower survey could be used to provide information for setting priorities and planning vocational and technical education.

8.1.4 Programs

The major vocational and technical training programs fall into four categories (Formal Training, Out-of-School, Business/Industry, and Proprietary programs), which provide the framework for the program descriptions that follow.

8.1.4.1 Formal Training Programs

Formal training programs are divided into two subcategories: (a) those in institutions whose sole purpose is to provide training and (b) those that are part of the various ministries or parastatals.

A. Formal Programs in Training Institutions

The vocational and technical training offered by five major institutions in Botswana is summarized in Table 8.1. These units are supported by government, although donor support may cover some costs. The training offered is at both vocational and technical levels and for both pre-service and in-service trainees. As can be seen from the table, a broad range of occupational study areas is offered. For the most part, a student is required to have completed either the Junior Certificate (JC) or the Cambridge School Certificate (CSC).

Trainees from two of the institutions, the National Health Institute and the Botswana Police College, are placed almost exclusively in Botswana's health services or police force. The other three institutions (the Botswana Polytechnic, the Automotive Trades Training School, and the Botswana Institute of Administration and Commerce) train individuals for a broader range of employers. Program descriptions of these three organizations follow.

(1) Botswana Polytechnic

Administration and Supervision. In 1979 the Botswana Polytechnic (BP) was created from the National Center for Vocational Training. It is under the jurisdiction of the Technical Education Department of the

TABLE 8.1

FORMAL VOCATIONAL AND TECHNICAL TRAINING INSTITUTIONS

Name	Entry Req.	Occupational Study Areas	Skill Level	No. of Courses	Type	Course Duration (years)	Students			
							Year	No. Enrolled	No. of FTEs	No. of Completers
National Health Institute (NHI)	JC CSC	Nursing, dental care, pharmacy, health education, laboratory, records	Primarily T	16	Primarily P	0.75-4	1981 1982 1983	428 400 380(dnc)	865 973 1,013(dnc)	429 355 303(d)
Botswana Police College	Std. 7	Policing, driving, explosives	Primarily V	15	Primarily I	0.03-1.8	1981 1982 1983	529 607 72(dnc)	529 607 72(dnc)	529 599 72(d)
Automotive Trades Training School (ATTS)	JC	Automotive trades	V	3	P	3	1981 1982 1983	- 40[2] 40[2]	- 40[2] 74[2]	- 0 -
Botswana Polytechnic (BP)	JC CSC	* Plumbing, building, electricity	V T	24	P I	0-4	1981 ** 1982 1983	284 - 485[1](dnc)	456 16 -(dnc)	260 39 -(dnc)
Botswana Institute of Administration and Commerce (BIAC)	Std.7 JC CSC	Clerical, accounting, telephone, records, customs, building, administration	V	58	I	0.01-4	1981 ** 1982 1983	1,237 - 1,103[3]	1,237 - -	1,089 - -

For Key, see page 8-6.

Sources: Unless otherwise indicated, data are from Ministry of Finance and Development Planning, 1983 Source for item marked [1] is Botswana Polytechnic, source for items marked [2] is ATTS, and source for items marked [3] is BIAC.

Difference between tables in number of BP courses offered probably are due to data being compiled on different bases.

*Information missing on several areas; e.g., mechanical, electrical, and civil engineering; telecommunications; technical teacher training; industrial administration.

**Enrollment figures need checking.

KEY FOR TABLES 8.1, 8.7, 8.8, 8.16, 8.17

Entry Requirements:

Ctd. 7	-	Standard 7
JC	-	Junior Certificate
CSC	-	Cambridge Senior Certificate

Skill Levels:

V	-	Vocational education--i.e., training oriented toward craft skill development.
T	-	Technical education--i.e., academic and occupational training aimed at higher order technical skills, usually involving integration of several technical skills.

Type of Training:

I	-	In-service
P	-	Pre-service

Students:

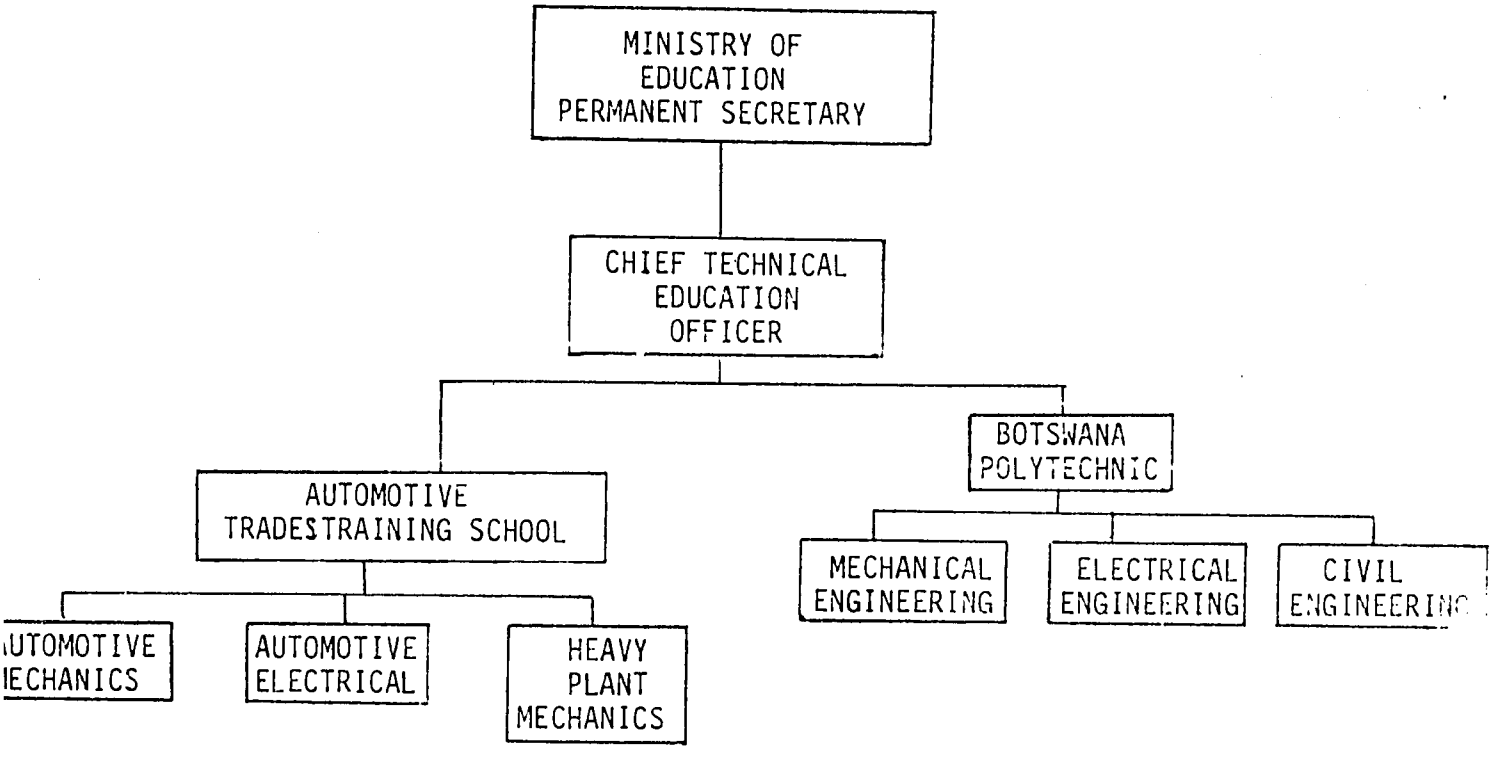
FTEs	-	Full-Time Equivalents. This number may be less than the number of students enrolled (when students are not engaged fulltime), equal to the number enrolled, or more than the number enrolled (when students are enrolled for more than a year).
dnc	-	Data not complete. When this designation appears next to a year, data are incomplete for that year only; when it appears elsewhere, incomplete data constitute the cell.

Ministry of Education and offers courses at the craft and technical levels. An organizational chart is shown in Figure 8.1. The Polytechnic has three Departments (Civil Engineering, Mechanical Engineering, and Electrical Engineering) and a Polytechnic Administration Section. Staff in academic departments report to a department head who, in turn, reports to the Principal. The Botswana Polytechnic also has a teacher training unit.

Trainees. In June 1983, 475 students attended the BP. Of this number, 20 were female. Student enrollment by course in 1983 is shown in Table 8.2, which indicates that the largest number of students enroll in mechanical engineering courses. Projected enrollment for 1983, developed in 1980, was 740. Lack of data and appropriate forecasting methods at the time the projections were made may have contributed to the discrepancy between actual and projected enrollments. While most students are full-time at the Polytechnic, some are part-time and some alternate attendance with work experience.

Entry requirements for the craft courses include a good pass on the Junior Certificate Examinations (Grade C or better) in English, Mathematics, and Science, an interview, and possibly a selection test. Candidates for the technical courses must possess either a Craft Certificate with credit levels of attainment, or a Cambridge Certificate with minimum grades of 6 in English, Mathematics, and Science, or General Certificate of Education passes in these subjects. A limited number of mature students without these

Figure 8.1 ORGANIZATIONAL CHART - MINISTRY OF EDUCATION
TECHNICAL EDUCATION DEPARTMENT



Source: Ministry of Education

TABLE 8.2
BOTSWANA POLYTECHNIC - 1983 ENROLLMENTS, BY DEPARTMENT AND COURSE

	Enrollments
Mechanical Engineering	
Mechanical Engineering Technician Part I	20
Mechanical Engineering Technician Part II	9
Welding and Fabrications Craft	28
Welding Day Release (2 groups)	21
Mechanical Fitting and Plant Maintenance Craft	9
Borehole Mechanics BM 3	Industry
Borehole Mechanics BM 2	15
Basic Engineering Trades Craft	12
Ordinary Technician Diploma Course 1st year	16
Motor Vehicle Technician Course Part II	7
Motor Vehicle Mechanics Craft	Industry
Heavy Construction Plant Mechanics Craft	9
Motor Vehicle Mechanics (Day Release)	41 (2nd)
Motor Vehicle Technician Part III (Day Release)	14
Department Total	201
Electrical Engineering	
Science Laboratory Assistants Day Release (2 days)	10
Refrigeration Craft	12
Electrical Installation Craft	16
Telecommunications Technicians Part I	10
Telecommunications Technicians Part II	24
Electrical Technicians Part II	8
Printing (518 "Primer" - Day Release)	20
Department Total	101
Civil Engineering	
Carpentry Craft	16
Brickwork Craft	17
Plumbing Craft	15
Property Maintenance Technicians	17
Industrial Arts Secondary Teachers	10
Water Technicians	17
Construction Technicians Part I	18
Construction Technicians Part II	19
Site Supervisors Management	24
In-Service Teachers Training Course	9
Wood Machining Course (1 day/week)	12
Department Total	174
Total Student Enrollment	475

Source: Botswana Polytechnic

qualifications are also admitted on the basis of employers' recommendations.

Trainers. The total teaching staff at the Polytechnic in 1983 was 61. This figure includes the principal, three department heads, and 16 staff receiving training. Staff receive training overseas, at the University, or at the Polytechnic. The student/teacher ratio for 1983 is 8:1. (If one considers that about 53 are actually teaching, the ratio becomes 9:1.) Currently, citizen staff are available only at the Assistant Instructor grade. Lecturer and Senior Lecturer positions now are filled by expatriate staff.

The existing staffing pattern points to the critical need for vocational teacher training, particularly as the BP is undergoing expansion in student numbers at the same time that it is maintaining a high level of staff training.

Curriculum. The Botswana Polytechnic offers courses at the craft and technician level. The ratio of students in craft to technician courses is approximately 2:1. Courses offered are shown by department in Table 8.3. In 1983, 33 classes covering 29 courses were offered. It is recognized that most students require additional on-the-job training before they can be classified as fully skilled.

Short courses (day long) are offered by the Polytechnic. These are usually provided to government and industry and rely on experience rather than academic qualifications. As soon as the planned vocational centers are fully operational, the Polytechnic is expected

TABLE 8.3

BOTSWANA POLYTECHNIC - COURSES OFFERED, BY DEPARTMENT

	Course No.	Course
Mechanical Engineering		
Craft	821	Mechanical Fitting
	821/5	Borehole Mechanics
	822	Welding and Fabrication
	825	Automotive Trades
	860	General Course in Mechanical/ Electrical
Technician	255	Mechanical Engineering I
	390	Automobile Technician I
Civil Engineering		
Craft	594	Painting and Decorating
	831	Brickwork and Blocklaying
	832	Plumbing
	834	Carpentry and Joinery
	861	General Course in Construction
Technician	626	Construction I and II
	-	Water Engineering
		Surveying Technicians
Others	834	Woodwork Teacher Training Course
Electrical Engineering		
Craft	823/232/236	Electrical Installation
	827	Refrigeration
Technician	270/271	Telecommunications
	280/281	Electrical

Source: Botswana Polytechnic

to hold steady the number of introductory courses it offers, and concentrate its resources on advanced craft and technical training.

Examinations. Excluding the short courses, certification is by modified City and Guilds of London examinations. The modifications address the local context and it is thought that adhering to international standards is important in controlling for quality performance.

Facilities and Equipment. The BP has 21 classrooms, 5 drawing offices, 9 workshops, and 7 laboratories. A required course in English and communication studies and a library provide additional support for studies. Boarding facilities house 90 percent of the students.

Costs and Financing. Capital projects at the Polytechnic have been funded primarily out of government development funds, with the largest donations from the United Kingdom and the Swedish International Development Agency (SIDA). The capital expenditures by source from 1979-80 projected through to 1984-85 are shown in Table 8.4.

Recurrent costs, exclusive of salaries paid by external agencies, are covered by employers and the Central Government. Private sector employers sponsoring students are required to pay government P20 per week per student (P8 for room and board and P12 for tuition fees) and are asked to cover the cost of books and supplies. These charges are not intended to recover the real cost and, therefore, represent a

TABLE 8.4

BOTSWANA POLYTECHNIC - CAPITAL EXPENDITURES BY SOURCE FROM 1979-80 THROUGH 1984-85

Source of Funds Available/Required	EXPENDITURE Actual 1979-80	1980-81	1981-82	Anticipated 1982-83	1983-84	1984-85	Latest Estimated TEC	Balance of Approved TEC carried over to NDP VI
FTBN	-	-	-	-	-	-	-	-
DDF P2,544,700	-	-	364,472	1,500,340	500,000	57,000	2,421,812	-
SIDA P 129,134	53,210	20,563	36,812	18,549	-	-	129,134	-
UK P 589,054	-	-	589,054	-	-	-	589,054	-
Total (Current Prices)	53,210	20,563	990,338	1,518,889	500,000	57,000	3,140,000	
Total (1982-83 Prices)	79,000	27,000	1,138,000	1,519,000	442,000	46,000	3,251,000	
Recurrent Financial Costs (1982-83 Prices)				25,000	100,000	25,000	150,000	

Status Report: Phase I - Complete.
Phase II - Major project construction has begun. Completion anticipated mid-1983. Approved funds (DDF) exceed the TEC by P122,888 and may not be fully utilized in the current plan period.

SOURCE: 1982 Project Review, Gaborone, 1983.

sizable subsidy of the private sector. No charge is made to the "unsponsored student" for room, board, tuition, books, and supplies. In addition to these "free" goods and services, students receive a P10 per month allowance for personal expenses. In exchange for the training a student is usually bonded to government. Information that would enable estimating the relative shares (government, external agency, employer) of the recurrent costs is available and should be analyzed in an update to this assessment. Government invested approximately P1,433,070 in Polytechnic training in 1982.

(2) Automotive Trades Training School

Administration and Supervision. Established in 1982, the Automotive Trades Training School (ATTS) is within the purview of the Department of Technical Education in the Ministry of Education (see Figure 8.1). It is situated beside the Botswana Polytechnic and shares some facilities (most notably the boarding hostels), although it remains administratively separate.

Trainees. The first 40 students enrolled in 1982. An additional 40 were enrolled six months later. These two groups (minus six who have dropped out) constitute the present enrollment. In early 1984 another 40 will enroll and the school will have its full complement of 120 students. Since the school has been operating for only two years, there have been no graduates.

Incoming students range in age from 17 to 22. All have passed JC in Science, Mathematics, and English and successfully completed an aptitude test conducted by the principal of ATTS.

Trainers. ATTS has a staff of 15 teachers, but only 12 are actually teaching; the other three are in training at the Botswana Polytechnic. Seven of the teaching staff are Batswana and five are expatriates. Teachers at the ATTS are paid on the same scale as other government teachers; frequently staff are lost to the private sector, which may offer more attractive terms.

Curriculum. Courses lasting three years each are offered in auto mechanics, auto electrics, and plant mechanics. Regardless of the program selected, the first two years of the training programs are identical, with specialization occuring in the third year. A modified City and Guilds of London curriculum that includes additional practical work is used. The ratio of practical to theoretical work is approximately 3:1.

Examinations. Students will compete for City and Guilds qualifications. Because the ATTS is new, no students have yet taken these examinations.

Facilities and Equipment. New, well-equipped facilities are located next to the Botswana Polytechnic in Gaborone. Hostels at Botswana Polytechnic house the students.

Cost and Financing. Capital expenditures of the Automotive Trades Training School were provided by the Federal Republic of Germany. Government covers the costs of local instructors and shop supplies.

Government-sponsored students (who are bonded) receive a stipend of P10 per month in addition to having all costs covered. Stipends for other students vary according to the resources allocated by the sponsoring organization.

(3) Botswana Institute of Administration and Commerce

Administration and Supervision. The Botswana Institute of Administration and Commerce (BIAC) offers courses for government, parastatal, and private organizations in commercial and secretarial subjects. The Institute began as part of Botswana's Trade School in 1962 and moved under the jurisdiction of the Office of the President (as the Botswana Training Centre) in 1974. It was renamed the Botswana Institute of Administration and Commerce in 1980.

Trainees. Male and female students between the ages of 16 and 40 enroll in courses at BIAC. Between April 1982 and March 1983 a total of 1,103 individuals participated in training activities (both long- and short-term, full- and part-time) at BIAC. Of these, 517 students (70 percent of whom were female) enrolled in long-term courses in the three major topical areas (secretarial, business and accounting, and public service) and 451 individuals enrolled in eight programs offered by BIAC for government departments; the training programs of 135 enrollees were not recorded (see Table 8.5).

Trainers. Fifty-four full-time staff teach at BIAC. Of this number 44 are Batswana and 10 are expatriates, six of whom are local hires. Many BIAC staff members lack formal teacher training, and professional training is seen as a priority need.

TABLE 8.5

BOTSWANA INSTITUTE OF ADMINISTRATION AND COMMERCE - ENROLLMENTS AND SECTOR REPRESENTATION, BY COURSE, 1983

Courses/Seminars Meetings, etc.	Participants			Sectors			Boarders		
	M	F	Total	Govt.	Pri.	Par.	M	F	Total
Public Service									
Introduction Courses	28	58	86	72	0	14	37	24	61
Basic Courses	47	56	103	92	0	11	26	30	56
Advanced Courses	7	13	20	20	0	0	4	7	11
Subtotal	82	127	209	184	0	25	67	61	128
Secretarial									
BESC Courses	6	99	105	105	0	0	5	81	86
BISC Courses	1	18	19	19	0	0	1	17	18
Special Courses	0	7	7	7	0	0	0	7	7
Subtotal	7	124	131	131	0	0	6	105	111
Accountancy									
Certificate Courses	38	71	109	35	70	4	20	30	50
Diploma	29	39	68	44	18	6	8	10	18
Subtotal	67	110	177	79	88	10	28	40	68
Departmental									
Accounts Training	9	12	21	21	0	0	0	0	0
Postal Training	13	39	52	52	0	0	0	0	0
Telecommunications	11	43	54	40	2	12	11	43	54
Prisons Training	123	15	138	138	0	0	0	0	0
Supplies Training	32	18	50	46	0	4	4	9	13
Railways Training	60	1	61	0	61	0	36	0	36
Local Govt. & Lands	21	8	29	29	0	0	21	8	29
Labor Officers	-	-	10	10	0	0	10	0	10
Customs & Excise	19	17	36	36	0	0	14	17	31
Subtotal	288	153	451	299	63	16	96	77	173
Miscellaneous									
Subtotal	-	-	135	-	-	10	10	-	120
GRAND TOTAL	422	463	1,103	693	151	51	207	283	600

Source: Botswana Institute of Administration and Commerce

Curriculum. At the present time BIAC is authorized to offer courses leading to elementary, intermediate, and advanced secretarial certificates; certificates, diplomas, and higher diplomas in accountancy and business studies; non-degree introductory and basic courses for public service employees; non-degree special courses requested by governmental departments; and non-degree refresher and upgrading courses for office work. Entry and graduation requirements for programs are shown in Table 8.6; enrollments by course were shown in Table 8.5. Courses are approximately 30 percent theoretical and 70 percent practical. In addition, short-term, in-service courses are provided on such topics as Supplies Induction, Basic Supplies Administration, and Clerical Induction (i.e., government organization).

Examinations. Students in secretarial studies sit for Pitman examinations. Accounting students may receive either a National Certificate (36 in 1982) or a National Diploma (35 in 1982), and the pass rate for the Department of Accountancy Training is 80 percent. The Diploma-level standards are matched internationally with Part A of the Chartered Institute of Secretaries and the Association of Certified Accountants Level I subjects.

Facilities and Equipment. The BIAC has classroom and hostel space but both need to be expanded. A library supports instructional activities.

Costs and Donor Support. BIAC's estimated expenditures for 1983-84 are P841,620. Capital costs have been financed principally

TABLE 8.6

BOTSWANA INSTITUTE OF ADMINISTRATION AND COMMERCE - ENTRY AND GRADUATION REQUIREMENTS, BY PROGRAM, 1983

Courses	Requirements		Duration
	Entry	Graduation	
Secretarial			
Elementary Certificate (BESC)	Minimum 16 years of age; Junior Certificate	Required courses; passes on BESC and Pitman examinations	1 academic year
Intermediate Certificate (BISC)	Minimum 16 years of age; Cambridge certificate or equivalent	Required courses; passes on BISC and Pitman examinations	2 academic years (if BESC holder or equivalent 1 year)
Advanced Certificate (BASC)	BISC or equivalent, with credits in communication and one more subject; minimum 3 years service as a secretary (BISC level of performance)	Required courses; pass on BASC exam	1 semester (approximately 20 weeks)
Accountancy and Business Studies			
Certificate	General Certificate of Education or Cambridge School certificate with passes in English and Mathematics or a good Junior Certificate with relevant job experience	Required courses and examinations	1 academic year
Diploma	A credit Certificate and not less than one year experience in accounting	Required courses and examinations	1 academic year
Higher Diploma	Not yet offered		1 semester

Source: Ministry of Education materials, 1983.

from government's development fund and loans from the World Bank. The International Labor Organization has also provided major support.

Recurrent costs at BIAC are financed in a somewhat different manner than they are in the other public post-secondary institutions. Pre-service government workers are charged no fees and receive a P10 allowance per month. In return, they are bonded to government service. In-service government workers are charged no fees and are entitled to full salary for 12 months and thereafter half their salary. Nongovernment students are charged P800 per annum for tuition and board (P600 per annum for tuition alone). Approximately 90 percent of all students are government supported, the rest being sponsored by parastatals and the private sector.

B. Formal Training Programs Within Ministries and Parastatals

The variety of occupational study areas in which training is offered by ministries and parastatals in Botswana is shown in Table 8.7. That most of these training programs have developed since the country's independence is evidence of government's response to high manpower demands in a wide range of sectors. A descriptive summary of elements of these programs follows.

Administration and Supervision. The vocational and technical training programs are provided by the relevant parastatals and units of government. These units are responsible for course content and assessing skill levels for successful completion.

TABLE 8.7

FORMAL VOCATIONAL AND TECHNICAL TRAINING
WITHIN MINISTRIES AND PARASTATALS IN BOTSWANA

Name	Entry Req.	Occupational Study Areas	Skill Level	No. Courses	Type	Course duration in years	Students			
							Year	No. Enrolled	No. FTEs	No. Completers
Botswana Civil Aviation	JC CSC	Flight information, Aeronatical radio	Primarily V	3	I	0.5 - 1.3	1981 1982 1983	- 12(dnc) -	- - -	- 12 - (dnc)
Telecommunications Training Centre	CSC JC	Fitting, jointing, telegraph, telephone electronics	Primarily V	12	Primarily I	0.07 - 0.38	1981(dnc) 1982 1983(dnc)	98 154 91	- - -	93 154 -
Department of Surveys & Lands	CSC	Cartography survey	T	2	I	1 - 2.5	1981 1982 1983	6 16 -(dnc)	- - -	5 - -(dnc)
Department of Meteorology Services	CSC	Meteorology	T	1	I	-	1981 1982 1983	13 11 13	13 11 13	7 8 -
Commissioner for Customary Services	None Std.7	Police, chief & court clerks training; administrative	T	5	Primarily I	0.1	1981 1982 1983	140 138(dnc) 116	140 138(dnc) 116	80 91 - (dnc)
Department of Water Affairs	JC CSC	Mechanics, foremanship, engineering & crafts	V T	15	-	2 - 5	1981 1982 1983	12 4(dnc) 8	77 73(dnc) 68	17 59(dnc) 78
Cooperative Development Centre	None CSC	Bookkeeping, member education, management	Primarily V	5	I	0.03 - 0.41	1981 1982 1983	125 50(dnc) 106	125 50(dnc) 106	104 41(dnc) -
Computer Bureau	CSC	Computer concept, Programming	T	3	I	0.001 - 0.12	1981(dnc) 1982 1983(dnc)	- 231 129	- 231 129	- 227 -
Botswana Housing Corporation	JC CSC	Building, property management, secretarial, public administration, accountancy	V T	7	-	0.5 - 2.0	1981 1982 1983(dnc)	45 52 9	43 58 18	40 49 9

(Continued)

TABLE 8.7 (Continued)

Name Acronym	Entry Req.	Occupational Study Areas	Skill Level	No. Courses	Type	Course duration in years	Students			
							Year	No. Enrolled	No. FTEs	No. Completers
Unified Local Government Service (ULGS)	Std.7 JC	Land board training, social & community development, supervision	Primarily T	7	Primarily I	0.02 - 0.4	1981 1982 1983	83 98(dnc) 11	83 98(dnc) 11	83 98(dnc) 11
Ministry of Local Government & Lands	JC	Day care	T	1	P	1	-	-	-	-
Botswana Meat Commission (BMC)	JC	Engineering, production; meat, leather, canning, & tanning technology	V T	6	I	1 - 2	1981 1982 1983	28 23 14(dnc)	- - -	- 22 -(dnc)
Rescue Fire Service Training	Std.7	Firemanship, officer training	V	3	I	.25	1981 1982 1983	20 14 12(dnc)	- - -	15 11 -(dnc)
Prisons	Std.7	Prisons	V	4	I	0.12 - 0.25	1981 1982 1983	110 130 169	110 130 169	108 128 -
Roads Training Centre	None Std.7 JC CSC	Road building skills, machine operation & supervision	V	9	-	0.04 - 3	1981 1982 1983	38 38 38(dnc)	38 38 38(dnc)	34 38 26(dnc)
Department of Town and Regional Planning	CSC	Drafting	T	1	Primarily I		1981 1982 1983(dnc)	4 0 3	4 0 3	4 0 -

Source: Ministry of Finance and Development Planning, 1983.

