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INDONESIA
EDUCATION AND HUMAN RESOURCES SECTOR REVIEW
April 1986

CHAPTER SEVEN
VOCATIONAL/TECHNICAL EDUCATION

IEES

IMPROVING THE EFFICIENCY OF EDUCATIONAL SYSTEMS

Coordinated for the Government of Indonesia by the
Ministry of Education and Culture with USAID

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Vocational/Technical Education

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INDONESIA EDUCATION AND HUMAN RESOURCES SECTOR REVIEW

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TABLE OF CONTENTS

Page

7.0 VOCATIONAL/TECHNICAL EDUCATION....7-1
7.1 Introduction....7-1
7.2 Status of Vocational/Technical Education....7-3
7.2.1 Historical Background....7-3
7.2.2 Goals and Strategies....7-8
7.2.3 Structure of Vocational/Technical Education....7-10
7.2.3.1 Secondary Vocational/Technical Education, Junior and Senior....7-10
7.2.3.2 Polytechnical Institutions....7-21
7.2.3.3 Technical Institutes....7-23
7.2.3.4 Vocational/Technical Programs Other than those at the Ministry of Education....7-23
7.2.4 Secondary Vocational/Technical Education Programs....7-31
7.2.4.1 Student Enrollment....7-31
7.2.4.2 Instructional Staff....7-38
7.2.4.3 Curriculum and Materials....7-42
7.2.4.4 Facilities and Equipment....7-46
7.2.4.5 Examinations and Evaluation....7-49
7.2.5 Polytechnical Programs....7-53
7.3 Analysis of Vocational/Technical Education....7-57
7.3.1 Introduction....7-57
7.3.2 Needs....7-58
7.3.3 Plans....7-59
7.3.4 Constraints....7-59
7.3.5 Issues....7-60
7.3.5.1 External Efficiency....7-60
7.3.5.2 Internal Efficiency....7-66
7.3.5.3 Access and Equity....7-74
7.3.5.4 Administration and Supervision....7-81
7.3.5.5 Costs and Financing....7-84
7.3.5.5.1 Financing of Vocational/Technical Education....7-84
7.3.5.5.2 Analysis of Unit Costs and Returns to Vocational/Technical Education....7-86
7.4 Conclusions....7-111
7.5 Recommendations....7-115

Appendix A. The Development of Vocational and Technical Education During the 4th Five Year Development Plan...7-127

Annex A. List of Interviewees....7-139
Annex B. References....7-140
Annex C. Terms and Acronyms....7-141

TABLES AND FIGURES

TABLES Page

7.1 Estimated Requirements for Technician Level Workers in Engineering and Commerce, 1980-90....7-6
7.2 Nonagricultural Manpower Requirements....7-7
7.3 Education Level of Total Population in Labor Force: Urban and Rural....7-7
7.4 Type of School by Acronym, Type and Courses Offered Junior Vocational/Technical Secondary School....7-12
7.5 Vocational/Technical Schools by Type and Status of School, 1983/84....7-15
7.6 Programs Run by Technical Institutes, 1982-84....7-24
7.7 Number of School Leavers by Level of Education Completed: 1984-1989....7-25
7.8 Types of Post-Secondary Educational Institutions Established by Departments Other Than the Ministry of Education....7-30
7.9 Number of Pupils by Level and Type of School Public and Private (Vocational/Technical/Educational) in Indonesia, 1976-1983/84....7-32
7.10 Technical Programs Student Statistics for Public STMs for the Year 1983/84....7-33
7.11 Vocational Programs Student Statistics for Public SMKI/SMSR/SMM/SMIK/SMEA/SMTK/SMKK/SMPS for the Year 1983/84....7-34
7.12 Projected Student Enrollment by School Type in Public or Private Institutions from 1983/84 through 1988/89....7-36
7.13 Summary of Major Vocational/Technical Education Programs in Indonesia....7-37
7.14 Projected Number of Teachers by School Types and Public or Private Institute, 1983/84....7-39
7.15 Curriculum Objectives....7-45
7.16 Projected Number of Schools by School Type and Public or Private Institutions from 1983/84 through 1988/89....7-47
7.17 Employment Status Two Years after Graduation....7-61
7.18 Percent of Graduates Who Wanted to Work and Found Work Two Years After Graduation....7-61
7.19 Percentage of Graduates Who Said They Gained Useful Job Skills From School....7-62
7.20 Social Rates of Return: Urban Male Scenario Secondary Graduates, 1978....7-64
7.21 Public and Private Total Enrollment in Grade 3, Graduates, Dropouts and Those Students who are Repeaters in STs by Problems 1983/84 and 1984/85....7-67
7.22 Public and Private Total Enrollment in Grade 3, Graduates, Dropouts and Those Students who are Repeaters in SKKP by Problems 1983/84 and 1984/85....7-68
7.23 Public and Private Total Enrollment in Grade 3, Graduates, Dropouts and Those Students who are Repeaters in SMT/STMs by Problems 1983/84 and 1984/85....7-69

7.24 Public and Private Total Enrollment in Grade 3, Graduates, Dropouts and Those Students who are Repeaters in SMEA by Problems 1983/84 and 1984/85.....7-70
7.25 Public and Private Total Enrollment in Grade 3, Graduates, Dropouts and Those Students who are Repeaters in SMKK by Problems 1983/84 and 1984/85.....7-71
7.26
7.27 Number of Public and Private Schools by Province.....7-75
7.28 " " " " " " " " 7-76
7.29 " " " " " " " " 7-77
7.30 " " " " " " " " 7-78
7.31 Number of Females by Types of Schools.....7-80
7.32 Directorate of Vocational/Technical Education Budget Divided into Routine and Development Items and Showing Value of Donor Projects from 1979/80 to 1984/85.....7-85
7.33 Main Sources and Uses of Operational Funds for Public Secondary Schools.....7-92
7.34 Typical School Profiles for STMs and SMEAs.....7-97
7.35 Total Annual materials/Maintenance Costs by School and Source of Funds.....7-100
7.36 Aggregate Annual Operating Costs by Type of School.....7-102
7.37 Annual Cost per Student with Proportion of Funds from Public Sources and Totals.....7-103
7.38 Summary of Unit and Cycle Costs All Levels of Education.....7-106
7.39 Repetition and Droupouts by Grade Level Primary and Junior Secondary.....7-108

FIGURES

7.1 Ladder Structure of School Types and the Labor Force Pyramid....7-11
7.2 Simplified Organizational Chart of Responsibility from Ministry of Education Culture to the Directorate of Vocational/Technical Education.....7-19
7.3 Organizational Structure of the Directorate of Vocational/ Technical Education 7-20
7.4 Organizational Structure of the Provincial Office of the MOEC...7-22
7.5 Supervision of Programs at the Operational Level.....7-52
7.6 Source of Students for Polytecnic Education Development Centers (PEDC).....7-56

7.0 VOCATIONAL/TECHNICAL EDUCATION

7.1 Introduction

This sub-section investigates vocational/technical education in junior and senior secondary schools and higher education within both the public and the private sectors. The emphasis in this chapter is on the programs of the Ministry of Education and Culture (MOEC). Also examined are a variety of other programs that prepare manpower for the labor market, many of which are coordinated by the Ministry of Manpower. There is a brief discussion of the apprenticeship efforts and vocational programs that are operated by the Ministry of Manpower and other ministries, business, and industry.

In this discussion vocational and technical education is addressed as a unitary program. There is, however, a distinction between the two. The separation between vocational education and technical education in most educational systems is based on a differentiation between the preparation of craftsmen and technicians. A craftsman is a person who installs, builds, inspects, or repairs electrical, mechanical, or construction materials. The technician performs semi-professional operations--for example, testing and analysis or computations in the laboratory. In Indonesia, technical programs are those which prepare the student for industrial/technical jobs, while vocational programs prepare workers in commercial/business skills, handicrafts, arts, music, and home economics.

Basic semi-skilled training is provided at the junior secondary level in vocational/technical schools. At the senior secondary level, skilled craftsman and lower technician training is offered in

vocational/technical schools. Those students who want careers at higher technical levels and the semi-professional level have the opportunity to advance to higher education by attending a polytechnic institution.

Vocational/technical education is considered to be a sequence of instructional activities planned to develop basic manipulative skills and technical knowledge for a particular operation. The learning experiences are designed to prepare the participants for initial entry into the labor force.

The principal objectives identified for vocational/technical education in Indonesia during the Fourth Five Year Plan (Repelita IV) are: (1) to expand the capacity of the system by 100%, (2) to establish 123 new vocational/technical schools, (3) to increase the number and quality of vocational/technical teachers, (4) to improve curriculum, (5) to improve the organizational structure and management of vocational/technical schools, and (6) to increase participation of business and industry in vocational/technical education programs.

The magnitude of the task outlined for vocational/technical education by these objectives is immense. In this chapter, the status of vocational/technical education in Indonesia is described, followed by an analysis of the needs, plans, constraints, and issues that must be addressed by the MOEC in fulfilling its current Repelita IV objectives for vocational/technical education and potential future goals and objectives. In the final section, conclusions and recommendations are presented.

7.2 Status of Vocational/Technical Education

The vocational/technical education programs overseen by the MOEC involve 160 different streams or subject areas taught in 2092 vocational/technical schools both public and private. The current yearly enrollment in vocational/technical programs exceeds 760,000 students and produces 180,000 graduates consuming a budget of $880 million (U.S). This section describes the current condition of vocational/ technical training in Indonesia and provides an overview of the vocational/technical programs offered by the MOEC.

7.2.1 Historical Background

Indonesia experienced a period of rapid growth during the 1970s, spurred in large measure by price rises in oil and natural gas; yet, even in the non-oil/liquid natural gas (LNG) sectors, a growth rate of 7.6% GDP per annum was attained. As a result, employment increased by 13 million from 1971 to 1980, absorbing a 30% increase in the labor force. This growth rate has tapered off in the 1980s. In 1984, GDP growth was estimated at 6.5%, with oil, LNG, and refining representing more than half the increase. In the non-oil/LNG sector, GDP growth was 4.4%, and in manufacturing alone, 4.7%. In mid-1985, the World Bank projected a 1985-1986 GDP growth rate of less than 4% per year due to reduced demand for oil. Despite this slowdown, open unemployment remained low through the 1970s and early 1980s at 2% of the labor force. This figure, however, does not reflect a large group of individuals in the labor force who were underemployed (see Chapter 2). The 1980 census sets combined unemployment and underemployment at 38% of the workforce. Recent oil price decreases may lead to further restrictions in

employment generation. Thus, unemployment, underemployment, and a decline in new jobs, coupled with an estimated increase of 1.5 million persons in the labor force each year, represent some hard choices for the Government of Indonesia (GOI). Outside of agriculture, the civil service and public companies have been the largest employers in the country, but restrictions on government revenue will also limit this option for absorbing increases in the labor force. The private sector will increasingly be relied on to provide new jobs. This shift will require close coordination between public efforts to provide vocational/technical education relevant to the skill needs of the private sector, and government policies to stimulate the private sector to provide training opportunities not available in public institutions.

In anticipation of a period of rapid industrialization in the mid-1990s, the GOI has targeted a 100% increase in enrollments in vocational/technical education as a primary objective of Repelita IV. Confronted with the current restrictions in growth of the job market, the GOI faces a dilemma of whether this policy should be continued in preparation for a projected period of rapid growth in the next decade, or pared back in response to current constrictions. These hard choices must be based on current and accurate information on job market needs so as to pinpoint areas where the needs are greatest. Significant progress has been made over the last 10 years in production of secondary vocational school graduates, but progress has been slower in producing graduates at higher levels. Between 1980 and 1990, the need for technicians and middle-level manpower with diploma level degrees will reach 371,000, according to estimates by the World Bank (see Table 7.1).

1983 estimates indicated that 14%, or 5,000 per year, could be produced by the existing formal education system and 40% from in-service training. This would have left 45%, or 167,000 technician positions, to be filled by expansion of formal education programs. These estimates led the World Bank to support a major expansion of the polytechnical school programs in Indonesia. Since 1983, much of this demand has been fulfilled, but a need still exists.

In addition to the requirement for technical and professional manpower, the need for skilled and semiskilled labor is also expanding rapidly. Table 7.2 presents the Asian Development Bank estimates (1982) for skilled, semiskilled, and unskilled manpower through 1990. To meet these demands, secondary school education and out-of-school programs are required.

Continued expansion of diploma level training is clearly an important objective. The appropriate policies for expansion of vocational training at the secondary level are less clear. A variety of special schools and programs have been developed at the secondary level to provide vocational training; yet, the experience from many developing and developed countries is that general secondary school graduates are often more appealing to private industry, which frequently prefers to provide its own specialized training. An example is the Cilacap Refinery Expansion contract won by Flour Corporation and completed in 1983. Flour recruited 2,300 people from the Cilacap area for training in required skills. The criterion established for eligibility was a senior high school diploma; previous experience in construction was not required. Given the experience in other countries and the critical role

TABLE 7.1

ESTIMATED REQUIREMENTS FOR TECHNICIAN-LEVEL WORKERS IN ENGINEERING AND COMMERCE, 1980-90

Field/sector	Estimated stock of technicians, 1980	Average annual rate of growth of employment, 1980-90 (%)	Total estimated demand for technicians in 1990	Additions to stocks for attrition, 1980-90	Total estimated additional demand for technicians 1980-90 (1990 demand - 1980 stock + attrition)
Engineering					
Mining and quarrying	5,800	2.6	8,600	1,500	
Modern manufacturing	19,800	2.6	31,000	5,000	
Utilities	3,600	3.5	5,300	900	
Construction	9,250	3.0	13,700	2,300	
Trade	4,500	3.5	6,700	1,100	
Transport	6,900	3.5	10,200	1,700	
Finance	2,750	3.5	4,100	700	
Government/services	282,800	3.5	418,600	70,500	
Subtotal /a	335,400		498,200	83,800	246,600
Commerce					
Mining and quarrying	1,325	2.4	2,000	350	
Modern manufacturing	15,000	2.4	23,500	4,000	
Utilities	900	3.5	1,300	250	
Construction	2,100	2.9	3,100	500	
Trade	39,200	3.2	63,900	10,500	
Transport	15,300	3.3	23,800	4,000	
Finance	7,350	3.3	12,000	2,000	
Government/services	67,500	3.5	105,000	17,500	
Subtotal /a	149,000		234,600	39,000	124,600
Total /a	484,400		732,800	122,800	371,200

/a Figures have been rounded.

Sources: Population of Indonesia, Results of Subsample of 1980 Population Census. Ministry of Education and Culture enrollment and output statistics and mission estimates.

Methodology based on Zymelman, M., Forecasting Manpower Demand Appendix III (World Bank, July 1980).

Table Source: World Bank (1983). Staff Appraisal Report Indonesia Polytechnic II Project. East Asia and Pacific Regional Office.

TABLE 7.2

NON-AGRICULTURAL MANPOWER REQUIREMENTS

Skill Category	Employment 1980	Employment 1990	Average Annual Additional Needs (1980-1990) due to Economic Growth	Attrition	Total
Skilled	2,760,000	4,960,000	220,000	80,000	300,000
Semiskilled & Unskilled	19,190,000	28,700,000	950,000	770,000	1,720,000

that must be played by the private sector in providing skills training, the GOI must carefully consider the appropriate balance between vocational and general secondary education.

The Indonesian government must also respond to the needs of those with less than a secondary education. This group presents special problems as they are often excluded from formal education; for them, more flexible programs of skill training, often out-of-school, must be provided. In 1980, 37.6% of the population had less than a primary education, and 29.6% had never attended school (see Table 7.3).

TABLE 7.3
EDUCATION LEVEL OF TOTAL POPULATION IN LABOR FORCE:
URBAN AND RURAL

	Urban	Rural	Total
Never Attended School	15.1	33.0	29.6
Less than Primary Education	26.3	40.3	37.6
Completed Primary Education	25.9	6.5	11.6

Population Census 1980
Bureau of National Statistics

From 1981 through 1983, the Ministry of Manpower registered 783,000 people seeking employment. During the same period there were 163,853 jobs available; 79,561 persons had insufficient qualifications for the existing positions and only 84,292 job applicants were successful in finding employment. Therefore, only 51.5% of the vacancies known to the Ministry of Manpower were filled with registered job seekers (Ministry of Manpower Data).

7.2.2 Goals and Strategies

The government has stressed the importance of developing a stable system to provide skilled, trained and competent workers ready to join the labor force, and to ensure that national growth will not be retarded because of a lack of skilled manpower. The Ministry of Education and Culture, with the Ministry of Manpower, has conducted intensive efforts to respond to these aims.

This national priority was addressed in Repelita IV by the following goals in the area of vocational/technical education:

1. Continuation of the expansion of capacity of the vocational/technical system through the development of new institutions and the expansion of old ones. Improving of the quality as well as the quantity of vocational/technical education is an area of particular emphasis.

2. Improvement of quality by ensuring that the skills and knowledge learned in the subject areas reflect skills and knowledge actually required by employers in the real world of work.

3. Construction and implementation of vocational/technical

programs in 123 new public schools (43 STM, 30 SMT/STM Pertanian, 40 SMEA and SMKIK), designed to provide additional facilities for doubling of the enrollment to 1,112,800 students as well as for operating double shifts at most schools. The enrollment projection represents an increase of 543,600 by 1988/89 over the current enrollment of 556,400. The expansion of the private school sector will also be required to meet this goal.

4. Improvement of the effectiveness and efficiency of vocational/technical programs in all areas by identifying weaknesses in each area of concentration and instituting intervention strategies to diminish them.

5. Improvement in the quality of teachers in vocational/technical programs. Efforts will be made to expand the opportunities for preservice and inservice teacher training programs through vocational/technical upgrading centers. To motivate teachers to improve their skill level, inservice training will be credited toward the award of diploma III and Akta 3 certificates. This will be accomplished in cooperation with teacher training institutes and the Directorate General of Higher Education.

6. Implementation of programs for upgrading the management skill levels of administrators at all levels through the Directorate level within regional offices.

7.2.3 Structure of Vocational/Technical Education

7.2.3.1 Secondary Vocational/Technical Education, Junior and Senior

The Vocational/technical programs are offered at the secondary level. Technical education is also provided at the diploma level by the polytechnic institutions.

There are three possible tracks for secondary school students. The most desired is general education, followed by vocational/technical education and teacher training programs. There are also secondary level religious schools. Figure 7.1 depicts these tracks.

The most notable characteristic of the structure of secondary vocational/technical education is its fragmentation into many types of school. The six years of secondary education are divided into two cycles of three years each. The first cycle, junior secondary, offers two types of vocational/technical schools. They include junior home economics schools (SKKP) and junior technical secondary schools (ST) which are being phased out. The latter provide a pre-technical program to prepare students for industrial on-the-job training. The second cycle is the senior vocational/technical schools of which there are many types.

To provide a clearer depiction of the types of vocational/technical schools and programs at both junior and senior levels, two tables are presented. Table 7.4 identifies the schools by their acronym, type and courses offered. Table 7.5 indicates the number of public/private schools by type and province as of 1983/84.