Key: See page 8.6

Trainees. Trainees in the various programs are also employees. The majority of trainees are already actively engaged in work activities and participate in in-service training programs to upgrade skills or to move to new employment areas. Even though, as noted in Table 8.8, data are incomplete, more than 719 participated in training offered by the parastatals and ministries in 1983. Entry requirements for the majority of the courses are either a Junior Certificate or a Cambridge School Certificate.

Trainers. Training is conducted by in-house training officers. Most training officers are not trained extensively in teaching/learning methodologies and most units cite lack of training staff as a critical need. Currently many training officers are receiving training at institutions such as the Botswana Polytechnic.

Curriculum. A wide variety of topics are taught at both the vocational and the technical levels through 84 different courses. Within units it is common for several different topics to be covered in training programs. For example, in addition to particular vocational or technical skills, several units provide administrative and supervisory training.

Examinations. Certification is the responsibility of the training unit. Ability to perform particular tasks is the criterion used most frequently for certification.

8.1.4.2 Out-of-School Training Programs

Three major institutions provide formal, out-of-school training: the Botswana Brigades, the Rural Industries Innovations Centre, and the Botswana Enterprise Development Unit. Training offered by these organizations is primarily vocational and rural in orientation. Enrollment and other statistics are summarized in Table 8.8. Descriptions of their training activities follow.

A. Botswana Brigades

Administration and Supervision. Brigades are small or medium-sized autonomous training and productions units. They are community-based, controlled by local boards of trustees. At the local level most brigades are part of a Brigade Centre, which is a cluster of brigades (builders, farmers, carpenters, and auto mechanics, for example). Although each Brigade Centre is necessarily unique, a center is usually staffed by, at the least, a full-time manager responsible for both training and commercial activities and an accountant, as well as training staff. Figure 8.2 shows the structure of a typical Brigade Centre.

The Brigade Development Centre (BRIDEC), located in Gaborone, serves three major functions:

- to coordinate basic training and upgrading of Brigade staff;
- to provide administrative and accounting support to, and consolidate the development of, the Brigade movement; and
- to serve as a conference center for the Brigades.

TABLE 8.8

OUT-OF-SCHOOL VOCATIONAL AND TECHNICAL TRAINING PROGRAMS IN BOTSWANA

Name	Entry Req.	Occupational Study Areas	Skill Level	No. of Courses	Type	Course Duration (years)	Students			
							Year	No. Enrolled	No. of FTEs	No. of Completers
Botswana Brigades	Std.7	Building, carpentry, welding, mechanics, forestry, plumbing, electrical, metal	V	38	I	variable	1981	676	-	-
							1982	683	-	-
							1983	726	-	-
Rural Industries Innovation Centre (RIIC)	None	Blacksmithing, carpentry, leatherwork	V	5[1]	P		1981	83[1]		83[1]
							1982	138[1]		138[1]
							1983	98[1]		98[1]
Botswana Enterprise Development Unit (BEDU)		Metalwork[2] construction, garments, leatherwork, woodwork, jewelry	V				1981	37[2]		

Key: See page 8.6

Source: Ministry of Finance and Development Planning, 1983. (Source for items marked 1 is RIIC; source for items marked 2 is BEDU.)

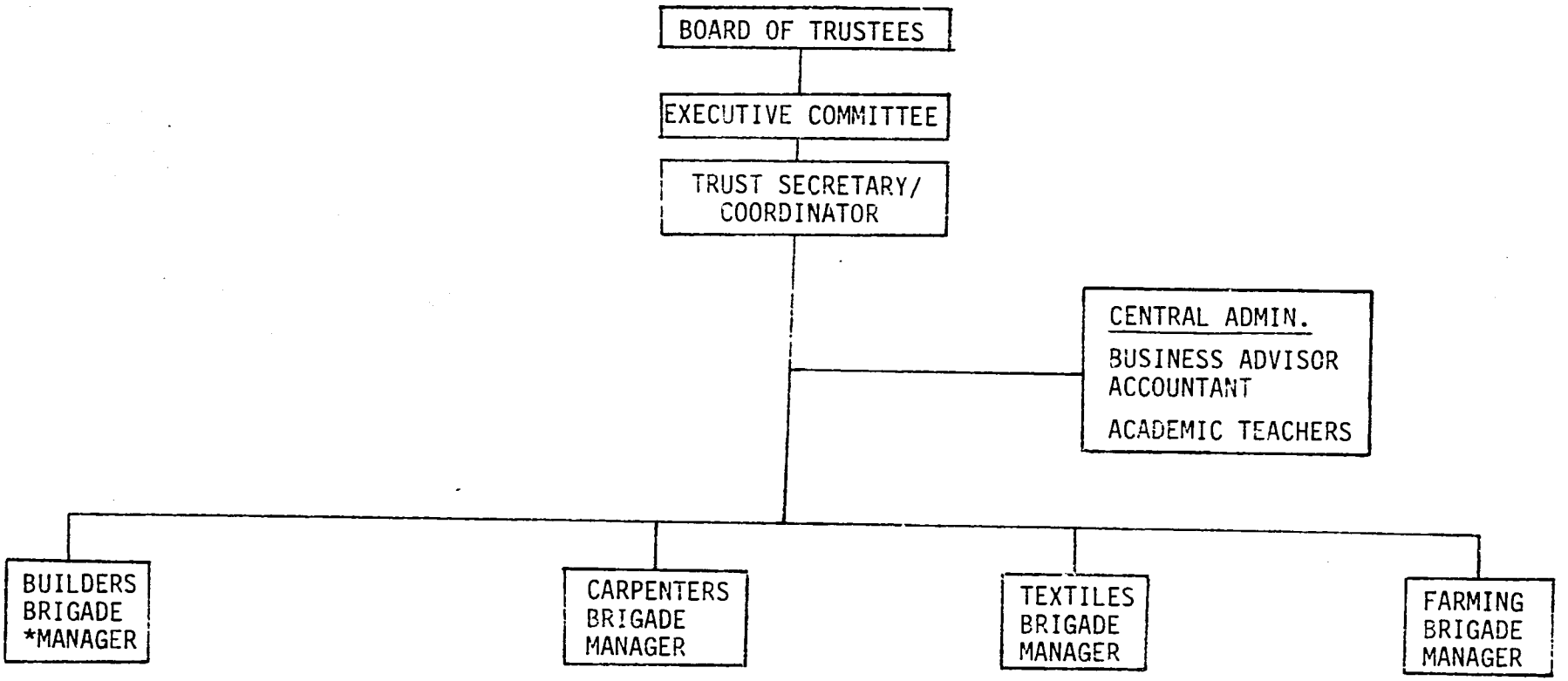
The Ministry of Education is responsible for administering government support to Brigade activities through BRIDEC. A 1981 re-evaluation of the Brigade movement by the Brigades Review Working Group resulted in a number of recommendations regarding the relationships between the Brigades and government. These are currently being assessed for implementation and BRIDEC's new organizational structure probably will be similar to that shown in Figure 8.3.

Trainees. For the most part, trainees are primary school leavers. Preference is for trainees who are between 16 and 18 years old. In 1983, 726 trainees were enrolled at 13 vocationally oriented Brigade Centres in 12 types of training activities (see Table 8.9). Enrollment figures by Brigade Centres for previous years (1976-1982) are contained in Table 8.10. (This table also shows funds received from Botswana's Education Project I, a World Bank loan which will be referred to later.) Most trainees are male.

Production brigades, those whose purpose is to produce goods to generate income in support of training costs, also provide training to employees. For example, the builders and mechanics training units of the Kanye Brigade Development Trust are partially supported by a unit that trains and employs villagers as knitters.

Trainers. The brigades rely heavily on donor-supplied expatriate teachers, many of whom have no formal teacher training. Counterparts

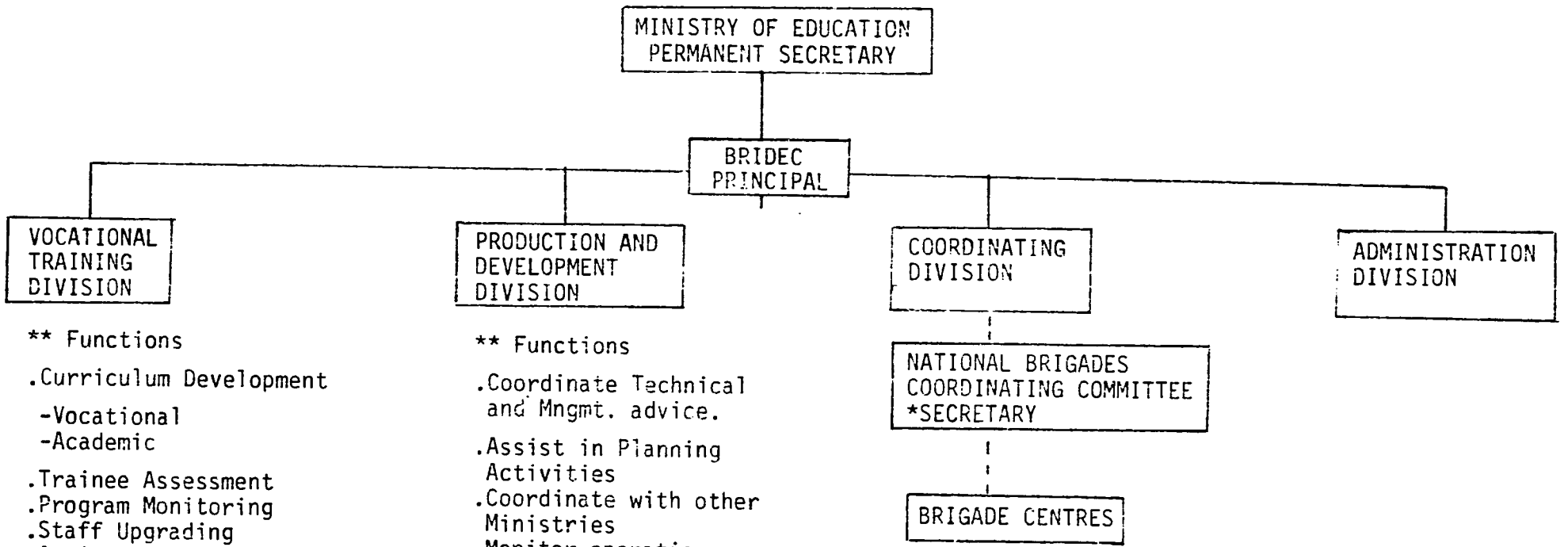
Figure 8.2 TYPICAL ORGANIZATIONAL STRUCTURE OF A BRIGADE CENTRE



INSTRUCTORS
TRAINEES
BOOKKEEPER
STOREKEEPER
SKILLED/SEMI-SKILLED WORKERS

* Each Brigade has a manager who is an expert in the occupation. This person is responsible for administration and supervision of the training and production activities. Each Brigade has trainees and staff as indicated in the Builders Brigade.

Figure 8.3 POSSIBLE ORGANIZATIONAL STRUCTURE OF BRIDEC



** Functions

.Curriculum Development

-Vocational
-Academic

.Trainee Assessment
.Program Monitoring
.Staff Upgrading
.Assist in Trade Testing Procedures
.Program Evaluation

** Functions

.Coordinate Technical and Mngmt. advice.

.Assist in Planning Activities
.Coordinate with other Ministries
.Monitor operations

** Some of these functions will require coordination with other agencies

*Head of Coordinating Division is National Secretary

TABLE 8.9

NUMBER OF BRIGADE TRAINEES, BY CRAFT AND CENTRE
1983

Center	Craft											
	Building	Carpentry	Welding	Auto Mechanics	Plumbing	Electrical	Metal	Forestry	Draught-manship	Machine Shop	Body Shop	Mmegiwa Dikgang
Bobonong	26											
K.R.D.A.	22	17		3								
Lobatse	36	27			13							
Kanye	24			14								
Maun	33	26		14	6							
Palapye	23	22										
Tswelelopele	36	14										
Madibe	29	16	10	18		22			23			
Chobe				4								
Shashe	34	34										
Kgatleng	16	25	12									
Serowe	25											
Tutume	38	24		10			6	6		6	6	6
Subtotal	342	205	22	63	19	22	6	6	23	6	6	6
Grand Total	726											

Source: BRIDEC, 1983

TABLE 8.10

SUMMARY OF BRIGADE CENTRES, ENROLLMENT, STAFFING, AND BEP FUNDING, 1976-1982

Place	Name of Centre	1976	1977	1978	1979	1980	1981	1982	1st Loan BEP Fund Grants
Bobonong	Bobonong Brigades Centre	–	–	–	–	20	21	26	–
Gabane	Ishwarangano Craft Centre	–	6	12	11	9	–	–	P 7,000
Gaborone	Gaborone Dev. Trust	–	–	–	10	6	–	–	–
Kang	Mastsha Brigades Dev. Trust	–	–	–	–	–	–	–	P 14,356
Kanye	Kanye Brigades Dev. Trust	86	51	59	32	37	29	37	P 198,578
Kasane	Chobe Brigades Dev. Trust	–	10	28	11	5	5	4	P 65,245
Lobatse	Lobatse Brigades Dev. Trust	74	95	82	71	93	94	92	P 168,134
Lobatse	Tiro-Ya-Diatla	–	–	–	8	7	–	–	–
Mahalapye	Madiba Educ. Trg. Centre	79	107	97	81	83	74	72	P 11,582
Mahalapye	Mahalapye Dev. Trust	–	48	40	48	135	–	–	–
Maun	Maun Brigades Dev. Trust	62	62	83	42	28	51	66	P 181,100
Mochudi	Kgatleng Dev. Board	68	93	69	61	56	52	58	P 97,563
Molepolole	Kweneng Rural Dev. Trust	95	96	99	94	81	53	49	P 127,844
Marapong	Marapong Dev. Trust	–	–	–	–	–	–	–	P 1,500
Palapye	Palapye Dev. Trust	55	44	29	35	41	48	44	P 150,639
Ramotswa	Tswelelopele Centre	40	45	66	36	37	46	64	P 135,283
Serowe	Serowe Brigades Dev. Trust	230	303	317	330	244	70	33	P –
Tonota	Shashe Brigades Dev. Trust	90	23	73	67	62	70	71	P 257,496
Tlokweng	Tlokweng Rural Dev. Centre	–	–	–	–	–	–	–	P 49,000
Tutume	Tutume McConnell Com. Trust	87	84	90	69	59	63	67	P 73,280
Takatokwane	Kgalagadi Settlement Project								
Total Trainees		966	1,067	1,144	1,006	1,003	676	683	
Employees Central Admin.		60	75	86	120	114	140	148	
Managers & Instructors		128	130	200	232	467	121	240	
Labourers, Workers, etc.		320	374	483	865	701	531	630	
GRAND TOTAL		1,474	1,646	1,913	2,285	2,265	1,468	1,701	P1,538,600

Source: BRIDEC

are identified but developmental training takes much time and qualified Batswana trainers often have alternative employment opportunities. Student/teacher ratios range from 6:1 to 10:1.

Curriculum. The Brigades make contributions in training, development, and employment generation in rural Botswana. They were originally designed as an attempt to overcome the shortcomings of the formal school system and their curriculum is based on the following principles:

- Vocational training shall be provided mainly for primary school leavers outside the formal education system,
- Training shall be primarily geared to the needs of the local area. The general aim is rural development to be achieved by offering training for gainful employment;
- Academic and vocational training both in the classroom and on the job shall lead to the adoption of development-oriented values, attitudes, knowledge, and skills.
- Training and productive work are to be combined so that the sale of produce is used to help cover costs of training (the principle of "cost-covering" applies to recurrent costs such as production costs, overheads such as administration and marketing, training expenses, and depreciation).

Table 8.10 shows the skills that are taught in the various brigades. The Madiba Brigade Centre is an example of a development brigade. Its primary objective is integrated community development and it offers community services (such as health, literacy, and an outlet for crafts products) as well as training.

Training in the brigades emphasizes practical applications and is on the job. Approximately one day out of five is reserved for academic upgrading and trade theory. Academic subjects include

Mathematics, English, Development Studies, and Science. Curriculum completion takes one year for textiles, two for farming, and three for the other fields (e.g., building, carpentry, electronics).

Examinations. At the end of the training period trainees take government trade tests, administered by the Ministry of Home Affairs. Most brigade trainees take the "Grade C" trade tests (Grades B and A designate higher skill levels).

Facilities and Equipment. Brigade centres have classroom buildings, workshops, and equipment. Instructional support materials appear to be minimal.

Costs and Financing. Capital funding for the Brigades has come from three sources: (a) grants or loans made to the Central Government for the Brigades; (b) grants made to a particular Brigade (see, for example, Table 8.11 for funds from the World Bank loan); and (c) the proceeds generated by the Centre's commercial ventures. Table 8.11 shows the first type of funding from 1979-80 through the current year and projected until 1984-85.

The major financial problem which the brigades have faced over time has been the financing of recurrent costs. In the past, training activities were sometimes sacrificed to productive enterprises in order to keep the Brigade operational. The fact that the government subsidy per student will be more than doubled from P400 to P1,000 in 1984 will help alleviate this problem. While there are no sound estimates of the costs per student, BRIDEC's estimates indicate that

TABLE 8.11

BRIGADES - EXPENDITURES, 1979-1985

Source of Funds Available/Required	Expenditure						Latest Estimated TEC	Balance of Approved TEC Carried over to NDP VI
	Actual			Anticipated				
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85		
FTBN P1,024,729	-	-	-	729	-	-	729	1,024,000
DDF P1,740,001	-	70,370	219,186	6,445	225,000	247,000	768,001	972,000
IBRD P2,943,775	276,494	440,145	106,492	76,644	502,000	503,000	1,904,775	1,039,000
SIDA P 366,495	109,886	163,251	39,566	30,792	23,000	-	366,495	-
Total (Current Prices)	386,380	673,766	365,244	114,610	750,000	750,000	3,040,000	3,035,000
Total (1982-83 Prices)	577,000	898,000	420,000	115,000	564,000	115,000	664,000	605,000

Status Report: The nature and extent of assistance to Brigades is under discussion within government. Actual expenditure, which will be based on project memoranda for individual brigades, may be undertaken by a different ministry.

Source: 1982 Project Review, Gaborone, 1983.

outlays average P1,500 per student over and above the portion covered by income from productive activities. The total cost might well double if the salaries of volunteers were included. In addition to these outlays, government expenditures related to BRIDEC totaled P614,180 in 1982; they were expected to increase in 1983. Other costs associated with BRIDEC are borne by external agencies through subsidization of the expatriate salaries, mentioned earlier.

(B) Rural Industries Innovation Centre (RIIC)

Administration and Supervision. The major activity of the Rural Industries Innovation Centre, which is located in Kanye, is the development of specific technologies appropriate to Botswana. In concert with producing innovative technologies, the RIIC runs training schemes for rural Batswana. Supported by government (as well as donor agencies), the RIIC reports to Rural Industries Promotions, a nongovernmental organization charged to help implement plans for Botswana's rural industrialization.

Trainees. Individuals who enroll in RIIC's programs are usually adults who remain self-employed after training by starting small village industries. RIIC's occupational training areas and the number of trainees in each from 1981 to 1983 are summarized in Table 8.12.

TABLE 8.12

RURAL INDUSTRIES INNOVATION CENTRE TRAINING

Occupational Skill Area	Entry Requirement	Duration	Students by Year and Gender					
			1981		1982		1983	
			M	F	M	F	M	F
Carpentry	None	4-6 weeks	10	-	11	-	18	-
Tanning	None	4-6 weeks	30	20	20	30	25	25
Blacksmithing	None	4-6 weeks	-	-	8	-	7	-
Village Bakery	None	3-4 weeks	8	7	40	19	5	3
Sorghum Dehuller Operation	Work Experience	3-4 weeks	6	2	9	1	11	4

Source: RIIC, 1983.

Trainers. A resident carpenter, blacksmith, and tanner provide training to villagers in these skills. Villagers themselves, the trainers emphasize locally appropriate technologies and locally available materials.

Curriculum. Training is practical and emphasizes skills that can provide the learner with income-generating opportunities in a village setting. RIIC staff cite the critical need for training materials and information on marketing, sales outlets, and costing.

Examinations. Training is very informal. Trainee and trainer determine the learning pace and when the course of instruction is complete. No examinations are taken or certificates awarded.

Facilities and Equipment. Training equipment and facilities are available in Kanye. Boarding facilities are also available for the trainees.

Costs and Financing. The recurrent budget for the RIIC is P1.25 million, of which government pays P250,000. The development budget for 1982 was P60,000 and an additional P890,000 is anticipated from donors. Students pay P5 per course.

C. Botswana Enterprise Development Unit (BEDU)

Administration and Supervision. The Botswana Enterprise Development Unit is a major sponsor of indigenous enterprise. It is part of the Ministry of Industry and Commerce portfolio and is charged with establishing and supporting small-scale industries owned by local entrepreneurs. BEDU established "estates" where several entrepreneurs

were located and provided both financial and technical support. Because this approach has proved to be limiting, BEDU has begun to extend its services outside the industrial estates. A 1982 review of BEDU suggested a new organizational structure for BEDU, which is shown in Figure 8.4.

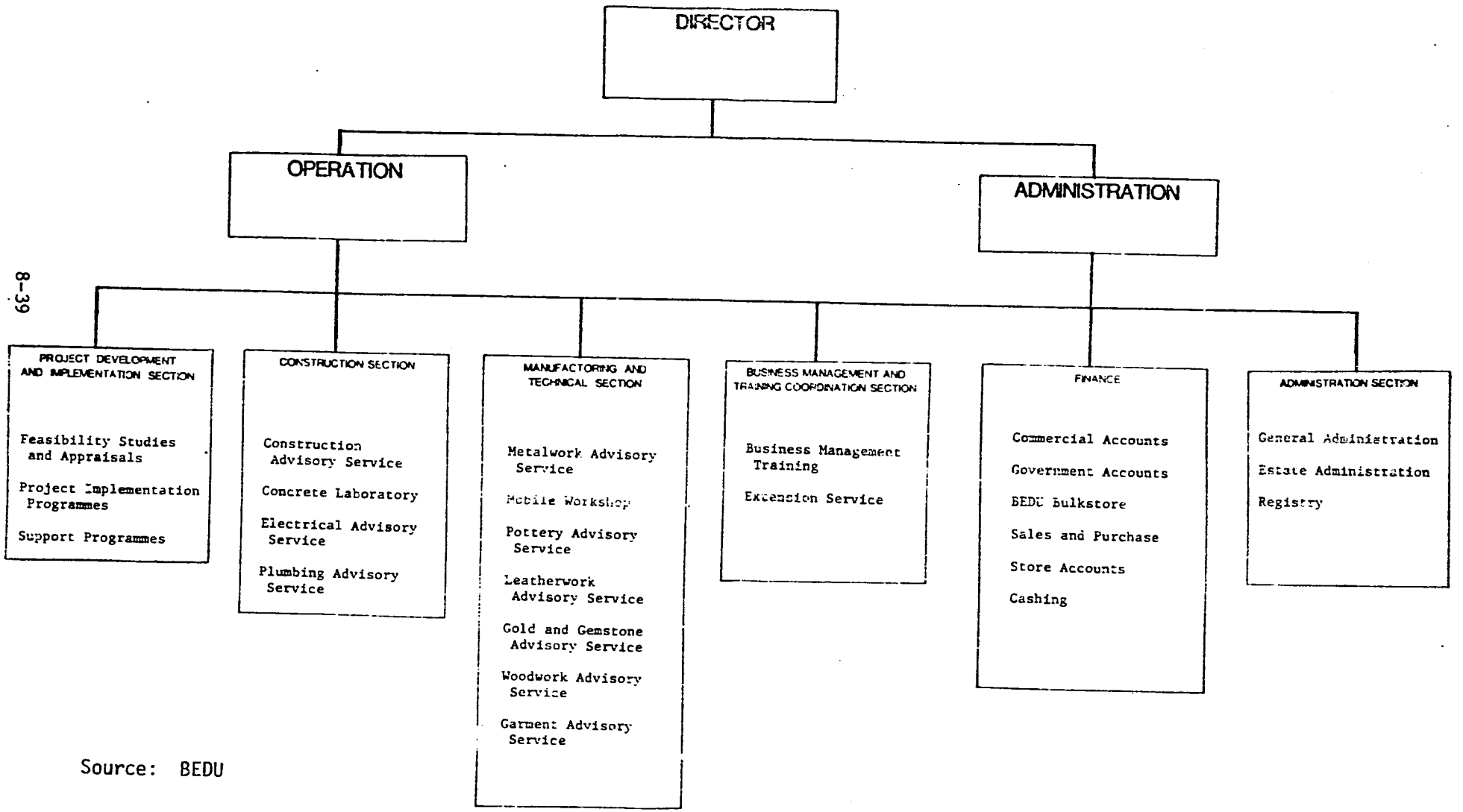
Trainees. Small-scale entrepreneurs (or potential entrepreneurs) are identified for training and other support services so that they might set up more viable small businesses. In particular, BEDU provides trainees with management support and training. The number of BEDU trainees in 1981-82 and the number of employees, subdivided by gender and industrial area, are shown in Table 8.13.

Trainers. A shortage of qualified staff is a serious handicap to BEDU's activities. In 1982, 27 of 82 posts were vacant and only about nine officers had sufficient training to function as advisors in technical and business management areas.

Curriculum. BEDU focuses on business management. It works with entrepreneurs engaged in such fields as metalwork, construction, textiles, leatherwork, woodwork, and handicrafts.

Examinations. As shown in Table 8.13, 16 individuals completed BEDU training in 1981-82. In 1982 a concerted effort was made to evaluate the viability of the enterprises located in the estates. This evaluation was to identify those businesses that could be viable on their own, those that had potential and deserved continued support, and those from which support should be withdrawn. Of the 89 businesses, 22 were considered capable of operating independently, 36

Figure 8.4 PROPOSED ORGANIZATIONAL STRUCTURE FOR BOTSWANA ENTERPRISE DEVELOPMENT UNIT



Source: BEDU

TABLE 8.13

BEDU - NUMBERS OF ESTABLISHMENTS, TRAINEES, AND GRADUATES, 1982

	Number of Entrepreneurs	Number of Employees 1981-82	Males	Females
Under Training				
Metalwork Entrepreneurs	5	66	51	15
Construction Entrepreneurs	7	268	253	15
Garment Entrepreneurs	14	91	8	83
Leatherwork Entrepreneurs	5	38	20	18
Woodwork Entrepreneurs	3	18	15	3
Miscellaneous Entrepreneurs	3	11	10	1
Subtotal	37	492	357	135
Graduated				
Metalwork Entrepreneurs	3	39	31	8
Construction Entrepreneurs	10	638	606	32
Garment Entrepreneurs	3	19	-	19
Subtotal	16	696	637	59
Total	53	1,188	994	194

Source: BEDU

worthy of additional assistance, and 31 not worthy of continued support. Successful establishments and their 1982 project locations are shown in Table 8.14.

Facilities and Equipment. The industrial estates provide adequate facilities for entrepreneurs. Support services appear to be lacking in some areas.

Costs and Financing. In 1980 government estimated that the average investment per job created by BEDU was P5,800. For the 1982-83 financial year BEDU requested P570,538 for development and the Ministry of Finance and Development Planning approved P475,538 for the activities shown in Table 8.15. An additional P536,450 was approved for ongoing projects (P500,000 for loans, P20,000 to extend the Pilane Tannery building, and P16,450 for the Gemstone and Silversmith Training Programme).