FIGURE 7.1

LADDER STRUCTURE OF SCHOOL TYPES AND THE LABOR FORCE PYRAMID

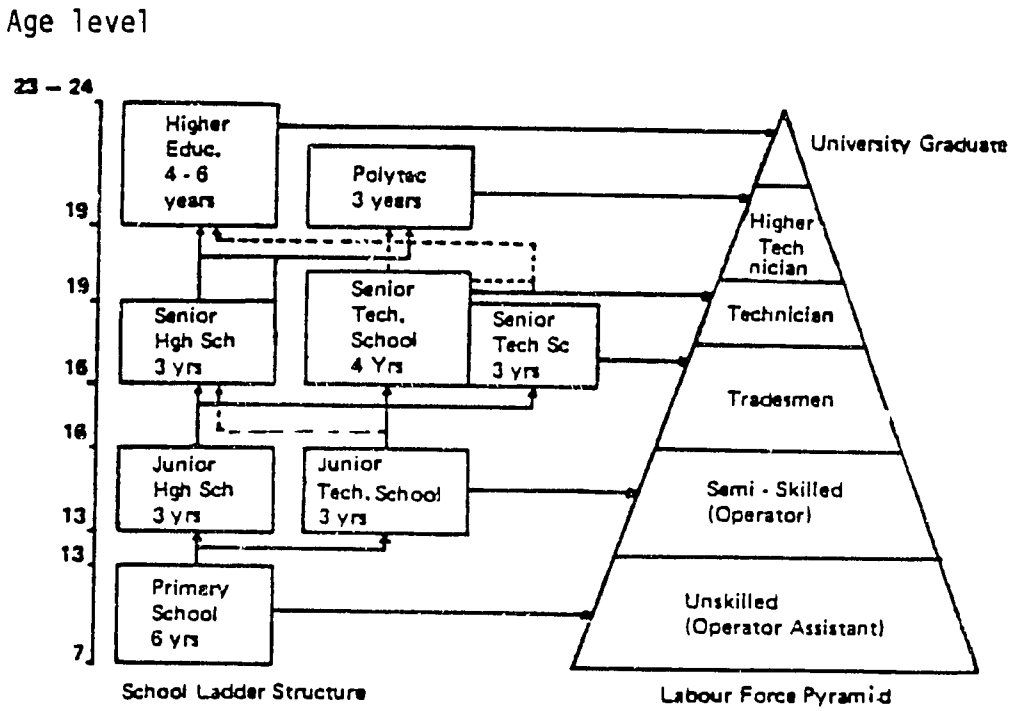


TABLE 7.4

TYPE OF SCHOOL BY ACRONYM, TYPE AND COURSES OFFERED
JUNIOR VOCATIONAL/TECHNICAL SECONDARY SCHOOL

School Acronym/ Title	School Type	General Classification of Courses	Duration of Study
SKKP	Junior Secondary Vocational School Economics	- Food and Housekeeping - Clothing	3 years
ST	Junior Secondary Technical School	- Mechanical - Automotive - Electrical - Building - Ship Building - Agriculture - Wood Carving - Graphic Arts - Design - Fishery	3 years

Senior Vocational/Technical Secondary Schools

School Acronym/ Title	School Type	General Classification of Courses	Duration of Study
SMT Perta-nian	Senior Secondary School of Agriculture	- Agricultural Pro-duction Technology - Agricultural Equip-ment Technology - Agriproduct Technology - Finishing Technology	3 years
SMKI	Senior Secondary Traditional Music	- Traditional Music - Dance - Traditional Theatre	4 years

TABLE 7.4 (cont.)

School Acronym/ Title	School Type	General Classification of Courses	Duration of Study
SMM	Senior Secondary School of Music	- Staging - Composition	4 years
SMSR	Senior Secondary School of Fine Arts	- Painting - Carving - Handicrafts - Advertising - Decoration	4 years
SMIK	Senior Secondary School of Handicraft	- Batik - Wood Carving - Basketry - Metal - Ceramics - Leather	4 years
SMPS	Senior Secondary School of Social Works	- Social Services - Community Development	4 years
SMKK	Senior Secondary School of Home Economics	- Food - Clothing - Housekeeping	4 years
SMEA	Senior Secondary School of Business and Commerce	- Administration - Bookkeeping - Business and Commerce	4 years
STM Pem-bangunan (STMP)	Senior Technical School	- Mechanical Construction - Automotive - Cooling Techniques - Electrical Power - Electrical Industry - Industrial Instrumentation - Communication Electronics - Industrial Electronics - Building Construction - Water Construction - Thread Manufacture - Cloth Manufacture - Textile Finishing - Agriproduct Technology - Industrial Chemistry - Mining Geology	4 years

TABLE 7.4 (cont.)

School Acronym/ Title	School Type	General Classification of Courses	Duration of Study
STM	Senior Technical School	- Mechanical - Automotive - Electrical - Electronics - Building	3 years
SMT Grafika	Senior Technical School of Graphics, Arts and Painting	- Topography - Photo Reproduction - Graphics Printing - Graphics Finishing	3 years
SMT Pener-bangan	Senior Technical School of Aviation	- Aircraft Motors and Frame - Aircraft Electricity and Instrumentation - Avionics (aircraft electronics)	3 years
SMT Perka-palan	Senior Technical School of Ship Building	- Ship Building - Ship's Building	3 years
SMIK	Senior Secondary Home Economics	- Food - Clothing - Decoration	4 years
SMT Khusus Kimia	Schools developed for special purposes (Special Senior Secondary Technical School of Chemistry)	- Chemistry	3 years
TTC	Technical Training Center	- Workshops (Laboratories)	3 years

TABLE 7.5

VOCATIONAL/TECHNICAL SCHOOLS BY TYPE AND STATUS OF SCHOOL, 1983/84

no	Province	Home Economics JSS/SMKP			Technical JSS/ST			SMEA			SMKK/SMKA and SMTK			SMK/SMT			SMTK/SMKT and SMK/SMEA			SMPS		
		Public	Private	Both	Public	Private	Both	Public	Private	Both	Public	Private	Both	Public	Private	Both	Public	Private	Both	Public	Private	Both
1	JAKARTA	1	2	3	4	8	12	30	63	93	8	6	14	10	61	71	-	-	-	1	2	3
2	WEST JAVA	18	8	26	44	1	45	28	69	97	8	8	16	46	62	108	2	-	2	-	-	-
3	CENTRAL JAVA	4	2	6	48	1	49	48	104	152	5	8	13	28	121	149	2	1	3	2	-	2
4	YOGYAKARTA	1	2	3	1	-	1	7	45	52	4	4	8	8	47	55	4	-	4	-	1	1
5	EAST JAVA	16	3	19	47	6	53	28	121	149	13	6	19	23	97	120	2	-	2	1	3	4
6	ACEH	7	-	7	4	1	5	8	4	12	3	1	4	5	2	7	-	-	-	-	-	-
7	NORTH SUMATERA	8	1	9	9	13	22	9	49	58	4	6	10	14	52	66	1	-	1	1	1	2
8	WEST SUMATERA	2	1	3	5	1	6	8	8	16	1	1	2	8	9	17	2	-	2	-	1	1
9	RIAU	1	-	1	2	-	2	5	8	14	2	-	2	3	4	7	-	-	-	-	-	-
10	JAMBI	1	-	1	1	-	1	4	5	9	2	-	2	2	1	3	-	-	-	-	-	-
11	SOUTH SUMATERA	-	-	-	6	4	10	8	14	22	3	-	3	5	10	22	-	-	-	1	-	1
12	LAMPUNG	1	-	1	2	-	2	9	8	17	1	-	1	3	5	18	-	-	-	-	-	-
13	WEST KALIMANTAN	-	-	-	2	2	4	6	4	10	1	2	3	3	1	4	-	-	-	-	-	-
14	CENTRAL KALIMANTAN	1	-	1	1	-	1	4	7	11	2	-	2	1	1	2	-	-	-	-	-	-
15	SOUTH KALIMANTAN	-	-	-	2	1	4	8	5	13	2	1	3	1	6	7	-	-	-	1	-	1
16	EAST KALIMANTAN	1	1	2	4	-	4	8	7	15	1	1	2	2	5	7	-	-	-	-	1	1
17	NORTH SULAWESI	4	-	4	4	1	5	10	8	18	4	3	7	3	3	6	-	2	2	1	-	1
18	CENTRAL SULAWESI	3	1	4	1	4	5	6	2	8	2	-	2	1	4	5	-	-	-	-	1	1
19	SOUTH SULAWESI	6	-	6	10	-	10	18	8	26	6	4	10	6	7	13	1	-	1	1	1	2
20	SOUTH EAST SULAWESI	-	-	-	-	-	-	4	1	5	2	-	2	3	2	5	-	-	-	-	1	1
21	MALUKU	2	2	4	6	2	8	5	5	10	1	1	2	3	1	4	-	-	-	1	-	1
22	BALI	-	-	-	1	1	2	7	8	15	3	1	4	2	15	17	3	-	3	-	-	-
23	WEST NUSA TENGGARA	-	-	-	1	-	1	5	2	7	2	-	2	1	1	2	-	-	-	-	1	1
24	EAST NUSA TENGGARA	3	2	5	4	4	8	6	13	19	1	-	1	2	8	10	-	-	-	-	1	1
25	IRIAN JAYA	2	2	5	2	2	4	4	8	12	2	-	2	1	2	3	-	-	-	-	-	-
26	BENGKULU	2	-	2	2	-	2	3	5	8	1	2	3	3	4	7	-	-	-	-	-	-
27	EAST TIMOR	-	-	-	-	1	1	1	-	1	-	-	-	-	1	1	-	-	-	-	-	-
		80	22	102	194	66	260	478	663	891	88	56	144	157	588	745	17	3	20	10	14	24

The Technical Training Centres (TTCs) need special elaboration. They were initiated in 1975 under the First Education Project with assistance by the World Bank as a response to the perceived low quality of training received at the Senior Technical Secondary Schools (STM). A centralized workshop was constructed in selected areas where there was a large concentration of STMs. This center provides practical workshops and training facilities to the STMs that are within commuting distance. The centralized workshop was seen as a more economical way of upgrading students is the use of new tools and equipment than by providing the tools to each STM. The satellite STM (those that are within commuting distance) send students to the TTC on a rotational two-shift shared basis. Students spend approximately 2 days a week at the center. The intent is to provide better facilities, updated equipment and improved curricula with a more practical content, to give students knowledge and skills in closer correspondence with what is needed in the work place.

Each level of the vocational/technical education system has been developed to correspond roughly to a job entry level point in the labor structure. Figure 7.1 illustrates this relationship.

The junior technical schools prepare graduates for entry at the semi-skilled level. The emphasis at this level is on very basic skill and knowledge. There are 62 streams or vocational skill areas in which a student can specialize. A junior technical secondary student will spend 70% of his time in the core area, divided between basic vocational subjects and general subjects. Thirty percent of his time is spent in the skill area (or elective) which he has selected. Admission to a

junior technical school is based upon results of the national examination (EBTANAS) given at the end of grade six.

The senior secondary technical school (STM) three-year program is the largest program and prepares graduates for job entry skills at the tradesman level. The course content of STMs consists of a relatively well defined cluster of skills: knowledge of (1) physical sciences, (2) mathematics, (3) applied drawing, and (4) mechanical principles. There are 160 streams or technical specialties in which a student can specialize.

A senior secondary technical student will spend 60% of his time in the core curriculum divided equally between basic vocational subjects and general subjects. Forty percent of his time is spent in the skill area (or elective) which he has chosen.

A senior technical school (STM) four-year program prepares its graduates for job entry skills at the lower technical level. The content consists of instruction and training in occupations above the craftsman or trade levels. These require not only manipulative skills but also a broader knowledge and understanding of theoretical principles related to the specific occupation for which a student is being trained. Some training in human relations is also required. There are 160 streams, or vocational areas, in which a student can specialize. The distribution of time for each component of the curriculum is the same as for the three-year program.

The smaller vocational schools specialized for business (SMEA), music (SMKI, SMM) social work (SMPS), etc. parallel the above

descriptions in the distribution of time and content; but the material is specific to the type of school.

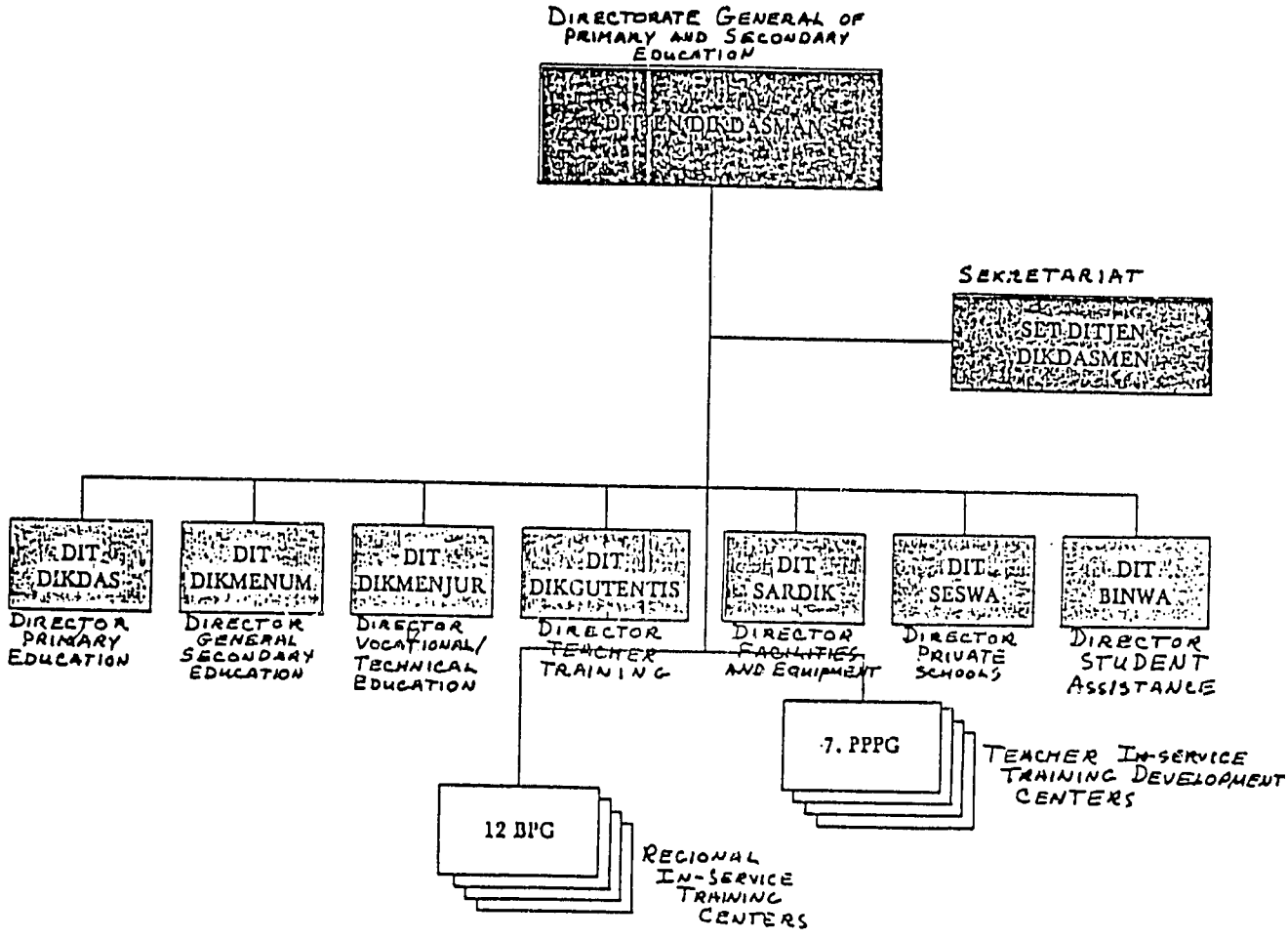
Vocational/technical schools at the secondary level are controlled by the Ministry of Education and Culture in Jakarta. The curriculum used throughout the country is approved by ministerial decree after recommendations are received from the Chairman of the Office of Education and Culture Research and Development (Balitbang Dikbud).

The curricular materials are disseminated by the Ministry of Education and Culture (MOEC). Appointment, promotion, transfer and dismissal of teachers must be approved in Jakarta by the Director General of Primary and Secondary Education on recommendation by the Directorate of Vocational/Technical Education. The Directorate General for Primary and Secondary Education approves the expansion or development of new facilities and improvement of existing schools. Figure 7.2 is a much simplified organizational chart showing the line of responsibility from the MOEC to the Directorate of Vocational/Technical Education. This Directorate is one of the seven divisions of the office of the Director General of Primary and Secondary Education. The directorate oversees the operation and implementation of the MOEC vocational/technical programs. Figure 7.3 presents a detailed organizational chart. The sub-directorate labeled MP2TPK serves the data gathering, inspection, and monitoring functions. Each of the major types of schools--home technology (economics), economic education, industrial and agriculture education--has a monitoring group which is under the MP2TPK.

In each province the Kanwil, or ministerial representative,

FIGURE 7.2

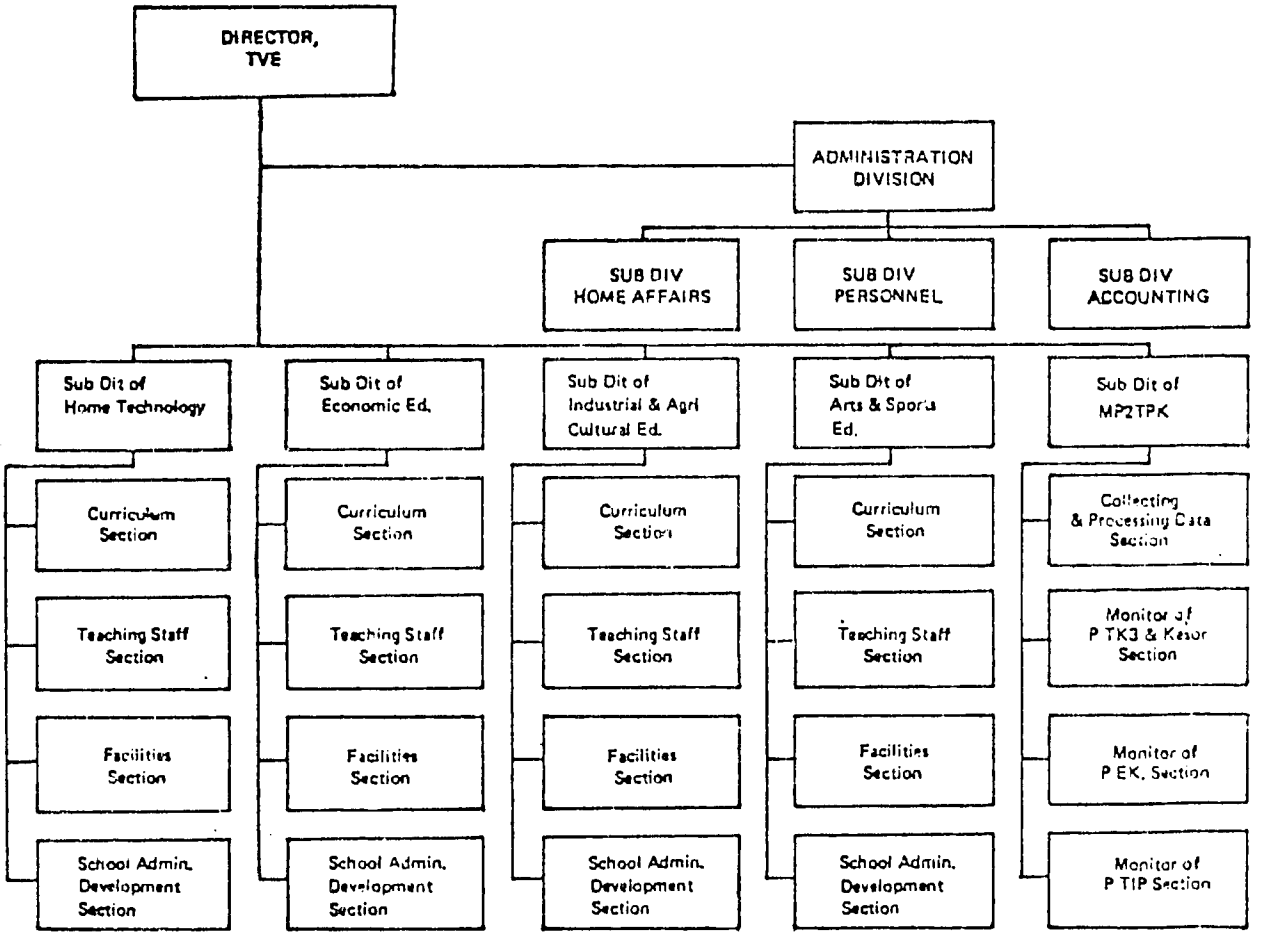
SIMPLIFIED ORGANIZATIONAL CHART OF
RESPONSIBILITY FROM MINISTRY OF EDUCATION AND CULTURE
TO THE DIRECTORATE FOR VOCATIONAL/TECHNICAL EDUCATION



Source: Directorate General Of Primary and Secondary Education, Office of Planning, 1985

FIGURE 7.3

ORGANIZATIONAL STRUCTURE OF THE
DIRECTORATE OF TECHNICAL AND VOCATIONAL EDUCATION



administers all pedagogical aspects of education. This provincial education office has nine divisions for administrative purposes. The Vocational/Technical Education Department is one of the departments established to administer schools and programs at an operational level (see Figure 7.4).