8.1.4.3 Training Through Business and Industry

Government is committed to encouraging the development of Botswana's private sector. It has also recognized that the larger, specialized industries requiring skilled manpower, high capital investments, and sophisticated technologies may have to be undertaken by foreign investors. As a request, Botswana has tried to create a climate that attracts private sector involvement. One of the elements of government's strategy has been through tax incentives and it is through this mechanism that private sector vocational and technical

TABLE 8.14

SUCCESSFUL BEDU-SUPPORTED ESTABLISHMENTS AND THEIR 1982 LOCATIONS

Entrepreneur	Location
Entrepreneurs Still Located Within Estates	
Polokano Coffins	Francistown Estate
Itsholetseng Knitting Centre	Francistown Estate
Morwa Jerseys	Pilane Estate
Boikago Engineering	Metalwork Estate
Tumelo Steel Engineering	Metalwork Estate
Roka Textiles	Garment Estate
Lion's Curtains	Garment Estate
Kalahari Gemstones	Garment Estate
E.L.B.Construction	Construction Estate
R.T.S. Metalwork	Kanye Estate
Bosele Construction	Construction Estate
Tswelelo Pottery	Francistown Estate
Germ Electrical	Construction Estate
Entrepreneurs Located on their own Premises	
Boswe Construction	Gaborone
Eddie Brothers	Kanye
Mongwaketse Cement Products	Kanye
Seralanyane Hauling Const.	Kanye
Tswana Electricals	Gaborone
Yours & Mine Electrical	Mahalapye
Molepolole Chicken Projects	Molepolole
Mothugi Mills	Thamaga
Chadwell/Balopi Tswana Tanneries	Pilane
Entrepreneurs who Have Been Allocated Plots	
Boikago Engineering	Pilane
Morwa Jerseys	Pilane
Polokano Coffins	Francistown
E.L.B. Construction	Gaborone
R.T.'s Metalworks	Kanye
Roka Textiles	Pilane
Kalahari Gemstones	Selebi-Phikwe
Entrepreneurs who Have Applied for Plots	
Tumelo Engineering	Metalworks
Lion's Curtains	Garments
Tswelelo Pottery	Tonota (Francistown)
Entrepreneurs who Have Not Applied for Plots	
Germ Electrical	Construction
Bosele Construction	
Itsholetseng Knitting Centre	Francistown

TABLE 8.15

BEDU - 1982-83 DEVELOPMENT BUDGET REQUEST
(Pula)

Projects	Amount Requested	Amount Approved	Balance to be Approved
Financial Assistance	250,000	200,000	50,000
Upgrading of Common/ Workshops	69,850	69,850	-
Upgrading of Bulkstore	45,000		45,000
Support Program for Entrepreneurs	76,500	76,500	-
Training Co-ordination	129,188	129,188	-
Totals	570,538	475,538	95,000

Source: BEDU

training of Batswana has been promoted. The private sector's response has had two important thrusts, both of which will be described briefly. The first has been to provide training and the second to work with associations that support their activities.

A. Private Sector Training

Data on the training programs of some of the private companies currently working in the country and training Batswana are shown in Table 8.16. These companies usually recruit Batswana for particular positions and provide both pre-service and in-service training in a variety of areas. As with the training offered by ministries and parastatals, skills such as administration are taught in addition to particular vocational and technical skills. The banks offer a large number of courses (30 in total) and in 1983 were training 517 individuals, the majority of whom were receiving vocational rather than technical training.

The private sector cites competition with government as a difficulty in recruiting qualified staff (from both the secondary and higher education levels). Other concerns relate to the lack of coincidence between skills acquired in secondary and higher education (e.g., from the Botswana Polytechnic) and the job requirements once new employees are placed.

TABLE 8.16

VOCATIONAL AND TECHNICAL TRAINING OFFERED THROUGH BUSINESS AND INDUSTRY

Name	Entry Req.	Occupational Study Areas	Skill Level	No. of Courses	Type	Course Duration (years)	Students			
							Year	No. Enrolled	No. of FTEs	No. of Completers
Standard Bank Training Centre	CSC	Clerking, billing, leadership	Primarily V	22	Primarily I	0.02-0.04	1981	156	-	129
							1982	190(dnc)	-	168(dnc)
							1983	98	-	46
Debswana	-	Typing, automotive, electrical, fitting, fabrication	T	19	Primarily I	-	1981	76	-	62
							1982	41	-	35
							1983	63	-	45
Multi Construction Building & Engineering Botswana	-	Siting, tiling first aid, clerical, supervision	V	5	Primarily I	-	1981	-	-	-
							1982	12	12	12
							1983	-	-	-
Engineering Management Services (EMS)	CSC	Civil engineering	T	2	-	4	1981	-	-	-
							1982	8	8	-
							1983	8	16	-
Barclays Bank Training Centre	CSC	Clerking, telling, supervision	V	8	Primarily I P		1981	282	282	282
							1982	311	311	311
							1983	491(dnc)	419(dnc)	45(dnc)

Key: See page 8.6

Source: Ministry of Finance and Development Planning 1983.

B. Associations in Support of the Private Sector

The Association of Training and Development Officers is a voluntary organization that was started in an attempt to coordinate training in the private sector and the parastatals. It began in 1982 in response to the obvious need for coordination in implementing government's localization policy (training Batswana to assume positions held by expatriates). Its purpose is to serve as a mechanism for training officers to share ideas, and such resources as training aids, workshops, and instructors, and to pool candidates for advanced training in an attempt to cut costs. A recent listing from the Association includes the names of over 350 companies in Botswana who are part of the Association, although far fewer companies are actively involved in programs.

The Association's first aim is to improve personnel development through in-service training. It emphasizes the need to recognize employee potential rather than paper qualifications and promotes training that allows workers to move through a company from the lowest levels to supervisory roles. Its second aim is to work more closely with government in several areas. The Association lobbies for the private sector to have improved access to secondary school and higher education graduates, tries to improve the mechanisms that allow the private sector to work with government in relevant policy areas, and seeks more substantive involvement in human resource planning and the linking of training throughout Botswana to manpower needs.

The Botswana Employers Federation (BEF) consists of direct members and affiliated trade associations. BEF encourages the development of professional associations that can articulate members particular interests. By the end of 1982, 497 companies (representing 38,000 employees) made up the Federation.

In 1982-83 BEF initiated a new training program. In line with government's decision to make training funds available to parastatals and the private sector, funds from the USAID-supported Botswana Workers and Skills Training Project (BWAST) and from the European Economic Community were made available to BEF. Twenty-one employees have completed training and 37 were expected to finish by the end of 1983.

8.1.4.4 Proprietrary Training

The number of proprietary training schools in Botswana is very small (those offering drivers training, for taxi drivers, truck drivers, etc. are mentioned in Chapter 9.0 of this assessment). Nine establishments offer training in typing and other clerical skills. Their enrollments and program characteristics are summarized in Table 8.17. The majority of trainees in these programs are female.

TABLE 8.17

PROPRIETARY ESTABLISHMENTS OFFERING VOCATIONAL TRAINING IN BOTSWANA

Name	Entry Req.	Occupational Study Areas	Skill Level	No. of Courses	Type	Course Duration in years	Students			
							Year	No. Enrolled	No. FTEs	No. Completers
Muchudi Typing School	Std.7	Typing, Bookkeeping	V	2	P	0.5-1	1981 1982 1983	140 180(dnc) 171	- - -	80 120(dnc) -
Gaborone Cathedral Commercial School	Std.7 JC	Shorthand, Typing, Clerical, Book-keeping	V	8	P	0.5-1.3	1981 1982 1983	205 226(dnc) 104	205 226(dnc) 104	205 226(dnc) 20
Tshipidi Commercial School	Std.7	Clerical	V	1	P	1.5	1981 1982 1983	76 88 96	137 164 184	40 50 -
Assemblies of God[1] Typing School	Std.7	Typing	V	1	P	0.3	1983	20		
Aunt Ellen's [1] Typing School	Std.7	Typing	V	2	P	0.5-0.75	1983	40		
Boikanyo Touch[1] Typing School	Std.7	Typing	V	2	P	0.5				
Gabriel's Typing[1] School	JC	Typing	V	1	P	0.5-0.75	1983	60		
Modern Typing [1] School	Std.7	Typing, Book-keeping, Office Skills	V	1	P	0.5-0.75	1983	134		
St. Peter's [1] Typing School	Std.7	Typing	V	1	P	0.5	1983	28		

Source: Ministry of Finance & Development Planning, 1983 (Source of items marked [1] is 1983 Assessment & Analysis of Nonformal Education in Botswana by Creative Associates, Inc.).

Key: see Page 8-6

8.2 ANALYSIS

Using as a foundation the previous review of vocational and technical education and training, this section explores the issues that government must address to improve the internal and external efficiency, administration, and supervision of programs in this area. These issues are examined within the context of the needs, plans, and constraints outlined in the following subsections.

8.2.1 Needs

As indicated in the National Development Plan for 1979-85, the growth of the economy has increased the need for skilled and educated manpower. As the country's infrastructure expands, new business development and foreign investments will be encouraged, and demand for skilled manpower will be even greater. Government has therefore placed a high priority on building a labor force adequate to meet the demands of the economy.

It is within this context of growing demand for skilled manpower that Botswana's vocational/technical training needs must be considered. The major needs are:

- to link the training of skilled craftspeople and technicians with actual national demands for manpower,
- to develop a national plan for vocational/technical education and training,
- to establish stronger links between government and the private sector in the process of identifying demand for manpower and planning training programs appropriate for meeting these demands, and

- to improve the quality, relevance, and cost-effectiveness of skills training programs.

All the major needs listed above could be addressed in further articulating a comprehensive National Plan for vocational/technical education and training. The plan will need to formulate appropriate questions and devise frameworks to answer them. The following basic questions about the subsector need to be answered before broader questions of development strategy can be addressed:

- What formal links exist that allow coordination between vocational/technical education and training and manpower needs?

- Should priority be placed on craft training or on technical training? What is the proper balance between the two and with still other orientations?

- How are the training activities within the various ministries coordinated?

- What are the actual recurrent costs of both formal and out-of-school training programs?

- What measures are used to determine the effectiveness of the training programs and teaching methodologies?

- Is there consistency between curriculum offerings and examinations? Do examinations evaluate acquisition of the skills actually needed in the workplace? How can programs be responsive to small, dynamic, and fast growing economies?

- What is the ratio of expatriate teachers to Batswana by training program? What incentives are used or could be introduced to encourage greater participation by Batswana in vocational teacher training?

- What are the total enrollment and graduation figures by type of training program for the past three years?

- What are the current entrance requirements for vocational and technical training? How do these requirements affect total enrollment figures or proportions of students entering technical programs? How does this compare to numbers and proportions entering vocational training programs?
- What criteria should the Technical Education Department use to determine the types of training programs that should be offered?

Getting answers to these and many other questions is a critical first step in developing a national plan and a basis for effective administration and supervision of the vocational and technical education subsector.

8.2.2 Plans

Aware of the need for more and better skilled manpower, government has already set in motion plans that address some of the problems of external efficiency, access and equity, and supervision and management.

Plans are under way to establish an apprenticeship system that will provide on-the-job industrial training which is directly usable in the workplace. This effort, mandated by government in the Apprenticeship and Industrial Training Bill of 1983, will be implemented under the direction of a National Advisory Board with membership representing government, employer, and employee interests.

Plans also have been made for four new Vocational Trade Centres at Palapye, Maun, Selebi-Phikwe, and Jwaneng. Criteria for the selection of sites for the Centres included: (a) access to some

industry; (b) adequate numbers of potential students from the local area, to limit the need for boarding facilities; (c) availability of electricity and other forms of necessary infrastructure; and (d) the likelihood of employment upon completion of the program. This is an ambitious project that should improve access to formal vocational education in the rural areas and complement the basic skills training offered by the Brigades.

Government is also exploring the appropriate future relationship between the Ministry of Education and Brigade Centres in an effort to ensure better quality of instruction in the programs.

8.2.3 Constraints

The major constraints to full development of vocational and technical education and training include: (a) need for "bridging programs" to overcome inadequate student preparation for entry into training programs (i.e., relatively low scores on Junior Certificate reading and math tests); (b) limited access to higher level technical and commercial training and education; (c) unevenness of quality of training in rural areas; and (d) need for an improved localization strategy for upgrading vocational instructors.

8.2.4 Issues

Key issues that government faces in the vocational and technical subsector can be identified from two sorts of information:
(a) examination of Botswana's vocational and technical programs given

in the previous section, and (b) more general observations based on interviews and conferences with the personnel of key ministries (especially Education, Home Affairs, and Finance and Development Planning) as well as visits to the sites of selected training programs. Analysis of these issues leads to a series of conclusions about the subsector which provide the rationale for recommended future action.

8.2.4.1 External Efficiency

The main issues of external efficiency concern (a) identifying and planning for actual national manpower needs, (b) relating training programs more closely to business and industry, (c) finding the optimum emphasis on training in high level technical skills, and (d) implementing recent legislation for a system of apprenticeship.

A. Identifying and planning for national manpower needs

To date there has been no national survey to identify actual demand for manpower, and hence no comprehensive national effort to plan vocational/technical education and training programs to meet demand. Recently, however, the Ministry of Finance and Development Planning began work on a manpower survey that is addressing some of these demand-related inquiries. As work proceeds, it will be important that business and industry work closely with government to ensure that the private sector's human resources are adequately addressed in the future. Business and government should collaborate

in analyzing manpower demand data to answer the following sorts of questions:

- What skills are required?
- Who should be trained? (e.g., prerequisite skills, appropriate academic background)
- What type of training is needed?
- What is required to attain this level of training? (e.g., what skills are needed to perform tasks and/or operate equipment on the job? What standards must be met for certification in a given skills area?)
- Where are the jobs? How many are there?
- How are business and government's skill needs likely to change in the future?

Future data collection should not concentrate exclusively on measuring the demand for a trained workforce. Certain data on the current supply of manpower should also be collected and analyzed. For instance, a tracer study of subsector graduates would provide answers to a variety of questions related to external efficiency (e.g., How employable are current graduates? Once hired, what proportion of graduates require additional on-the-job training?) This sort of information would also be valuable for measuring internal efficiency indicators, such as curriculum relevance and rate of program completion.

For effective matching of trained personnel to public and private sector manpower needs, the procedure for supplying appropriate manpower must be articulated in some national level development plan for the subsector. Such a plan might make projections for future

optimal enrollment levels in the various types of training programs. These enrollment projections would, in turn, be useful in determining future demand for instructors. The average student/teacher ratio for the subsector is now rather low at 9:1. While it is not necessary or perhaps not even desirable to maintain such a low student/teacher ratio in the future, large enrollment increases in the subsector could cause a shortage of teachers in the future. Certainly the approved construction and operation of four new Vocational Trade Centres will increase the demand for vocational education teachers in the next 4 to 5 years. A national plan for the subsector would be useful in identifying how many additional teachers will be needed to meet these new levels of demand.

A national plan for the vocational and technical education subsector, based on sound assumptions and frequent updating, would be instrumental in anticipating and accommodating such supply and demand changes. Development and implementation of a national plan will require a strong organization capable of coordinating many diverse efforts in vocational/technical education and training. The Department of Technical Education within the Ministry of Education, the Department of Labor in the Ministry of Home Affairs, and the Training Unit of the Department of Personnel would have to be strengthened considerably to effectively implement such a development plan on a national scale. This constraint will be discussed in greater detail in the context of supervision and administration issues.

B. Relating training to business and industry

A report by the Presidential Commission on Economic Opportunities, 1982, recommended high priority for national manpower planning and strong input by the private sector into the process. This suggests a need for the private sector to take a more active role in the vocational/technical education subsector. Although a number of companies offer their own in-service and pre-service training, relatively few participate in financing the subsector's formal training programs. They do participate in planning the formal programs; ATTS and Polytechnic courses are offered only when requested by industry.

For example, the private sector has taken only limited advantage of the opportunity to sponsor students at the BP and BIAC. At the BP, private sector sponsorship of a student requires providing students with approximately P1,000 per year for tuition, board, books, and supplies. A conservative estimate of the actual recurrent annual cost of keeping one student at the BP is P3,017--considerably more than the P1,000 commitment required for business sponsorship of a student. Despite this partial government subsidy of industry's sponsorship, a relatively small proportion of BP students are sponsored by the private sector. At BIAC, 90 percent of the students are supported by the government and the remaining 10 percent are supported by parastatals and the private sector. As a result, about 79 percent of BIAC's graduates go to work for government, 5 percent for parastatals, and 16 percent for the private sector.

In the past, government has maintained major responsibility for financing and administering the subsector. Of the 38 organizations offering training in vocational and technical skills, 23 are under government jurisdiction. Recently, however, both business and government have tried to address the problem of inadequate private sector input into vocational and technical education. In 1982 the Association of Training and Development Officers was formed as a voluntary organization aimed at coordinating the training efforts and resources of private sector and parastatal organizations. Although the organization's membership includes some 350 businesses, there are fewer active members. Also organized in 1982, the Botswana Employers Federation represents a response to government's recent decision to give the private sector and parastatals funding to develop training capabilities. Nearly 500 companies have joined and are responding by providing some training on their own.

Both organizations indicate that the need for the private sector to become more involved in developing skilled manpower has been recognized and that preliminary steps have been taken. If manpower training programs are to relate well to the needs of business and industry, government should continue to encourage the private sector and parastatals to develop their own training programs. In addition, business and industry increasingly should be brought into the total planning process--perhaps through industry boards or similar advisory committees. Official channels for such input need to be developed and used.

C. Finding the optimum emphasis on training in high-level technical skills

Chapter 2.0 projects the continued severe shortages of persons with high-level technical skills, yet up to 80 percent of skills training programs are geared toward developing craft skills. Relatively few programs are designed to give participants academic and occupational training aimed at developing higher order technical and commercial skills. A brief examination of the Botswana Polytechnic, the formal training institution that offers some of the subsector's most technically advanced programs, illustrates this problem. In 1983, only 158 of the BP's 475 students were enrolled in technical programs leading to advanced training in the areas of mechanical, electrical, and civil engineering.

Of the 38 surveyed institutions offering technical and vocational training, 26 offer predominantly vocational and craft level training. The proportion of actual students trained in vocational as compared to technical skills may be higher. It is possible that Botswana's workplace actually requires this heavy emphasis on vocational and craft level training, and may depend on it as a foundation for more advanced technical training. Nevertheless, all available data point to the fact that demand for graduates with more advanced skills exceeds supply.

Information from the manpower demand survey, now under way in the Ministry of Finance and Development Planning, should give government

an idea of the gap between supply of and demand for persons with higher level technical skills. Measuring this shortage should, however, be viewed only as a first step. If the vocational/technical education subsector is to successfully provide adequate numbers of well-trained technicans to meet the economy's changing demands, past obstacles need to be identified and removed.

Using the Cambridge Certificate as the major prerequisite for entry into advanced technical and commercial courses of study may be contributing to the relatively low numbers of students enrolled in these courses. The exam is given at the end of Form V and is considered to be extremely difficult; very few Batswana earn passing grades. One reason for poor student performance on the Cambridge Certificate may be that, since the exam is a remnant of the British system and continues to be evaluated in London, it is not an accurate test of what is actually taught in Batswana secondary schools. Government could examine: whether entrance requirements for technical programs should be modified but not necessarily lowered; whether the Cambridge Certificate should be modified to better reflect what is taught in Batswana secondary schools, or whether senior secondary schools need to strengthen those subject areas in which students consistently score lowest on the Cambridge Certificate exam. In addition, government should explore approaches to expanding the number of technical courses offered as well as the number of trained instructors needed to teach these courses.

D. Implementing the new apprenticeship legislation

In response to the perceived need for vocational education and training to incorporate more on-the-job work experience into their programs, legislation for an apprenticeship system was passed in 1983. This legislation represents an opportunity for government and business to establish some of the offical ties outlined above, and for many more Batswana to effectively acquire practical training in certain vocational skills. Successful implementation of this program will depend not only on cooperation between business and government, but also on interagency cooperation. In designing the program care should be taken that the period of training is not longer than necessary, and that experienced craftspersons and technicians are consulted in establishing program guidelines.

8.2.4.2 Internal Efficiency

The internal efficiency issues can be summarized under four concerns: (a) improving the quality of instructor training, (b) optimizing the relevance of exams to program content, (c) incorporating more workplace experience in vocational/technical programs, and (d) providing guidance counseling on career opportunities.

A. Improving the quality of local instructor training

The quality of training for local instructors could be improved through two sorts of effort: (1) to increase the currently low number of Batswana being trained as vocational education teachers, and (2) to

improve the pedagogical skills of the accomplished technicans who serve as teachers for many programs and who could be used for industrial training programs in the private sector.

Relatively few of the well-trained technical education instructors are Batswana. At the BP, several Batswana hold assistant lecturer positions but all of the senior lecturer and administrative positions are currently filled by expatriates. At the ATTS, 42 percent of the instructors are expatriates. The Brigades, too, must rely heavily on external donors for expatriate trainers for their programs. In the case of the Brigades' expatriate volunteers, government usually pays a portion of the volunteer's salary or stipend and donors make up the difference. Botswana's reliance on expatriate instructors is a necessary interim strategy, given the small number of highly qualified Batswana technicians.

If effective localization of manpower training is a medium-term goal, more effort will be needed to prepare more Batswana as vocational and technical instructors. Enrollment increases in vocational and technical programs are likely, given current manpower shortages and the planned expansion at the junior secondary level. Although student/teacher ratios probably could increase somewhat without loss of quality, there eventually will be a need for additional teachers as well as for more effective ones. Given the time required to adequately train a cadre of well-qualified vocational/technical education instructors, steps should be taken now to prepare for future demand for more and better teachers.

Instructor training for this subsector may need to place more emphasis on teaching pedagogical skills. At BP and ATTS, about 50 percent now have a recognized teacher training qualification but others with strong technical backgrounds may need special preparation in pedagogy. At the BIAC, where many teachers lack formal teacher training, providing staff with pedagogical skills is now perceived as a priority need. In-service training also may be useful for programs like the RIIC, where most trainers are villagers with craft skills in carpentry, tanning, and so forth, but without training in how best to impart these skills.

One component of a national development plan for the subsector could include implementing measures to improve quality of instruction. Such an effort might require the development of a teacher training curriculum that includes, for example, instruction in lesson preparation, presentation, demonstration, practice, checking, questioning, and examining results. Although the BP is still developing its teacher training unit, the staff comprising the unit appear skilled in teaching methodology and the effort may prove to be a successful prototype for other similar efforts. Lessons learned as the BP's teacher training unit develops could be useful in the development of a national plan.

B. Optimizing the relevance of exams to program content

Considerable attention has been given to which type of certification is most reliable in determining skills acquisition. The

two most commonly used exams for vocational/technical education and training are the National Trade Test and the City and Guilds Examination.

The City and Guilds System (C&G) is used to certify graduates from the craft and technical courses at BP and at the Automotive Trades Training School. The C&G examination is based largely on theory, and measures high-level technical skills. As such, its relevance to the vocational and craft courses at these two institutions is being questioned by public and private sector employers. The ratio of craft to technical-level programs at the Polytechnic is about 2:1, while at the ATTS most of the coursework is practical and only somewhat theoretical.

Because the C&G is designed and scored in London and targeted to international standards, it may not be the best measure of the more basic practical skills necessary for success in Botswana's workplace. For many programs of study, Botswana's National Trade Test may be a more accurate certification of such practical skills. Some of the students at the BP take the National Trade Test as well as the C&G, but they must be certified by C&G before the Polytechnic will issue a diploma. It is probably important to retain much of the content in the City and Guilds exams for programs designed to train high-level technicians, but it is less clear that this holds for vocational and craft courses as well.

Botswana's Trade Tests have three grades of certification, ranging from the highest level, A, to the lowest level, C. Candidates are eligible to take Trade Test C after 16 months of training or two years on the job, and are eligible to take Trade Test B with 18 additional months of training and the same amount of time on the job. Trade Test A requires the same span of time as Trade Test B, but a different level of course work. Most of the testing, which may last from one to three days, depending on the trade and the grade level of testing, assesses practical application in shops at the Trade Testing Centre. This Centre is under the jurisdiction of the MHA's Department of Labor, which is responsible for maintaining training standards for the workplace. These standards are intended to be those established by industry.

Many of the vocational/technical training programs, including the Brigades, are already using National Trade Tests. Government is taking steps to make the exams a more widely accepted standard of certification by making legislative provision for them in the Apprenticeship and Industrial Training Act. To make the National Trade Tests a useful certification of skills acquisition, revisions are needed to update the tests. The Trade Testing Centre has begun this task and is soliciting recommendations from consultants and input from a number of trade advisory committees to complete an in-depth review of each trade testing area.

C. Incorporating more job-related training in vocational technical program curricula

The limited data available on the demand for trained manpower suggest that:

- Graduates with formal (school) training plus job-related training are more marketable than those graduates with only formal training, and
- few leaving formal vocational technical training programs have received adequate practical experience in the workplace.

Most BP graduates, for example, require additional on-the-job training upon completion of their program at the BP before they are qualified for entry into starting positions in industry and business. (Three-year programs tend to include more practical experience than do two-year programs.)

While the recently legislated apprenticeship system is one way to incorporate more on-the-job experience into training, it does not directly address the need to incorporate this sort of opportunity into the curricula of formal training programs. Before any major curriculum reforms, more information needs to be collected regarding how much additional on-the-job and other training would complement formal training programs, and what sorts of experiences are most useful. In the meantime, the National Trade Tests provide an adequate standard for craft and lower technician training.

The fact that most students are sponsored by government and consequently bonded to government for several years after graduation may, inadvertently, downplay the importance of acquiring directly applicable skills. A bonded graduate is usually assured a position within government and provided the additional on-the-job training necessary to work effectively in his or her assigned position.

Data from a tracer study, previously recommended, would be useful for planning curriculum changes to address the need for more workplace experience.

D. Providing career counseling and guidance programs for secondary and post-secondary students

Most students have little knowledge of the careers available to them. The reasons for this appear to be varied: Teachers generally have not been prepared to provide employment information or career guidance; the bonding system at the post-secondary level may reduce student initiative in selecting fields of study or work other than those in which government offers sponsorship. Only now is a data base being developed to give information on national manpower needs and supply and on future projections.

While there have been some attempts to counsel secondary students after school, it may be desirable to include this activity in the regular school program. Few teachers are trained to provide this sort

of assistance, however, and the introduction of guidance and counseling coursework into pre-service and in-service training programs should be considered.

It will be important to base such efforts on accurate information about work opportunities and skill requirements. For this reason, careful planning for vocational/technical counseling should precede new activities in the area and be coordinated among the concerned ministries and private sector employers. Once an appropriate data base exists on national manpower needs and opportunities, government increasingly can provide incentives to encourage students into occupations most needed for national development. One means of improving the database and beginning a school guidance program is to strengthen the capacity of the Employment Services Unit of the Labor Department.

8.2.4.3 Cost and Financing

An important issue concerning cost and financing in this subsector is the need to analyze complete data on capital costs and on recurrent costs. Government, with assistance from external donors, is largely responsible for financing vocational/technical education. These two general observations raise several more specific issues.