The Directorate of Vocational/Technical Education oversees curriculum, upgrading of teachers, instructional materials, and the instructional methodology, but does not control salary, transfer of teachers, or other administrative tasks. The administrative policies are set by the Directorate General of Primary and Secondary Education and the Ministry of Education and Culture.

7.2.3.2 Polytechnical Institutions

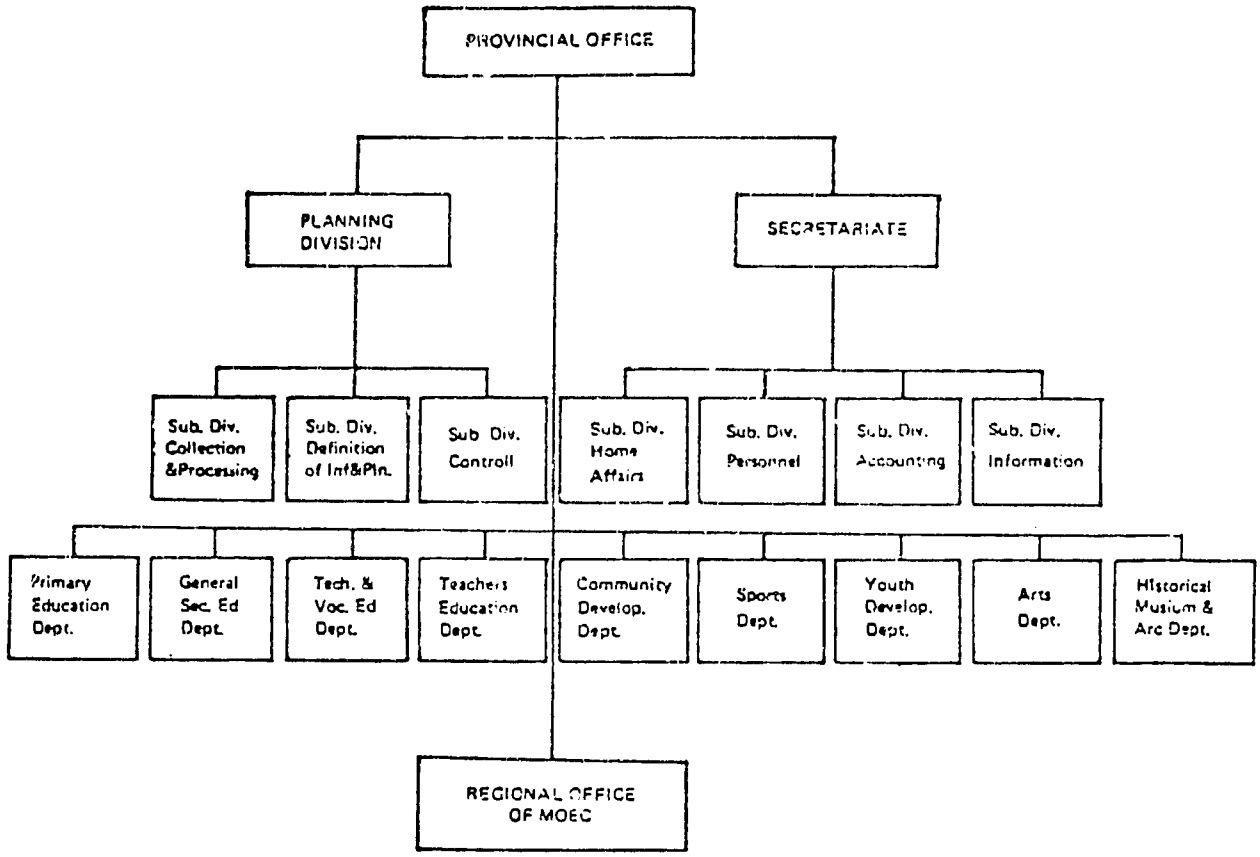
The aim of the polytechnical institution is to train higher level technicians in a balanced, industry-oriented training program. The educational program attempts to integrate theoretical education with practical hands-on experience and laboratory work.

The first polytechnic was the Polyteknik Mekanik Swiss established in 1975 and attached to the Bandung Institute of Technology. It was designed as a joint project between the Indonesian and Swiss governments to prepare qualified manpower in the field of precision mechanics technology.

Six new schools have opened since 1975, and the first graduates received their certificates in 1985. Programs are offered in mechanical, electrical, electronics, and civil engineering. These schools are in Bandung (Java), Medan (Sumatera), Palembang (Sumatera), Jakarta (Java), Semarang (Java), and Malang (Java).

FIGURE 7.4

ORGANIZATIONAL STRUCTURE OF
THE PROVINCIAL OFFICE OF MOEC



The polytechnics are organized and administered as regular programs of the universities. The staff are considered members of the faculty of the university even though they have separate facilities. The polytechnic administrator reports to the Rector of the University, who answers to the Director General for Higher Education.

The budget for operation of the polytechnic comes through the university budget but is earmarked for the polytechnic. It is impossible for the university to use this polytechnic funding elsewhere.

7.2.3.3 Technical Institutes

In addition to the polytechnical institutes, there are four technical institutes:

1. Institute of Technology at Bandung (ITB)
2. Institute of Technology at Surabaya (ITS)
3. Institute of Pertanian/Agriculture at Bogor (IPB)
4. Institute of Kesenian/Music Indonesia at Jakarta.

Table 7.6 lists the programs offered at each technical institute, except the Institute of Kesenian (Music) Indonesia at Jakarta. The emphasis in these programs is industrial or business rather than academic as in the university programs. The technical institutes hold the same status as the universities but are more restrictive than universities in the subject areas they offer.

7.2.3.4 Vocational/Technical Programs Other Than Those at the Ministry of Education

Vocational/technical training programs are also operated by the Ministry of Manpower and by private industry. The primary emphasis of

the Ministry of Manpower is the operation of a system of employment offices throughout the country for job seekers. These offices attempt to match individuals' skills to available job opportunities. The Ministry of Manpower is also responsible for helping recent graduates of the Ministry of Education's programs to find jobs. However, many of the job seekers who avail themselves of the opportunities offered through the Ministry of Manpower lack saleable job skills.

TABLE 7.6

PROGRAMS RUN BY TECHNICAL INSTITUTES
1982-84

	Mathematics and Science	Industrial Technology	Mining	Building and Construction	Oceanography	Handicrafts	Agriculture	Fisheries	Animal Husbandry	Forestery	Agriculture Technology	Veterian Medicine	Hon Degree	Graduate program
Institute of Pertanian/Agriculture at Bogor (IPB)	XX						XX	XX	XX	XX	XX	XX	XX	XX
Institute of Technology at Bandung (ITB)	XX	XX	XX	XX		XX							XX	XX
Institute of Technology at Surabaya (ITS)	XX	XX		XX	XX								XX	

Over one million students drop out of elementary and junior high schools each year without the skills required to be competitive in the job market. They need training for jobs at the semi-skilled levels in both rural and urban locations. Balitbang Dikbud has recently estimated the number of school leavers during Repelita IV (April 1984 - March 1989) to be 3,364,000 each year with a total of 16,720,000 for the period (see Table 7.7).

TABLE 7.7

NUMBER OF SCHOOL LEAVERS BY LEVEL OF EDUCATION COMPLETED: 1984 THROUGH 1989

Level of Education Completed	Average Annual Leavers 1984 through 1989	Total by 1988 through 1989
Primary school dropouts	795,000	3,975,000
Primary school graduates unable to go to Jr. H.S. plus Jr. H.S. dropouts	1,311,000	6,555,000
Jr. H.S. graduates unable to go to Sr. H.S. plus Sr. H.S. dropouts	948,000	4,740,000
Sr. H.S. graduates unable to go to higher levels	290,000	1,450,000
TOTAL	3,364,000	16,720,000

Source: IBRD Mission to Indonesia 28.6 - 15.7.83 on Manpower and Vocational Training.

To improve the capability of the job seeker to be successful in his job search, the Ministry of Manpower has operated its own vocational training centers for 35 years. There are currently 66 vocational training centers (BLKI) and 450 mobile training units in operation. The

courses that are offered at the centers are at a very basic job entry level. The course content is 80% practical hands-on activity with the remaining 20% being theoretical. The objective is to provide experience in the actual manipulation of the tools of the trade the student has selected as his vocation. The courses vary in length from short introductory courses of two weeks to longer courses of four months.

The annual training capacity of the centers in 1974-75 was 11,500 students. With the addition of many new centers, this figure has increased to 250,000 students in 1985. In 1984, however, there were 480,000 applicants for this type of training. The centers could accommodate only one-half of them. The best estimate of the number hoping to be admitted to the vocational training centers is 600,000 for 1989. The student population generally ranges in age from 18 to 30, with a few older students.

It is estimated that about one-third of the graduates of these centers find jobs within three months after completing the course. About one-third work in related areas, while one-third remain unemployed for a period of time after they complete their program.

The Ministry of Manpower operates one instructor training center located in Pekasi to prepare the instructional staff for the vocational training centers. The instructors are normally recruited from the senior secondary schools.

Several problem areas have been identified with regard to these vocational training centers:

1. Often the location of a new vocational training center is based more on political motivation than on data derived from the

actual number of unemployed people and the jobs which are available in a specific area.

2. There is no formal procedure between the Ministry of Manpower and the MOEC to coordinate (a) the location of vocational centers built by the two agencies or (b) placement efforts for the graduates of the vocational/technical schools.
3. The recruitment and retention of qualified instructors is difficult; skilled tradesmen cannot be attracted from industry because of the salary differential; consequently, the instructors are usually secondary school graduates trained at the instructor training center where they study pedagogy and the skills of the trade. After they have gained trade experience and become senior instructors they often resign their teaching assignments and join the private sector.
4. There is a lack of standardization of curriculum, administrative procedures, and methodology of instructional delivery. Some of the vocational training centers have been built with donor funding. When a vocational training center is financed by a donor, its operational activities are more likely to reflect the donor's perceptions than those of the Ministry of Manpower.
5. There is a lack of information about what happens to job seekers after they have found a job. When an individual is offered a job through a contract with a regional office he is given a form to fill out and send to the office. The Ministry of Manpower, using the follow-up procedure, then attempts to

gather data on the person's job retention, salary progression and promotion. However, very few successful job applicants ever send in the data sheets. There are plans to conduct several small pilot studies to develop ways to follow-up the placement of people in jobs. There is no formalized attempt to record and analyze the characteristics of the job seeking group. The lack of a follow-up system is of particular concern because the Ministry of Manpower has the responsibility for placing graduates from the MOEC programs as well as for those people who come to them seeking work opportunities.

6. A deficiency exists in the ability of the Ministry of Manpower to plan on the basis manpower forecasts. The World Bank is sponsoring a pilot project to examine improved methods of manpower forecasting. This project was scheduled to begin during 1985.

7. A gap exists between the skills and knowledge learned in the vocational training centers and the actual skills and knowledge required to perform satisfactorily on the job.

The Ministry of Manpower is also responsible for the training of workers in business and industry and is examining the feasibility of apprenticeship programs in Indonesia. The International Labour Organization (ILO), through its office at the Ministry of Manpower, is conducting several small pilot surveys to determine how much training is being done by business and industry in specific geographic areas of the country.

There are virtually no apprenticeship programs, except at very large

companies. The Ministry of Manpower simply has not monitored or gathered data on such programs.

The programs offered by other ministries are more likely to be in-plant training programs than in-school vocational programs. These are vocational in the sense that they are preparing people for work in that particular agency. The list in Table 7.8 shows some of the programs conducted by other ministries, but should not be regarded exhaustive. The academies shown in Table 7.8 offer diploma level education and provide manpower for direct entry into the civil service department concerned.

In November 1985, a report was completed for USAID surveying private sector training in Indonesia (Cor, 1975). The survey found a high turnover in managerial and professional positions, moderate turnover among engineers, and a very low turnover among skilled workers, technicians, and other production workers. Despite this low turnover, there is a relatively high demand for middle level technicians and a variety of training programs have been established to respond to this demand, including programs run by Goodyear, Siemens, and the Polyteknik Mekanik Swiss. Larger firms also conduct a variety of management training programs. Vocational training is provided in industry programs ranging from month-long orientations to four-year apprenticeship programs. A number of programs train non-employees.

TABLE 7.8

TYPES OF POST-SECONDARY EDUCATIONAL INSTITUTIONS
ESTABLISHED BY DEPARTMENTS OTHER THAN THE MINISTRY OF EDUCATION

Department	Institution	Years of study
1. Trade	1. Academy of Trade	3 years
	2. Academy of Meteorology	3 "
2. Industry	1. Academy of Business Management	3 "
	2. Academy of Chemical Analyses	3 "
	3. Academy of Leather Industry	3 "
	4. College of Industrial Industry	3 "
	5. College of Industrial Management	2 "
	6. Institute of Textile Industry	5 "
3. Communication	1. Academy of Meteorology and Geophysics	3 "
4. Health	1. Academy of Health Supervision	3 "
	2. Academy of Anesthetics	3 "
	3. Academy of Roentgen Technology	3 "
	4. Academy of Nursing	3 "
	5. Academy of Physiotherapy	3 "
5. Social Affairs	1. College of Social Welfare	3 "
6. Justice	1. Academy of Immigration	3 " (pending)
	2. Academy of Socialization	3 "

7.2.4 Secondary Vocational/Technical Education Programs

7.2.4.1 Student Enrollment

The continued interest and emphasis placed on developing manpower capabilities is reflected in the increased enrollments over a 15-year period in two types of schools. As Table 7.9 indicates, the SMEAs and the STM/SMT show increases in enrollment from 1971 to 1983/84. However, the junior secondary technical schools (ST and SKKP) and the senior vocational home economics schools (SMKK) do not. The reason for the decrease is that the latter three types of schools are not seen as having a great impact on the labor market and its need for a trained technical work force; they are being phased out at the junior secondary level. The dramatic increase in new vocational/technical schools also reflects the government's commitment to providing skill training through the public education system. Social demand is strong, as can be seen from Tables 7.10 and 7.11. The number of applicants far outstrips the capacity of the system to provide space for students. In 1983/84, for example, in the Senior Technical Secondary Schools (STM), there were 85,700 applicants seeking admission. Only 32,300 students (38%) were accepted. The same general situation is true for the other vocational courses at the secondary level.

Over the next five years (1984/85 to 1988/89), the government's goal is to double the number of students enrolled in vocational/technical schools from 556,000 to 1.112 million. The enrollment in STMs is projected to rise from 246,490 in 1983/84 to 493,000 in 1988/89, a 50% increase. The public STM enrollment is projected to move from 93,000 to 186,000, and the private STM enrollment, from 153,500 to

TABLE 7.9

NUMBER OF PUPILS BY LEVEL AND TYPE OF SCHOOL
PUBLIC AND PRIVATE (VOCATIONAL/TECHNICAL EDUCATIONAL)
IN INDONESIA, 1976 - 1983/84
(in Thousands)

Level and type of school	1971	1975	1976	1977	1978	1979/80	1980/81	1981/82	1982/83	1983/84
Junior Secondary School/SLTP										
Home Economic. JSS/SKKP	25	-	49	40	44	13	12	10	11	12
Technical. JSS/ST	143	-	201	169	192	71	72	63	69	70
Senior Secondary School/SMTA										
Economic. SSS/SMEA	78	96	177	193	211	222	229	246	269	299
Home Economic. SSS/SMKK	9	24	24	26	25	25	24	20	21	21
Technical. SMT/STM	65	165	196	217	238	241	234	237	234	246

* Summary of Statistics of Education 1976 - 1983/1984
Ministry of Education and Culture
The office of Educational and Cultural Research and Development.

TABLE 7.10

TECHNICAL PROGRAMS
STUDENT STATISTICS FOR PUBLIC STMs FOR
THE YEAR 1983/84

Type of Senior Secondary Technical School	No. of STMs	No. of Applicants	No. of Students Accepted(%)	Total Enroll-ment	Graduates
STM (3 year courses)	130	78,932	29,949(38)	58,216	25,654
STM(P) (4 year courses)	8	5,030	1,420(28)	5,377	1,181
STM (avionics)	1	430	252(59)	531	176
STM (graphic arts)	2	651	207(32)	651	203
STM (ship building)	2	327	287(88)	678	172
STM (industrial chemistry)	3	363	216(60)	598	175
TOTAL	146	85,733	32,331(38)	66,051	27,561

TABLE 7.11

VOCATIONAL PROGRAMS
STUDENT STATISTICS FOR PUBLIC SMKI/SMSR/SMM/SMIK/SMEA
SMTK/SMKK/SMPS
FOR THE YEAR 1983/1984

No.	Name of Schools	No. of Schools	No. of Applicants	No. of Students Accepted(%)	Total Enrollment	Graduates
1.	SMKI	7	1,337	811(61)	2,739	525
2.	SMSR	3	509	400(79)	1,460	341
3.	SMM	2	108	74(69)	206	30
4.	SMIK	5	937	688(73)	2,533	287
5.	SMEA	277	125,930	51,998(40)	148,603	44,774
6.	SMTK	6	1,218	927(77)	2,729	431
7.	SMKK	82	7,759	6,728(87)	16,351	4,415
8.	SMPS	10	1,995	823(41)	2,842	560

307,000. The government will encourage increased enrollments in the private STMs through expanded assistance to these schools.

The enrollment projection by school type from 1983/84 to 1988/89 is shown in Table 7.12. This table includes the projected enrollments for public and private schools and the distribution of students among them to reach the goal of 1.112 million students by 1988/89. As all private schools do not offer all types of programs, there are some columns with no entries.

The GOI seems well on the way to attaining its goal of doubling secondary vocational/technical enrollments by 1988/89. Table 7.13 presents a summary of the enrollment figures for 1984/85. Total enrollment in all vocational/technical programs, both junior and senior, has reached 723,000, a 30% increase over 1983/84. If this rate of increase is maintained, over 2 million students will be enrolled by 1988/89. It quite unlikely that this rate will hold steady, but if even half this amount is realized, the goal may be attainable.

The major constraint in maintaining this rate of expansion will be the availability of student spaces. In order to realize the goal of doubling the enrollment, and the stated policy of 20% of the secondary school students receiving technical education by 1989, the government must increase access to technical programs. The GOI plans to address this problem by building 43 STMs, 30 SMT/STM Pertanian, 40 SMEAs, and 10 SMKIKs by 1988/89 and by providing more assistance to encourage private sector expansion.

TABLE 7.12

PROJECTED STUDENT ENROLLMENT BY SCHOOL TYPE AND
PUBLIC OR PRIVATE INSTITUTION
FROM 1983/84 THROUGH 1988/89

School Type	Total Students Public Institution 88/89	Total Students Private Institution 88/89
SKKP	9,700	2,200
ST	60,500	8,200
KPA	4,600	700
KKP	800	--
SMKK		
SMTK	40,920	20,073
SMPS		
SMIK		
SMKI		
SMW	12,960	--
SMSR		
SMEA	221,276	228,505
STM		
STM Penbangunan (Flagship School 4 year)		
STM Grafika (Graphics)	198,000	195,000
STM Penerbangan (Aviation)		
STM Perkapalan (Ship Building)		
STM Kimia (Special)		
STM Pertanian, Sch. a. (Agricultural)	55,000	54,000
STM Pertanian, Sch. b. (Agricultural)		
BLPT (TTC)	--	--
KPAA	11,700	1,200
KKPA	1,600	550
PPPG Teknologi	--	--
TOTAL	615,056	510,428

TABLE 7 13

SUMMARY OF MAJOR VOCATIONAL/TECHNICAL EDUCATION PROGRAMS IN INDONESIA

	Schools			Teachers **			Students ***			# Classes	Total non-teaching staff **	# afternoon schools
	Publ.	Priv.	Total	Full time	Part time	Std. full time equiv.*	Publ.	Priv.	Total			
ST	193	55	248	5,100	1,000	5,600	66,000	8,000	74,000	2,400	1,700	5
SKKP	79	23	102	1,300	300	1,500	12,000	2,000	14,000	500	500	0
Total Junior level	272	78	350	6,400	1,300	7,100	78,000	10,000	88,000	2,900	2,200	5
STM	133	557	690	9,500	11,900	15,500	97,000	172,000	269,000	3,200	5,300	35
SMEA	282	529	811	10,100	9,700	15,000	169,000	173,000	342,000	4,200	5,300	16
SMKK	82	57	139	2,100	700	2,500	19,000	5,000	24,000	1,000	900	0
Total Senior level	497	1,143	1,640	21,700	22,300	33,000	285,000	350,000	635,000	8,400	11,500	5
Total	769	1,221	1,990	28,100	23,600	40,100	363,000	360,000	723,000	11,300	13,700	56

* Part time teacher calculated at .5 full time

** Rounded to nearest hundred

*** Rounded to nearest thousand

Source: Balitbang Dikbud (1985). Statistik Persekolahan. Jakarta, MOEC.