A. Need for more detailed information on recurrent costs

Given the short time frame and the overview format of this assessment, little attention was given to systematic and detailed collection of cost data. The cost information that was collected, however, suggests that though estimates of various training programs may exist, only modest effort has been made to analyze unit costs of these approaches.

For some programs, this assessment has attempted general estimates of per unit recurrent costs. Given government investment of approximately P1,433,070 in training at the BP in 1982, it is possible to approximate government's annual recurrent cost of one student at P3,017. The private sector and external agencies also contribute some funding for recurrent costs, though the exact amount or relative share is not known. The annual cost per student must, therefore, be higher than the estimated P3,017; however, given the incomplete breakdown of recurrent costs or counterpart sources of funding, it is impossible to estimate how much more.

A similar per student annual cost has been estimated for the Brigades Youth Program. In 1983, the estimated average unit cost of training some 700 youth was P1,500. This estimate does not include the cost of volunteers, the largest portion of whom are expatriates. Though government pays only a portion of expatriate volunteers' salary and external donors provide the rest, the total per unit cost of delivering the Brigade approach to training is important information for planning future training programs. If the additional cost of the

240 managers and instructors involved in 1982 were factored into the estimated annual unit cost for the Brigades program, the actual unit cost would certainly be much higher than the estimated P1,500. In most formal education programs, expenditures on salary are commonly as high as between 75 and 90 percent of total recurrent costs.

An actual measure of the Brigades' cost-effectiveness is further clouded by the program's poor accountancy of its benefits. As noted in the status section, the Brigades receive funding from three major sources: (1) grants or loans from the government or external donors to the central Brigade budget; (2) grants, usually from external donors, directly to specific Brigade units at the local level; and (3) income generated by the Brigades' own production efforts. Because of the program's loose, rather uncoordinated organization, there are no good accounts of how much specific Brigade units are receiving as direct grants or how much revenue they are earning from their own productive activity. Although the Brigades program is perceived as a low-cost and effective approach to nonformal vocational training, there are no cost or financing data to prove whether this perception is actually true. There is a sense that either the Brigades program is more expensive than originally believed or its costs are increasing. This is indicated, in part, by the fact that despite large contributions from external donors, government agreed in 1983 to increase its per student subsidy from P400 to P1,000 per year.

Incomplete data on unit recurrent costs, as illustrated by the examples of the Botswana Polytechnic and the Brigades--two vastly

different approaches to vocational training--are cause for two types of concerns.

- Without accurate data on recurrent unit costs, the efficiency of various approaches to training cannot be compared. Although the Brigades are considered to be a considerably cheaper approach to vocational training, there is no way of knowing. Perhaps the BP's program is less costly if inputs and quality of output were compared. From an economic standpoint, it is impossible to measure how efficiently government is currently using its resources in the subsector, or more critically, how it could be using them more efficiently to provide more vocational training.

- It is also impossible, without annual per student cost data, to make estimates and plan for future costs of manpower training. Currently, only about 5,000 Batswana are participating in the vocational training subsector. If government is to attain its general long-term goal of eliminating shortages of skilled manpower, this level of enrollment will have to increase. Government needs to determine whether and, if so, how it will be able to afford these enrollment increases, given the implied unit costs of vocational education.

B. Need for private sector involvement in financing

Government is the main source of funding for vocational and technical education. While little is known about exact shares of recurrent costs, data regarding capital costs are a little better, as some of this information has been included in National Development Plan V. For example, 78 percent of the BP's estimated capital expenditures for the 1980-1985 plan period were covered by the government's Domestic Development Fund (DDF). British and Swedish donors committed the remaining 22 percent. Similarly, 70 percent of the ATTS's NDP V financing came from Botswana's DDF, while the

remaining 30 percent was donated by the German Agency for Technical Cooperation. At 25 percent, government's portion of NDP V funding was considerably smaller for the Brigades. The increase in government's per student subsidy means that it is becoming responsible for a larger portion of the Brigades' recurrent costs.

Government's general involvement in financing recurrent costs is evidenced by the low incidence of tuition and the relative frequency of government sponsorship of students. Most of the students attending the Polytechnic are sponsored by government. A smaller portion are sponsored by employers, although as mentioned earlier, even private sector sponsorship is subsidized by the government. At the BIAC, 90 percent of the students enrolled in 1983 were sponsored by government; the remaining 10 percent were required to pay a tuition of P800/year. This amount almost approximates the estimated per unit cost of P850/year.

Increasing enrollments and accurate information on the actual costs of vocational training may lead government to rethink the current financing strategy for the subsector. If programs in vocational/technical training and education actually lead to better paying jobs, students should show some willingness to pay or compensate for training. Also, if business and industry could be assured of a certain number of talented graduates, there would be greater incentive for private sector sponsorship of students. (Government already offers attractive write-offs to private firms who

sponsor students.) Both prospects represent possible longer term strategies for government to reduce the financial burden of vocational and technical training. The possibility of establishing a levy/grant system in conjunction with the new industrial training legislation also merits study.

8.2.4.4 Administration and Supervision

The main issues regarding adminstration and supervision include: (a) strengthening the implementing agencies, (b) improving ties between the private sector and government to identify and plan for future manpower needs, and (c) identifying and developing of an appropriate relationship of government with the Brigades.

A. Strengthening the Implementing Agencies

In the past, no entity has prepared a development plan for the subsector. Better articulation of a national plan that defines goals and sets objectives would do much to coordinate the subsector's many, diverse activities.

As was discussed in the status section, seven ministries and the Office of the President offer some type of vocational/technical education and training. There is some interagency cooperation, and planning or joint use of equipment and facilities. For example, such agencies as the Telecommunications Training Centre, the Central Transport Organization, and the Department of Water Affairs use the Polytechnic for special courses. The Polytechnic also provides

teacher training for ATTS and some of the other schools. There is more opportunity for similar sorts of program coordination and facility sharing that would reduce duplication and overlapping of services. The proposed National Industrial Training and Technical Education Council could serve this purpose.

Economies of scale could be effected through greater program coordination and facility sharing, which would reduce unit costs of training programs in ministries and parastatals. In 1982, approximately 16 ministries and parastatals offered some form of pre-service or in-service training, with an average of 60 participants per institution. Only 4 of these 16 institutions had enrollments of more than 100 in 1982, and in 5 of the remaining 12 institutions the number of in-house trainees ranged from 4 to 16. If a few selected ministries and parastatals were given the responsibility to train their employees and were given funds adequate to ensure facilities and instructors of good quality, it is possible that better training could be provided at lower costs. Despite the potential for such gains, little centralized information exists on actual current levels of interagency cooperation. The role of the Directorate of Personnel in this regard should be strengthened.

Closer links with the Ministry of Finance and Development Planning, as the manpower survey gets under way, and with the Department of Labor, as the review of the National Trade Test

continues, and with the Directorate of Personnel would also strengthen the position of the Technical Education Department in its responsibilities for institutional development.

B. Improving links between business and government

As discussed under issues of external efficiency, the Department of Technical Education's planning for new programs and reform of existing ones should be undertaken only with the active participation of business and industry. The Association of Training Officers and the Botswana Employers Federation represent two recent efforts to get the private sector more involved in training. (Both organizations were described in the section on external efficiency.) There need to be more official opportunities at the planning stage for government and the private sector to work together.

C. Defining government's appropriate relationship with the Brigades

The 1981 report by the Brigades Review Working Group, "Towards a New Relationship between Brigades and Government," represented a first effort to examine how government could gain more control without jeopardizing the program's unique approach to training out-of-school youth. The past ambiguous relationship between the Brigades and government, discussed in the status section of this chapter, has complicated the task of finding a proper balance between government control and the Brigades' autonomy. The Brigades, although funded in part by government, have acted as autonomous bodies and have not been officially accountable to government in the past.

While individual Brigades are to be coordinated under the Brigades Development Centre (BRIDEC), which is under the purview of the Ministry of Education, BRIDEC in recent years has been somewhat inactive. However, its relationship with local Brigade units has always been good, and it is for this reason that it has been chosen by the MOE as the main vehicle to strengthen ties between the Brigades and government.

The 1981 report calls for reassessing the proper place of the Brigades in the national training system and taking measures to match the quality of Brigades' training with Botswana's manpower needs. Because the Brigades offer an important approach to training, government should offer assistance to ensure that the training is the best possible quality. By designating BRIDEC to monitor and evaluate the Brigades programs, BRIDEC can strengthen program quality and fiscal accountability. Some Brigades will need particular assistance in developing the practical organizational skills needed to carry out programs in a more bureaucratic context. BRIDEC could also help Brigades use available resources to improve the quality of instruction through short courses in curriculum development, preparation of lesson plans, and instructional methodology. BRIDEC might also attempt to evaluate the impact of past involvement in production activities on quality of training.

Another issue that BRIDEC might be equipped to investigate, given adequate budget and staff, is the impact of changes that have already taken place in the Brigades program. Most noteworthy is the shift

from training primary school leavers toward training junior secondary school leavers. This trend raises at least two issues: (1) How has this shift affected the relevance of the Brigades' training program? The Brigades were originally designed for primary school leavers averaging 16 years of age. Most 16-year-olds now entering the Brigades have finished primary school and have had at least some secondary level education. Does the program's curriculum need to be upgraded to reflect the changes in participants education levels? (2) What education and/or training opportunities are available for the youth who are currently leaving primary school? Primary school leavers are now younger as a result of more widespread primary education. A large proportion of rural primary school leavers do not continue on to secondary school, and unlike the primary school leavers during the years immediately following Botswana's independence, they are not old enough to enter the workforce.

New policies regarding government's increased commitment to the Brigades are being enunciated and BRIDEC is in the process of establishing guidelines to implement these new policies. Government's increase in the per student subsidy is tangible evidence of its serious commitment to the Brigades. However, government may need to commit more money and personnel directly to BRIDEC if it is to be an effective evaluator and implementor of new initiatives. One immediate step government must take is to lift the current manpower ceiling on the number of personnel that BRIDEC is allowed to hire. Only with a larger number of skilled staff will BRIDEC be able to build training,

advisory, and other outreach services to the widely scattered Brigade units.

8.2.4.5 Access and Equity

Issues regarding access and equity are: (a) the concentration of training predominantly in one geographic area, (b) the limited opportunities for females in certain types of training programs, and (c) the limited access to vocational/technical programs possibly resulting from too rigorous entrance requirements.

A. Concentration of Training in One Geographic Region

Most of the organizations currently offering vocational and technical training are located in or around Gaborone. The Botswana Polytechnic, ATTS, and BIAC all are located in the Gaborone area. So are nine of the 18 established Brigades Centres, although not all of these are readily accessible by commuting. The remaining nine are distributed throughout most regions of the country. Government also has plans to build four new Vocational Trade Centres at Palapye, Maun, Selebi-Phikwe, and Jwaneng. When these Centers become operational in 1987, distribution of vocational programs should be less of an issue. Also, an expanded BRIDEC staff will increase the amount and quality of outreach to the Brigade Centres farthest from the Gaborone area.

B. Limited Opportunities for Females in Certain Programs

Equity of access to educational opportunities for women is not generally a problem in Botswana. In the vocational training subsector

the highest female enrollment ratios tend to be at the BIAC and in private secretarial and clerical programs. At BIAC, for example, 54 percent of the students are female; in fact, there are more women than men in three of the four programs--Public Service, Secretarial, and Accountancy.

Nevertheless, for some institutions, especially those offering higher level technical courses, access for women may be a problem. For example, only 20 (4%) of the 485 students enrolled at the BP in 1983 were female. Women need to be informed of career opportunities through career counseling programs in secondary schools and BP administrators need to make greater efforts to enroll females.

C. Limited Access to Vocational/Technical Programs Resulting from Too Rigorous Entrance Requirements

Usually, a Junior Certificate is the prerequisite for entry into vocational skills training, and the Cambridge Certificate is the requirement for entry into more advanced technical training programs. The Junior Certificate is a national examination given after students complete Form III of Junior Secondary school; pass rates vary widely among the schools. The Cambridge Certificate, as noted in the discussion of external efficiency, is equally problematic. Once the manpower demand survey is completed and accurate projections have been made of the number and type of skilled human resources that will be needed, government should look for approaches to eliminate this "program entrance bottleneck," to allow for increases in enrollments

and ensure a desirable distribution of students among programs in various skill areas.

8.2.5 Conclusions

The preceding analysis has identified a variety of issues that confront the continued development of vocational and technical education. These issues form the basis for five primary conclusions, which relate to specific recommendations proposed in the final section of this chapter.

Conclusion 1. Government needs more detailed information on the current process of supplying trained manpower and the actual and anticipated demand for skilled labor.

The collection and analysis of these data should be a prerequisite to a national development plan for the vocational and technical education subsector. While certain aspects of existing vocational and technical education programs are well documented and need only to be re-examined within a planning context, other aspects require collection of data. More information is needed on the actual levels of program coordination and facility sharing among ministries, the potential for increased inter-agency cooperation, and the unit recurrent costs of the various approaches to training.

Until this sort of information is gathered and analyzed, it remains difficult for government to make decisions about which approaches to training are most cost-effective and, hence, worthy of expansion. It is also difficult to identify which training programs

could be improved within existing organizational frameworks and which would require new administrative organizations. More importantly, planning for new types of training programs and making decisions about the proper mix of old programs depends upon having an accurate picture of the economy's current and anticipated demand for manpower. As regards planning for new types of training programs, government must also consider how the introduction of a large number of Community Junior Secondary Schools will change the demand for number and type of vocational and technical training programs, and how government can best address the need for more training in advanced technical skills. As mentioned earlier, the Ministry of Finance and Development Planning has already taken steps to meet the prerequisite need for more detailed information about actual and expected demand for manpower.

Conclusion 2. The external efficiency, cost, and financing of the vocational and technical training subsector could be greatly enhanced through greater private sector involvement.

This report has highlighted the limited role of business and industry in past vocational and technical training programs. The largest proportion of students enrolled at the BP and in other formal vocational and technical training programs have been sponsored by government and, hence, the largest proportion of graduates have been bonded to the public sector upon program completion.

Whatever the past constraints, business and industry now desire to have more input in planning and administering vocational training

programs and are especially interested in having greater opportunity to recruit well-qualified graduates. Business and industry can help government identify their specific human resource needs and, given a more active role in subsector planning, could also be expected to take a larger role in support of training programs. Chapter 3.0 suggested several possible activities in this regard, such as the sharing of facilities and the contribution of instructors.

Conclusion 3. Most locally trained vocational education instructors have not received training in pedagogical skills.

The number of Batswana vocational education instructors is relatively small. In many cases, they have had no formal training in teaching. Expanding the training of Batswana as vocational education teachers would have positive impacts on the internal efficiency of current programs and, in the long term, would also increase the subsector's self-sufficiency and possibly decrease costs.

Conclusion 4. Vocational and technical institutions could improve the overall quality of their training by linking their programs more closely to the changing priorities of the workplace.

Available information suggests that most graduates of formal vocational and technical training programs--including graduates of the BP--require some on-the-job training after completing their program of study before they are ready to capably function in jobs in business and industry. There is also evidence that students with both formal academic and on-the-job training are more marketable to prospective employers than those students with only formal academic training.

Once students are enrolled in a training program, especially those students receiving government sponsorships, it is difficult to change programs. The widespread introduction of career counseling at the secondary and post-secondary levels could help schools improve the internal efficiency of programs by providing a better match between students' interests and capabilities and the choice of training programs. This would probably have a positive impact on the quality of the students' performance and decrease attrition rates.

The use of the City and Guilds exam for testing skills acquisition in programs teaching medium-level practical skills may be inappropriate. In such instances, the National Trade Test may give prospective employers a more accurate sense of the sorts of skills graduates have mastered.

Conclusion 5. The Brigades serve as an important model within Botswana's vocational and technical training subsector and therefore merit better scrutiny and support leading to improved accountability.

The Brigades Youth Program offers a unique opportunity for out-of-school youth in Botswana's rural areas to acquire income-generating vocational skills. Government recognizes this program as one approach to promoting equity of access to training among certain sectors of the population. Government has already taken steps to ensure that the program is improved through greater technical and financial support. BRIDEC is the appropriate organization to work with the Brigades Centers in improving financial and organizational management, and in evaluating the quality of programs.

8.3 RECOMMENDATIONS

The recommendations for vocational and technical education are discussed in relation to the main conclusions presented above.

8.3.1 First Priority - Improve External Efficiency: Recommendations 1-3

Recommendation 1. Establish a Labor Market Information Service as one step in completing a national manpower survey.

Possible action steps: Because so little information is currently available on the nation's demand for skilled labor and because these needs are constantly changing, the Ministry of Finance and Development Planning should consider establishing a network through which critical labor market information could flow. This information could be made available to all education and human resource planners as well as other interested parties. This would be an important first step to improve the links between vocational training programs and national manpower needs in both public and private sectors. This also represents one official channel through which business and industry's interests would be represented.

A Labor Market Information Service also might collect information from tracer studies of vocational training program graduates.

Recommendation 2. Develop a More Detailed National Plan for Vocational and Technical Education and Training.

Possible action steps: (a) The Ministry of Finance and Development Planning's Employment Policy Unit should assume the responsibility of developing a medium-term plan for development of the subsector. (b) This unit should have an adequate budget and enough trained personnel to take this responsibility. (c) Consideration should be given to reorganizing the MOE's Technical Education Department in order to strengthen its capacity to monitor, evaluate, and coordinate the efforts of the vocational training institutions under its purview. (d) Necessary information should be collected on per unit recurrent costs of the various training programs, to permit accurate judgments about future resource requirements for the subsector. (e) Strategies aimed at redressing the less than optimum emphasis on training in high-level technical skills should be formulated. Consideration should be given to incentives that would encourage greater participation in these programs. Increasing the number of government sponsorships offered for these programs might be a first step.

Recommendation 3. Increase involvement of the private sector.

Possible action steps: (a) Implement the proposed National Industrial Training and Technical Education Council. (b) Government should explore possible incentives to increase private sector sponsorship of students in vocational and technical training. One

incentive should relate to increasing private sector access to graduates.

8.3.2 Second Priority - Improve the Internal Efficiency of Vocational/Technical Education Programs: Recommendations 4-6

Recommendation 4. Expand vocational teacher training with an emphasis on improved teaching methodologies.

Possible action steps: (a) The Teacher Training unit at the Botswana Polytechnic should take the lead in developing pedagogical methods appropriate to vocational and technical training programs. (b) The Technical Education Department could appoint a committee comprised of representatives from BRIDEC, the Brigades Centres, the BP's Teacher Training unit, the Industrial Training Unit and other institutions offering teacher training to devise goals and strategies for improving teacher training. (c) The Committee's findings and recommendations should feed into the National Development Plan for the subsector.

Recommendation 5. Replace the City and Guilds Exam with National Trade Tests to certify craft and vocational training.

Possible action steps: (a) A proposed National Advisory Board on Apprenticeship and Industrial Training should be established and given the task of updating the National Trade Tests to reflect actual skills acquisition in job-related tasks. It is important that business and industry serve on this committee to ensure that all trade tests are in

keeping with their needs. (b) The staffing of the Trade Testing Office should be strengthened to accommodate the resulting changes in the test.

Recommendation 6. Improve career counseling and guidance at the secondary level.

Possible action steps: (a) Career education should be included in all secondary schools. (b) Staff development classes for career guidance counseling should be designed and implemented. (c) Tracer study data on graduates and manpower demand survey data should be used to educate students about job requirements, projected changes in the workplace, and the impact of these changes on career opportunities.

8.3.3 Third Priority - Better Integrate the Brigades Youth Program into the Vocational Education and Training Subsector: Recommendation 7

Recommendation 7. Provide BRIDEC with the necessary staffing and funding to accomplish the goals of the government's new policy statements supporting the Brigades.

Possible action steps: Government should take the necessary actions to provide BRIDEC with the number of staff proposed in the policy statement. BRIDEC, because of its good relationship with the Brigades Centres, has the potential to act as an effective evaluator/monitor of the Brigades Youth Program.

8.3.4 Fourth Priority: Link Expansion of Existing Training Programs and the Introduction of New Programs to Program Cost-effectiveness: Recommendation 8

Recommendation 8: Improve the collection and analysis of cost and financing data for vocational/technical training programs.

Possible action steps: (a) An agency (possibly the Technical Education Department or the Ministry of Finance and Development Planning) should be designated for the task of developing and administering a program cost information survey. The survey could be conducted through interviews or questionnaires. In either case, care should be taken to collect accurate estimates of recurrent cost broken down by category of expenditure. (b) BRIDEC could be given responsibility for collection of the Brigades' program cost information. Data on income earned from the program's production activities should be included. (c) The resulting unit costs of programs should be compared and used as an input in planning new approaches to training. (d) The possibility of establishing a levy/grant system for industrial training could be explored by the Labor Department.

8.3.5 Fifth Priority - Increase Enrollments in Both Vocational and Technical Education Programs: Recommendation 9

Recommendation 9: Expand access to vocational and technical education programs through revised entrance requirements.

Possible action steps: The National Industrial Training and Technical Education Council should examine the relevance of current procedures for gaining entry into vocational/technical training programs. In particular, the usefulness of the Junior Certificate and the Cambridge Certificate as prerequisites for entry should be examined.

9.0 NONFORMAL EDUCATION

This chapter examines the major nonformal education (NFE) activities in Botswana. Its focus is on the delivery of NFE services to Batswana, particularly those living in rural areas. Nonformal education is considered as "any learning activity outside the structure of the formal education system that is consciously aimed at meeting specific learning needs of particular subgroups in the community, be they children, youths or adults" (National Development Plan V). Nonformal education has an important role in Botswana's development by providing services to promote community development and extend opportunities for basic education to those who have been bypassed by formal schooling.

In accord with government's emphasis on rural employment and access to services by all Batswana, this assessment concentrates on the delivery of NFE programs in three general areas: agriculture, health, and life skills (e.g., functional literacy and numeracy) and income generation. Programs of the Ministries of Agriculture, Health, Education, Industry and Commerce, Local Government and Lands, and Home Affairs all receive particular attention in this regard, as does Tirelo Setshaba, a nationwide program coordinated from the Office of the President, and NFE activities of nongovernmental organizations

(NGOs). An overview of the scope of NFE activities in Botswana and a summary of the content of the programs considered here is provided in Figure 9.1.

An overview of nonformal education in Botswana reveals that there is an excellent nationwide structure for the delivery of NFE services. This apparatus provides for villager participation and is designed to promote inter-sectoral cooperation at village, district, and national levels.

Principal needs are for more systematic collection of data on NFE activities across sectors and for a closer link between NFE programs and employment. Better coordination among NFE programs and a better understanding of manpower requirements are also needed.

Key issues include the need to address questions relating to the relevancy of various programs (particularly those directed toward women) and the training and placement of fieldworkers who serve in the various extension cadres. The relationship between government and nongovernmental organizations with regard to NFE programs also merits attention.

The recommendations, which constitute the last section of this chapter, focus on ways to make nonformal education in Botswana more efficient and more effective. They emphasize linking NFE programs more directly to employment opportunities, and collecting data and using it for evaluation and planning in nonformal education. Other recommendations address the training of fieldworkers and coordination throughout the subsector.

FIGURE 9.1

CONTENT AREAS OF NFE ACTIVITIES IN BOTSWANA

Content Area	Ministry of Agriculture	Ministry of Health	Ministry of Education	Ministry of Industry and Commerce	Ministry of Local Government and Lands	Ministry of Home Affairs	Tirelo Setshaba	Non-Government Organization
Agriculture	X		X		X		X	
Health & Nutrition		X	X		X		X	X
Literacy			X				X	X
Functional Lit.			X					
Trades								X
Community Dev.					X			
Handicrafts								X
Home Economics			X		X			X
Rural Industry				X			X	
Formal Education			X		X	X	X	X
Mod. Sector Skills								X
Youth Programs	X				X			
Women's Programs			X		X			

The assessment of nonformal education is divided into three major parts. The first is a descriptive summary of current NFE activities in Botswana. The second considers needs and constraints related to nonformal education and analyzes the NFE subsector with respect to external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing. The final part contains recommendations based on the analysis. (Individuals familiar with NFE activities in Botswana may wish to turn directly to the part entitled Analysis.)

9.1 STATUS

9.1.1 Historical Setting

Botswana has a long history of nonformal education. In addition to the NFE activities that are part of traditional life in Botswana, extension services have been in existence since 1914 when the Advisory Service began. From that time through independence, extension was almost exclusively focused on agriculture, primarily through the Pupil-Farmer scheme. Post-independence attempts to provide basic social services (such as health and educational facilities) to all Batswana, and a recognition that nonformal education had an important role to play in Botswana's development, made it necessary to add extension workers in a variety of sectors. These extension units have been developing since the early 1970s. Most ministries now have active cadres of extension agents providing educational services. In 1978 the Department of Non-Formal Education was established in the

Ministry of Education. Other ministries with major NFE activities are the Ministries of Health, Agriculture, Local Government and Lands, and Industry and Commerce.

A number of nongovernmental agencies (NGOs) have been involved in nonformal education in Botswana for many years. Among the NGOs with major involvement are the YWCA, Botswana Council of Women, and Botswana Christian Council.

9.1.2 National Goals and Strategies

Formal and nonformal education are viewed by government as complementary components of the educational system. To be consistent with national development plans, the educational system must be geared to addressing the themes of rural development and employment generation, as well as providing skilled manpower for the relatively small, but understaffed, modern sector. Because of the emphasis on the relationship between education and opportunities to earn a living, and because 77 percent of the workforce is rurally based, government demands educational activities that are relevant to the world of work, emphasize practice, and are oriented to rural development.

Nonformal education, as an integral part of Botswana's educational system, has two major purposes: to initiate and implement innovative programs that promote individual and community development and to provide "second-chance" education of a more structured nature.

Given the broad mandate for education in general, and nonformal education in particular, it is clear that NFE activities outside the

traditional boundaries of the Ministry of Education need to be considered as well. Six government units in addition to the Ministry of Education have goals that are particularly relevant to nonformal education.

Ministry of Agriculture (MOA). Agriculture remains the most important sector of Botswana's economy in terms of the country's workforce. Rural workers comprise 77 percent of economically engaged Batswana, and 55 percent of these are involved in family agriculture. Although urbanization is occurring rapidly, the rural population continues to increase at a significantly high rate. Agricultural activities are hampered by a lack of arable land and severe environmental conditions that limit livestock production. Education has an important role to play if government is to meet the aims of its agricultural policy, as indicated in NDP V:

- to help those involved in agriculture to enjoy adequate and secure livelihoods;
- to help create more such livelihoods to meet the demands of a growing labor force for employment within Botswana;
- to raise national income by increasing the value of agricultural production;
- to maintain agricultural land for future generations.

Ministry of Health (MOH). Botswana views human resources as a key component in its development. Recognizing that poor health and nutritional standards have a negative impact on productivity, the Ministry of Health is committed to a strategy that will break the

poverty/poor health cycle. The four targets of the MOH as cited in NDP V are:

- training and manpower development;
- health care support programs;
- improvement of statistics and planning;
- physical infrastructure.

Health Education falls under the second priority, health care support programs. It is directed at preventing the major diseases (tuberculosis, measles, venereal disease, and, in the North, malaria and sleeping sickness) and addressing the primary causes of poor health: malnutrition, inadequate and unclean water supplies, poor housing, and lack of knowledge.

Ministry of Commerce and Industry (MCI). The educational program of the MCI is directed toward activities that do or can provide employment opportunities to persons in rural areas. Recent efforts have emphasized the informal sector where enterprises tend to be small. Although small enterprise opportunities may be attractive alternatives to agricultural employment, they usually have been less rewarding financially than formal employment. The informal sector has many advantages, however. Typically, it benefits Batswana exclusively, may already employ as much as 10 percent of Botswana's labor force, serves as an important training ground, and can provide a route to large-scale production. It is for these reasons that part of the MCI's emphasis is on working with and developing small

entrepreneurs, such as traders, hawkers, handicrafts people, and woodgatherers.

To promote industrial development the MCI works closely with governmental, parastatal, and nongovernmental organizations. For example, it works with the Botswana Enterprise Development Unit (BEDU), discussed in Chapter 8.0, the National Development Bank, and Partnership for Productivity (PFP), whose activities are addressed later in this section. A major effort of the MCI is to create rural enterprises that can compete favorably with urban and imported supplies in the local market. To do this, emphasis is placed on agro-based industries, construction and related industries, repairs and services, agricultural inputs, game processing, herb and animal products processing, and production of simple consumer goods. The MCI focuses its training activities on promoting rural production and improving retail operations.

Ministry of Local Government and Lands (MLGL). The MLGL is the direct representative of the people of Botswana to national government through local authorities (District Councils, Town Councils, Land Boards, Tribal Administration, and District Administration). The main objectives of local government are developmental and service-related. The MGL's developmental objectives are to:

- provide developmental leadership;
- bring about integrated and balanced rural development;
- develop basic transport and communication infrastructure at rural community level; and

- create productive employment opportunities at local level.

Its service objectives are to:

- serve local community by providing and maintaining effective local institutions through which social justice, law, and order are maintained; and

- continue to provide, maintain, and increase effective and adequate basic social services: primary education, health, housing, water, food and nutrition, etc. to the local community.

NFE activities in MLGL are closely linked to service provision. Services range from primary health care to alternative modes of formal schooling.

Ministry of Home Affairs (MHA). The MHA is responsible for a wide range of activities intended to help implement and monitor various government policies. Of particular relevance regarding nonformal education are the MHA's activities to strengthen cultural identification, promote the use of print resources through the libraries program, and support women's concerns in both the rural and modern sectors. In addition, the MHA provides NFE through mobile libraries and a monuments program.

Tirelo Setshaba. Tirelo Setshaba, Botswana's study-service scheme under the Office of the President, provides opportunities for Form V leavers to contribute to Botswana's development through one year of service, primarily in rural areas, prior to entering higher education or the formal job market. It has three major objectives:

- to give educating, broadening, maturing experience to Batswana and to develop an awareness and commitment toward the solution of development problems;

- to provide educated manpower to carry out development programs in rural areas;
- to promote greater understanding among individuals from different parts of the country.

To do this, participants engage in a variety of activities. Wherever possible, they combine primary school teaching with extension activities in such areas as health, rural industry, agriculture, and literacy.

This subsection has summarized the goals and strategies of several government units as they relate to nonformal education. The next portion describes the organization and structure of the NFE subsector.

9.1.3 Structure of the Subsector

Nonformal education is within the purview of the Ministries of Education, Agriculture, Health, Industry and Commerce, Local Government and Lands, and Home Affairs. In addition, the Office of the President administers the national service program Tirelo Setshaba, and nongovernmental organizations provide a wide range of programs. Ministerial NFE activities are fitted within a national extension system intended to promote coordination and cooperation among the various entities.

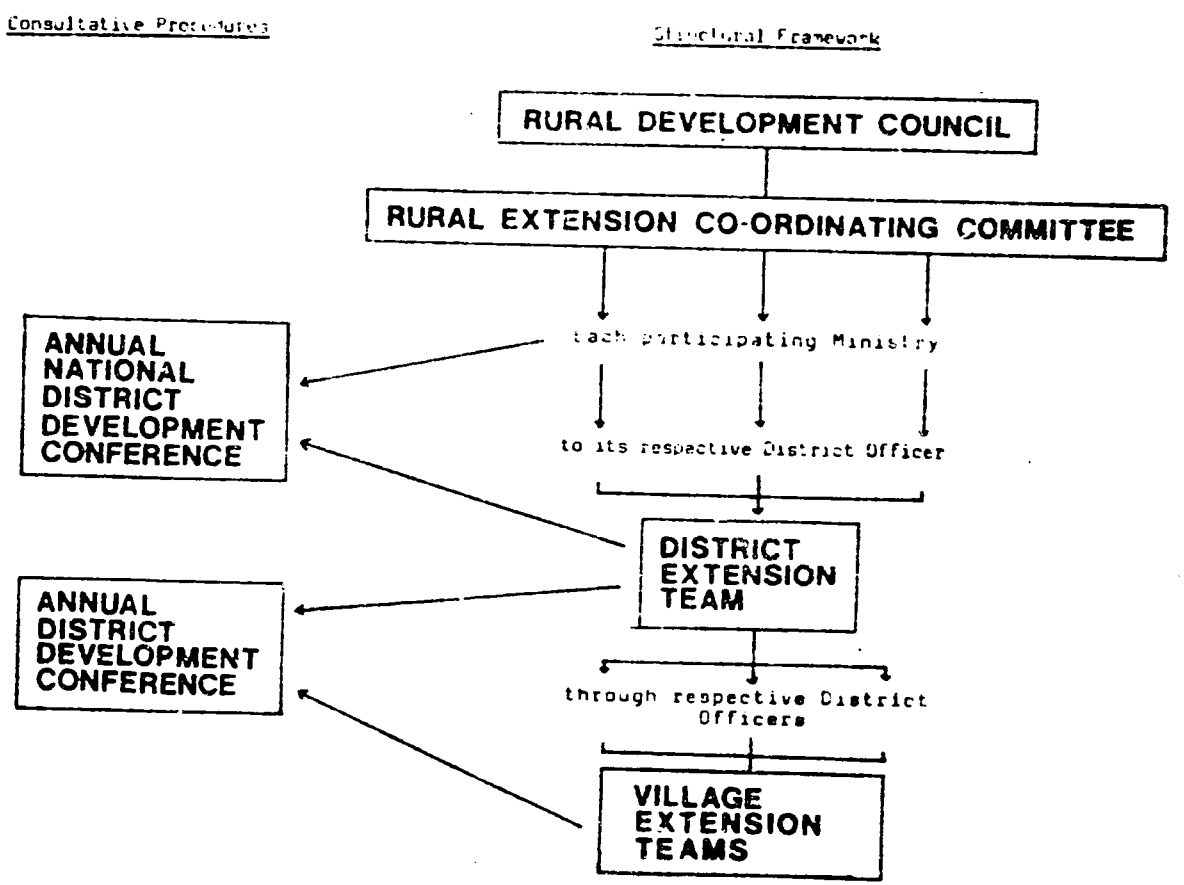
The national extension system enables the delivery of government services through a hierarchy of offices at the national, district, and village levels. At the national level, extension activities carried out by various government departments are coordinated by the Rural

Extension Coordinating Committee (RECC). The RECC is a subcommittee of the National Development Council and is headed by the Coordinator of Rural Development, who is a member of the Ministry of Finance and Development Planning. All heads of Ministry extension units are members of the RECC (for example, Agriculture, Health, Industry and Commerce, and Education). The general structure of the national extension system is illustrated in Figure 9.2. The RECC reviews ministries' extension programs and promotes intra-ministerial integration and cooperation. An annual work plan facilitates this collaboration among the ministries involved.

Each extension agency of the various ministries has district-level officers located in the nine administrative districts and the five town councils which report to it. A District Extension Team (DET) consists of district-level ministry representatives, local government officials with responsibilities in the same or similar areas, and representatives from formal education. The DET meets fairly regularly to review and coordinate district extension activities. Reporting to the ministries' district-level representatives are village-level fieldworkers. As at the district level, intra-agency cooperation is facilitated and promoted at the village level by a Village Extension Team (VET) which is made up of local officials and fieldworkers representing the various ministries.

This structure means that there is a three-tier system (ministry, district, local) through which information can flow. District-level officials are not linked directly to the RECC, and consequently have

Figure 9.2 GENERAL STRUCTURE OF THE NATIONAL EXTENSION SYSTEM



Source: Townsend-Coles, E.K. Maverick of the Education Family: Two Essays in Non-Formal Education, p. 57.

to depend on representation to present district-level concerns for consideration by the RECC. The information flow is not merely two-way. An annual conference within each district (where citizens, DETs, and VETs participate) and an Annual National District Development Conference (where districts are represented) provide opportunities for consultation at the district level first, and then with ministries and the RECC (see Figure 9.2).

Government's commitment to greater Batswana participation in the country's development process makes it essential that local government and village organizations have opportunities for input into extension activities. This is made possible through linkages between the Village Extension Team and the Village Development Committee (VDC). In 1968 a Presidential Directive established the VDCs. They are voluntary and non-statutory and elected by the Kgotla every two years. Their overall function is twofold. First, they serve as a body that identifies local needs and determines ways in which these might be met. Second, they work with local Councils (i.e., local government which is part of the Ministry of Local Government and Lands) so that Council plans include villager input and villagers' concerns are reflected at local and national levels. Thus, the link between VETs and VDCs is an important one that facilitates coordination between local and national government functions and services.

Among the strengths of Botswana's national extension system are its emphasis on participation, consultation, cooperation, and

coordination. The existence of the teams and village development committees does not guarantee jointly designed and implemented activities but does mean that an important framework for such activities is in place. Some deviations in general structure occur from ministry to ministry; these are addressed in the next portion of the chapter. There appears to be little opportunity for NGOs involved in similar or related activities to participate in coordinated planning and/or action, and this problem will be highlighted later.

9.1.4 Programs

Programs falling into three general topical areas--agriculture, health, and life skills and income generation--are described here. Programs reaching the largest audiences are offered by government units, particularly ministries. Nongovernmental organizations also provide NFE opportunities in a variety of subjects. For clarity, NGO programs are summarized in Section 9.1.4.3, which deals with life skills and income generation.

9.1.4.1 Agriculture

Consistent with Botswana's agricultural policy, the major goals of agricultural education are to increase animal and crop production and to improve land use. There is also a related emphasis on agricultural management and on the formation of groups of farmers (farmer associations) to encourage pooling of resources to address common problems.

The Ministry of Agriculture implements a range of agricultural programs, primarily through its extension services, which are the responsibility of the Department of Agricultural Field Services (DAFS). The DAFS is made up of four divisions--Animal Production, Land Utilization, Crop Production, and Agricultural Management Associations--and two sections--Field Staff and Agricultural Information. Other services are provided by the Departments of Animal Health and Co-operatives, the Research Unit, and the 4-B section (young farmers clubs activities) of DAFS. The Department of Animal Health is beginning to provide extension services, which are not covered in this report.

A. Organizational Structure and Management

Services are provided through a hierarchical system (see Figure 9.3) that differs slightly from the national model described earlier. The Ministry divides Botswana into six Agricultural Regions, as depicted in Figure 9.4. Each Agricultural Regional Office is staffed by a Regional Agricultural Officer (RAO) and an appropriate specialist support staff. Specialists might be officers for Animal Production, Land Use, Agricultural Management Associations, Ranch Extension, 4-B Supervision, Fisheries, and Crop Production, for example. If it is large, an Agricultural Region may be divided into two or more Districts, each staffed by a District Agricultural Officer assisted by an Agricultural Supervisor. The Agricultural Supervisors monitor the work of the Agricultural Demonstrators (ADs), who are responsible for

Figure 9.3 STRUCTURE OF THE DEPARTMENT OF AGRICULTURAL FIELD SERVICES (DAFS)

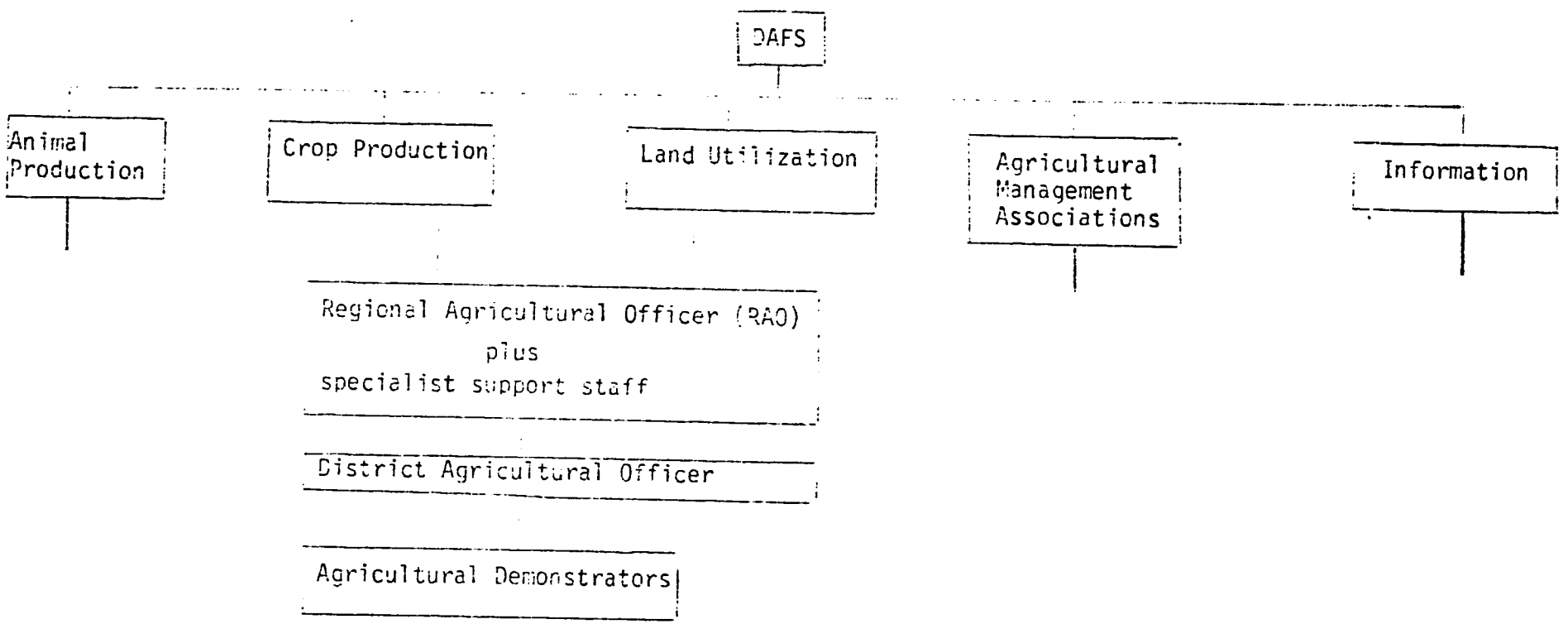
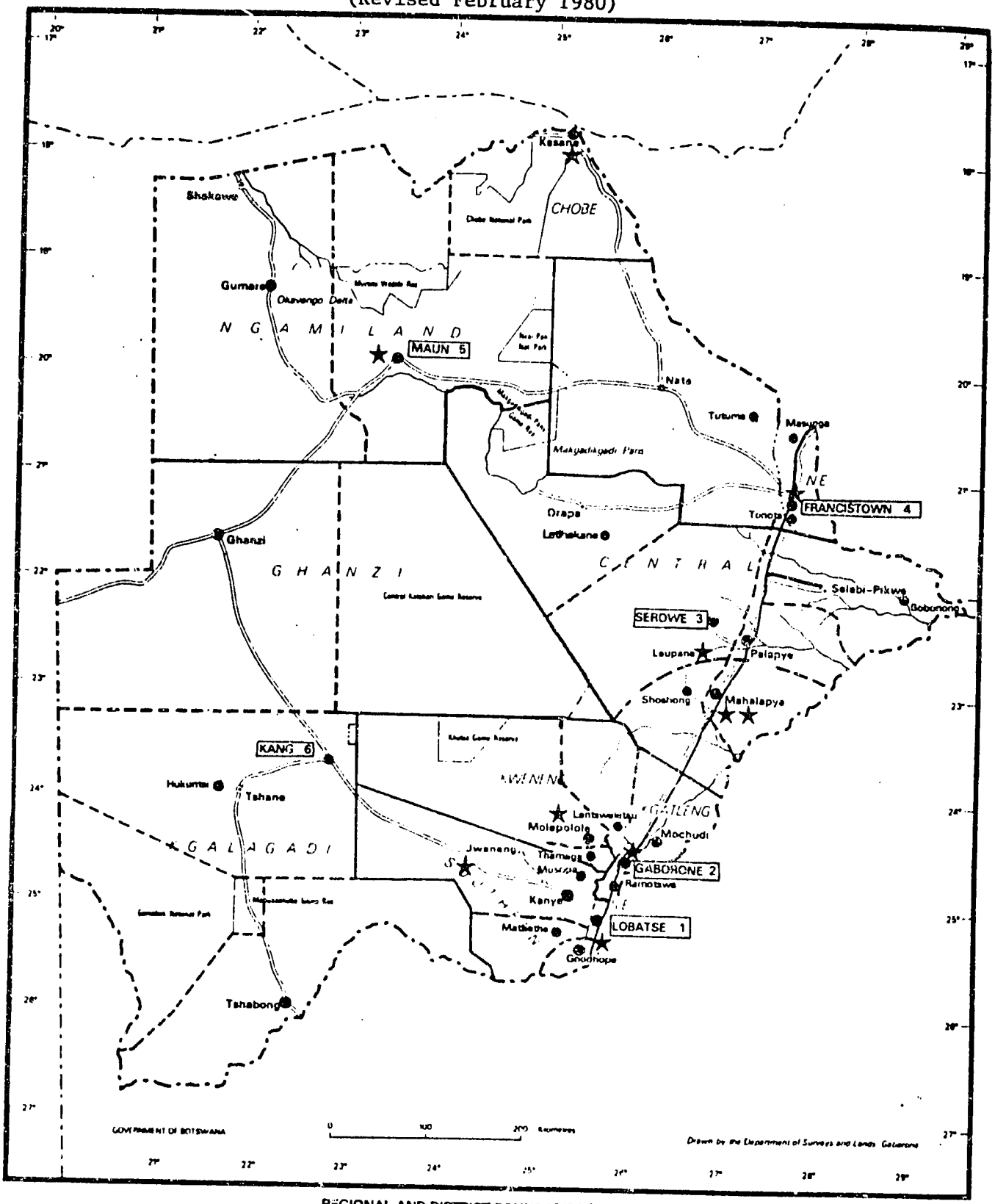


Figure 9.4 AGRICULTURAL REGIONS
(Revised February 1980)



Source: National Development Plan 1979-85.

promoting improved land use and farming techniques by working directly with farmers. The distribution of ADs in 1982 is shown in Figure 9.5.

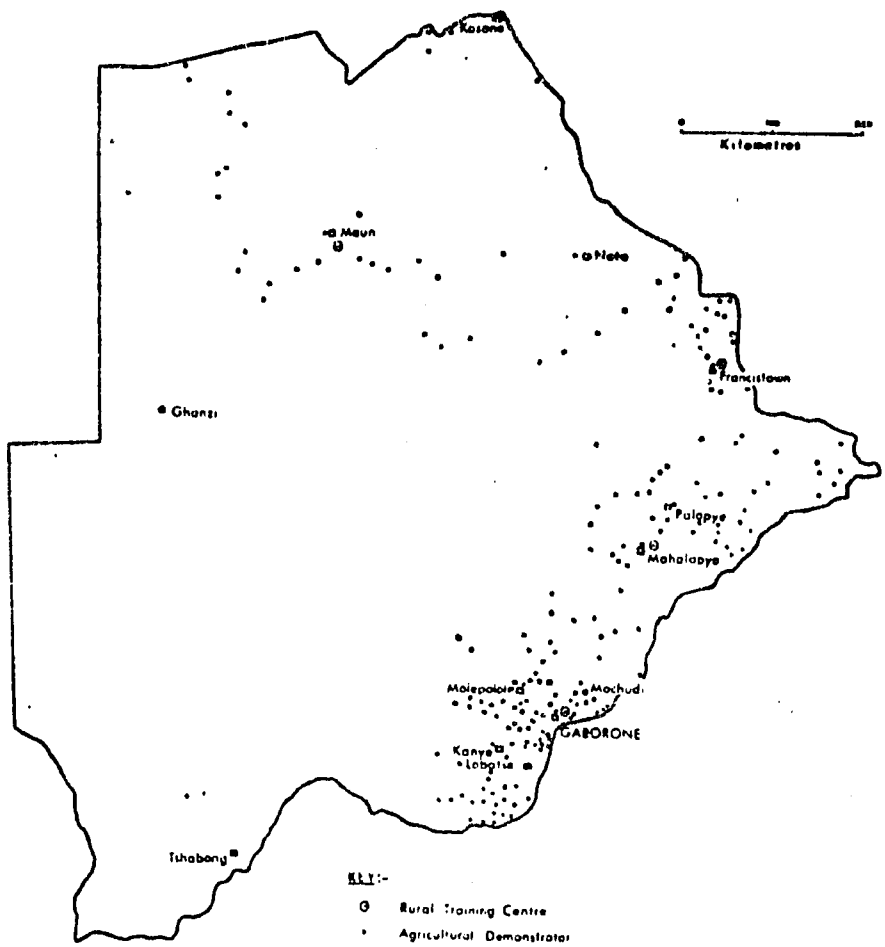
A reporting system contributes to the management of agricultural extension. ADs plan their work on a monthly basis and are responsible for submitting Daily Activity Records to the District Officers each month. The DAO submits quarterly and annual reports to headquarters. This adaptation of the extension service came about in an attempt to improve direct farmer contact with ADs, which was found to be low even given the AD-farmer ratio of 1:200-300.

In 1983-84 a total of 210 AD positions were available but only 198 could be filled given available manpower. One of the major problems faced by ADs is difficulty in obtaining promotion. The lack of specific technical skills frequently prevents upward mobility. Thus, ADs are often lost to other extension cadres that do not require specific technical skills when higher level positions become available. Also, the competition among ministries is stiff for trained people who have the qualification to serve as ADs.

Another problem is that currently fewer than 20 ADs are women although 45 percent of all Batswana agriculturalists are women. Some evidence suggests that socio/cultural problems hamper provision of services to women farmers by male ADs, and there are efforts within the Department of Agricultural Field Services to pay special attention to women farmers.

Field-based work is supported by several units in the MOA. Farmer training is provided at five Rural Training Centres (RTCs)

Figure 9.5 DISTRIBUTION OF AGRICULTURAL DEMONSTRATORS IN BOTSWANA



Source: Townsend-Coles, E.K. Maverick of the Education Family: Two Essays in Non-Formal Education, p. 57.

located in Sebele, Mahalapye, Maun, Pelotshetlha, and Impala, and ADs receive in-service training in the RTCs and other training institutions. Agricultural research is conducted by the MOA. The Agricultural Information Section plays an important role in disseminating research results as it uses them to develop written, audio, and visual materials in both Setswana and English for use by ADs and farmers.

Within the MOA each Department is responsible for preparing an annual plan of activities, and it is against this plan that end-of-year assessments and evaluations are made. Major programs include agricultural extension, farmer training through short courses, and 4-B clubs.

B. Agricultural Extension Services

Learners. Of the three programs, agricultural extension reaches the largest number of farmers (estimated at 15 percent of all farmers, or 115,500 farmers). Farmers meet individually and in groups with Agricultural Demonstrators (ADs), extension agents who encourage and promote particular practices and assist by providing materials appropriate to the problems farmers are facing.

Trainers. These extension agents (ADs) have qualified for their work by completing a two-year certificate at the Botswana Agricultural College (BAC). Entry into the certificate program requires that a candidate hold a Junior Certificate (JC). Currently 60 students are accepted into each of BAC's agricultural and animal health certificate programs each year. The course is equally divided between field

applications and work in the classroom. Attrition rates over the total length of the two-year course are approximately 10 percent.

ADs are supervised by District Agricultural Officers (DAOs) who have received a two-year diploma at the BAC. Twenty students are accepted into each of the the BAC's diploma programs in agriculture and animal health annually. In-service training is available to representatives of the MOA. Short courses are provided at the Regional Training Centres (see below), and selected individuals are sent elsewhere in Africa or to the UK or the United States for short-term training (3 to 6 months).

Content/Method. The ADs are responsible for encouraging farmers to engage in new agricultural endeavors as well as improving current practice. The range of topics taught is extensive and includes poultry [illegible] fishing, livestock management, horticulture, dairy herding [illegible] ing drift fences and dip tanks. Face-to-face communication is the most commonly used method.

Validation. Few data are readily accessible to assess the extent to which farmers have benefitted from these extension activities. Those data that do exist are in the ADs' monthly reports to the District Agricultural Officers. Data from these reports are forwarded by the head office to the Agricultural Information section so pertinent information might be included in the Department's newsletter, Agrinews.

Facilities and Support Services. In addition to the support services described earlier ("Organizational Structure and Management"), ADs are able to request assistance in particular content areas from the specialist staff posted at the regional level. The Ministry also organizes a radio program, Pitso Ya Balemi (Calling Farmers), broadcast regularly over Radio Botswana. The MOA prepares scripts and produces the programs, which include farmer interviews, informational items, responses to inquiries, and entertainment.

C. Farmer Training

Learners. Training in particular skills is offered to male and female farmers at the five Rural Training Centres (RTCs). In addition to agriculturalists, representatives from other units of government (such as the Ministries of Health, and Local Government and Lands) and from nongovernmental organizations (NGOs) also attend these programs. In 1981-82 a total of 10,985 individuals participated in such training.

Trainers. In-country instructors with particular expertise, especially from the Ministry of Agriculture, serve as instructors.

Content/Method. Short-term training (up to 5 days) focuses on a single subject such as bookkeeping, being an association secretary, or using agricultural machinery. The primary mode of instruction is the lecture method.

Validation. Participants in the Farmer Training workshops receive certificates of attendance.

Facilities and Support Services. The five RTCs all have boarding facilities, making the 3 to 5 day training programs possible. Support

services are provided by the research and information units described earlier.

D. The 4-B Movement

Learners. The primary target group of this program are young Batswana who live in villages. In 1982, 294 clubs with 8,065 members were active around the country.

Facilitators. 4-B Supervisors at the Regional level monitor the progress of the clubs in their region. Clubs at the community level are guided by ADs or representatives of other extension cadres, such as Assistant Community Development Officers from the Ministry of Local Government and Lands.

Content/Methods. Begun in 1967, this movement is designed to provide extension services to young rural Batswana, encourage interest in rural life and activities, and promote better agricultural practices. Young people are involved in group projects, individual projects, and service to their local communities. Activities include vegetable growing, fruit tree planting, and poultry keeping.

Validation. To recognize outstanding members and leaders, an awards program has been set up and exhibits are displayed at District shows.

Facilities and Support Services. In addition to personnel, a national radio quiz program and a monthly newsletter (with a per-issue circulation of 425 copies in 1981-82) support the 4-B program.

E. Costs and Financing

Financial data are not readily available to allow analyzing unit costs per learner. The Department of Agricultural Field Services (DAFS) budget for 1983 is P6.4 million for recurrent costs and P4.0 million for development. With 699 posts, it is also among the largest departments in government. In 1982, P25,250 were authorized for training courses and P10,680 for extension service materials.