7.2.4.2 Instructional Staff

In the 1983/84 school year, there were 26,961 public and 14,150 private vocational/technical teachers, for a total of 41,111 (Table 7.14). For the government to meet its target of doubling student enrollment by 1988/89, the existing number of teachers must be doubled. The projected teacher demand for 1988/89 is 86,900 teachers. Thus, at least 45,789 new teachers must be provided, and if attrition is calculated, even more will be necessary.

Table 7.13 presents the total number of teachers in 1984/85 who were teaching part-time and full-time in public and private schools. Of the total 51,700 teachers in 1984/85, 23,600 were teaching part-time. Calculated as full-time teacher equivalents, this number equates to 40,000 teachers.

The Directorate of Vocational/Technical Education forecasts a need for approximately 28,900 teachers in the five year period of Repelita IV in public vocational schools, and 14,000 in private vocational schools, a total of 42,900. This lack of staff affects all secondary technical schools (STMs). The traditional method of training secondary school teachers through the Teacher Training Institutes (IKIPs) at the tertiary level has not been able to meet the demand. The need for teachers is partially being met for secondary schools through use of part-time teachers and through hiring senior secondary high school graduates in other fields who have completed a two-week preservice training program coupled with an inservice program while they are teaching. Planning calls for the deficiency in vocational instructors to be remedied

TABLE 7.14
NUMBER OF TEACHERS BY
SCHOOL TYPE AND PUBLIC OR PRIVATE INSTITUTION
1983/84

SCHOOL TYPE	TOTAL TEACHERS PUBLIC INSTITUTION 1983/84	TOTAL TEACHERS PRIVATE INSTITUTION 1983/84
SKKP	1336	337
ST	5417	926
KPA	455	-
KKP	80	-
SMKK	1923	--
SMTK	255	>952
SMPS	269	
SMIK	202	
SMKI	338	
SMM	83	
SMSR	163	
SMEA	7638	6,820
STM	6302	--
STM PEMBANGUNAN (FLAGSHIP SCHOOL 4 YEAR)	612	>5,115
STM GRAFIKA (GRAPHICS)		
STM PENERBANGAN (AVIATION)		
STM PERKAPALAN (SHIP BUILDING)		
STM KIMIA (SPECIAL)		
STM PERTANIAN, SCH. A. (AGRICULTURAL)		
STM PERTANIAN, SHC. B. (AGRICULTURAL)		
BLPT (TTC)	845	
KPAA	-	
KKPA	-	
PPPG TEKNOLOGI	170	
TOTAL	26,961	14,150

through a combination of upgrading, program expansion, and increases in graduates of diploma programs in the universities and polytechnics.

Another approach has been to use more effectively the facilities and personnel which already exist, for example, by increasing the ratio of students to teachers. Over the last year, the ratio of students to teachers was increased from 32:1 to 40:1 in academic subject areas. The ratio for programs that require practical hands-on activities was also increased -- from 18:1 to 20:1 in SMEA (economics), and from 12:1 to 15:1 in SMTs (senior technical schools). A second short range solution has been to provide training for two shifts of students. This is designed to make maximal use of both instructional staff and facilities.

As mentioned, the facilities for preparing vocational/technical teachers in the past has not met the demand for new teachers or for upgrading of vocational/technical teachers who were prepared in technical faculties (FKIPs) located in 10 Teacher Training Institutes. The technical faculties provide academic and pedagogical training and some theoretical information about the technical subject areas. They offer, however, only a limited number (16) of vocational/technical programs (four in the arts and crafts, five in technical areas, three in home economics, and four in business and commercial areas). Programs are also provided for those individuals who will teach in the School of Social Work.

There are no facilities at the IKIPs for practical skill development in a trade. It is assumed that the prospective teacher either already has the skill or will develop it during inservice workshops. However, well-qualified individuals with experience in a

trade are often drawn to higher paid positions in industry where both the status and the remuneration are greater. As beginning teachers have received little emphasis on learning practical skills, and as they often have little or no previous job training in the skill area, it is not surprising that most of them have limited ability to teach practical skills. In response to this deficiency, the IKIPs at Padang and Yogyakarta were recently upgraded, through a World Bank project, to provide more practical skill training courses.

Another program designed by the Directorate of Vocational/Technical Education to help remedy the lack of skill training among vocational/technical teachers was the development in 1975 of the Technical Teachers Upgrading Center (TTUC) in Bandung. This Center also provides hands-on practical training for those who need experience in building proficiency in their trade area. In 1984, a second TTUC was established in Medan, and current planning calls for preparation of six more centers, each specializing in one or more vocational/technical areas. The eight centers would cover industrial programs, agriculture, business and commerce, arts and crafts, home economics, and social work. Eight hundred twenty-six teachers have been trained at the TTUC in Bandung and the first group of teachers from the TTUC in Medan will graduate in 1986.

A vocational/technical teacher diploma program has also begun at the IKIPs to parallel the academic training programs. The prospective vocational/technical teacher goes to school at a TTUC for the first semester, then begins a program at the IKIP, alternating one semester of supervised teaching with continued attendance at classes in a TTUC. If

the student completes this program, he is certified as a senior secondary technical teacher. Other programs initiated by the Directorate of Vocational/Technical Training to help satisfy the demand for teachers include the following:

1. Recruitment of graduating students from the universities who may be in overcrowded fields or might want to teach;
2. Recruitment of people who were teachers in the past (women and retired people);
3. Recruitment of experts from industry on the loan system by which they teach for a short period of time -- for example, one day a week, a portion of each day in one semester -- and then return to industry.

7.2.4.3 Curriculum Materials

The curriculum for vocational/technical education is developed by the Center for Curriculum Development (CCD) of Balitbang Dikbud. The CCD works with six regional technical Teacher Training Unit Centers (P3GTK). Each Teacher Training Unit Center has different occupational areas which are its specialty. For example, the center in Bandung has responsibility for automotive trades. The curriculum is updated periodically, but the period of time between the changes is variable. Social and technological change provide the impetus to develop new curricula and upgrade the old.

The curriculum was to be updated for grade one of the junior technical schools and grade one of the secondary technical schools in 1985. Each succeeding year one grad level is to be upgraded. With three grades in the junior secondary technical school and three or four

in the senior secondary technical school, it will take three to four years for the new curriculum to be developed and disseminated throughout the secondary program in the 160 streams or subject areas of specialization in vocational/technical education.

Each curricular program has two divisions: the core program and specialized skill training. The core program includes general subjects common to all secondary curricular programs, such as religious courses (Pancasila), Civics, history, sports, and health. The second component of the core program is the basic subjects: mathematics, cooperative education, science, English, environmental science, and in some cases, technical drawing. The basic courses a student takes are related to the elective or specialization in which he enrolls. The basic core courses for an auto mechanic, for example, will be different from the basic courses taken by an electronics student. The specialized skill training varies by vocational area, but represents 30% of the overall curriculum at the junior secondary level, and 40% at the senior secondary level.

There are three issues to be considered when examining the curriculum component of an educational system:

1. the process of development of the curriculum
2. the dissemination of the curriculum, and
3. the utilization the curriculum in the classroom and laboratory in the manner intended by the instructional designer.

Curriculum development in each subject area is conducted by a team coordinated by the CCD. The team usually consists of the following members:

1. a faculty member at the technical teacher training unit center responsible for the occupational area;
2. an individual from business or industry who is an expert in the area;
3. teachers from the field who are teaching in that program; and
4. a curriculum writer and designer.

The individual from business or industry acts as the subject matter expert to help identify the competencies required in the occupation. After the competencies are identified, objectives are written and a course guide is generated. (Table 7.15 presents an example of one page from the automotive curriculum at the senior secondary level.)

Textbooks are provided by the GOI to each school according to the trade area in their curricula offering. It is government policy to furnish the textbooks to the private schools as well. The number of textbooks supplied to each school for each program of study is based on the average number of students enrolled in each class over the past three years. In reality, all schools do not receive the texts at the same time. Some of the outlying schools may receive their books several months later than schools in Java.

Whether the curriculum is used in the way intended by the instructional designer is an unanswered question. The Directorate of Vocational/Technical Education allows the local region or school officials to determine how the curriculum is used in their schools.

Individual instructors are responsible for developing their own lecture and support material based on the approved curriculum. Thus, changes in curriculum require additional effort on the part of the

TABLE 7.15

CURRICULUM OBJECTIVES

Curricula Objective	General Instructional Objectives	Content		Program			Methods of Teaching	Equipment Reference	Evaluation	Notes
		Topics	Description	Gr.	Sm.	hour per week				
Mastering basic skills of auto mechanics work according to the standard required	1. Student is able to use the proper safety precautions and equipment 2. Student is knowledgeable about the capacity and the working principles of the machine	- Safety precautions and safety equipment	Safety Equipment + safety glasses + welding glasses + welding mask + safety helmet + safety gloves + safety shoes + mask Protection from work and machines + running wheels + high voltage electricity + use of fire extinguisher	I	I	4	Lecture demonstration Question and Answer Assignments	Safety equipment and Procedure -Manual on work Safety by Ministry of Manpower	Test oral Observation	
		Principles of how the Engine works		I	I	4	Lecture question and Answer Demonstration	Model/wall chart Manual for Practice	Objective Test Essay Test Oral Test	
		Components of the Engine	Engine Performance - Cylinders - Compression - Air and fuel - Hourse power - Efficiency of the engine	I	I	6	Lecture question and answer			

teacher. Because the civil service salary in most cases is too low for teachers to afford the living standard they would like, many of them work at more than one job. Consequently, they may have limited time for developing teaching material. As a result, it may take some time for changes in curriculum to appear in some classrooms.

An additional problem is that many schools do not have the tools, equipment, or space necessary to provide instruction in some of the areas indicated in the curriculum.

7.2.4.4 Facilities and Equipment

There were 982 public vocational/technical schools and 1200 private vocational/technical schools in operation in 1983/84, for a total of 2,182 (see table 7.16). This total includes 943 technical schools, 743 business schools, 248 home economics schools, 10 social work schools, 86 arts and crafts schools, and 159 other schools. The most salient feature of this structure is its fragmentation into many specializations. The government's policy of doubling the enrollment will require short-term strategies discussed in the student enrollment section, but will also require the construction of an additional 123 institutions of various types. An estimate of the projected number of schools to be in operation by 1988/89 is also shown in Table 7.16 (the 123 public schools to be built include 43 STMs, 30 SMT/STM partanian, 40 SMEAs and 10 SMIKs).

Both public and private vocational/technical institutions suffer from inadequacies in facilities and equipment which hinder proper preparation of graduates for entry level positions. Secondary technical schools also suffer from a lack of sufficient space and electrical power

TABLE 7.16

PROJECTED NUMBER OF SCHOOLS BY
SCHOOL TYPE AND PUBLIC OR PRIVATE INSTITUTIONS
FROM 1983/84 THROUGH 1988/89
TOTAL SCHOOLS

	Public Institutions		Private Institutions	
School Type	83/84	88/89	83/84	88/89
SKKP	80	80	33	33
ST	194	194	67	67
KPA	50	50	13	13
KKP	9	9	-	-
SMKK	82	-	-	-
SMTK	6	-	-	-
SMPS	10	-	-	-
SMIK	5	125	69	75
SMKI	7	-	-	-
SMM	2	-	-	-
SMSR	3	-	-	-
SMEA	278	317	465	510
STM	130	-	523	575
STM Pembangunan (Flagship school 4 yrs)	8	-	-	-
STM Grafika (Graphics)	2	-	1	1
STM Penerbnagan(Aviation)	1	185	1	1
STM Perkapalan (Ship Building)	1	-	-	-
STM Kimia (Special)	3	-	3	3
STM Pertanian (Sch.a) Agricultural	13	-	-	-
BLPT (TTC)	9	13	-	-
KPAA	66	66	13	13
KPAA	12	12	4	4
PPPG Teknologi	1	3	-	-
PPPG Kejuruan	1	1	-	-
PPPG Pertanian	0	1	-	-
PPPG Kesenian	0	1	-	-
TOTAL	982	1110	1200	1305

for their buildings. and often have no workshop facilities and few tools, supplies, and equipment. What they do have is often outdated and in poor repair when compared with the tools students will be required to use when they become employed. This problem is aggravated in laboratories where machines from many different manufacturers in a host of different countries make maintenance and the procurement of spare parts very difficult.

The GOI has moved to rectify many of these problems under Repelitas I, II, III, and IV by including as a national goal improvement of facilities, especially at the senior secondary level. Ninety-six senior secondary technical schools have been improved through external assistance, and GOI funding has improved nine additional senior secondary schools. There are 50 schools that still need attention.

As Table 7.10 indicates, only 38% of the applicants can enter public senior secondary technical schools. In recognition of the importance of private schools in providing places for the other 62%, the MOEC provides funding to these schools. In 1984/85, the MOEC provided Rp.178 million in private school aid. This amount represents an increase of 171% over the year before (IBRD 1985). The funding is designated for rehabilitation of facilities. Graduation certificates issued by the private schools are recognized by the government if the schools conform to the established standards.

In recognition of the continued inadequacy of the facilities, the MOEC instituted a project of centralizing well-equipped laboratories or workshops in areas with a large number of Senior Technical Schools (STMs) within commuting distance of the facility. This action was

considered more efficient than providing such equipment to the smaller STMs. In addition, investment in the central facility or Technical Training Center (TTC) rather than individual schools was believed to have more impact because of the higher utilization of the Center by a greater number of students. Students spend three days a week in the local or feeder STM learning theory and general materials from study of the core subjects. Two days per week are spent at the TTC. The nine existing TTC's accommodate an estimated 1,120 full-time students in five groups on a double shift basis. Four new TTCs are planned for completion by 1989, which would bring the total to 13. In the less populated areas where it is difficult to establish a TTC, vocational/technical schools will still have to be upgraded, or another solution will have to be found.

7.2.4.5 Examination/Evaluation

In order to be eligible for admission to junior secondary technical school, an applicant must be less than 18 years of age and have passed the local primary school examination and the national examination (EBTANAS). However, where facilities cannot accommodate all of those who have applied, selection is based primarily on the results of the national exam, and applicants are placed in a priority ranking according to how well they scored on the test. Once a student is admitted and begins his studies in a junior secondary technical school, promotion between grades is based on tests administered by the local school. The school develops its own tests for the general courses as well as any related vocational subjects a student has studied.

To gain admission to senior secondary school, a student must pass a

trade test and a general/academic exam developed by the school, as well as a national test covering the core (i.e., general) subject matter. Although all vocational/technical students take the same national examination covering general areas of study, schools differ in defining performance criteria and standards in the area of a student's specialization. There are no unified examinations for vocational/technical education specializations, nor are there any trade tests or certification standards administered by the Ministry of Manpower or trade groups. Each teacher of a trade develops his own examination over the material in his trade. Consequently, there is little consistency from one school to another as to what constitutes acceptable performance for graduation in a trade specialization.

Although students may pass the general exam, the trade test administered by the local school, and the national general test, they still might not secure a place in a senior secondary technical school if their scores do not place them high enough in the priority rankings.

Programm and Teacher Evaluations: Teacher and school programs at the district and sub-district levels are inspected and monitored by local education supervisors (Penilik). The quality of education offered in the schools at various levels is the responsibility of the Penilik. The Penilik must insure that the national curriculum is implemented, that sound pedagogical approaches are used, and that examinations maintain acceptable standards. Once a year at a minimum, the Penilik also cooperates with the headmaster in the evaluation of teachers. This evaluation is developed locally in accordance with guidelines approved by the Ministry of Education and Culture. In large, densely populated

areas, supervisors may monitor a specific type of school. In the more rural areas, they may monitor fewer and more varied types of schools (see Figure 7.5).

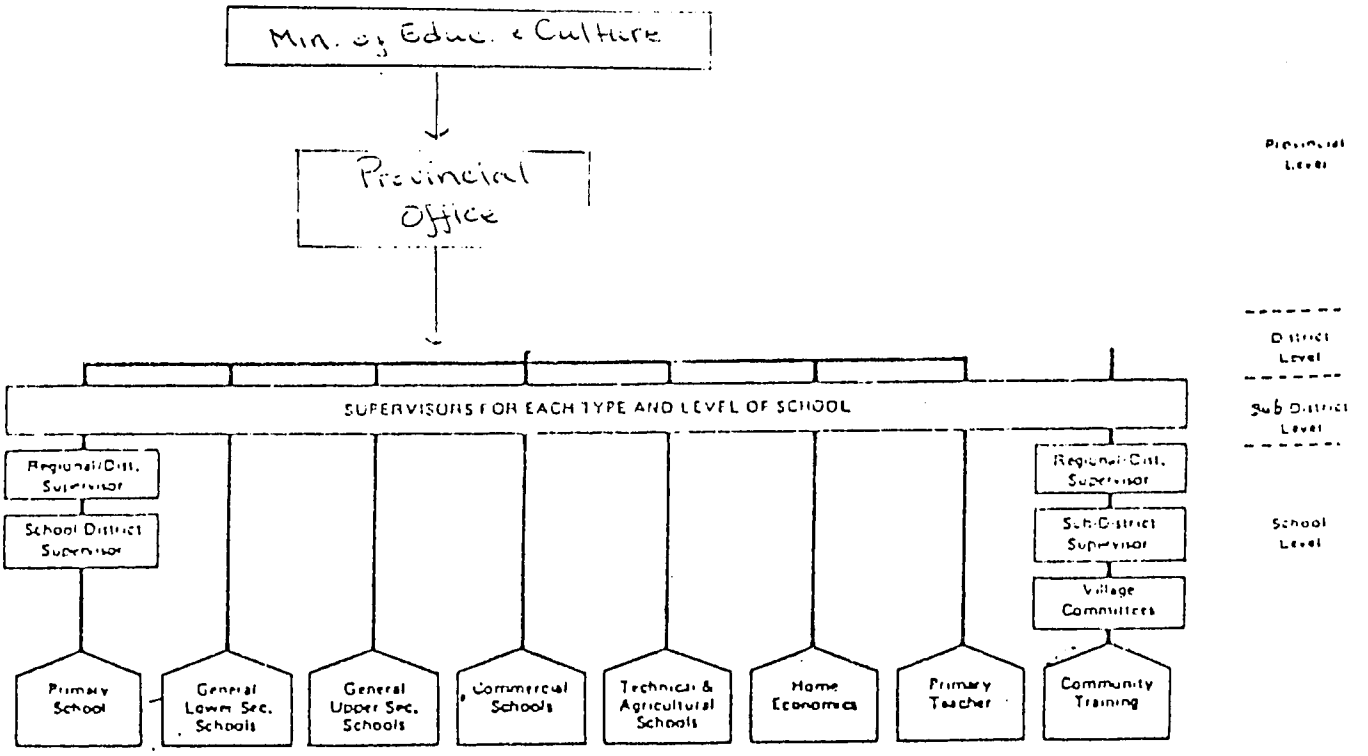
School Evaluation: Many private schools are established without adequate financial resources or practical facilities, and often offer substandard or highly theoretical programs. These private, profit-oriented STMs have proliferated because public STMs cannot satisfy demand. When a private school registers to be certified to provide vocational/technical education, it must meet MOEC requirements in seven areas:

1. Facilities, equipment, school building, and workshops or laboratories.
2. Qualifications of teachers.
3. Resources - financial soundness.
4. Administration and management.
5. Curriculum - the extent to which it follows the national curriculum.
6. Students - assurance that they have certificates from the next lower grade level.
7. General situation - security, cleanliness and neatness, discipline, landscaping, and school/community relationship.

Both private and public schools are inspected. After being inspected initially for registration, private schools are placed in one of three classifications based upon the ratings they receive on the above criteria. The classifications are the following:

FIGURE 7.5

Supervision of Programs at the Operational Level



Registered - The school has met the minimum requirements and scored between 40 and 59 points on the criteria.