Major donors to the Department of Agricultural Field Services are shown in Table 9.1, which also shows funds available and required by project, with 1983-84 funds disaggregated. Government staff are financed from the recurrent budget.

9.1.4.2 Health Education

Provision of primary health care, with its major effort in preventive care followed by health promotion activities, is regarded by the Ministry of Health as the most effective way to improve health and promote development. The approach focuses on the community, requiring that local participation be mobilized through health education and access to necessary resources.

A. Organizational Structure and Management

At the village level services are provided at a Health Post operated by a Family Welfare Educator (FWE). Health Posts form the base of a pyramid of facilities, each providing the same services as the one below it as well as services requiring greater skills in health care. The levels of facilities above Health Posts are the

SOURCES OF FUNDS FOR THE DEPARTMENT OF AGRICULTURAL FIELD SERVICES
(Pula)

Project Name	Total			Donor	1983-84		
	FTBN	DDF	Donor	Name	FTBN	DDF	Donor
Arable Lands	-	461,075	249,000	USAID	-	-	-
RTCs	1,679,201	583,900	736,899	UK	-	274,000	185,000
Fish Investig.	203,000	-	-	-	30,000	-	-
Livestock Dev I	2,756	531,854	53,299	IDA/SIDA	-	-	-
Performance Tst. A.I.	55	16,445	-	-	-	-	-
Expansion of 4-B Mvmnt.	135,250	1,750	-	UNDP	5,000	-	-
Re-org. of Extension	688,600	154,730	156,670	UK	123,000	17,000	77,000
Livestock Improvement	171,370	-	148,630	CELF	55,000	-	-
Sheep & Goat Dev.	979,600	-	965,400	EDF	220,000	-	230,000
	1,249,000						
Poultry	428,706	17,351	253,943	EDF	178,000	-	-
Livestock & Range Mgmt.	441,989	2,171	45,840	USAID	-	-	-
Small Dam Building	1,191,361	1,308,639	-	-	291,000	86,000	-
Integ. Trng. Pilot	576,638	588,856	334,506	UK	-	233,000	-
Dev. Crop Produc.	20,000	490,755	188,000	USAID	-	-	-
Agr. Ext. Small Proj.	583,034	59,612	101,354	Netherlands	-	19,000	7,000
			155,000	USAID	-	-	64,000
Horticulture	1,229,854	27,600	180,555	USAID	37,000	-	61,000
Housing	1,487,900	114,100	-	-	136,000	114,000	-
Group Ranch Dev.	59,943	311,593	228,464	CDC	-	75,000	75,000
Ranch Manag.	328	35,812	1,157,860	EDF	-	-	-
Soil Conserv.	1,688,550	6,450	-	-	88,000	-	-
Rural Aforestation	592,280	118,720	160,000	USAID	-	-	40,000
Ngamiland Irrig.	2,287,645	962,355	-	-	300,000	-	-
Dairy	638,616	35,300	23,084	DISF	15,000	-	-
Livestock Services	1,988,000	-	2,012,000	EDF	290,000	-	460,000
Livestock Dev.	10,258	18,492	71,250	IBRD	-	-	-
Drought Relief (Seed)	-	1,058,400	28,117	Australia	-	-	-
Soil Mapping	88,500	111,500	-	-	86,000	-	-
Fish Distr.	-	25,000	-	-	-	-	-
Farming Dev.	1,000,000	-	-	-	427,000	-	-
TOTAL	19,327,425*	7,006,460	7,249,871		2,281,000	818,000	1,200,000

Source: Ministry of Finance and Development Planning, NDP 1982 Project Review.

Key: FTBN = Funds to be negotiated
DDF = Domestic Development Funds

*Total and Figures need checking

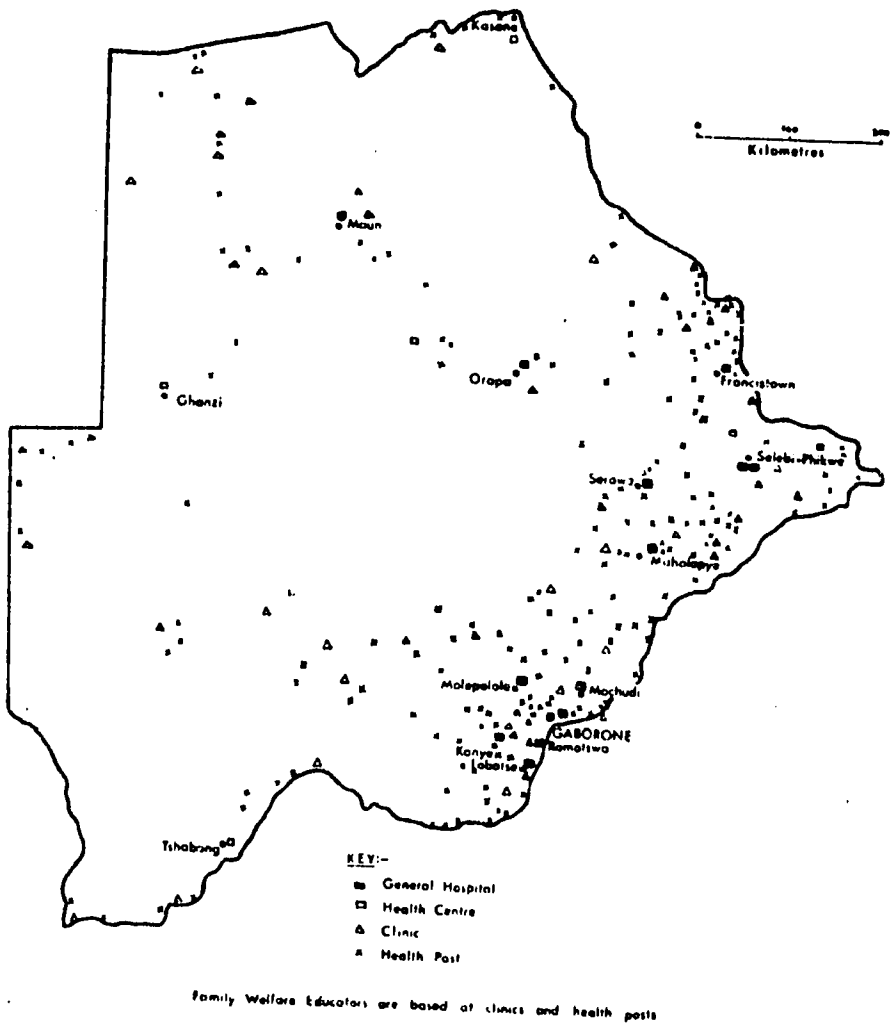
clinic (which may have a maternity ward), health center, district/regional hospital, and national hospital. The distribution of these facilities is shown in Figure 9.6.

To offer decentralized planning, implementation, supervision, and evaluation, the MOH has established 12 health regions, the boundaries of which differ slightly from administrative ones. Regional Health Teams which are headed by the Regional Medical Officer are responsible for evaluating and supervising health services and linking local areas to the MOH.

Health service delivery is the joint responsibility of two ministries. Health Posts and Clinics are run by District Councils and staff employed by the United Local Government Service (ULGS) of the Ministry of Local Government and Lands. Higher level units are administered by MOH. Most nonformal education for the Ministry of Health is conducted by the Health Education Unit of the Family Health Division.

In the villages, FWEs are expected to be active members of the Village Extension Team (VET) and to coordinate their work with that of other government extension agents and NGOs involved in related activities. It is estimated that each of the approximately 300 FWEs serves 500-2,000 people. Even if the full complement of 90 FWEs are trained in 1984 and 1985 as projected in NDP V, the unit will still be approximately 340 persons short of manpower needs for 1985. The attrition rate of trained FWEs is low--2 percent per year.

Figure 9.6 DISTRIBUTION OF HEALTH CARE FACILITIES IN BOTSWANA



Source: Townsend-Coles, E.K. Maverick of the Education Family: Two Essays in Non-Formal Education, p. 74.

B. Health Education Programs

Learners. Recipients of health education services are both villagers and urban residents. Learners may participate as individuals, as representatives of a particular organization (e.g., a member of a Village Development Committee or Local Council), or as members of a specific target group (e.g., traditional healers or youth). Women tend to participate in health education activities to a much greater extent than men.

Trainers. Most of the outreach of the Health Education Unit in the villages is carried out by the FWEs. As described earlier (Section 9.1.3), villages have Village Development Committees (VDCs) in which membership is voluntary. A subcommittee of the VDC, the Village Health Committee (VHC), selects an individual who has attained a Standard 7 pass to serve as that village's FWE. A newly hired FWE undergoes a three-month training program in Gaborone organized by the MOH. This training covers health care, health education, communication, and interpersonal relations. Once on the job, FWEs also participate in refresher courses, the majority of which are offered locally and staffed by MOH representatives from either district or national levels.

Content/Methods. Primary health care and basic health information on such areas as environmental sanitation and innoculations are the major focus of the work of the FWEs. To reach participants they rely heavily on home visits, radio learning groups, village meetings, and demonstration.

Seminars and workshops, offered in a variety of locations, also play an important role in health education in Botswana. Examples of topics include: health seminars for community leaders; seminars for traditional and modern health workers to promote interchange, understanding, and appropriate health practices; responsible parenthood seminars for youth; and informational seminars for VHCs. When locally held they are also locally funded. The types of health education seminars held in one of the regions (Ghantsi) during 1983 are illustrated in Table 9.2.

Staff shortages at headquarters (four full-time staff trained in health education) and a commitment to decentralization led to an attempt to have local-level staff who had participated in a workshop conduct local seminars themselves. This has not happened to the extent desired. Headquarters staff believe that with additional manpower they could give more guidance to staff at the regional level, thus enabling them to develop their leadership and training capabilities.

A radio program, Tsa Boitekanelo (For Health), which is broadcast over Radio Botswana weekly, with one repeat, is coordinated by the Family Health Division. This elicits more than 100 letters weekly from listeners around the country. To the extent possible these are responded to over the radio, and in a few cases inquirers receive individual responses.

TABLE 9.2

SEMINARS FOR GHANTSI HEALTH REGION, 1983

Date	Seminar*	Target Group	Venue
21-22 April	Training workshop	Tirelo Setshaba	Ghantsi
5-6 May	Refresher course	FWEs	Ghantsi
8-29 May	Community Leaders seminar	Community leaders	(1) Ghantsi
4-5 June	Community Leaders seminar		(2) Charleshill
9-10 July	Responsible Parenthood	Youth	Ghantsi
17-18 September	Teachers seminar	Teachers	Ghantsi
6-7 October	Refresher course	Enrolled nurses	Ghantsi
3-4 November	Traditional Healers seminar	Traditional doctors, traditional birth attendants, faith healers	Ghantsi

* The Staff Nurses seminars are not included since they meet every two months.

Validation. Research studies indicate that villagers judge the FWEs to be the most effective of all government extension workers because they have the highest contact rate of all the cadres. They are also viewed as identifying closely with, and contributing to, the local community. FWEs who live and work in the same village were rated most effective on these criteria.

Few formal evaluative data exist on the various health education programs. Inquiries from radio listeners suggest that the program is popular. Weekly meetings of the health education Unit address, among other things, feedback from the FWEs. The radio program was last evaluated internally in 1978. An outside evaluation is planned in 1984.

Facilities and Support Services. Health education services are fairly widely distributed, as indicated in figure 9.6, presented earlier, which shows health care facilities in Botswana in 1982. Health education activities are supported with materials such as pamphlets, posters, and a calendar produced by the graphics section of the Health Education Unit. This Unit also prepares and provides film, slide, audio, and video programs in support of health education activities. For example, the health calendar is designed so that topics it covers run concurrently with the weekly radio programs.

Collaboration with other agencies also plays an important role in health education. The MOH works closely with such units as the Department of Water Affairs; the Ministries of Education, Local Government and Lands, and Agriculture; and nongovernmental

organizations at national and village levels. An MOH campaign on environmental sanitation, for example, involved the Department of Water Affairs, and the MOE prepared and included related information for use in the National Literacy Program. Also, the MOH works with the MOA in nutrition education. Staff shortages at the University of Botswana's National Institute of Research inhibit important research.

C. Costs and Donor Support

Other than staff costs, the MOH allocates no funds to health education. Donor agencies provide funds for health education activities. Major donors to the Department of Health Services are shown in Table 9.3. The table shows funds available and required by project, with 1983-84 funds disaggregated.

9.1.4.3 Government-Sponsored Education for Non-Agricultural Life Skills and Income Generation

As noted earlier, it is essential for the majority of Batswana to be gainfully employed to meet government's goal of an improved quality of life for all. To help villagers develop skills to enhance their capacity to participate in, and contribute to, national life, government offers a range of educational activities that provide income-generation and other skills that can facilitate employment and contribute to national development. These opportunities are available through several ministries (Education, Local Government and Lands, and Industry and Commerce) and the Office of the President. Their organizational structures and selected programs are described next.

TABLE 9.3

MAJOR DONORS TO THE DEPARTMENT OF HEALTH SERVICES
(Pula)

Project	Total			Donor	1983-84		
	FTBN	DDF	Donor	Name	FTBN	DDF	Donor
Health Educ. Programme	70,000	46,000	21,219	WFP	70,000	-	10,000
	112,803		201,978	USAID	-	-	-
Maternal & Child Health	238,257	5,000	9,806	IPPF			
			17,057	WHO			
			40,000	UNFPA			30,000
			3,900	UNICEF			
Control of Communic. Diseases	15,349	36,400	75,773	UNCDF	10,000		
	60,000		74,478	Netherlands			
Nutrition Programme	14,500		3,500	UNICEF	5,000	-	-
	122,000						
Rehabilitation Prog.	20,000		7,000	UNICEF	10,000		
	44,000				22,000		
Mental health	10,000	10,000	-	-	10,000	-	-
	53,000						
Prevention of Blindness	77,457	21,300	243	UNICEF	20,000		
Total	837,346*	118,700	454,954		147,000		40,000

Source: Ministry of Finance and Development Planning, NDP 1982 Project Review.

Key: FTBN = Funds to be negotiated
DDF = Government Development Funds

* 837,366 ? Figures need checking

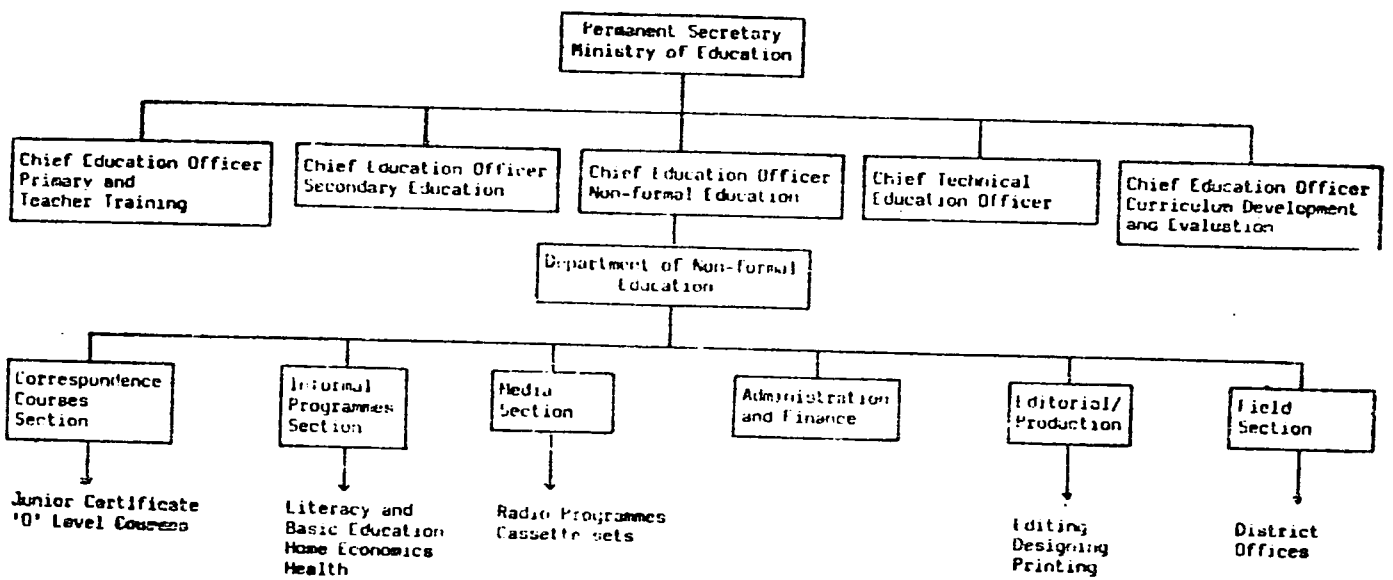
A. Department of Non-Formal Education (DNFE)

The DNFE is one of five departments of the Ministry of Education, and is the only department with both a Deputy Chief and a Chief Education Officer. The structure of the MOE is shown in Figure 9.7. DNFE has six sections--Correspondence, Informal Programs, Editorial/Production, Media, Field Services, and Administration. Programs are administered from two of these (Correspondence and Informal Programs), and the field staff, who implement programs, are under the Field Services Section. Two units, Media and Editorial/Production, provide essential support.

(1) Organizational structure and management

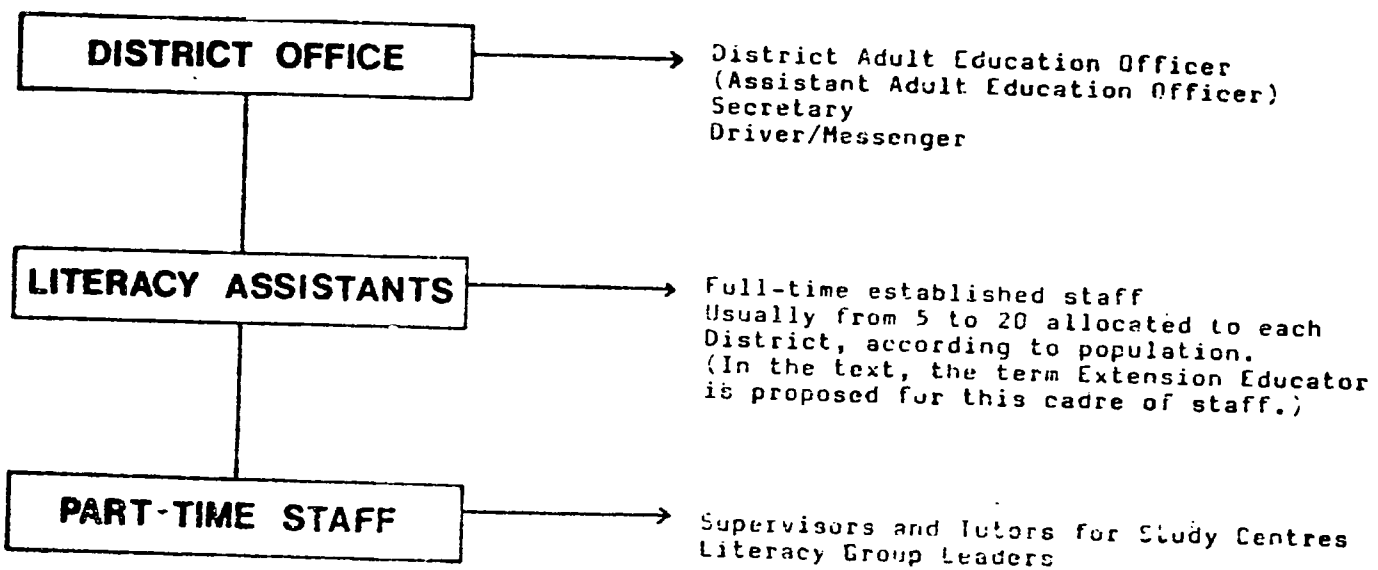
The Field Services Section is organized according to the government "extension model" except that it has added another cadre of staff who work under the permanent government employees at the field level. The organization under the District Office is shown in Figure 9.8. In 1982, 11 District Adult Education Officers (DAEOs) were responsible to the Chief Education Officer. Working under the DAOs at the village level are Literacy Assistants (LAs). As in other ministries, the DAOs and the LAs are part of the District Extension Team (DET) and the Village Extension Team (VET) respectively. Selected villagers who have completed primary school are paid a modest honorarium to serve as Literacy Group Leaders (LGLs) under the LAs.

Figure 9.7 STRUCTURE OF THE MINISTRY OF EDUCATION



Source: Townsend-Coles, E.K. Maverick of the Education Family: Two Essays in Non-Formal Education, p.50.

Figure 9.8 DNFE ORGANIZATIONAL STRUCTURE FROM DISTRICT LEVEL



Source: Townsend-Coles, E.K. Maverick of the Education Family: Two Essays in Non-Formal Education, p. 52.

(2) Correspondence program

Learners. Correspondence courses at the JC and Cambridge levels are offered to adults through the DNFE. Learners must have passed Standard 7 or JC, respectively, to participate in the program. In 1979, 3,255 students were enrolled. This figure jumped to 7,224 in 1982, making the correspondence program the largest in the country in terms of numbers of learners at the Secondary School level. Participants are limited to three courses at a time and usually pay their own fees.

Trainers. DNFE staff are responsible for course content and materials and are also involved in altering existing courses (particularly the Cambridge level ones) to make them more appropriate to the Botswana context. District Adult Education Officers serve as coordinators, provide access to tutors and to study facilities, and organize week-end courses in villages and district centers. Tutors are local volunteers who are willing to assist correspondence candidates. Overall adminstration is the responsibility of the Assistant Education Officer for Non-Formal Education.

Content/Method. JC courses are offered in Setswana, Mathematics, Bookkeeping and Commerce, English, History, Human and Social Biology, and Geography. Six General Certificate of Education (GCE) Courses are offered: English, History, Geography, Human Biology, Commerce, and Mathematics. Students learn at their own pace and are assisted individually by tutors and at week-end courses when several learners meet with a tutor. In some cases organizations, such as the National

Development Bank (NDB), the MOH, the Brigades Development Centre, and the Botswana Council for Refugees, form correspondence study groups and provide tutors and facilities. The NDB also covers costs.

Validation. Students take the regular JC and GCE examinations in order to gain certification. Pass rates in the correspondence program are not available.

Facilities and Support Services. Thirteen study centers are provided in the districts to enable correspondence students to complete their studies. Print is the major medium and the DNFE develops and produces materials. In addition to print and face-to-face methods, radio and cassette programs are used in the correspondence school. One reason DNFE prepares materials is that existing texts and other learning materials are directed toward children and are often unsuitable for adults.

(3) Literacy programme

Learners. The goal of the National Literacy Programme (NLP), begun in 1981, is to have a literate population by the end of 1985. The program is directed toward the 66 percent of the population over 16 years of age that was estimated to be functionally illiterate in 1979. Table 9.4 provides detail on NLP enrollments for 1981 and 1982, by districts and gender, and gives numbers of literacy groups, volunteer Literacy Group Leaders, and Literacy Assistants. These preliminary figures show a drop in enrollment from 23,630 in 1981 to 18,779 in 1982, which Ministry officials think is due to the drought year. In both years the majority of participants have been female.

TABLE 9.4

COMPOSITE STATISTICS FOR THE NATIONAL LITERACY PROGRAMME
1981 and 1982 (PRELIMARY)

District	Enrollment		Percent Male		LGL		LAs		Groups	
	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982
Southern	2,701	2,301	39	38	177	135	12	12	230	211
South East	2,771	2,278	46	48	180	163	16	9	222	211
Kweneng	4,091	2,269	40	36	243	160	17	16	309	183
Kgatleng	1,844	1,415	50	50	111	84	11	13	162	114
Central	6,285	6,469	44	34	356	414	21	21	433	-
North East	1,362	1,008	28	40	75	59	5	7	106	71
Ngamiland	2,207	1,908	36	39	126	83	8	9	136	-
Chobe (incl. in Ngamiland)		138	-	38	-	17	-	1	-	-
Ghanzi	474	310	38	43	39	21	8	9	44	-
Kgalagadi	1,905	683	36	28	120	52	7	7	137	-
Total	23,630*	18,799**	41	38	1,427	1,188	105	104	1,779	-

Source: Planning Office, Ministry of Education.

* 23,640 ? Figures need checking

** 18,779 ? Figures need checking

Trainers. Literacy groups are organized and classes conducted by Literacy Group Leaders who have completed primary school and are paid an honorarium of P1 for each one-half hour literacy class they conduct. LGLs prepare for this in a week-long training program offered by DNFE. Up to 20 LGLs report to each Literacy Assistant, the village-level extension workers under the MOE. The LAs provide assistance and ensure that the LGLs have the materials and supplies they need. (Learning groups are also managed by other agencies with support from DNFE in the form of materials and professional services.) LAs report to District Adult Education Officers who supervise the field activities of the NLP and report to the DNFE.

Most LAs hold a JC certificate and also have at least a year of professional experience (many through Tirelo Setshaba--see below). They receive a five-week course on NFE methods and in-service refresher courses arranged every few months by DAEOs.

Content/Method. The National Literacy Programme focuses on reading, writing, and numeracy with the aim of improving Batswana's access to information, to enable them to contribute more effectively to the country's development. Primers and supplementary reading materials contain information on such topics as agriculture, health, and environmental sanitation. In a few villages, most notably Mochudi, literacy groups are engaged in other activities such as needlework, woodwork, and stonecarving.

Literacy groups meet weekly and learners progress through the series of five excellent primers that have been developed and produced

by DNFE. Because participants may join at any time, a group may have members at very different skill levels. Literacy classes are conducted in Setswana (even in areas where it is not the learner's first language).

Validation. A major evaluation of the literacy program is under way. DNFE staff are currently being trained in evaluation techniques. Literacy Assistants are compiling and summarizing data, and submitting reports to District Adult Education Officers. The DAEOs will, in turn, prepare summaries for submission to the Ministry of Education. This is viewed as an important step as the NLP is approximately halfway through its first phase. Furthermore, these data will become part of the DNFE's proposed information data bank.

Internal evaluations already have provided some insights on the program. First, the literacy program appears to be more centralized than necessary and questions related to language of instruction need to be addressed. DAEOs are overburdened (with literacy, correspondence, District Extension Team, and extension coordination activities) and ill-prepared to carry out their large administrative responsibilities. Priorities in allocating resources to serve new learners, enrolled learners, and neo-literates no longer enrolled need to be addressed. There is a critical need for data through which to analyze learners' performance and competency, length of time required to learn, and progress if they move into formal schools. Currently, such data do not exist.

Facilities and Support Services. The DNFE has developed and provides, at no charge, primers and a monthly paper for new literates, plus flannelgraphs and teaching guides for Literacy Group Leaders. Literacy programs are supported with a radio program called Ga E Golelwe (It's Never too Late to Learn) and support materials, and frequently programs are developed in cooperation with various ministries. For example, materials and information on agriculture and on environmental sanitation were developed in collaboration with the Ministries of Agriculture and Health and incorporated into adult literacy activities.

Many efforts are made to ensure that appropriate facilities are available to those involved in DNFE field activities. Study centers exist in a number of locations. District Offices are available for educational activities. Six Education Centers that serve both formal and nonformal education are being used, providing space for workshops, in-service training, and meetings. The Matsha Community College is an excellent example; it houses a Non-Formal Education Center and a Junior Secondary School, and has a brigade closely associated with it. Boarding facilities make it possible for people from remote areas to participate in workshops and other training activities at Matsha.

Costs and Financing. Financial data are not readily available for a thorough analysis of unit costs. Government's estimates of expenditure for 1983-84 for DNFE are P658,570. Major donors to the National Literacy Programme are shown in Table 9.5.

TABLE 9.5

FUNDING SOURCES OF THE NATIONAL LITERACY PROGRAMME

(Pula)

Funding Source	1980-81	1981-82	1982-83 (prel.)	Total 1980-1983
Domestic Development Fund	99,799	52,814	2,787	155,400
Keditanstalt Fur Weideraufbau	68,295	89,696	41,072	199,063
Netherlands	-	72,174	96,604	168,778
SIDA	-	395,245	267,141	662,386
UNICEF	-	-	72,000	72,000
GTZ	-	-	332,003	332,003
Total	168,094	609,929	811,607	1,589,630

SOURCE: Planning Office, Ministry of Education.

B. Tirelo Setshaba

Begun in 1980, Tirelo Setshaba is Botswana's national study-service scheme. The long-term objective of the program is to provide a broad education to the country's future leaders.

(1) Organizational structure and management

Administrative operations are the responsibility of the Director, who reports to the Administrative Secretary in the Office of the President. Field operations are similar to those carried out by government extension officers. Tirelo Setshaba volunteers work in pairs and 30 to 40 volunteers work as a group under a Group Field Assistant. Volunteers are also responsible to the village headman and the Head Teacher. A Field Officer supervises three or four Group Field Assistants.

(2) Program components

Learners. Botswana nationals who have completed senior secondary school may volunteer to serve the country for one year as primary school teachers and village-level development workers. Estimates show 450 volunteers in the program in 1983. These individuals receive an allowance of P90 per month, with an additional P5 per month saved for them and P30 per month given to their families.

Trainers. Tirelo Setshaba participants receive a two-week training program on primary and adult education prior to going to their posts in the villages.

Content/Method. Volunteers in Tirelo Setshaba are expected to work in pairs and be responsible for one primary education class and

also to participate in one or two community development activities. These might include running a literacy group, working with Family Welfare Educators to provide primary health care education, and developing a local self-help project.

Validation. The pilot project of Tirelo Setshaba was evaluated in 1981 and findings suggest that it is meeting its objectives. Upon completion of service, participants receive a certificate. All else being equal, certificate holders currently receive priority in opportunities for employment or government-supported higher education. It is anticipated that, in time, the certificate will be required for entry into any further government-supported education or government employment.

Costs and Financing. Estimated cost for the pilot project (30 participants in 1980-81) was P72,000 (US$2,160 average per participant).

C. Ministry of Commerce and Industry

The MCI is responsible for promoting and encouraging industry and commerce in both the formal and the informal sectors. To promote rural manufacturing and retail activities the MCI has three general programs: the small projects fund, a small entrepreneur training program, and the Business Advisory Service. The first two are administered by the Department of Industrial Affairs and the third by the Department of Commercial Affairs. These are closely inter-related and will be described together. The Rural Industries Innovation

Centre (RIIC), which provides training and extension services, among other things, to Batswana is also part of MCI's portfolio.

(1) Organizational structure and management

A cadre of Rural Industrial Officers (RIOs) is responsible for formulating and implementing rural industrial projects. RIOs live at district centers and report to Ministry headquarters. Also under the MCI is the Rural Industries Innovation Centre. RIIC's work is guided by Rural Industries Promotions, a nongovernmental organization that also focuses on rural industry. The RIIC has a small team of extension workers who work with other extension agents to promote new technologies and training for villagers.

(2) NFE activities of the Ministry of Commerce and Industry

Learners. The NFE activities of MCI are directed toward potential and existing small entrepreneurs in the rural areas. Many of the participants are illiterate. Experience has shown that although some non-literates have done well, numeracy skills, in particular, facilitate getting a business started and operating on a firm foundation. In 1983 it was estimated that 1,700 particpants, both male and female, took advantage of MCI's services over a one-year period.

Trainers. Small business training in the districts is coordinated by Rural Industrial Officers (RIOs). Most RIOs are expatriates who hold B.A. degrees. They have local counterparts who have graduated from the University of Botswana in either administration or business. This educational level is seen as

appropriate because RIOs are required to do economic feasibility studies and to possess skills in analysis and synthesis that can be applied to macro-scale problems. It is also important that they have practical training, and this area is seen as in need of improvement.

Content/Method. Small producers come to the RIOs and request support in obtaining funds from the government's Financial Assistance Programme (FAP) to set up small businesses. FAP money is being requested by both men and women. The eight major categories of requests are fishing (23%), sewing (15%), knitting (13%), brickmaking (10%), poultry (9%), carpentry (6%), welding (6%), and horticulture (5%). Those in agriculture (fishing, poultry, and horticulture) are handled by the resident Agricultural Officers.

Each RIO also administers technical assistance training activities for rural entrepreneurs with a Small Projects Fund. The RIOs do not necessarily provide training but rather identify training opportunities or hire individuals with particular expertises to offer training workshops in such areas as bookkeeping and business management. Entrepreneurs are frequently sent to the Rural Industrial Innovations Centre and the brigades for training. (The training activities of both of these organizations are described in Chapter 8.0.) RIOs coordinate training so that several entrepreneurs from different districts can be trained simultaneously. Both English and numeracy skills are important for training programs to be effective. The Small Projects Fund is also used to finance special studies and

surveys required to evaluate the potential for expanding or introducing new business activities in the district.

The Business Advisory Service (BAS) developed out of the Small Trader's Extension Program. With government support to Partnership for Productivity (PFP), a nongovernmental organization, small-scale retailers receive training in such areas as record keeping and business management. This training occurs on location, using the entrepreneur's own business records as primary teaching aids.

Validation. No data exist on the extent to which new entrepreneurs are successful in their business endeavors. MCI recognizes that potential entrepreneurs need to be introduced to different products because product diversification is essential. Competition is a difficult problem for rural entrepreneurs and one that is further complicated by government's foreign investment policy and its policy of allowing medium- and large-size enterprises to also use FAP funds in rural areas.

Validation of the rural industrial program is further complicated because some individuals tend to use FAP funds to develop capital to enable them to pursue other activities rather than to reinvest it in their businesses. For example, an individual may remain an entrepreneur until he or she has enough money saved to buy a farm implement or until another employment opportunity becomes available.

Facilities and Support Services. The Rural Industries Innovation Centre has a particularly important role with regard to income-generating activities. The Centre researches technologies

appropriate to Botswana, introduces successful technologies, and provides training in their use. The RIIC has an active extension program to introduce the new technologies. Program representatives work closely with government extension networks promoting new technologies, organizing training, monitoring progress, and providing consultancy services. Technologies developed so far include a sorghum milling machine which reduces women's work time significantly, a bio-gas plant, and solar desalinization equipment for use by the Basarwa who live in parts of Botswana where only brackish water is available.

(3) Costs and donor support

Major donors to the programs promoting rural industry are listed in Table 9.6, which also shows the amounts available and still to be negotiated, with the 1983-84 portion disaggregated. Because amounts set aside for educational activities are not identified, a unit cost analysis cannot be performed on the NFE portion of MCI programs.

D. Ministry of Local Government and Lands

The MLGL is actively involved in NFE activities. As with all MLGL programs, these are managed and coordinated at the district level. The NFE services provided are based on a commitment to provide services equally to all Batswana. Two major programs are addressed in this assessment, the first directed toward individuals who live in isolated areas and the second toward the provision of services by community development extension workers.

TABLE 9.6

SOURCES OF FUNDS FOR MINISTRY OF INDUSTRY AND COMMERCE HEADQUARTERS PROGRAMS
(Pula)

Project Name	Total			Donor Name	1983-84		
	FTBN	DDF	Donor		FTBN	DDF	Donor
Rural Ind. Officers	232,600	87,400	660,000	USAID	-	-	268,000
Invest. Prom. Activities	277,750	12,000	66,750	Bridging Finance			
			200,000	GTZ			67,000
			3,000	SIDA			
Indus. Area Studies	202,000	-	-	-	20,000		
Trade Promot. Unit	1,153,617	-	189,383	EDF	283,000	-	-
Trade Fair Ground	166,414	68,226	-	-	10,000		
Handicrafts	259		36,491	UNCDF	-	-	-
Oil Storage Depots	200	8,307,000	8,032,800	KFW		2,986.000	-
Industrial Bldgs.	-	-	724,000	EDF	-	-	-
Business Adv. Service	249,000	62,968	-	-	27,000	23.000	-
Rural Industries	240,700	169,300	-	-	100,000	-	-
Total	2,522,540	8,706,894	9,912,424		440,000	3,009.000	335,000

Source: Ministry of Finance and Development Planning

Key: FTBN - Funds to be negotiated
DDF - Government's Domestic Development Funds

(1) Remote Areas Development Programme (RADP)

The Remote Areas Development Programme (RADP) started in 1974 with a special attempt to provide services to the Basarwa, one of the minority groups in Botswana. In 1978 it expanded to serve all nationals living outside the established village structure.

Organizational structure and management. Only seven of the District Councils are involved (North East and South East Districts and the five Town Councils do not qualify as having remote areas). Services are provided by a small cadre of workers at the District level. Each of seven districts has at least two or three workers, who may have the title of Senior Remote Areas Development Officer or Remote Areas Development Officer (RADO). At the village level are Remote Areas Development Assistants (RADA). The Remote Areas Development cadre is small. It falls under the Unified Local Government Service (ULGS) which lists 36 positions for that cadre. The district and village level personnel are supervised by the District Council; that is, they report to local government. RADOs submit quarterly reports to headquarters and are visited by headquarters' staff periodically.

As ULGS members, the Remote Areas Development cadre members are able to participate in the in-service training program. In its infancy, this program will consist of a number of mobile units that provide in-service and on-the-job training through sequenced modules on various topics. Participants who complete modules successfully will receive credits, and records will be kept by Personnel and

Training Officers. Through a carefully structured system, these credits can then be applied toward promotion as an alternative to credentials received through formal schooling.

Learners. As noted earlier, the major thrust of the RADP is to provide services equally to all Batswana. RADP's mission is to reach those people who have been bypassed by the more traditional mechanisms that allow Batswana to participate in the development process. A second role is to assist with the integration of minority groups into Botswana's national life. The RADP's audience is the 15 percent of the population who are primarily hunters and gatherers, nomadic, and/or without livestock. Although these people may take seasonal employment, they are frequently without a dependable means of livelihood.

Trainers. Services are offered by RADOs and RADAs who have at least a JC certificate or appropriate experience. Post-secondary school training usually involves a two-year certificate from Botswana Agricultural College and, in some cases, additional short-term (a few months) training at institutions in Zambia or Cameroon. Many of the RADP cadre have already been involved in development activities as ADs or Community Development Officers. Some RADAs are women. Major difficulties faced by the RADP workers are lack of funds, transport problems, severe water shortages, and what is seen as a lack of initiative on the part of the target group.

Content/Method. When working with local people, RADP representatives rely heavily on demonstration and on the DNFE cadre to

assist them because RADOs do not have the skills necessary to work effectively with adults. Setswana is used except in very special circumstances when an interpreter is brought in. RADOs are given a District Planning Handbook, and requests for additional information are serviced by headquarters. As much as possible, groups and individuals are encouraged to identify priority problems through workshops. The RADO then presents them to the District Council's Planning Officers who help develop project proposals to go to headquarters for consideration. Ideally, approved projects are jointly funded, involving headquarters, local government, and other ministries. For example, projects involving health, rural roads, primary education, or water might be partly supported by the District Council which has responsibilities for these areas. In practice, most projects are funded by the Ministry of Local Government and Lands. Self-help projects are designed whenever possible but are often difficult to develop. Settlement programs assist people to become agriculturalists and, in the Ghanzi area, have begun to introduce cattle ownership.

Validation. For the most part obtaining data from research has not been a severe problem. Outside researchers have been interested in the Basarwa in particular, and so a substantial amount of data on them exists. When necessary, outside consultants are brought in for a specific research assignment. Possible research activities are assessed by the MLGL's Applied Research Unit together with the Office of the President. Research may contribute to planning, which

is carried out by the districts under broad policy guidelines from headquarters. No evaluative data are available, however, to assess the success of particular activities.

(2) Division of Community Development

The Division of Community Development works in four areas: social welfare, women's programs (which are mostly home economics), youth programs, and general community development. The role of the Division is as advisor to the MLGL, the Unified Local Government Service, and the District and Town Councils.

Organizational structure and management. In each Council (District and Town) there is a Chief Community Development Officer (CCDO), who is responsible for supervising community development activities in the district. Southern District is divided into subdistricts. In the larger districts, there also may be section heads (e.g., for youth or women's programs) under the CCDO. There are 112 field level extension agents who report to CCDOs. These Assistant Community Development Officers (ACDOs) are responsible for providing services to Batswana (see below) and for working with the Village Development Committee (VDC) to strengthen the linkage between the village and Central Government. The community development workers, who are members of the ULGS, report to District and Town Councils. Councils are responsible for compiling quarterly and annual reports and submitting them to headquarters. These reports are not received regularly.

Learners. Target learners are all villagers, with special programs for youths, women, and destitute people. Wherever possible, ACDOs are encouraged to work with existing groups such as 4-B or an agricultural management association. Each of the ACDOs is expected to work in three to four villages, each with an approximate population of 500.

Trainers. To become Assistant Community Development Officers, individuals must obtain a two-year certificate at the Botswana Agricultural College after successful completion of the JC certificate. There is a shortage of available manpower. Annual intake at BAC is about 25, with about 20 finishing the two-year course. These people do not qualify only as ACDOs, however; they may be placed in other positions in the District and Town Councils. There are both male and female ACDOs. Each receives a Village Development Committee Handbook as a guide.

Content/Method. The ACDO has to be a generalist. He or she is responsible for working in the four substantive areas covered by the Division. The first job on assignment to a geographical area is to become familiar with local problems and then to work with established village organizations to address them. Discussion, through home visits and organization and Kgotla meetings, is the primary educational method. ACDOs also offer short training courses on such topics as how to run a committee meeting. These are not scheduled regularly and no records are kept on content or attendance.

Validation. There are no data on the outcomes of NFE activities. Conflicts in the village, transportation, and use of community development staff by Councils for political purposes are cited by MLGL staff as problems.

(3) Night schools

Evidence suggests that a significant number of night schools supported by District and Town Councils provide alternative formal educational opportunities to adults and teenagers. These schools offer both primary and secondary education.

E. Ministry of Home Affairs (MHA)

Organizational structure and management. The Ministry of Home Affairs also is involved in nonformal education. One of the Ministry's emphases is Batswana's cultural identity, and related NFE activities are conducted through two major vehicles, the libraries and the museums program. The relatively new monuments program promises to provide excellent materials in support of MHA's work. Two other parts of the MHA portfolio are of particular interest to nonformal education. First, the Ministry of Home Affairs has a Women's Affairs Officer who is responsible for attending to women's concerns in both the rural and modern sectors. Second, the MHA is responsible for nongovernmental organizations' activities in Botswana and provides some financial support to them for institution building.

Learners. The Ministry of Home Affairs views all Batswana as its audience. Special services are directed toward particular groups. For example, the library book boxes are sent to primary schools, and

the mobile museum frequently is scheduled to travel to some of the most remote parts of the country.

Trainers. Programs are conducted by specialist staff in the different sections of MHA.

Content/Method. The libraries program provides books to primary schools. Plans are to increase the range of materials in the boxes to include items for teachers, and also to extend the program so that materials might be available for literacy groups and secondary school students and teachers. Plans also call for integrating secondary school libraries into the communities where those schools are located. The Monuments Program, which is developing a detailed history of the country, will result in materials that can contribute to Batswana's knowledge about their country and its history and culture.

In addition to the National Museum in Gaborone, the MHA is attempting to support the development of local museums. The Phuthadikobo Museum in Mochudi is an example of a local museum that also provides learning activities such as adult and community education. The Mobile Museum is based in Gaborone and is a direct outreach program that is available upon request.

F. NFE Services Provided by Nongovernmental Organizations

In addition to the broad range of NFE activities offered through the government extension services, a number of NFE opportunities are available through nongovernmental organizations (NGOs) active throughout Botswana. The range of content areas and the scale of these NFE programs is large. Some are very small, catering to a

specific target group, while others are national in scale, reaching audiences throughout the country. Many receive financial support from outside donors and government, some are private firms, others operate on funds generated from fees, and a few more function by combining different methods of funding. Many of the NFE programs use financial resources generated from within the country to cover part of their costs and cooperate with government-initiated NFE activities.

For summary purposes NFE services provided by NGOs have been grouped into four areas: skills training that can lead to immediate employment, alternative formal education, literacy training, and health and nutrition. Each is described below. For information on these programs, this assessment has relied on the "Final Report, Non-Formal Education Assessment and Analysis Project," an effort sponsored by USAID and carried out by Creative Associates, Inc.

Many of the skills training programs that would normally be considered as nonformal education are covered in Chapter 8.0, Vocational and Technical Education. Examples of such programs include those offered by the Botswana Brigades and by the Botswana Enterprise Development Unit, and special commercial programs in such skills as typing. Programs of this type are not included in the four areas described below.

(1) Employment-related skills training

Programs offered by NGOs vary considerably and include the following content areas: trades skills such as carpentry, textiles, sewing, knitting, and weaving; homecrafts; driving; bookeeping; and

commercial skills. Some are directed toward special target groups such as mentally disabled children or young women who are out of school. The majority of learners are female. Financial support comes from fees, churches in Botswana, outside donors, and government. The Botswana Christian Council (BCC), the Botswana Council of Women (BCW), and the YWCA appear to have the most extensive programs. According to available data, the largest program is the Urban Industrial Mission (sponsored by the BCC) which provided learning opportunities in various textiles and trades areas to 848 Batswana in 1982.

(2) Alternative formal education

Significant numbers of adults pay for formal education, indicating that it is valued highly and sought after when available. The majority of these programs provide primary education to adults and teenagers. Secondary education is also offered at both the JC and Cambridge levels. Several programs are directed toward special audiences who are physically or mentally disabled. Mention has also been made, in a preceding section of this review, of alternative formal education opportunities offered by Town and District Councils.

(3) Literacy

Both the BCC and the BCW participate in the National Literacy Program. They obtain materials and technical assistance from the DNFE to carry out the literacy activities. The BCC's program is conducted mainly in the Gaborone area whereas that of the BCW is throughout the nation.

(4) Health and nutrition

Both the Red Cross and the BCW offer NFE activities nationwide that contribute to the priorities of primary health care, child health, and nutrition set by the MOH. The Red Cross trained 720 persons in 1982. It receives financial support from outside donors and uses fees to help cover costs.

9.1.5 Summary

There is an extensive NFE system in Botswana. The infrastructure to provide educational services exists within the various ministries, and mechanisms for collaboration and coordination are exceptionally well conceived. The next part of this review analyzes the extent to which the existing system is being used efficiently.

9.2 ANALYSIS

This part of the assessment indicates which needs should be addressed if nonformal education is to become effective and efficient in Botswana and notes the constraints under which NFE programs are operating. It also raises several important issues that relate to the organization and program content of NFE activities and states basic conclusions. The final section presents a series of recommendations for nonformal education in Botswana as derived from this analysis.

9.2.1 Needs

Four major needs are related to the delivery of NFE services to Batswana. First, data are sorely lacking for the research and evaluation needed to enable better management of projects and the development of programs that are more responsive to learner needs. Second, better coordination and integration are needed among NFE programs offered by government and nongovernmental organizations. Third, additional manpower and a better understanding of specific manpower needs could help solve problems of insufficient staff, inappropriately trained staff, and staff retention. Fourth, the content of many NFE programs should be re-examined with a view toward improving the link between nonformal education and productive participation in Botswana's economy.

9.2.2 Plans

Plans across ministries address two general topics: increased coverage, and training and manpower development. All extension units are aware that NFE service delivery is not uniform and that some populations may be receiving virtually no services. Specific plans to alter this situation include increasing cadres at the district and village levels and improving or building facilities and services in support of NFE activities. Related to this, two units (the Departments of Non-Formal Education and of Family Health) have plans to increase their evaluation capabilities to be better informed about the impacts of the services they provide. Those ministries with

extension services are aware that they lack the manpower needed to cover the territory and that the manpower they do have might not be appropriately trained.

9.2.3 Constraints

Major constraints to NFE activities throughout Botswana relate to shortages in human and financial resources, organizational structures, and the socio/economic/physical environment.

9.2.3.1 Human Resources Constraints

Botswana's small population (just under one million), combined with its history of a formal educational system that developed slowly, has resulted in a nationwide shortage of skilled manpower. The implications of this situation for the NFE subsector can be seen particularly in two areas. First, there is a shortage of people who are trained to implement programs, carry out research and evaluation on nonformal education, and perform adequate supervisory functions. Second, as recently as 1979 it was estimated that fully two-thirds of the population was functionally illiterate. This makes the provision of educational opportunities more difficult for NFE workers and hampers, in particular, the development of economically viable income-generating activities.

A third constraint faced by the NFE subsector is that staff turnovers and transfers occur fairly frequently, necessitating additional training for newly placed employees. Furthermore,

individual ministries have little input into staff selection and placement.

9.2.3.2 Financial Constraints

The worldwide recession and the drop in diamond prices (a major source of income for Botswana), combined with the country's conservative fiscal policies, make it unlikely that there will be any automatic substantial increase in government funds to the NFE subsector. Yet government's policy to extend services to all Batswana, even at current levels of quality, will require additional funds. Furthermore, many of the existing projects with NFE components are currently funded by outside donor agencies. If these educational activities are to continue after the completion of the project cycle, they will place additional demands on the recurrent budget.

9.2.3.3 Organizational Constraints

Government's national extension system is well designed and can contribute significantly to the delivery of NFE services throughout Botswana. To work properly, however, the system requires effective inter-ministerial coordination, and cooperation by personnel at the village and district levels. To the extent that this does not occur the system will operate below optimum levels. The system is further restricted by a lack of appropriate mechanisms to identify, collect, and interpret data necessary for evaluation and program development.

9.2.3.4 Socio/Economic/Physical Environmental Constraints

Reaching the widely dispersed population with NFE services is difficult with the current state of roads, means of transport, and communication. The harsh environmental conditions (particularly the lack of water and arable land) provide additional challenges to those trying to promote NFE activities. The development of viable small businesses in the formal and informal sectors is severely hampered by conflicting government policies and by lack of local capital and raw materials.

9.2.4 Issues

Five sets of issues are identified within these co straints. They are addressed under the following topics: external efficiency, internal efficiency, access and equity, administration and supervision, and costs and financing.

9.2.4.1 External Efficiency

Issues relating to external efficiency concern the relevance of NFE activities to subsequent educational or job-related activites. These issues fall into four general areas--questions related to the National Literacy Programme (NLP), women's education, the impact of Tirelo Setshaba on subsequent performance, and the possibility of an alternative formal education system. These are discussed below.

National Literacy Programme. The major question to be addressed by the Ministry of Education is the extent to which the National

Literacy Programme provides functional skills that contribute to an immediate improvement in the quality of life. Much of the NLP appears to be based on the assumption that literacy skills per se will lead to a better life. Most literacy classes, for example, are not linked to project activities that develop income generating skills or foster improved agricultural practices. The numeracy component, based on financial transactions, can be of immediate value to learners who may be shopping in local shops or selling livestock; the short-run value of knowing how to read and write words is not as clear. Furthermore, though literacy skills may be very significant for villagers in the long run, a related question should be asked regarding what opportunities exist for villagers to sustain their new literacy skills so that they might be put to use in the future.

A decision to link literacy directly to life-skills training would probably require substantial alterations in the NLP. Such alterations might include (a) reaching smaller numbers of participants because of the need to redirect some resources to functional literacy projects, (b) requiring staff to have training in such skills as income generation in addition to skills in teaching literacy, and (c) increasing collaboration with such ministries as Agriculture and Industry and Commerce.

Women's Education. A large percentage of the participants in NFE programs in Botswana are women. (In 1982, 62 percent of National Literacy Programme enrollees were female.) Their enrollment is particularly high in programs related to health, home economics, and

literacy whether provided by government or by nongovernmental organizations. Although nearly half of all farmers are female (45 percent), they tend to receive fewer agricultural extension services than their male counterparts. And even though women seem to be acquiring information and knowledge in some important areas, they generally are not participating in learning opportunities that can make them more productive or earn a better income in the short run. The question that needs to be addressed is whether nonformal education in Botswana is functional for women in terms of future employment possibilities and upward mobility.

Tirelo Setshaba. This year-long study-service program is based on the assumption that the experience will engender an understanding of, and appreciation for, Botswana's development problems among Botswana's future leaders. It is also hoped that this understanding will be a signficant factor in increasing the numbers of Batswana who want to contribute to the country's development. Several questions need to be addressed if Tirelo Setshaba is to meet its goal.

As the program is set up now, it is not clear that the participants are, in fact, those most likely to be the country's future leaders. The best and the brightest of the Form V leavers are now going directly to university or to jobs. Tirelo Setshaba tends to be an alternative for those Form V leavers for whom the first two options are not available. The decision to participate in Tirelo Setshaba may be influenced by perceived future opportunities in another way. All other things being equal, an individual who has a

Tirelo Setshaba certificate will be given priority for positions in the University of Botswana or in government service. Thus it may be seen as a route to opportunities that are otherwise denied.

The plans to make Tirelo Setshaba compulsory for entrance into government-supported higher education or government service raise a related question. If the program is a route to higher priority choices, participants may view the program as something to be "passed through" rather than as a functional and important part of their education. A year of field experience prior to university entrance will probably serve an important function in helping participants decide whether they wish to continue to be involved in work related to rural development.

Two additional questions need to be addressed, however. First, are the support services available to Tirelo Setshaba participants (such as supervision, guidance, materials, and logistics) sufficient to make rurally oriented work an attractive career option? Second, are there ways in which Tirelo Setshaba participants can continue with and further develop literacy skills and good study habits so that the year away from formal schooling does not result in a loss of such skills and put participants at a disadvantage when compared with their non-Tirelo Setshaba counterparts?

Alternative Formal Education System. One of the purposes of nonformal education, according to the NDP V, is to provide educational opportunities to those who have been bypassed by the formal education system. Though many of the NFE activities are specifically oriented

toward health, agriculture, and life skills, providing formal education through alternate methods exists and merits attention. Two general questions might be considered: Should there be an alternative delivery system for formal primary and secondary education? If so, where should responsibility for this system rest?

Currently the Department of Non-Formal Education provides basic literacy training to adults and children. Although there are no tests to ascertain equivalencies vis-a-vis primary education, DNFE representatives indicate that some individuals who have completed the literacy program can move into primary school at the Standard 3 or 4 level. The second program offered by DNFE that has "formal school content" consists of secondary school courses available by correspondence. Enrollment in the correspondence program is high, and some evidence suggests that the primary and secondary night schools offered privately and by local Councils are providing an additional route to formal educational qualifications.

Several questions emerge. Is this an adequate alternative to formal education? Should it be systematized in some manner? And is there a need to provide a nonformal program that links completion of the literacy program to secondary school? Related to this are questions of responsibility. These include: Are the various programs best where they are? If a program linking the literacy program to the correspondence school is needed, which part of government should plan and manage it? And, should alternative formal education (in its current or in an altered form) be under several jurisdictions as it is

now or should the responsibility shift to those departments that already manage most of Botswana's primary and secondary education?