Recognized - The school has more than met the minimum requirements and scored between 60 and 80 points on the criteria.

Equal - The school is an equivalent in every respect to a public school and has scored over 81 on a scale of 100.

7.2.5 Polytechnical Programs

In 1985, there were 750 graduates of the two Polytechnical Institutes in Bandung. Also in 1985, six new polytechnics opened. These polytechnics are operating at about 60% to 70% of their full capacity. The number of students admitted into their programs has been restricted due to the lack of qualified teachers.

Eleven more polytechnics are targeted for operation by September 1986. Construction is on schedule and teachers are currently being trained. However, insufficient numbers of adequately prepared staff may prevent some of the new polytechnics from opening until the following year. It is also possible that the schools will open, but will be operate at only partial capacity. The new schools will be located in provincial capitals. Their programs will include power and energy, telecommunications, aeronautics, foundry, technical processes, and refrigeration and air conditioning. Of these 11 schools, seven will have two-year programs while the other four will have three-year programs. The areas in which the seven two-year programs are located will not support three-year programs due to limited employment opportunities for graduates. The two-year programs will be located in

Denpasar (Bali), Kupang (Timor), Samarinda (Kalimantan), Banjarmasin (Kalimantan), Ambon (Seram), Manado (Sulawesi), and Pontianak (Kalimantan). The three-year polytechnics will be in Lhok Seumawe (Sumatera), Pandang (Sumatera), Ujung Pandang (Sulawesi), and Surabaya (Java).

In addition to the 11 new polytechnics targeted for opening in 1986, six agriculture polytechnics and a Polytechnic Education Development Center (PEDC) are planned to train the teachers for the agriculture polytechnics. These institutions are in the advanced planning stage, as are another 10 polytechnics. Ultimately, there will be 34 polytechnics countrywide.

Graduates of the polytechnics receive a Diploma III. Of the 154 students in the entering class three years ago in Bandung, 133 received diplomas. Thus, 86% of the students were successful. Four persons repeated the third year and 15 students dropped out. Students must pass their first and second years in order to continue in the program. Repetition in the first two years is not allowed. If the students fail the third year, they may repeat this final year of their program.

Just before the students graduate, an open house is held to which representatives for business and industry are invited to interview the graduates. Placement has not been a problem. For example, of 48 graduates in the mechanical program, 42 obtained jobs with industry while the others went to the PEDC to prepare to teach in the polytechnics. It is estimated that 17,000 polytechnic graduates are required annually; but even when the 17 schools are in operation at full capacity they will produce only 7,000 graduates.

Only about 7% of the applicants can be accepted in the polytechnics due to space limitations. The demand is very strong, particularly at Bandung, where 2000 applicants applied for 148 places in the beginning class. The cost to the student is U.S. $1,000 U.S. per year (Rp.111,000). Men comprise 90% of the student body. The greatest obstacle to efficient operation of the polytechnics is lack of qualified staff.

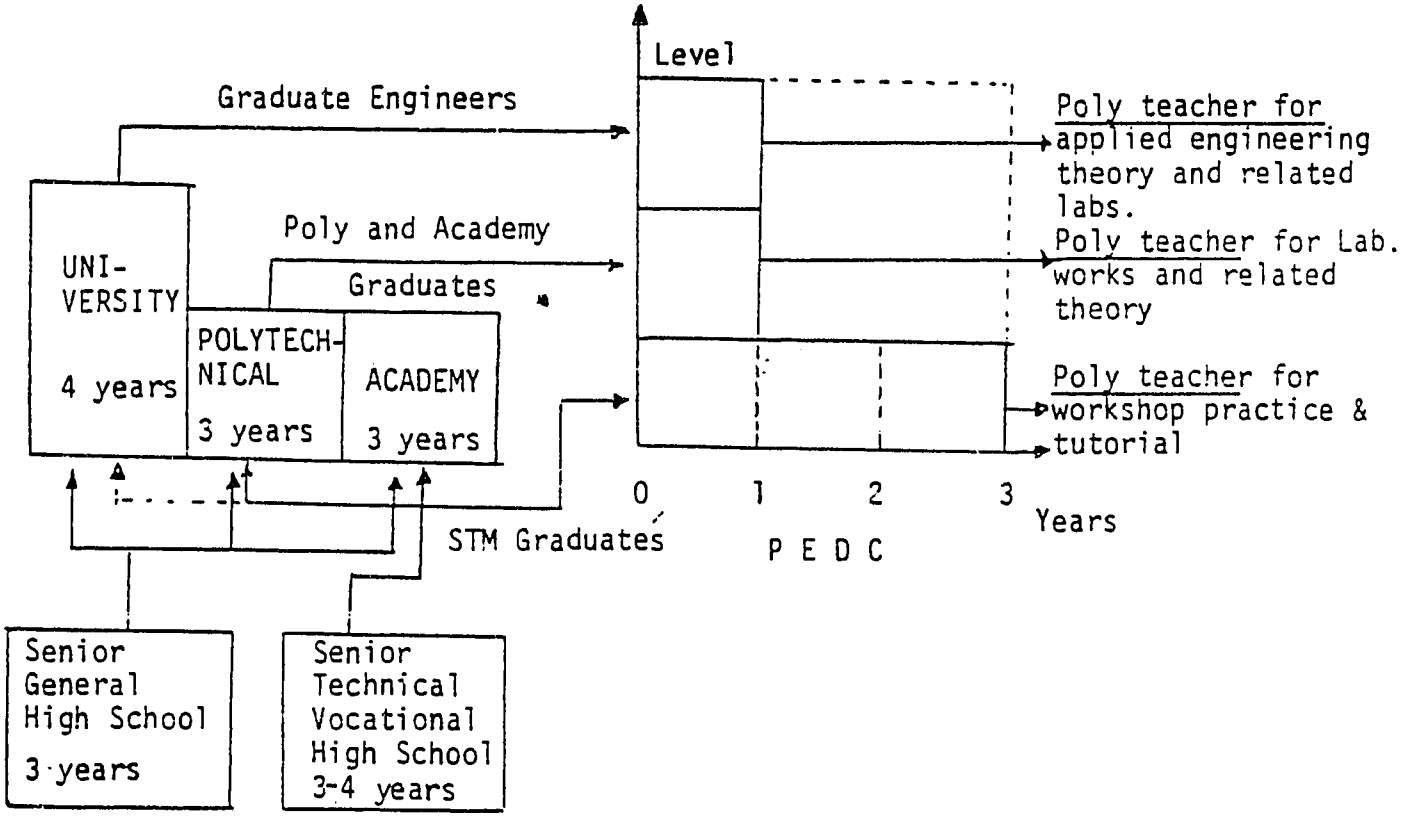
There are two Polytechnic Education Development Centers (PEDC). In addition to the PEDC to be developed to provide staff for the agriculture polytechnics, an operational PEDC has already been established to support the teacher training needs of the polytechnics. The center's main responsibility is to train teachers for the polytechnics and to provide support in development of curriculum, educational strategies and methodology, and management systems. In 1985, the graduating class of the PEDC will number 300.

The flow-chart of the polytechnical teacher education program is depicted in Figure 7.6. The polytechnical teacher education program of the PEDC consists of three streams:

1) The first stream includes engineering students from S-1 programs of the universities. These students must undergo adaptive training for one year in the Polytechnical Education Development Center (PEDC) in more practically oriented needs of industry before becoming lecturers in the polytechnics. They also receive teaching methodology courses. After one-year of training, the graduates will become lecturers in applied engineering and will supervise some related laboratory work.

FIGURE 7.6

SOURCE OF STUDENTS FOR POLYTECNIC EDUCATION DEVELOPMENT CENTERS (PEDC)



2) The second stream accepts polytechnical academic S-1 graduates. To improve their work, they undergo a one-year training program in engineering knowledge and skills, based on real industrial procedures. They also take teaching methodology courses, and are required to practice teach under supervised conditions. Their major duties after finishing this training are to supervise laboratory experiments, to teach some related theory, and to conduct practical workshop training.

3) The third stream is designed for vocational/technical school graduates. After three years of training at PEDC, they are prepared to attain at least the level of Diploma III. Their program consists mostly of professional workshop practice and laboratory experimentation with some theory. After finishing this training, the graduates are expected to teach workshop practice, workshop theory, and conduct some laboratory experiment consultation.

7.3 Analysis of Vocational/Technical Education

7.3.1 Introduction

Using the previous review as a foundation, this section examines several of the issues which confront the Indonesian government in its efforts to improve and expand vocational/technical education. The issues are presented as they relate to the improvement of internal and external efficiency, access and equity, administration and supervision, and costs and financing of vocational/technical education. The section begins with a discussion of needs, plans, and constraints.

The data used and the conclusions drawn in this chapter should be viewed with caution. In some cases, original data were unavailable. Either secondary sources or the conclusions of others from original data

were used and referenced in this document. Data collected from various agencies often differed in totals of students, teachers, and schools. More often than not, data on the same topic varied if obtained from two different sources.

7.3.2 Needs

The policy of the GOI is to stimulate development of business and industry in preparation for a major industrial surge in the 1990s. As the economy expands, the demand will increase for skilled craftsmen, trained commercial workers, and technicians. In recognition of this demand, the GOI has placed a high priority on building a labor force adequate to meet the needs of the expanding economy.

It is within this context of growing demand for skilled manpower constrained by government budget cutbacks, that vocational/technical education must be viewed. The overarching needs are (1) to expand the capacity of the system in the most cost-efficient manner to provide for a doubling of the student population within five to six years. At the same time, (2) an effective method must be provided to link the training of skilled workers to the actual requirements of the job market, and to improve the quality of the skill development programs.

The specific needs identified for vocational/technical education in Indonesia are (1) expanding the capacity of the system by 100%, (2) effectively linking the training to actual skill requirements, (3) establishing proficiency standards for a given occupation, (4) increasing the quality and number of qualified teachers, (5) examining the admission policy for student entry, (6) investigating alternate methods for

providing manpower training services, (7) gathering information on graduates of vocational education programs through follow-up tracer studies, and (8) articulating a detailed plan for the expansion of vocational/technical education.

7.3.3 Plans

During Repelita IV, (1983/84 to 1988/89), the MOEC plans to (1) expand vocational/technical education through construction of 123 new senior secondary technical schools, 11 new polytechnics, seven new teacher training institutions for secondary vocational/technical education and one for the new polytechnics; (2) develop and implement a new curriculum at the junior and senior secondary level with dissemination beginning in 1985; (3) continue construction of additional Technical Training Unit Centers (TTUC); (4) explore innovative ways of attracting qualified teachers; and (5) upgrade existing facilities, both public and private, as funds permit. A detailed presentation of these plans, prepared by the Directorate of Vocational/Technical Education, is attached as Appendix A.

7.3.4 Constraints

Efforts to supply skill training are obstructed by (1) a gap between what a student is expected to do on the job and what he was trained to do in school, (2) the lack of adequate facilities and equipment, (3) too few adequately trained instructors experienced in the trade they are supposed to teach, (4) absence of occupational certification and job standards, (5) variation in the quality of the skill training received from one institution to another, (6) poor articulation with business and industry,

(7) lack of effective, formalized placement help for graduates, and (8) inconsistent follow-up of graduates.

7.3.5 Issues

7.3.5.1 External Efficiency

The major objective of the government's financing of vocational/technical education is to provide people for the labor market. When analyzing the external efficiency of this training, the first question is to what degree has the training program prepared its client group for the existing labor market?

It is widely perceived, at least by the people interviewed and by the authors of various World Bank reports, that many of the graduates from the vocational/technical programs, even though they have successfully completed their programs and graduated with a certificate, are unable to find work in the occupation for which they were trained. A primary reason for this situation is that the minimum entry level requirements for employment are not being met through the training programs. The vocational/technical educational system, if it is not satisfying this basic purpose of providing trained manpower for existing jobs in the labor force, cannot be externally efficient. The result is a waste of resources, both time and money, for the student and the GOI.

To determine whether a large number of senior secondary technical school graduates do not find jobs, tracer or follow-up studies of graduates are required. One of the few studies conducted (by the World Bank (1983) followed several groups of graduates from 1976 for a two-year period. Table 7.17 shows the number of graduates working, looking for work, and other. The "other" category includes those students continuing

in school or not looking for work for one reason or another (Clark, 1983). The percentage of graduates who were working after two years varied widely, from 15% for SKKA (Home Economics) graduates to 43% for the STM (Senior Technical Secondary School) graduates.

TABLE 7.17

EMPLOYMENT STATUS TWO YEARS AFTER GRADAUATION

	Total 1976 Graduates All Indonesia	Total (Percent)	Working	Looking for work	Other
SMA	97,000	100%	17%	14%	69%
SMEA	45.000	100%	34%	28%	38%
STM	48,000	100%	43%	27%	31%
SKKA	6,000	100%	15%	21%	64%

Variation in finding a job also existed among graduates from the various types of schools (see TABLE 7.18).

TABLE 7.18

PRECENT OF GRADUATES WHO WANTED TO WORK AND FOUND WORK TWO YEARS AFTER GRADUATION

Type of School	Wanted to Work and Found Work
SMA (Academic)	52%
SMEA (Economics)	49%
STM (Technical)	64%
SKKA (Home Economics)	37%

Clark (1983) makes the point that among several variables (such as action taken by the graduates, location, whether a person thinks he has job skills), the type of school has an impact on employability.

The real question, "were the graduates prepared for work?," is discussed in the following quote from Clark (1983, p. 11).

> There are hints from the tracer study that some graduates were not prepared for the labor market, or at least did not think they were. First of all, there are the large numbers who took additional courses. Second, a large number of graduates, from all types schools, said they did not think they had gotten useful job skills from school.
>
> This was reported one year after leaving school and the statement may well have influences by the respondent's labor market experience. It is, perhaps, expected but unfortunate that most SMA graduates felt they had not obtained useful skills. It is surprising that at least one-third of those from the "vocational" schools had the same opinion. (See Table 7.19).

TABLE 7.19

PERCENTAGE OF GRADUATES WHO SAID THEY GAINED USEFUL JOB SKILLS FROM SCHOOL

SMA	24%
SMEA	62%
STM	68%
SKKA	84%
SPG	72%

An additional finding was that those persons who said they received job skills from their training had a higher probability of finding a job. There may be a cause and effect issue here. Is it because a person was successful in obtaining a job that he realized he had job skills? Was the person who did not have a job unaware that he possessed such skills? More research would be required to provide a definitive answer. This World Bank report by Clark (1983) was based on 1976 graduates. It was done with students who were studying under the curriculum which preceded the current one instituted in 1985. Nearly every interviewee who was questioned about the major issues confronting vocational/technical training mentioned a perceived gap between what is learned in the programs and what is required on the job in the world of work.

Another follow-up study by the World Bank for the Fourth Education Project (May 31, 1985) presents a brighter picture of the usefulness of vocational/technical programs for at least one specific kind of school. The World Bank funded five Technical Training Centers (TTCs) to which senior secondary technical school (STMs) sent students on a rotational basis. The students studied basics in the STMs and received hands-on practical training two days a week at the TTC. The graduates of the TTC cooperative effort with the STMs were examined in the follow-up study. (Once again, the data predate 1980; however, no more recent studies have been found.) Six months after graduation, 50.5% of the graduates had secured employment, nearly all in fields related to their training, or were enrolled in higher education. Within two years, about 90% had found employment. The report indicates there is no evidence to suggest the situation has changed.

The second question with regard to external efficiency is very important when a government is preparing to invest large amounts of resources. Do the programs prepare graduates for employment better than would regular educational programs? Is the preparation sufficiently successful to justify the expense of running specialized vocational/technical schools?

The Clark study (1983) addressed this question by calculating social rates of return to senior secondary education graduates (see Table 7.20).

TABLE 7.20

SOCIAL RATES OF RETURN: URBAN MALE SCENARIO
SECONDARY GRADUATES, 1978

Compared to primary graduates	Academic	Vocational	All
If average senior secondary graduate has to wait:			
0 years to get a job	32%	18%	24%
1	26%	14%	19%
2	22%	12%	16%
3	19%	10%	14%

Clark observed that the rate of return on senior secondary education is good.

> The returns to senior secondary education are impressive even with the slow employment absorption. If a graduate has

to wait two years, on the average, before going to work, the rate of return to his education is 16% (third column). This figure is the estimated annual return to the extra costs of six years of education beyond the primary level. This rate, as well as others in the table, are real rates, already adjusted for inflation. Clearly. senior secondary education is a good investment. (Clark, 1983, p. 47).

However, Clark questioned the type of secondary school which should be expanded:

Table 7.20 contains rates of return to academic (SMA) and "vocational" senior secondary education. The returns are higher for academic graduates. These figures aggregate all secondary graduates working in urban areas of Indonesia and the "vocational" results are for all types of specialized schools and for different regions. The best job record was among SPG graduates for reasons described earlier. In Jakarta, STM graduates had a substantially better record than those from SMA: a higher proportion were working and at higher rates of pay. In other parts of Java, SMEA graduates had the highest proportion working but the earnings of the three types of schools were about the same. Outside Java, SMA graduates had the best record: more were working and at higher rates of pay than other graduates.

The rates of return point to academic (SMA) senior secondary education as the better investment, even if one

takes into account the finding that graduates from some vocational schools get jobs more quickly and thus have shorter waiting times. The tracer study data, however, show that in some locations graduates from one type of school are earning substantially more than academic graduates. Together these two sets of figures indicate that academic education overall is the best investment but there are probably locations where one (or more) of the specialized schools deserves an even higher priority. (p. 48)

7.3.5.2 Internal Efficiency

The vocational/technical education system is composed of inputs of physical facilities, tools and equipment, instructional materials, the curricula, examinations, teachers, supervisors, and administrators. Internal efficiency measures how well these various inputs work together to recruit, enroll, and graduate students to a specified standard. A basic key indicator of strength or weakness in an educational system is the number of students who pass the examination at the end of their program.

Tables 7.21, 7.22, 7.23, 7.24, 7.25 show, by type of school and province, the student enrollment in the last year of the program, students who were retained or dropped-out, and the total number of students who successfully completed the program in STs, SKKPs, SMT/STMs, SMEAs, and SMKKs.

Student attrition (repetition, dropout, and noncompletion) in the third year of junior or senior secondary vocational or technical school varies from 7% in SMEAs to 30% in SMKKs. In the STs, 18,331 students of

TABLE 7.21

PUBLIC AND PRIVATE
TOTAL ENROLLMENT IN GRADE III, GRADUATES, DROPOUTS
AND THOSE STUDENTS WHO ARE REPEATERS IN
ST's BY PROVINCE 1983/84 AND 1984/85

NO.	PROVINCE	ENROLLMENTS GRADE 3		REPEATERS Grade 3		GRADUATES	NONCOMPLETED DROPOUTS AND FAILURES	PERCENTAGE GRADUATES	
		1983/84	1984/85	1984/85	1983/84	1983/84	1983/84	1983/84	1984/85
1.	DKI JAKARTA RAYA	957	1.062	3	5	624			
2.	WEST JAVA	2,911	2.720	16	15	2.598			
3.	CENTRAL JAVA	5,161	5.128	79	39	5.035			
4.	DI YOGYAKARTA	164	164	7	2	162			
5.	EAST JAVA	5.036	4.513	76	69	4.073			
6.	DI ACEH	230	271	2	2	209			
7.	NORTH SUMATRA	1.320	1.257	36	42	1.172			
8.	WEST SUMATRA	547	612	36	4	524			
9.	RIAU	106	111	2	2	105			
10.	JAMBI	75	63	-	3	67			
11.	SOUTH SUMATRA	668	602	26	34	555			
12.	LAMPUNG	112	155	-	1	105			
13.	WEST KALIMANTAN	131	121	-	-	101			
14.	CENTRAL KALIMANTAN	65	117	-	2	80			
15.	SOUTH KALIMANTAN	66	34	-	2	62			
16.	EAST KALIMANTAN	224	290	3	4	208			
17.	NORTH SULAWESI	284	255	2	4	263			
18.	CENTRAL SULAWESI	304	337	4	3	292			
19.	SOUTH SULAWESI	695	714	2	2	657			
20.	SOUTHEAST SULAWESI	-	-	-	-	0			
21.	MALUKU	818	745	21	38	693			
22.	BALI	148	179	2	-	145			
23.	WEST NUSA TENGGARA	63	87	1	-	61			
24.	EAST NUSA TENGGARA	456	593	38	30	367			
25.	IRIAN JAYA	48	64	4	2	31			
26.	BENGKULU	137	134	3	5	127			
27.	EAST TIMOR	16	21	-	-	15			
***	INDONESIA	20.752	20.349	333	310	18.331	2.088		88%

TABLE 7.22

PUBLIC AND PRIVATE
TOTAL ENROLLMENT IN GRADE III, GRADUATES, DROPOUTS
AND THOSE STUDENTS WHO ARE REPEATERS IN
SKKPs BY PROVINCE 1983/84 AND 1984/85

NO.	PROVINCE	ENROLLMENTS GRADE 3		REPEATERS Grade 3		GRADUATES	NONCOMPLETED DROPOUTS AND FAILURES	PERCENTAGE GRADUATES	
		1983/84	1984/85	1984/85	1983/84	1983/84	1983/84	1983/84	1984/85
1.	DKI JAKARTA RAYA	130	100	-	-	117			
2.	WEST JAVA	475	608	2	2	438			
3.	CENTRAL JAVA	321	233	-	1	206			
4.	DI YOGYAKARTA	103	109	9	8	89			
5.	EAST JAVA	521	733	19	6	485			
6.	DI ACEH	103	129	2	-	78			
7.	NORTH SUMATRA	337	362	1	4	939			
8.	WEST SUMATRA	143	207	1	2	129			
9.	RIAU	-	-	-	-	0			
10.	JAMBI	8	7	-	-	15			
11.	SOUTH SUMATRA	-	-	-	-	0			
12.	LAMPUNG	22	27	-	-	21			
13.	WEST KALIMANTAN	-	-	-	-	0			
14.	CENTRAL KALIMANTAN	7	48	-	-	7			
15.	SOUTH KALIMANTAN	-	-	-	-	0			
16.	EAST KALIMANTAN	38	22	-	-	32			
17.	NORTH SULAWESI	46	51	2	-	43			
18.	CENTRAL SULAWESI	106	111	6	1	107			
19.	SOUTH SULAWESI	132	187	3	4	122			
20.	SOUTHEAST SULAWESI	-	-	-	-	0			
21.	MALUKU	153	207	2	7	140			
22.	BALI	-	-	-	-	0			
23.	WEST NUSA TENGGARA	-	-	-	-	0			
24.	EAST NUSA TENGGARA	136	171	4	4	129			
25.	IRIAN JAYA	45	50	-	1	49			
26.	BENGKULU	24	25	1	-	17			
27.	EAST TIMOR	-	-	-	-	0			
***	INDONESIA	2.910	3.387	52	40	2.563	295	88%	

TABLE 7.23

PUBLIC AND PRIVATE
TOTAL ENROLLMENT IN GRADE III, GRADUATES, DROPOUTS
AND THOSE STUDENTS WHO ARE REPEATERS IN
STM/STMs BY PROVINCE 1983/84 AND 1984/85

NO.	PROVINCE	ENROLLMENTS GRADE 3		REPEATERS Grade 3		GRADUATES	NONCOMPLETED DROPOUTS AND FAILURES	PERCENTAGE GRADUATES	
		1983/84	1984/85	1984/85	1983/84	1983/84	1983/84	1983/84	1984/85
1.	DKI JAKARTA RAYA	6,475	6,861	27	30	6,258			
2.	WEST JAVA	9,716	9,029	70	36	6,568			
3.	CENTRAL JAVA	16,894	14,853	387	347	14,054			
4.	DI YOGYAKARTA	3,688	3,463	63	70	3,465			
5.	EAST JAVA	13,824	13,680	263	219	11,896			
6.	DI ACEH	860	714	20	16	681			
7.	NORTH SUMATRA	6,055	5,770	249	467	5,334			
8.	WEST SUMATRA	2,710	2,821	22	50	2,457			
9.	RIAU	711	792	7	21	681			
10.	JAMBI	420	528	2	8	417			
11.	SOUTH SUMATRA	2,317	2,439	111	153	2,125			
12.	LAMPUNG	1,020	749	24	1	615			
13.	WEST KALIMANTAN	380	393	2	5	405			
14.	CENTRAL KALIMANTAN	248	238	3	7	252			
15.	SOUTH KALIMANTAN	742	777	32	22	470			
16.	EAST KALIMANTAN	694	546	83	52	420			
17.	NORTH SULAWESI	675	641	34	8	628			
18.	CENTRAL SULAWESI	392	493	24	9	420			
19.	SOUTH SULAWESI	1,493	1,571	31	31	1,328			
20.	SOUTHEAST SULAWESI	463	489	9	6	452			
21.	MALUKU	947	865	81	84	852			
22.	BALI	1,125	862	4	8	808			
23.	WEST NUSA TENGGARA	338	408	9	5	264			
24.	EAST NUSA TENGGARA	767	861	79	108	494			
25.	IRIAN JAYA	276	510	17	68	334			
26.	BENGKULU	402	290	30	12	326			
27.	EAST TIMOR	-	-	-	-	0			
***	INDONESIA	73,640	80,994	1,683	1,843	62,004	9,953		84%

TABLE 7.24

PUBLIC AND PRIVATE
TOTAL ENROLLMENT IN GRADE III, GRADUATES, DROPOUTS
AND THOSE STUDENTS WHO ARE REPEATERS IN
SMEAs BY PROVINCE 1983/84

NO.	PROVINCE	ENROLLMENTS GRADE 3		REPEATERS Grade 3		GRADUATES	NONCOMPLETED DROPOUTS AND FAILURES	PERCENTAGE GRADUATES	
		1983/84	1984/85	1984/85	1983/84	1983/84	1983/84	1983/84	1984/85
1.	DKI JAKARTA RAYA	9,752	10.042	45	34	8.808			
2.	WEST JAVA	10.274	9,973	23	24	9,819			
3.	CENTRAL JAVA	17,212	17,793	321	347	16,075			
4.	DI YOGYAKARTA	4,327	4,161	69	76	4,135			
5.	EAST JAVA	15,032	15.587	221	305	14,687			
6.	DI ACEH	1.383	1.724	20	49	1,286			
7.	NORTH SUMATRA	5.290	5.302	183	259	4,483			
8.	WEST SUMATRA	2.544	2.941	68	59	2,462			
9.	RIAU	1.415	1.438	125	118	1.233			
10.	JAMBI	864	971	4	22	867			
11.	SOUTH SUMATRA	1,822	2.162	44	63	1.675			
12.	LAMPUNG	1,049	1,156	2	6	1,016			
13.	WEST KALIMANTAN	771	864	11	9	735			
14.	CENTRAL KALIMANTAN	1,222	1.364	22	51	991			
15.	SOUTH KALIMANTAN	1.846	1.579	66	48	1,551			
16.	EAST KALIMANTAN	1.346	1.361	38	43	1,066			
17.	NORTH SULAWESI	1.589	1.148	16	21	1.487			
18.	CENTRAL SULAWESI	725	844	30	15	669			
19.	SOUTH SULAWESI	3.583	4.107	64	40	3.486			
20.	SOUTHEAST SULAWESI	551	565	17	10	518			
21.	MALUKU	1.172	1.035	55	87	790			
22.	BALI	1,186	1.326	5	5	1,150			
23.	WEST NUSA TENGGARA	729	833	5	17	680			
24.	EAST NUSA TENGGARA	1,097	1.506	105	104	867			
25.	IRIAN JAYA	805	806	53	42	718			
26.	BENGKULU	568	598	7	10	543			
27.	EAST TIMOR	92	338	-	7	172			
***	INDONESIA	88.246	91.524	1.519	1.948	81.969	4.758	93%	

TABLE 7.25

PUBLIC AND PRIVATE
TOTAL ENROLLMENT IN GRADE III, GRADUATES, DROPOUTS
AND THOSE STUDENTS WHO ARE REPEATERS IN
SMKKs BY PROVINCE 1983/84

NO.	PROVINCE	ENROLLMENTS GRADE 3		REPEATERS Grade 3		GRADUATES	NONCOMPLETED DROPOUTS AND FAILURES	PERCENTAGE GRADUATES	
		1983/84	1984/85	1984/85	1983/84	1983/84	1983/84	1983/84	1984/85
1.	DKI JAKARTA RAYA	432	466	5	6	465			
2.	WEST JAVA	807	827	4	3	860			
3.	CENTRAL JAVA	1.194	1,034	19	14	1,031			
4.	DI YOGYAKARTA	350	368	-	5	308			
5.	EAST JAVA	957	1,050	15	6	905			
6.	DI ACEH	96	73	-	2	89			
7.	NORTH SUMATRA	326	276	8	16	283			
8.	WEST SUMATRA	147	126	-	5	123			
9.	RIAU	96	63	-	4	85			
10.	JAMBI	70	43	1	1	63			
11.	SOUTH SUMATRA	128	124	1	2	120			
12.	LAMPUNG	51	40	2	4	45			
13.	WEST KALIMANTAN	85	65	-	-	45			
14.	CENTRAL KALIMANTAN	109	73	-	-	108			
15.	SOUTH KALIMANTAN	78	48	3	-	89			
16.	EAST KALIMANTAN	50	40	1	-	39			
17.	NORTH SULAWESI	232	163	1	2	242			
18.	CENTRAL SULAWESI	70	84	1	-	63			
19.	SOUTH SULAWESI	294	278	12	5	314			
20.	SOUTHEAST SULAWESI	72	60	-	-	67			
21.	MALUKU	50	80	1	1	45			
22.	BALI	99	160	-	-	95			
23.	WEST NUSA TENGGARA	38	29	-	5	31			
24.	EAST NUSA TENGGARA	126	134	19	1	115			
25.	IRIAN JAYA	25	23	2	-	23			
26.	BENGKULU	38	53	3	-	36			
27.	EAST TIMOR	-	-	-	-	0			
***	INDONESIA	8,070	5,780	97	82	5,689	2,284	70%	

20,752 received a certificate, for a graduation rate of 88%. In the SKKPs the rate was also 88%. In SMT/STM, it was 84%; 93% in SMEAs and 70% in SMKKs.

Generally, the graduation rates are good. However, high internal efficiency (per student cost per year) which is obtained through low teacher salaries, poorly equipped laboratories, inappropriate curricula for the world of work, or unrealistic standards, is not a desirable outcome. Graduates who leave school with inadequate training must be retrained later, by another government agency (Ministry of Manpower perhaps), the employer, or a private institution. If this occurs, the earlier training is mostly wasted.

Table 7.26 presents attrition analysis for various vocational/ technical programs for a cohort who began in 1982/83 and graduated in 1984/85. In public and private schools the attrition rate was 23%. SMKK/SKKAs had the highest attrition rate of 26%; SMT/STMs averaged 20%, and the SMEAs were lowest with an attrition rate of 11%.

It is interesting to note that, with the exception of the SMKK/SKKAs, the attrition in private schools is lower than that in public schools. If operation costs - facilities, teacher salaries, materials, etc. - in private schools are comparable or lower than those in public schools, private schools appear to be more efficient than public vocational/technical schools.

The data, when gathered only by type of school and for the nation as a whole, mask regional differences which are very important. For example, in the STMs in Jakarta, the attrition rate is nearly 50%, contrasted with the national rate of 17%. An in-depth examination of

TABLE 7.26
STUDENT ATTRITION BY SCHOOL TYPE

Acronym	School Type	Enrollment 1982/83	1983/84	1984/85	Attrition	%
SKKP	Junior Secondary School of Home Economics					
	Public	data unavailable	3,151	2,831	320	
	Private	"	599	556	43	
	Public and Private	"	3,750	3,387	363	
ST	Junior Technical Secondary School					
	Public	23,512	19,899	18,066	5,446	23
	Private	2,929	3,125	2,283	646	22
	Public and Private	26,441	23,024	20,349	6,092	23
SMKK/ SKKA	Senior Secondary School of Home Economics					
	Public	6,209	4,925	4,552	1,657	27
	Private	1,696	1,385	1,228	468	28
	Public and Private	7,905	6,310	5,780	2,125	27
SMT/STM	Technical Senior Secondary School					
	Public	36,433	32,040	27,340	9,093	25
	Private	48,846	44,053	43,303	5,543	90
	Public and Private	85,279	76,093	70,643	14,636	17
SMEA	Economic Senior Secondary School					
	Public	54,466	49,971	47,895	6,571	12
	Private	48,906	45,760	43,629	5,277	11
	Public and Private	103,372	95,731	91,524	11,848	11

regional differences in attrition, was beyond the scope of this review, but it is important that this be investigated further.

7.3.5.3 Access and Equity

The ability of the government to provide access to vocational/ technical programs for all potential entrants is severely restricted by the size and dispersion of the system. Providing access to education services to every student throughout 13,000 islands covering two million square Km is a giant task. There is difficulty in communicating with the out islands; transportation over such great distances is a hindrance, and the people in remote areas are often less fluent in the Indonesian language. Tables 7.27 through 7.30 show that although vocational/technical schools are widely dispersed, access to a school is still limited in some areas. The choice of a vocational/ technical program for a potential student is further limited to the particular fields of study offered by the school nearest to him.

Although vocational/technical education is considered by most students to be a less desirable option than general secondary education, there are still many more applicants in all types of schools than can be accepted. This is especially true in the public schools. Access is limited to those who are the brightest and score the highest on the national examinations. Overall, only 38% of those who apply are accepted. An average student from a lower income family faces a dilemma. If he cannot gain admittance to a public school, his only other option is a private one. Unfortunately, if his family income is low, he cannot afford to attend a private school and he joins the ranks of the unskilled and unemployed. As is true in almost any country,

TABLE 7.27

NUMBER OF PUBLIC AND PRIVATE SCHOOLS
BY PROVINCE

3.072. JAKARTA

Type	Public	Private	Total
SKKP	1	2	3
ST	4	11	15
SMEA	30	63	93
SMKK/SKKA, SMTK	8	6	14
STM/SMT	10	61	71
SMIK/SMKI, SMM/SMSR	–	–	–
SMPS	1	2	3
TOTAL :	54	145	199

1075. CENTRAL JAVA

Type	Public	Private	Total
SKKP	4	2	6
ST	48	1	49
SMEA	38	104	142
SMKK/SKKA, SMTK	9	9	18
STM/SMT	28	121	149
SMIK/SMKI, SMM/SMSR	2	1	3
SMPS	2	–	2
TOTAL :	131	238	369

11046. EAST JAVA

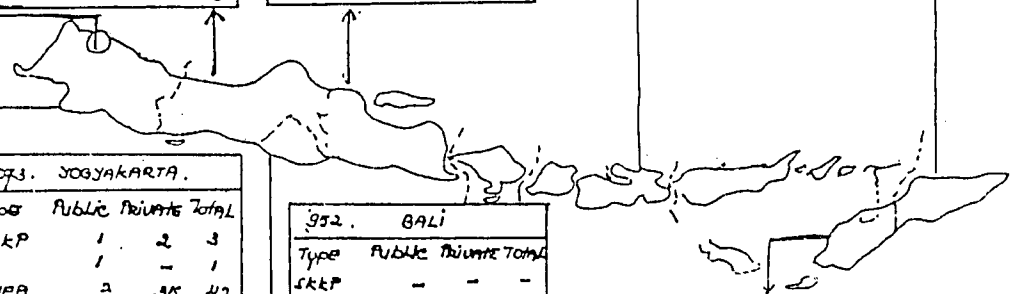
Type	Public	Private	Total
SKKP	16	3	19
ST	37	16	53
SMEA	28	121	149
SMKK/SKKA, SMTK	13	6	19
STM/SMT	23	117	140
SMIK/SMKI, SMM/SMSR	2	–	2
SMPS	1	3	4
TOTAL :	120	266	386

510. W. NUSA TENGGARA

Type	Public	Private	Total
SKKP	–	–	–
ST	1	–	1
SMEA	5	2	7
SMKK/SKKA, SMTK	2	–	2
STM/SMT	1	1	2
SMIK/SMKI, SMM/SMSR	–	–	–
SMPS	–	1	1
TOTAL :	9	4	13

119. EAST TIMOR.

Type	Public	Private	Total
SKKP	–	–	–
ST	–	1	1
SMEA	1	–	1
SMKK/SKKA, SMTK	–	–	–
STM/SMT	–	1	1
SMIK/SMKI, SMM/SMSR	–	–	–
SMPS	–	–	–
TOTAL :	1	2	3



3774. WEST JAVA

Type	Public	Private	Total
SKKP	13	3	16
ST	34	1	35
SMEA	23	69	92
SMKK/SKKA, SMTK	8	8	16
STM/SMT	26	62	88
SMIK/SMKI, SMM/SMSR	2	–	2
SMPS	–	–	–
TOTAL :	106	143	249

2073. JOGYAKARTA.

Type	Public	Private	Total
SKKP	1	2	3
ST	1	–	1
SMEA	7	35	42
SMKK/SKKA, SMTK	4	4	8
STM/SMT	8	27	35
SMIK/SMKI, SMM/SMSR	4	–	4
SMPS	–	1	1
TOTAL :	25	69	94

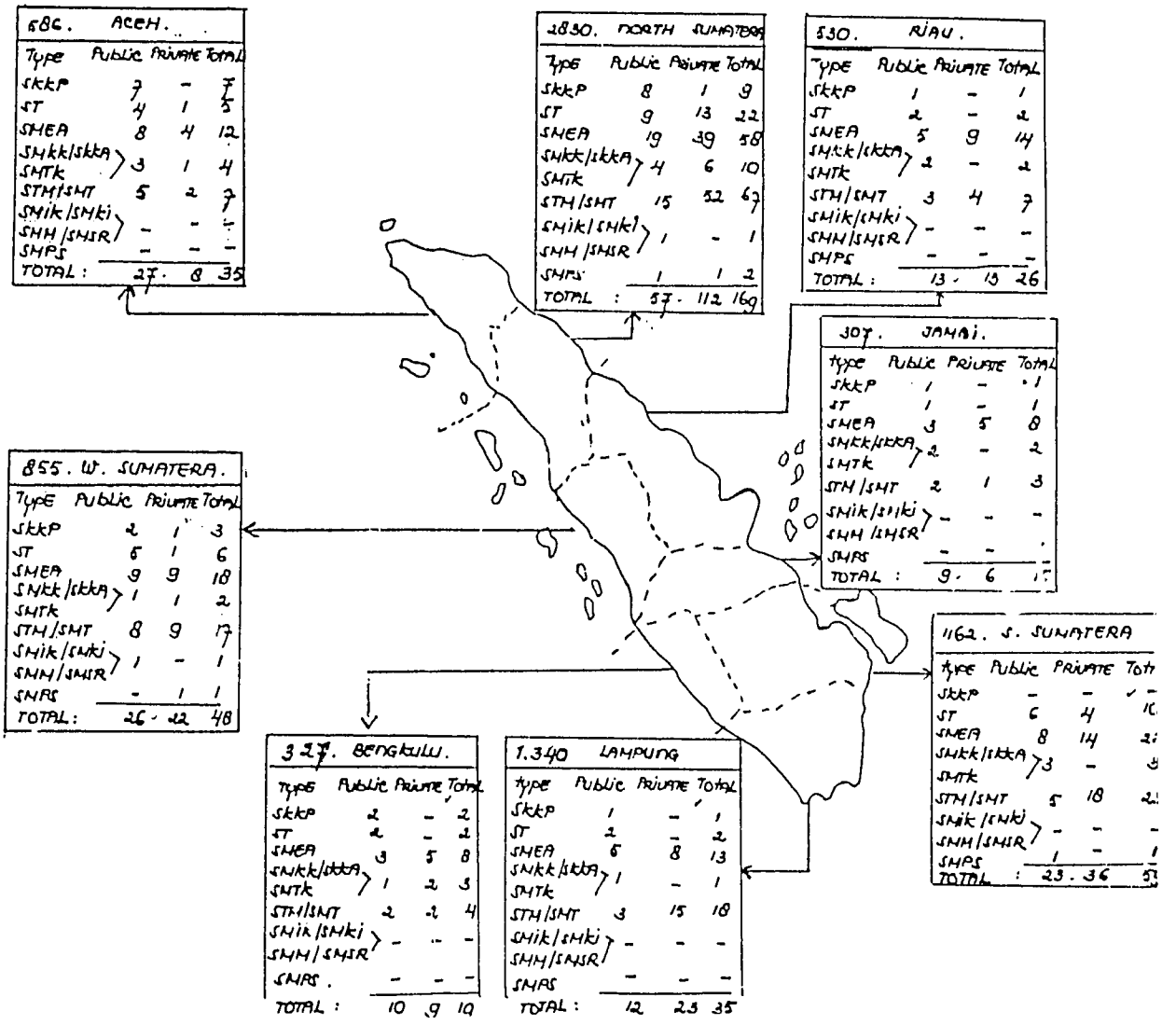
952. BALI

Type	Public	Private	Total
SKKP	–	–	–
ST	1	1	2
SMEA	7	8	15
SMKK/SKKA, SMTK	3	1	4
STM/SMT	2	15	17
SMIK/SMKI, SMM/SMSR	3	–	3
SMPS	–	–	–
TOTAL :	16	25	41