9.2.4.2 Internal Efficiency

Concerns related to internal efficiency address the use of available resources for maximum effect. In this section of the assessment, issues raised are related to the internal efficiency of nonformal education in Botswana. Five general areas are addressed: the National Literacy Programme, fieldworker placement and training, small business emphasis, relationships between NGOs and government, and Standard 7 leavers.

National Literacy Programme. The NLP is the major outreach activity of the Department of Non-Formal Education. It was initiated with major support from outside donors and they continue to cover the majority of program costs. Several aspects of the program require attention in planning its future development.

Currently there is no testing to ascertain whether NLP participants have acquired a given literacy level. Perhaps the efficiency and effectiveness of the NLP could be better judged if appropriate criterion measures were developed and applied. These measures could allow DNFE personnel to estimate time, personnel, and financial resources required for individuals to reach a specified literacy level. Such estimates could assist with evaluation and with future planning.

Data from the first two years of the literacy program suggest that enrollment is high and a demand for literacy training will continue. The DNFE needs to consider how it will keep on extending first-time literacy services to beginning learners while continuing to provide supporting services and materials to newly trained literates. If both of these services are not possible with available resources, a decision then needs to be made as to which is more desirable. There are strong arguments for either position. Resources have been invested in over 18,000 individuals in 1982 to make them literate. It can be argued that future resources should be directed toward retention of the literacy skills of these individuals and those trained in 1981 so that the original investment is not wasted. However, such a decision would have negative access and equity implications; it would preclude other needy learners from having access to literacy through the NLP.

Fieldworker Placement and Training. In this assessment several issues relating to fieldworker placement and recruitment have emerged. Resolution of these could contribute to developing a more internally efficient national extension system.

The Director of Personnel is now responsible for recruiting and placing extension workers. A major responsibility of the Director's office is to ensure some equitable distribution of trained manpower among ministries. The question that needs to be addressed is whether the current system of recruitment and placement is close to optimum. For example, are individuals who have worked successfully in Tirelo

Setshaba in agriculture or income generation likely to be placed in the Ministries of Agriculture or Industry and Commerce, respectively, instead of in posts less germane to their experience? If placement procedures are less than optimum, how might they be improved? Questions as to who makes decisions and who is informed about transfers also need to be addressed.

Extension services of the various ministries are expected to be complementary at both village and district levels, requiring collaboration and coordination between different fieldworkers. It is quite possible, however, that extension agents view their counterparts as competitors rather than as collaborators. It is important to consider how field-level workers can be encouraged to coordinate to a greater extent with their colleagues.

It has been argued that technical skills alone are not sufficient for a fieldworker and that he or she also needs training in such areas as working with adults, communication, and interpersonal skills. If NFE services to Batswana are to be improved, the skills necessary for extension agents to carry out their work effectively and efficiently should be identified and taught.

Emphasis on Small Business. Government has placed emphasis on the development of rural industry and entrepreneurial skills during this plan period. Yet the pool of small businesses is minimal. If small businesses are to flourish, questions regarding the size of the rural industry cadre and the support services available to them should

be addressed so that income-generating activities might receive more attention.

A serious issue facing those working with small entrepreneurs and traders in the informal sector relates to government policy on the development of business in the country. Existing policies encourage investment by, and involvement of, firms of all sizes. This means that small entrepreneurs have to compete against other firms which are able to take advantage of economies of scale. For example, "cottage industry" brewing, which was traditionally an important income-generating activity for women now has to compete with large-scale, mass production-oriented breweries. Questions need to be addressed regarding how to protect and nurture small firms (fewer than five people) without stifling them.

Relationship between NGOs and Government. Coordination between NFE services offered by government and those offered by nongovernmental organizations (NGOs) is now completely voluntary. The NGOs operate a number of NFE activities (albeit in a relatively small number of content areas) and reach significant numbers of learners. It might be appropriate for government to work more closely with NGOs to coordinate activities and to encourage the NGOs to provide NFE programs in priority areas such as in employment-oriented skills and income generation.

Standard 7 Leavers. The planned expansion of the secondary school system will decrease significantly the number of terminal Standard 7 leavers. However, since all Standard 7 leavers cannot be

admitted to secondary school, it might be appropriate to consider whether short-term skills training might be made available to give these individuals access to the job market. Such training might be in trade skills or other skills that would contribute to the generation of family income.

9.2.4.3 Access and Equity

This part of the assessment is concerned with issues relating to Batswana's access to nonformal education and to the distribution of NFE program benefits to subgroups. Questions concerning language, geography, and gender are addressed.

Language of Instruction. Almost all NFE programs are conducted in Setswana. For the majority of the population this means that nonformal learning opportunities are available in their first language. For a minority, however, NFE instruction occurs in a second or third language. (Groups in this minority category include the Herero, Kalanga, and Basarwa.) This raises questions regarding equal access to educational opportunities because learning in a second language is known to be more difficult than learning in the mother tongue. Thus, offering instruction in a language that is unknown or second for some learners might make it more difficult for them than for learners whose first language is Setswana. On the other hand, it can be argued that provision of NFE programs in Setswana provides minorities with an opportunity to learn the national language and to

further develop their national identity so that they might become more fully integrated into the "mainstream" of Botswana society.

Geography. Botswana's physical environment provides many obstacles to travel and communications throughout the country, but these constraints are not evenly distributed. They are far more evident in the western part of the country, making delivery of NFE services to individuals and groups living in those areas more difficult than to those who live closer to the eastern population corridor along the railway line. Fieldworkers in remote parts of the country usually have to travel farther and under more severe conditions to reach the same number of learners. As with the questions on language of instruction, the population affected negatively by geography is a minority. But the country's commitment to extend all services equally to all Batswana suggests that questions regarding how to do this (including staff selection, support services, and necessary financial commitments) need to be addressed.

Gender. The available data suggest that women constitute a larger part of the audience than do men in many NFE programs, especially in such areas as health and literacy. In other cases, most notably the programs offered by NGOs, program content is selected to attract female participants. Most of the recipients of NFE services in agriculture are male. To understand better the relationships between gender and types of NFE programs, it would be useful to acquire a better sense of whether men or women are more likely to participate in particular NFE programs.

9.2.4.4 Adminstration and Supervision

Issues related to administration and supervision concern the management systems, the organizational structures, and control of fieldworker performance. Four areas are addressed in this section: in-country research capacity, planning coordination, government worker training, and innovation and commitment in fieldworkers.

In-Country Research Capacity. As noted in Section 9.2.4.2, the lack of data on NFE activities and their outcomes seriously hampers evaluation and development planning. Several units involved in nonformal education (including the Ministries of Education, Health, and Industry and Commerce) have noted their need for better data collection, research, and analysis. Whenever possible, the National Institute of Research (NIR) at the University of Botswana is called upon by these units for such services. Severe shortages of manpower and financial resources at NIR make it impossible for all the necessary work to be completed. Even when financial support for the research is secured, lack of available manpower may delay or prevent work. An issue is whether the ability to conduct research to inform policy and planning decisions should be a high priority and, if so, whether the NIR research capability should be increased, outside consultants should be employed, units of government should develop their own research and evaluation units, or some combination of these courses should be employed.

Planning Coordination. Ministries involved in NFE activities through extension programs submit annual plans to the Rural Extension

Coordinating Committee (RECC). This allows for coordination among ministries at the policy and general program levels. Coordination at the implementation level is more difficult. Although structures to promote coordination exist at both the district and village levels (for example, the District Extension Team--DET, the Village Development Committee--VDC, and the Village Extension Team--VET), the coordination does not always occur.

In terms of administration and supervision, this lack of coordination may be due to several distinct but intertwined concerns. The first relates to the supervisory function of ministerial representatives. Although the quality and quantity of supervisory visits to fieldworkers varies considerably within and between ministries, even where supervision appears to be most frequent and useful, it is not clear how much it stresses coordination and cooperation, or to what extent the reward system recognizes fieldworkers who take such tasks seriously. A second concern relates to a tension that can develop as fieldworkers try to respond to initiatives and suggestions from their own ministries while at the same time coordinating with colleagues whose priorities reflect the initiatives and suggestions of other ministries. Finally, for the most part, pre-service and in-service training for fieldworkers tends to stress content rather than long-range planning, organization, and negotiation that can contribute to effective coordination.

Government Worker Training. Closely related to the issue just described are questions on the training of government fieldworkers in

administrative and management skills. These individuals are often required to assess needs and organize data they collect or to participate in regular reporting activities. Reporting often gets neglected. The reasons may be because the extension agent does not understand the purposes of reporting, because procedures are not clear, or because he or she lacks the basic organizational and communication skills to maintain the appropriate records and forward them to a supervisor when needed.

Innovation and Commitment in Fieldworkers. Nonformal education has usually been viewed as a forum for innovation in addressing educational problems in developing countries. This is one of its strengths. One question that may need to be asked is whether the extension system in Botswana gives sufficient latitude to fieldworkers to be innovative in program development, and how innovation and creativity are rewarded.

The development of fieldworkers' commitment to their jobs is another dimension of this issue. Commitment partly depends on an individual's identification with a project or process and the sense that he or she has a stake or investment in it. If an extension agent has few opportunities to contribute to developing a particular NFE activity, or to influence it even in a small way, that person may be less inclined to devote effort to the work.

9.2.4.5 Costs and Financing

Issues regarding the costs and financing of nonformal education arise in three general areas: measuring unit costs, providing less expensive fieldworker training, and identifying cost-effective methods of NFE services.

Unit Cost Measurement. As mentioned earlier, cost data on many NFE programs are not available; if they exist for one program, comparable data on other programs do not. Although qualitative evaluation is important in gaining an understanding of what occurs in educational projects, it is important to consider when quantitative financial data are appropriate counterparts to qualitative data. If useful decisions are to be made on changing levels of funding or redistributing of funds, they need to be founded on actual or estimated basic information on program costs and benefits. Furthermore, because nonformal education has to compete with formal education and other development projects for limited resources, it is important to identify and analyze appropriate data on program costs and impacts in order to make judgments about allocating financial resources.

Fieldworker Training. Most government fieldworker cadres receive two or three years of formal training after attaining the JC certificate. A noteworthy exception is the Family Welfare Education (FWE) cadre, which provides primary health care at the village level with a primary school education plus a three-month training program. The costs to government of three years of secondary school education

plus training are significant (see Chapter 2.0). Yet research has shown that the FWEs are rated as effective fieldworkers in terms of the knowledge and information they share, their commitment to local communities, and their understanding of village level problems.

This situation suggests that attention may need to be paid to the relationships between types of training fieldworkers receive and their performance as providers of NFE services. For example, one question might be whether short-term pre-service training followed by regular in-service training would be more cost effective than the current training mode which emphasizes pre-service training. Another area for exploration might be the extent to which training in such areas as working with adults, communication skills, and administrative skills might be taught to representatives of several cadres in one training program. This training possibility might be examined in terms of its potential to promote cooperation at the field level, in addition to being cost effective.

Cost Effective Methods for NFE Activities. With the major exception of the National Literacy Programme, some of the health seminars, and the agricultural management association program, most NFE activities rely heavily on one-to-one interaction for instruction. This often is very expensive and the costs increase significantly when the costs of overcoming such barriers as poor rural roads and a dispersed population must be added. Ways in which to reduce the costs of NFE services without decreasing their quality deserve attention.

The possibility of increasing user fees for NFE services is probably not a viable option in many parts of the country, as household incomes are low and severely strained due to the drought conditions. Self-help programs in activities such as dam building have been successful in Botswana, and this approach might be assessed in terms of projects with much greater emphasis on educational activities. In addition, alternative instructional systems such as greater use of radio or the use of paraprofessionals (as in the Literacy Group Leaders employed by the Department of Non-Formal Education) might be considered in terms of their ability to reach more learners and/or to reduce costs.

9.2.5 Conclusions

Following are nine major conclusions that result from the preceding analysis. These conclusions form the basis for the recommendations that make up the final section of this report.

Conclusion 1. The data base on NFE activities is insufficient.

Data are needed in order to understand what kinds of resources (financial, personnel, and time) are being invested in nonformal education and what outcomes result from various combinations of investments.

Conclusion 2. Most NFE programs are not linked closely to employment opportunities.

Many programs teach basic skills but those programs that reach the largest numbers of learners do not, for the most part, show them

how to transfer these skills into activities that can immediately improve their quality of life. (The extension activities of the Ministries of Agriculture and Health tend to be the strongest in terms of meeting basic needs.) In particular, women's learning activities tend to prepare women to be housewives in a Western model rather than to develop skills they need to earn family income or make better decisions in terms of managing a Botswana family and its supporting resources.

Conclusion 3. Nonformal education is not well coordinated internally or well integrated with formal education.

An excellent government mechanism exists to allow for coordination between and among extension agents at the village and district levels. Yet, field-level local government officials and local volunteers do not always take advantage of the existing structures and use them in support of their responsibilities. Few mechanisms exist (and those that do are spurious at best) to promote coordination between government and nongovernmental organizations (NGOs). Although nonformal and formal education are component parts of Botswana's educational system, they are not well integrated and their points of articulation are not easily identified.

Conclusion 4. The research and evaluation capabilities related to nonformal education need be strengthened.

These capabilities are essential if planning is to be responsive to future needs and if resources are to be allocated where they are both needed and likely to have a positive impact.

Conclusion 5. Manpower needs for nonformal education are not well defined.

Some skills needed by extension agents are common across cadres; others are tightly linked to the particular area for which an extension worker is responsible. It appears that different types of needs are only beginning to be recognized, and that manpower needs for supervision, training, and management of the extension workers have yet to be clearly identified.

Conclusion 6. Training of fieldworkers appears to be in need of evaluation.

Fieldworkers in several cadres do not receive enough training in some of the skills that are essential for their work. On the other hand, some evidence suggests that fieldworkers who receive lengthy training after secondary school at a higher education institution might be even less effective than those who begin work after a few months of primary school training. If this is the case, substantial savings from investments in formal training could be reallocated elsewhere in the NFE subsector without any loss of quality. Finally, it is not clear that the content of fieldworker training stresses or that the system rewards innovation, creativity, and flexibility which characterize high-quality nonformal education.

Conclusion 7. Procedures for recruiting and placing NFE fieldworkers are not optimum.

The allocation of personnel according to their paper credentials meets only part of the manpower requirement equation of the various

ministries. Previous experience, interest, and knowledge related to the activities required by a particular cadre are also important and may play a significant role in future job performance, yet those are not taken into account sufficiently.

Conclusion 8. Linkages among research, training, and information dissemination are weak or lacking.

Research is carried out within the ministries as well as by the National Institute for Research. The NIR is understaffed and has insufficient resources to carry out the necessary research. The mechanisms for identifying relevant research to be undertaken are not clear. And, once research has been completed the results do not necessarily become integrated into training programs or become part of the information packages used by extension agents from the different ministries.

Conclusion 9. Some existing policies complicate NFE activities, particularly in income generation (a high government priority according to NDP V), where existing policies make it difficult for local small-scale producers to compete against goods produced locally by larger firms and against imports.

9.3 RECOMMENDATIONS

Several specific recommendations related to nonformal education in Botswana follow from the conclusions stated above. They are listed in priority order according to the five organizational themes used in the anlysis sections of this report.

9.3.1 First Priority - External Efficiency: Recommendations 1-2

Recommendation 1. Link NFE programs more directly to employment opportunities and activities that contribute to a better quality of life for Batswana.

Possible action steps: The identification of key skills that are currently needed in Botswana's economy (in the informal and modern sectors) is of critical importance. Once these skills are identified, it might be desirable to increase the range of learning opportunities available to Batswana, and particularly those available to women. It is suggested that the emphasis of these programs be slanted toward income-generating opportunities.

Recommendation 2. Evaluate (a) the need for a bridging program from the National Literacy Programme to the Secondary School Correspondence Programme and (b) the desirability of offering formal education through the Department of Non-Formal Education.

Possible action steps: A first step might be to assess the range of formal education activities offered by local councils, the Department of Non-Formal Education, nongovernmental organizations, and private companies. This assessment should partially identify the demand for programs with formal education content above that met by the formal system. An assessment of how well the alternative system is providing this service, combined with an understanding of the demand, should permit more informed decision-making regarding these or potential offerings. This evaluation should gather sufficient

information to assess where responsibility for out-of-school formal education optimally should reside.

9.3.2 Second Priority - Internal Efficiency: Recommendations 3-8

Recommendation 3. Design and institute a mechanism for collecting and storing relevant data on NFE programs.

Possible action steps: A first step is to identify the purposes for which such data might be analyzed (e.g., evaluation, measurement of levels of attainment, budget requests, unit cost analysis). A second step involves identifying the kinds of units to be measured for assessing how well various purposes are being met. Then the data must be collected and analyzed with a view to improving program efficiencies.

Recommendation 4. Evaluate training of the different cadres and develop a better mechanism for recruiting and placing fieldworkers.

Possible action steps: An important step is to consider training program content in terms of its emphasis on adult education, and on communication and interpersonal skills. Another equally important action might be to consider alternative, less costly ways in which training might be provided to fieldworkers. Several short-term training courses (rather than long-term training) might be considered, with some for representatives of different cadres from the same village or district so as to encourage joint planning and cooperation. With regard to recruitment and placement, all affected ministries might wish to ask the Rural Extension Coordinating

Committee, and other parties as appropriate, to begin to meet with the Director of Personnel to develop more effective procedures for allocating trained staff to extension cadres.

Recommendation 5. Assess the extent to which the NFE projects and activities of nongovernmental organizations fit government's priorities.

Possible action steps: The range of NGO activities should be assessed, paying particular attention to content, finances, learners, and trainers, so as to acquire a sense of the extent of NFE resources that exist outside of government extension activities. Ways in which NGOs might be encouraged to offer NFE activities that fall within government's priorities should be considered.

Recommendation 6. Use nonformal education more extensively as a forum for pilot activities to develop new methodologies.

Suggested action steps: Currently nonformal education is leaning heavily on traditional extension methods. Introduction and testing of new methods on a small scale is appropriate. An example might be the introduction of skills training programs for use in either formal or nonformal education.

Recommendation 7. Begin dialogue to alter conflicting government policies that hamper development of small businesses in the rural areas.

Recommendation 8. Improve the integration of formal and nonformal education.

Suggested action steps: A first step might be to identify current functional linkages between formal and nonformal education (for example, night schools, the National Literacy Programme, and Tirelo Setshaba) and ways in which these two components of the educational system can support, supplement, and complement each other.

9.3.3 Third Priority - Administration and Supervision: Recommendations 9-10

Recommendation 9. Provide district and village level workers with training in administration and management.

Suggested action steps: This might be done as in-service training. Alternatively, it might be part of pre-service training (see Recommendation 4).

Recommendation 10. Develop Botswana's research capacity in relation to nonformal education.

9.3.4. Fourth Priority - Access and Equity: Recommendation 11

Recommendation 11. Conduct small-scale needs assessments to identify the kinds of NFE activities desired by particular subgroups of Batswana.

Suggested action steps: Simple procedures for conducting assessments of village level needs should be developed. Village and District Extension Teams could be trained to administer and analyze

the assessments and to develop local activities to address identified needs. Particular focus is desirable on the interests and opportunities of female farmers.

9.3.5 Fifth Priority - Costs and Financing: Recommendation 12

Recommendation 12. Develop and institute mechanisms for data collection on investments in, and costs of, NFE activities.

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LIST OF PERSONS AND ORGANIZATIONS CONTACTED

Ministry of Agriculture

D. Everrett	-	Chief of Party, Botswana Agricultural College Expansion Project (BAC)
E. Kimsley	-	Vice Principal (BAC)
I. T. Matenge	-	Head, Agricultural Management Association Division, Department of Agricultural Field Services
S. Tibi	-	Principal, BAC
B. S. Tlale	-	Director of Agricultural Field Services

Ministry of Industry and Commerce

J. K. Allen	-	Technical Director, Rural Industries Innovation Centre (Kanye)
Jens Erik Jansson	-	Production Manager, Botswana Enterprises Development Unit (BEDU)
R. Kirk	-	Senior Rural Industrial Officer
R. Kukler	-	Consultant, Botswana Brigades
D. Tshko	-	Rural Industrial Officer

Ministry of Education

Bryan Axtell	-	Senior Research Testing Officer - Examinations Primary Teacher Training
William H. Bird	-	Finance Officer I
Walter K. Bode	-	Principal, Auto Trade Training School
E. Oscar Braithwaite	-	Teacher Trainer, Botswana Polytechnic
Francis Cammerts	-	Principal, Molepolole Teacher Training College
R. Cox	-	Principal, Botswana Polytechnic
Leslie Dixon	-	Financial Advisor, CJSS
Alan Grihault	-	Mathematics Advisor
H. Hunsdorfer	-	Department of Non-Formal Education
Hans Jorgenson	-	Botswana Education Project Implementation Unit
Ulla Kann	-	Planning Officer II
Ian Kelly	-	Planning Officer I
G. Kgomanyane	-	Chief Education Officer, Secondary

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Ministry of Education (continued)

S. Y. Khama	-	Principal Research Testing Officer
Ron Kukler	-	Consultant on the Bridges
Big Boy Kuswane	-	Director - Unified Teacher Service Unit
Carlin Lane	-	Director of Teacher Training Botswana Polytechnic
Ntebo Lecoge	-	Senior Research Testing Officer II
Miriam Tebogo Lesolle	-	In-service Teacher Training
Festina Madimabe	-	Senior Research Testing Officer III
George Makunga	-	Principal Administration Officer, CJSS
Disang Maribe	-	School Broadcasting Unit, Department of Curriculum Development and Evaluation
Lawrence Masie	-	Senior Research Testing Officer I
Fabric Mawela	-	Bursaries Secretary
Elmar H. J. Menter	-	Technical/Vocational Educator Auto Trades Training School
M. K. Mogasha	-	Chief Education Officer - Council
G. Mokgwathi	-	Planning Officer I
Hope Phillips	-	Chief Education Officer, Curriculum
Philemon Ramatsui	-	Coordinator
Jack Reed	-	Science Education Advisor
Reg Salisbury	-	School Broadcasting Unit, Department of Curriculum Development & Evaluation
C. O. Shaw	-	Principal Education Officer, Training
Murray Simon	-	Senior Planning Officer
K. Skelemani	-	Under Secretary
J. Swartland	-	Acting Permanent Secretary
Edwin Townsend-Coles	-	Chief Education Officer
I. P. Woto	-	Chief Education Officer - Non-Formal

University of Botswana

Bret Combs	-	Bursar, University of Botswana
Luther Hasezley	-	Advisor, Primary Education Improvement Project
David Johnson	-	Registrar
Don Knox	-	Chief of Party, Primary Education Improvement Project
Kuhlmann	-	Assistant Registrar
Mokgautsi	-	Senior Assistant Registrar
Ray Molomo	-	Head, Department of Educational Foundations, Faculty of Education
Barnabas Otaala	-	Dean, Faculty of Education
John Turner	-	Vice Chancellor

Institute of Development Management

John Hunter	-	Director
Franz Langlet	-	Lecturer

Ministry of Finance and Development Planning

K. Datla	-	Finance Unit
Peter Esderts	-	Principal Planning Officer IV
B. Gaolathe	-	Permanent Secretary
Jeff Hinchliffe	-	Chief Programmer, Government Computer Bureau
David Inger	-	Rural Industries Promotion
David Lasetedi	-	Central Statistics Office, Assistant Statistician
Y. Masenya	-	Planning Officer
Ken Matambo	-	Director of Economic Affairs
Earl McFarland	-	Chief Economist (Macro)
L. Mothibatsela	-	Chief Economist (Projects)
Jay Salkin	-	National Manpower Officer

Ministry of Health

Mrs. Balosong	-	Health Education Unit
Winnie G. Manyeneng	-	Head, Family Health Division
G. Moalosi	-	Planning Officer

Ministry of Home Affairs

Doreen Nteta	-	Under Secretary
Gillian Moalosi	-	Planning Officer
Adam Vickers	-	Planning Officer

Ministry of Local Government and Lands

Bjorn Bengtson	-	
R. W. Bowyer	-	Finance Officer
M. E. Giddie	-	Principal Administrator Officer Remote Areas
Lionel Perera	-	Training Officer
R. Seeleetso	-	Chief Community Development Officer

Office of the President

E. B. Baitsile	-	Deputy Principal (BIAC)
C. G. Mokobi	-	Principal Officer, Botswana Institute of Administration and Commerce (BIAC)

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Office of the President (continued)

Mary Stephano	-	Manpower Advisor, Directorate of Personnel

Ministry of Works and Communications

M. J. M. Moatshe	-	Director of Civil Aviation
R. Sekwati	-	Botswana Meteorological Services
D. Smith	-	Airport Manager

Botswana Cooperative Union Ltd.

Jerry O. Rosetshwane	-	Executive Director

American Embassy

John Bernsten	-	Political Officer
William Jacobsen	-	Deputy Chief of Mission
Theodore Maine	-	Ambassador

British Embassy

W. Jones	-	High Commissioner

United Nations Development Program

Hans C. van Sponeck	-	Representative

Private Sector

Barnabus Batsalelwang	-	Director Gaborone Printing Works
David Benedetti	-	Academy for Educational Development
W. K. F. Boakgomo	-	General Manager (Administration), BHC
D. K. Botihoko	-	Senior Personnel Officer, Botswana Power Corporation
B. Bubi	-	Deputy Sec. General, Botswana Co-op Union
Tim Canedo	-	Training Officer, PFP/Botswana
M. Chalkalisa	-	Principal Labour Officer, Labour Department
Susan Chambers	-	Creative Associates
Michael Davidson	-	Deputy Managing Director Barclays Bank
D. James	-	Group Personnel Manager, Kgalagadi Service Management
Jakes Khan	-	Assistant Training Officer, PFP/ Botswana

Private Sector (continued)

Batisani S. Maswibilili	-	Research & Training Officer, Botswana Employers Federation
G. W. Matenge	-	Chairman, Botswana Association of Training & Development Officers; Administrative Manager, Wade Adams Construction
M. V. S. Moremong	-	Head Office Manager, Barclays Bank
C. P. Mpuang	-	Personnel and Training Manager, BHC
L. Z. Ndlovu	-	Personnel Officer, Bemco
S. F. Pretorius	-	Training Manager, Bank of Botswana
Jerry Rasetshwane	-	Secretary General, Botswana Co-op Union
S. U. Saidoo	-	Secretary, Standard Foods
Rafael M. L. Sikwane	-	Director, Botswana Employers Federation
I. Slove	-	Training Officer, NDB
M. Talha	-	Training Officer, BDC
B. Thompson	-	Staff Controller, Multi Construction
D. C. Thomson	-	Director of Botswana Association of Training & Development Officers
W. M. Tsietso	-	Personnel Training Manager, Gaborone Holiday Inn
K. M. Winn	-	Training Officer, NDB

USAID

Joan Atherton	-	Botswana Agricultural College Evaluation Team
Edward Butler	-	Deputy Director
Ann Domidion	-	Human Resources Development Officer
Paul Guedet	-	Mission Director
Anita Mackie	-	Agriculture Officer USAID
Robert Maxwell	-	Botswana Agricultural College Evaluation Team
Lucretia Taylor	-	Program Officer
Paul Tuebner	-	Project Development Officer
John Wiebler	-	Assistant Program Officer
Handy Williamson	-	Botswana Agricultural College Evaluation Team