2431. E. NUSA TENGGARA

Type	Public	Private	Total
SKKP	3	2	5
ST	4	4	8
SMEA	6	13	19
SMKK/SKKA, SMTK	1	–	1
STM/SMT	2	8	10
SMIK/SMKI, SMM/SMSR	–	–	–
SMPS	–	1	1
TOTAL :	16	28	44

TABLE 7.28



586. ACEH.

Type	Public	Private	Total
SKKP	7	-	7
ST	4	1	5
SMEA	8	4	12
SMKK/SKKA, SMTK	3	1	4
STM/SMT	5	2	7
SMIK/SMKI, SMM/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	27	8	35

2830. NORTH SUMATERA

Type	Public	Private	Total
SKKP	8	1	9
ST	9	13	22
SMEA	19	39	58
SMKK/SKKA, SMTK	4	6	10
STM/SMT	15	52	67
SMIK/SMKI, SMM/SMSR	1	-	1
SMPS	1	1	2
TOTAL :	57	112	169

530. RIAU.

Type	Public	Private	Total
SKKP	1	-	1
ST	2	-	2
SMEA	5	9	14
SMKK/SKKA, SMTK	2	-	2
STM/SMT	3	4	7
SMIK/SMKI, SMM/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	13	13	26

307. JAMBI.

Type	Public	Private	Total
SKKP	1	-	1
ST	1	-	1
SMEA	3	5	8
SMKK/SKKA, SMTK	2	-	2
STM/SMT	2	1	3
SMIK/SMKI, SMM/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	9	6	15

855. W. SUMATERA.

Type	Public	Private	Total
SKKP	2	1	3
ST	5	1	6
SMEA	9	9	18
SMKK/SKKA, SMTK	1	1	2
STM/SMT	8	9	17
SMIK/SMKI, SMM/SMSR	1	-	1
SMPS	-	1	1
TOTAL :	26	22	48

1162. S. SUMATERA

Type	Public	Private	Total
SKKP	-	-	-
ST	6	4	10
SMEA	8	14	22
SMKK/SKKA, SMTK	3	-	3
STM/SMT	5	18	23
SMIK/SMKI, SMM/SMSR	-	-	-
SMPS	1	-	1
TOTAL :	23	36	59

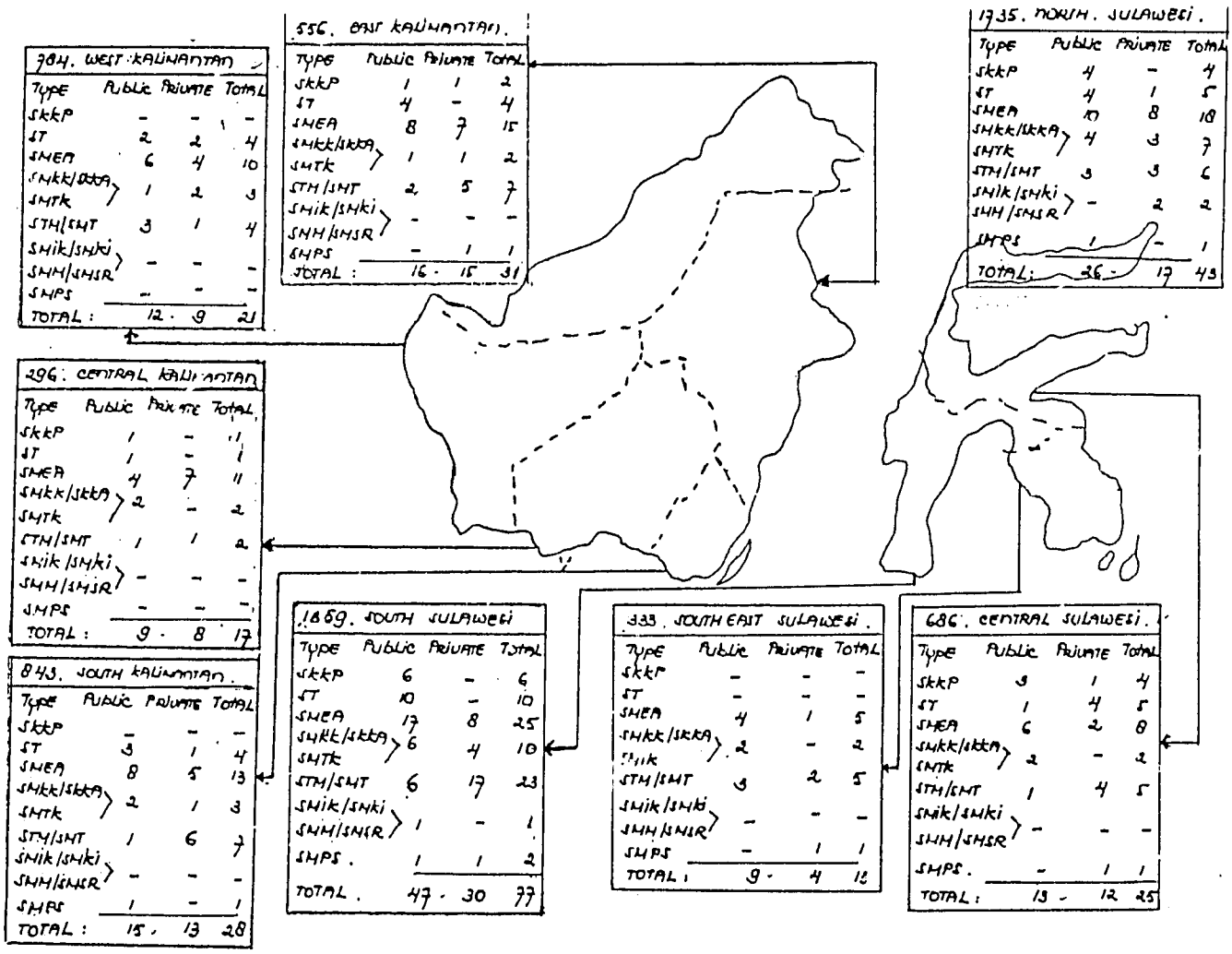
327. BENGKULU.

Type	Public	Private	Total
SKKP	2	-	2
ST	2	-	2
SMEA	3	5	8
SMKK/SKKA, SMTK	1	2	3
STM/SMT	2	2	4
SMIK/SMKI, SMM/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	10	9	19

1.340 LAMPUNG

Type	Public	Private	Total
SKKP	1	-	1
ST	2	-	2
SMEA	5	8	13
SMKK/SKKA, SMTK	1	-	1
STM/SMT	3	15	18
SMIK/SMKI, SMM/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	12	23	35

TABLE 7.29



784. WEST KALIMANTAN

Type	Public	Private	Total
SKKP	-	-	-
ST	2	2	4
SMEA	6	4	10
SMKK/SKKA, SMTK	1	2	3
STM/SMT	3	1	4
SMIK/SMKI, SMH/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	12	9	21

556. EAST KALIMANTAN.

Type	Public	Private	Total
SKKP	1	1	2
ST	4	-	4
SMEA	8	7	15
SMKK/SKKA, SMTK	1	1	2
STM/SMT	2	5	7
SMIK/SMKI, SMH/SMSR	-	-	-
SMPS	-	1	1
TOTAL :	16	15	31

1735. NORTH. SULAWESI.

Type	Public	Private	Total
SKKP	4	-	4
ST	4	1	5
SMEA	10	8	18
SMKK/SKKA, SMTK	4	3	7
STM/SMT	3	3	6
SMIK/SMKI, SMH/SMSR	-	2	2
SMPS	1	-	1
TOTAL :	26	17	43

296. CENTRAL KALIMANTAN

Type	Public	Private	Total
SKKP	1	-	1
ST	1	-	1
SMEA	4	7	11
SMKK/SKKA, SMTK	2	-	2
STM/SMT	1	1	2
SMIK/SMKI, SMH/SMSR	-	-	-
SMPS	-	-	-
TOTAL :	9	8	17

843. SOUTH KALIMANTAN.

Type	Public	Private	Total
SKKP	-	-	-
ST	3	1	4
SMEA	8	5	13
SMKK/SKKA, SMTK	2	1	3
STM/SMT	1	6	7
SMIK/SMKI, SMH/SMSR	-	-	-
SMPS	1	-	1
TOTAL :	15	13	28

1859. SOUTH SULAWESI

Type	Public	Private	Total
SKKP	6	-	6
ST	10	-	10
SMEA	17	8	25
SMKK/SKKA, SMTK	6	4	10
STM/SMT	6	17	23
SMIK/SMKI, SMH/SMSR	1	-	1
SMPS.	1	1	2
TOTAL.	47	30	77

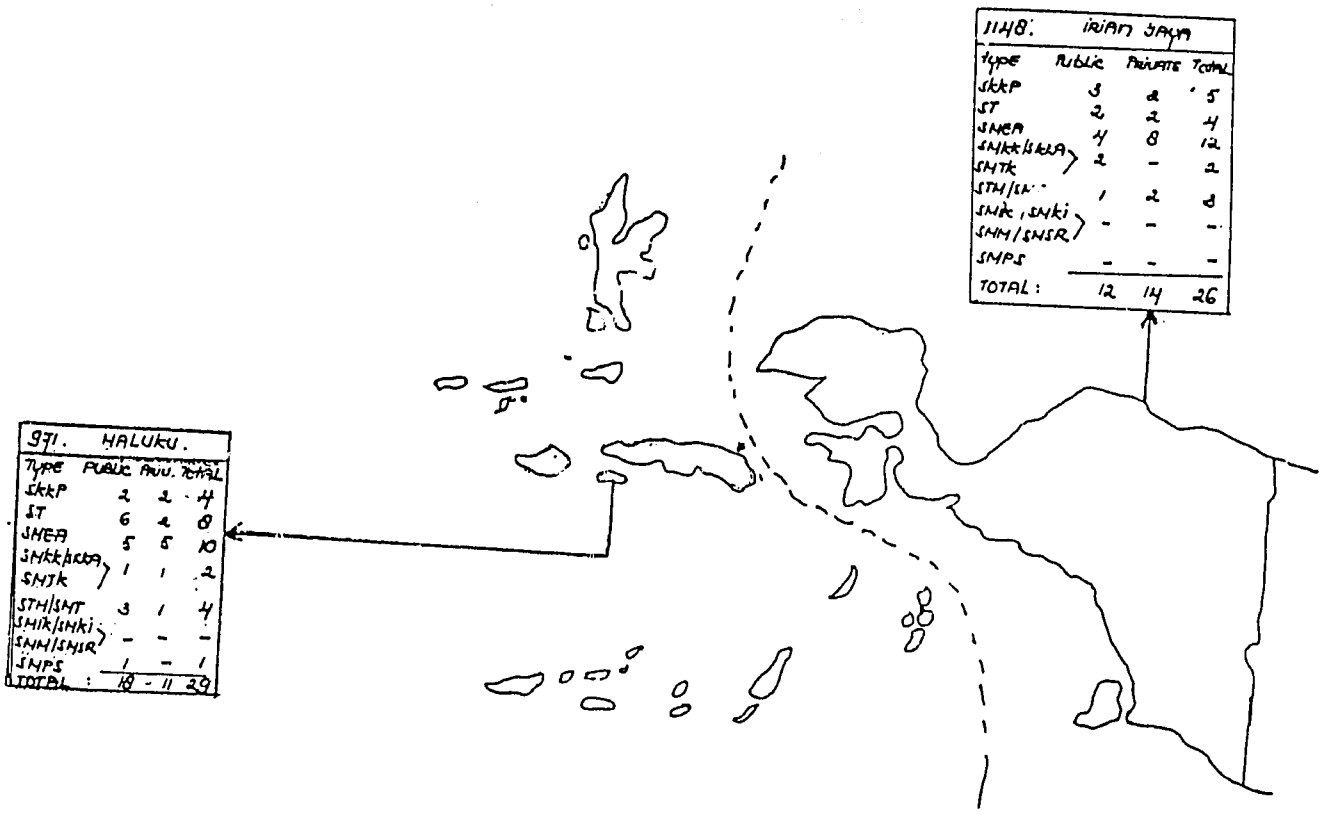
333. SOUTH EAST SULAWESI.

Type	Public	Private	Total
SKKP	-	-	-
ST	-	-	-
SMEA	4	1	5
SMKK/SKKA, SMTK	2	-	2
STM/SMT	3	2	5
SMIK/SMKI, SMH/SMSR	-	-	-
SMPS	-	1	1
TOTAL :	9	4	13

686. CENTRAL SULAWESI.

Type	Public	Private	Total
SKKP	3	1	4
ST	1	4	5
SMEA	6	2	8
SMKK/SKKA, SMTK	2	-	2
STM/SMT	1	4	5
SMIK/SMKI, SMH/SMSR	-	-	-
SMPS.	-	1	1
TOTAL :	13	12	25

TABLE 7.30


1148. IRIAN JAYA
Type Public Private Total
SKKP 3 2 5
ST 2 2 4
SMEA 4 8 12
SMKK/SKKA 2 - 2
SMTK
STM/SMT 1 2 3
SMK, SMKI - - -
SMM/SMSR
SMPS - - -
TOTAL : 12 14 26
971. HALUKU.
Type Public Priv. Total
SKKP 2 2 4
ST 6 2 8
SMEA 5 5 10
SMKK/SKKA 1 1 2
SMTK
STM/SMT 3 1 4
SMK/SMKI - - -
SMM/SMSR
SMPS 1 - 1
TOTAL : 18 11 29

economic factors control inequalities of access and the ability to stay in school.

In 1984/85 females made up 93.8% of the enrollment in SKKPs, 94% of the enrollment in the SMKK/SKKA school, and 60.8% of that in the SMEAs. However, only .026% of the SMT/STM students and only 0.24% of the ST students were females. Table 7.31 shows female students as a percentage of total enrollment by school for 1984/85.

Of the total 722,735 students in SKKP (Junior Home economics), STs (junior technical secondary), SMKK/SKKAs (senior home economics), SMT/SMTs (senior technical), and SMEAs (economic senior secondary), 253,294 were girls. Although this female enrollment is not half the total overall, it involves overrepresentation of females in home economics schools and underrepresentation in technical schools. In the home economics areas, girls account for approximately 95% of the total students, while in the technical areas they represent only 3% of the total. The only program in which the number of girls and boys approaches equality is the SMEAs (economics senior secondary) where girls are in a slight majority at 61%.

There is no evidence that this imbalance is due to any systematic discrimination against females (USAID, Strategy Statement for Education, 1982). "A majority of the people of Indonesia are Muslim, and there is a strong tradition that encourages females to stay out of the marketplace and to give their attention to homemaking and other activities considered traditionally feminine. The school system reflects this cultural preference."

TABLE 7.31

NUMBER OF FEMALES BY TYPES OF SCHOOLS

Acronym	Type of School	Total Enrollment	Total Females	% of Females
SKKP	Junior Sec. School of Home Economics			
	Public	11,754	10,918	93%
	Private	1,903	1,894	99%
	Public and Private	13,657	12,812	94%
ST	Junior Tech. Sec. School			
	Public	65,943	1,601	03%
	Private	7,626	227	03%
	Public and Private	73,569	1,828	02%
SMKKK/SKKA	Senior Sec. School of Home Econ.			
	Public	19,417	18,649	96%
	Private	4,756	4,735	99%
	Public and Private	24,756	23,384	94%
SMT/STM	Technical Senior Secondary School			
	Public	96,681	2,735	03%
	Private	172,185	4,510	03%
	Public and Private	268,866	7,245	03%
SMEA	Economic Senior Sec. School			
	Public	168,836	99,067	59%
	Private	173,051	108,958	63%
	Public and Private	341,887	208,025	61%

7.3.5.4 Administration and Supervision

The Ministry of Education administers the vocational/technical schools through the Directorate of Vocational/Technical Education, a division of the Directorate General of Primary and Secondary Education. Key policy decisions are made at the level of the Directorate General of Primary and Secondary Education. The Directorate General for Vocational/ Technical Education makes recommendations for operational change, but lacks the authority to implement them through his office. The major responsibilities of the Directorate of Vocational/Technical Education include the following:

1. advising the Curriculum Development Center on development of vocational/technical curriculum;
2. working with the provincial offices to improve instruction through the upgrading of teacher competence in training centers or through short programs;
3. advising on instructional materials and instructional methodology;
4. performing the yearly planning function; and
5. recommending policy to the Director General for Primary and Secondary Education.

A major constraint effecting planning and administration has been a lack of timely and useful data. The data available to the vocational/ technical education planners are limited, of questionable accuracy, and not presented in a manner easily used. For example, in order to get attrition rates for a cohort of students, an educational statistics user must consult the book of educational statistics for three consecutive

years, looking in several separate tables in each book for the enrollment figures needed to make the computations. Each educational planner makes his/her own computations if this information is required. Extracting such data takes a great deal of time, especially if they are needed for several types of schools in a number of provinces. When each user computes their own figures the chance of the results being different increases. The various types of data required to make sound educational decisions may exist, scattered through a number of offices; but the difficulty in locating them at the national office level severely reduces their utility.

In addition, the planning documents outlining the government stipulated expansion of vocational/technical education do not specify in detail how this expansion is to be implemented over the next five years. Planning for vocational/technical education programs is different from planning for general academic education where common needs are shared by the population at large. Occupational job training requires much more variation among programs, and specificity within course offerings. There is a great deal of difference among machine trades, food preparation, and bookkeeping. Each has a unique purpose to satisfy. The planned doubling of enrollment of all types of schools may help to satisfy social demand, but a doubling of students across the board in all programs will not address real manpower needs. Much more focused planning is necessary, based upon accurate projections of manpower requirements. Also, strategies must be devised to meet the requirements for new teachers, to decide what types of programs should be offered in which province, etc. As mentioned, these plans may be detailed by the

person responsible for implementing a specific phase, but an articulated document with a rationale for actions, implementation strategies, and a process to monitor progress is yet to be developed. Other areas where improved data gathering would assist planning administration and supervision are the follow-up of graduates and cost data.

A gap evidently exists between the expected performance of a new employee at a specific job, and the capabilities of the graduate from a vocational/technical program. This gap is evident in the perspective of the interviewers contacted and the appraisal reports that were reviewed. The gap places the external efficiency of the whole program in question. If it is wide and encompasses all types of programs, severe waste of resources can occur. No tracer studies of graduates, other than the two referenced in the external efficiency section, were located. The two studies that were found showed conflicting results and indicates that more follow-up study is required. Very little is known about what happens to a graduate after he leaves a program in vocational/technical education. There are virtually no formalized requirements for schools to follow-up their students after graduation. Recently, a government decree announced that a school should do as much as possible to account for its alumni. However, no help in implementing such data gathering activity has been provided by the government, such as workshops to provide administrators with information about what is required or how to gather the information, and no additional funds have been supplied to perform this activity.

Few data are available on the costs of training students in a vocational/technical program. If the government's goal of doubling the

enrollment in these programs is to be realized by 1989, cost data must be available to determine the most cost-effective means of providing the required vocational/technical training.

7.3.5.5 Cost and Financing

7.3.5.5.1 Financing of Vocational/Technical Education

The GOI finances nearly all expenditures on public vocational/technical schools. The budget is divided into development and routine funding similar to capital and recurrent budgets. The development budget is used for non-recurrent expenses, such as projects to expand or build new schools and purchase new equipment, replacement of existing facilities and equipment, or one-time quality improvements. The routine budget finances teachers' salaries, maintenance of tools and equipment, supplies, and other expenses which occur regularly. Table 7.32 presents the routine and development budgets for the Directorate of Vocational/Technical Education over the last six years. It also shows donor grants and loans for this period.

The money is disbursed from the GOI through local, regional, and provincial governments. These government sectors provide limited funds of their own, most of which are usually directed toward development projects.

The most notable trait of the financing system for vocational/technical training programs in Indonesia is the system's complexity.

The World Bank Appraisal report of July, 1985, Annex 5.4, stated that information regarding training costs in Indonesia is very limited and difficult to obtain.

TABLE 7.32

DIRECTORATE OF VOCATIONAL/TECHNICAL EDUCATION
BUDGET DIVIDED INTO ROUTINE AND DEVELOPMENT ITEMS
AND SHOWING VALUE OF DONOR PROJECTS
FROM 1979/80 TO 1984/85
(All Amounts in Dollars)

PELITA III				
Organization of funds	1979/1980	1980/1981	1981/1982	1982/1983
Routine	26,592,804	28,509,199	29,617,989	35,608,233
Development	17,574,786	57,278,351	34,805,009	47,794,932
TOTAL	44,167,590	57,278,351	64,422,958	83,403,165

Foreign Assistance

Loan	$45,982,000 US	26,392,000 US	12,419,354 BF	40,000,000 UD
	8,500,000 NFL			7,928,571 A
Grant	5,417,875 A			

1. NFL Netherlands
2. US United States
3. FFr French
4. AS Australia
5. BF Belgium

The complexity of budgeting procedures makes it virtually impossible to identify and attribute capital and current costs of particular activities, with comprehensive coverage, from records of government expenditure.

Salaries for school personnel account for about 90% of the government's routine budget and exemplifies the complexity of the process; however, basic salaries are so low that most teachers find it necessary to seek additional income. Schools often find it necessary to supplement teachers' salaries. All these factors make the computation of teachers' salaries very difficult as they are a complicated blend of a basic pay scales and different types of allowances based on local and regional incentives and additional payments, such as overtime and honoraria. According to the World Bank, the only way of providing reasonably accurate data on costs is to conduct micro-studies of an educational institution, starting at the local level and itemizing and identifying each factor.

The total budget of the Directorate of Vocational/Technical Education for 1984/1985 was Rp.56 billion, divided into Rp.97 million for development, and routine expenditures of Rp.42 million.

7.3.5.5.2 Analysis of Unit Costs and Returns to Vocational/ Technical Education

Introduction

In this section and the one following, current investment in the main subsectors of Indonesian education are examined within the framework of three branches of economic analysis: unit cost analysis, cycle cost analysis, and internal rate of return analysis. Unit cost analysis and

cycle analysis can provide policy makers and planners with important information about existing inefficiencies when the need arises to reduce costs, and about future opportunities to increase the contribution of each rupiah spent on education. More important, these analyses, together with benefit/cost (rate of return) analysis, provide policy makers and planners with a standard to evaluate the relative efficiency with which current levels of resources are being used.

The first two types of analysis included in this section provide different kinds of information regarding the cost and financing of education. The unit cost analysis attempts to measure recurrent (or annual) inputs of resources into each of the subsectors. In this analysis, the aim is to identify and measure the total annual cost of instruction per student, regardless of the source of funds. In Indonesia's public schools a large portion of educational costs are borne by the government. The portion of schooling that is funded from private sources also represents a cost to the economy and is a part of the current level of resources needed at each level of education; therefore, it too must be considered by the government in making decisions about whether the education is effectively contributing to economic growth.

Unit costs that encompass both public and private sources of funds also can help policy makers and planners reach decisions about the minimum of resources needed for schools or human resource development programs, about internal efficiency, and about the level of resources that would be required for some level of expansion or quality improvement. Although increases in per student expenditures are often associated with

improvement in the quality of schooling, planners should not expect educational quality of schooling to be maintained or improved simply by raising unit costs. The effectiveness with which resources are used is also an important determinant of the level of educational quality attained.

The analysis of cycle costs relates the educational inputs examined under unit costs to the full costs of a student's degree program used as a measure of educational output. Specifically, the cycle cost analysis combines costs and student flows (i.e., prevailing rates of progression, repetition and dropout) to yield a cost per graduate. Instructional years per graduate are calculated from student flow information and provide a measure of a system's relative internal efficiency. For example, in a three-year technical school program found to be 100% efficient (e.g., 0% repeaters and 0% dropouts), the average number of instructional years per graduate would be three. The cycle cost would then be the unit cost multiplied by instructional years per graduate. Hence, an education program with relatively high unit costs could have lower cycle costs than a program with much lower unit costs if the first program had significantly smaller numbers of repeaters and dropouts. The cycle cost analysis is an indicator of how efficiently schools or programs are using current allocations of resources. This analysis helps policy makers and planners identify what output can be expected from a given level of investment in a specific subsector or program. From a macro-planning perspective, instructional years per graduate and cycle costs can aid in identifying those subsectors that are using resources less efficiently.

Unit Cost Analysis of Secondary Education

Secondary general and vocational/technical education in Indonesia consist of a three-year junior secondary cycle and a three-year senior secondary cycle. Indonesian secondary education is further characterized by a large proportion of students enrolled in private secondary schools. In this analysis, vocational/technical and general secondary education are examined together for comparative purposes. As is also the case at the primary level, a distinction needs to be made between private schools administered by MOEC and the small number of private schools administered by other agencies. This analysis of annual per student costs at the secondary level considers only costs for the public and private schools administered by the MOEC.

In addition to the large private sector, which must be considered, analysis of secondary education costs in Indonesia is further complicated by the many different tracks of study offered. These tracks of study are not offered as different streams within one comprehensive junior or senior high school, but are instead completely different courses of study offered by separate schools. In general, each school has its own facilities and teaching staff, and there is little opportunity for students to move from one track to another.

At the junior secondary level, there are three tracks of study: a general/academic track (SMP); a vocational track (ST) and a home economics track (SKKP). Evidence of government efforts to phase out the ST and SKKP programs at the junior secondary level can be found in the low and declining proportion of students enrolled in public schools with these two programs. There is evidence, however, that private schools

may be increasing their enrollments at the junior secondary level. In 1984/85, less than 2% of the total junior secondary students were enrolled in ST and SKKP programs. Because of these very small numbers, separate unit costs are not calculated for the ST and SKKP programs. Instead, national statistics are used to construct profiles of typical private and public SMPs. In Chapter Six and Chapter Two aggregate annual school costs as well as annual per student student costs are calculated for a "typical" public SMP and a "typical" private SMP.

It was not within the scope of this review to relate regional differences in school types to costs at the secondary level. Regional differences in "typical" schools by program type and by public and private are likely to be greater at the secondary level than they were at the primary level. Accounting for these regional differences should, therefore, certainly be a priority of future analyses of school level resource needs.

At the senior secondary level there are many different tracks of study and corresponding school types. The reader should refer to the sections on secondary education and teacher education for a more complete description of the schools in these areas. For purposes of the unit cost analysis, these many programs are grouped under the following general headings: general (SMA); teacher training (SPG); technical (STM); and commercial (SMEA). The analysis of annual per student costs for SPGs is addressed in the unit cost subsection of the chapter on teacher training, and the analysis of SMA is dealt with under the unit costs subsection of the secondary education chapter. This section will,

therefore, deal only with costs of vocational/technical education.

Prior to a discussion of the approach used in the calculation of annual per student costs for vocational/technical secondary schools, a few general observations should be made about the sources and uses of resources at this level.

Compared to funding for primary education, the financing of public secondary education is considerably less complicated. The MOEC, responsible for all full-time teacher salaries, provides almost 100% of the public resources allocated to secondary education. A very small amount of local government budgets is spent on secondary school materials, maintenance, and teacher upgrading costs. Because these contributions are so small and information regarding actual amounts is limited, there will be no attempt to estimate these costs in this analysis.

Table 7.33 shows the main sources and uses of funds for public secondary schools. At the secondary level, student fees collected primarily under the SPP and BP3 make up a sizeable proportion of the total resources allocated to secondary schools. The organization and function of BP3 at the secondary level are almost identical to the primary school level. The notable difference is that the fee levels are significantly higher at the secondary level. For example, BP3 fees in a sample of Kalimantan schools surveyed during this review, BP3 fees were found to range from Rp.300 to 1,100 per student per month. In Jakarta, a small sample of schools reported between Rp.1,500 and 2,000 per month. The SPP collected in public secondary schools corresponds loosely to the SBPP at the primary level in that MOEC and the Ministry

TABLE 7.33

MAIN SOURCES AND USES OF OPERATIONAL FUNDS
FOR PUBLIC SECONDARY SCHOOLS

Categories Of Uses	Government Sources			Private Sources		
		Dalam Negeri 1/				
	Dept.PDK	APBD I	APBD II	SPP/DPP	BP3	Other
(A) Salaries						
1. Teaching	x	--	--	x	x	--
2. Non Teach	x	--	--	--	--	--
3. Remuneration	--	--	--	x	x	x
(B) Textbooks	x	--	--	--	--	x
(C) Materials	x	x	--	x	x	--
(D) Maintenance Other	x	x	--	x	x	--
(E) Upgrading	x	x	x	x	x	x
(F) Students	--	--	--	--	--	x
(G) Supervision	x	--	--	--	--	--

1/ These amounts are very small

of Finance jointly determine standards for annual per school allocations to various expenditure categories based on per student, per class, and per school criteria. There is no involvement of the Ministry of Home Affairs as there is for primary schools. There is an important difference between primary schools' SBPP and secondary SPP. While SBPP is a direct grant from the Ministry of Finance (administered by the Ministry of Home Affairs) to supplement a school's resource needs, the SPP is, in effect, a mechanism for redistributing resources from schools in wealthier regions to those in less affluent areas. Fees are collected from each student at the school level and sent to the regional office (Kasa Negara) of the Ministry of Finance. The Ministry of Finance and MOEC jointly decide on the amount to be reallocated to each school. These funds are then disbursed to the school's headmaster as DPP funds earmarked for three main categories of use: employee welfare, class materials; and maintenance/other. The specific allocation of DPP funds to each cost category is discussed in greater detail under the description of how annual per student costs are calculated for SMAs and SMPs.

Considerably less information has been collected on the financing of private secondary schools. In general, it is assumed that almost 100% of operating expenditures are covered by tuition. Private schools, however, do receive some resources from MOEC in the form of textbooks and a certain number of public school teachers who are seconded to private schools. Private schools usually collect entrance fees and monthly fees from their students. There are no BP3 fees in private secondary schools. Many private schools belong to associations of

private schools (often with religious origins) which are responsible for collecting fees and allocating resources for operating expenditures to individual schools on a monthly basis. Cost categories are presumably the same for private schools, but earlier studies on secondary school unit costs have found that a larger portion of private schools' total costs are for non-salary items. The draft IIEP/BP3K study (1980) of secondary school unit costs found that public SMP spent 58% of their total recurrent expenditures on teacher salaries, while private SMPs, on the average, spent 45% on teacher salaries. For public and private SMAs these proportions were found to be 60% and 40%, respectively. The overall paucity of data on financing private secondary schools suggest this as an area for possible future study.

This brief summary of sources and uses of secondary school resources provides a framework for the analysis of annual per student costs that follows. The detailed methods, explained in Appendix B, Chapter Two of the Sector Review, also use a typical school approach for analyzing unit costs. When available, actual per school costs and quantities of cost items were used. When they were not available, estimates were made on the basis of macro-level budget figures.

Vocational/Technical Education Unit Costs

In this section, unit costs are analyzed for two vocational/technical programs at the senior secondary level -- the three-year STM program (technical), and the three-year SMEA program (vocational/commercial). A large number of skill areas are covered under STM, including programs in industrial skills, agriculture, graphics, chemistry, aviation, and shipbuilding. It was beyond the scope of this

analysis and beyond the capacity of available cost data, to analyze unit costs for each of these different fields. In addition to the SMEA and STM, there are additional senior secondary vocational/technical programs in home economics and handicrafts. The total numbers of students enrolled in these individual programs are small compared to enrollments in SMEA and STM programs; efforts to analyze per student costs are, therefore, concentrated on the programs that serve the largest number of students and are likely to have the greatest impact on the MOEC's budget.

Vocational/technical education is also carried out at the post-secondary level in polytechnics which are located within existing public universities. These programs, which offer non-degree diplomas in a variety of technical fields are quite new. Repelita IV shows a high priority to be given to expanding enrollments rapidly in these programs. Repelita IV estimates show enrollments of approximately 6,600 in 1983/84. These numbers are targeted to grow to 20,000 by the end of Repelita IV, suggesting that enrollments in polytechnics will increase almost three-fold during the current five-year plan. At this time, cost information regarding technical education in polytechnics is not readily available; therefore, an analysis of polytechnic annual per student costs is not included in this examination of costs of vocational/technical programs. As the program develops and cost data become more readily available, it is important that unit costs be analyzed for students enrolled in polytechnic programs.

It is very difficult to make assumptions about annual per student costs for private STM and SMEA schools. For the general secondary

programs, this analysis relied on annual operating budgets of a sample of private schools and findings of the 1980 IIEP/BP3K unit cost study for general junior and senior secondary. No STMs were included in the sample of private schools that provided budget data, and the IIEP/BP3K study did not examine STM or SMEA schools. Without these proxies for costs, it was very difficult make any assumptions on which a unit cost analysis could be based. As a result, this section does not include an analysis of unit costs for private STM and SMEA programs. It must, however, be emphasized, that the absence of these unit costs is not intended to understate the importance of the private sector in providing senior secondary level education. Private schools account for over half the total number of students enrolled in STM and SMEA programs. In 1984/85, approximately 64% of total STM students and almost 51% of SMEA students were enrolled in private schools. It is, therefore, essential that more be learned about the sources and uses of resources in these schools.

National level data on total number of schools, enrollments, classes, teachers, and part-time teachers were analyzed to find averages for the measures, given in Table 7.34. Although unit costs were not calculated for private STMs and SMEAs, national averages for these schools are included to highlight the obvious difference between public and private schools, especially regarding enrollments and full-time teachers. These typical school profiles are the averages from which public STM and SMEA unit costs are calculated.

TABLE 7.34

TYPICAL SCHOOL PROFILES FOR STMs AND SMEAs

Type of School	Enroll/ School	Avg.Clss Size	Student/ Full-time Teacher	Full-time Teacher School	Full-time Teacher School
STM/Public	727	30	16	45	7
STM/Private	309	36	49	6	20
SMEA/Public	598	41	25	24	5
SMEA/Private	327	42	52	6	16

The assumptions made in the previous section for SMA teaching and non-teaching salaries are also used in the calculation of STM and SMEA salary costs. Assumptions about fees collected under SPP and BP3 and their subsequent allocation to the expenditure categories of teachers welfare, materials, and maintenance are also the same. Combining the previous section estimates for base salaries and benefits of teachers and support staff with the information given in Table 7.34, produce the following estimates for salary costs per school:

STM Teaching + Non-Teaching Salaries

1. Teaching Salaries	Total Annual Cost/School
(a) From Public Sources:	
1 Headmaster	Rp. 2,445,612
44 F.T. Teachers	78,329,856
SUBTOTAL	80,775,468
(b) From Private Sources:	
SPP/DPP	Rp. 9,936,636
BP3	9,160,200
* SUBTOTAL	19,096,836
TOTAL TEACHING SALARIES:	Rp. 99,872,304

2. Non-teaching salaries

(all are from public sources)

1 Administrative Head	Rp. 1,105,476
1 Accountant	940,896
4 Typists	3,226,800
4 Janitors	2,933,088

*This amount includes Rp.6,006,000 for 7 part-time teachers who are assumed to work 14.3 hours per week at a rate of Rp.5000/hr/month.

SMEA Teaching and Non-Teaching Salaries

1. Total Annual Cost/School	Teaching Salaries
(a) From Public Sources:	
1 Headmaster	Rp. 2,445,612
23 F.T. Teachers	40.945,152
Subtotal	Rp. 43,390,764
(b) From Private Sources:	
SPP/DPP	Rp. 8,173,464
BP3	7,534,800
* Subtotal	Rp. 15,708,264
TOTAL TEACHING Salaries	Rp. 59,099,028

2. Non-Teaching Salaries
(all are from public sources)

1 Administrative Head	Rp. 1,105,476
1 Accountant	904.896
** 2 Typist	1,613,400
** 2 Janitors	1,466,544
TOTAL NON-TEACHING SALARIES	Rp. 5,126,316

* This amount includes Rp.4,290,000 for 5 part-time teachers who are assumed to work 14.3 hours/week at a rate of Rp.5,000/hr/month

** The difference between STM and SMEA in number of typists and janitors reflects the different administrative and maintenance needs of schools that vary in size and type of program.

Textbook cost estimates are based on the same assumptions used in calculating SMA textbook costs. Using the enrollment information given in Table 7.34, the following annual textbook costs can be calculated for average public STM and SMEA schools.

Type of School	Public Costs	*Total Cost
STM	2,531,764	3,375,685
SMEA	2,086,201	2,781,601

Assumptions for estimating materials and maintenance costs are also the same as those used in making SMA cost estimates. Combining these previously stated assumptions (Chapter Two) with the averages given in Table 7.34 produces aggregate annual costs per STM and SMEA for materials and maintenance. Table 7.35 shows a summary of annual school costs by category of expenditure; these costs are broken down into two categories: "public," which includes those costs financed by government, and "total," which includes both public and private sources of funds.

Public contributions to STM and SMEA materials and maintenance costs are identical in this analysis. The standard allocations of MOEC materials and maintenance funds among all secondary schools reflect the difficulty of breaking down these budget items by type of school. The use of standard allocations of materials and maintenance costs presents a particular problem in the estimation of aggregate school and unit costs for STMs. The existence of workshops and laboratories in STMs implies that maintenance and materials costs for these schools must be higher than for SMAs or SMEAs. Because data were not available to reflect these differences, total STM costs are probably higher than those derived from this analysis. The continuing debate on the relative

TABLE 7.35

TOTAL ANNUAL MATERIALS/MAINTENANCE COSTS
BY SCHOOL AND SOURCE OF FUNDS
(1985 Rupiah)

	Type of School/Cost Category			
	STM		SMEA	
	Materials	Maintenance	Materials	Maintenance
Source:				
Public:				
MOEC	921,940	12,629	921,940	12,629
Private:				
SPP/DPP	2,966,160	1,928,004	2,439,840	1,585,896
BP3	1,962,900	1,962,900	1,614,600	1,614,600
Total	5,851,000	3,903,529	4,976,380	3,213,125

efficiency of SMA versus STM programs in producing graduates for the work place highlights the need for better information on the cost differences between these two programs.

Similarly, one would expect higher student contributions in STMs to cover the additional materials needed for skills training. In the absence of reliable data, per student contributions were held constant for all secondary programs, including STMs and SMEAs, at Rp.10,000/per student per year. As noted earlier, this amount is a conservative estimate for even the general programs.

From the preceding assumptions on salary, textbooks, materials, maintenance, and additional student contributions, annual costs per school can be approximated. Using the aggregate annual school data for STMs and SMEAs summarized above, and average per school enrollments from Table 7.35, annual per student costs can be estimated for public STM and SMEA programs, as shown in Table 7.36.

The main conclusions to be drawn from the analysis of vocational/technical costs is that unit costs estimated for the public STM program (see Table 7.37) are considerably higher than those estimated for the public SMA program: a total cost of Rp.176,724 for STMs compared to Rp.131,797 for SMAs. Unit costs for the SMEA program are Rp.135,747/student, only slightly higher than those for the SMA. Although several studies of unit costs have been made for secondary education (some more extensive than others), few have looked at cost differences between general and technical secondary programs. The 1983 study by Clark on labor market outcomes for senior secondary graduates appears to be a first effort to account for the relative efficiency of

TABLE 7.36

AGGREGATE ANNUAL OPERATING COSTS BY TYPE OF SCHOOL
(000 1985 Rupiah)

Cost Category	STM		SMEA	
	Total	Public	Total	Public
Salaries				
- Teaching	99,872.30a/	80,775.47	59,099.03b/	43,390.76
- Nonteaching	8,206.26	8,206.26	5,126.32	5,126.30
Textbooks	3,375.69	2,531.76	2,781.60	2,086.20
Materials	5,851.00	921.94	4,976.38	921.94
Maintenance	3,903.53	12.63	3,213.13	12.6728
Students' Contributions	7,270.00	----	5,980.00	----
TOTAL	128,478.78	92,448.06	81,176.46	51,537.85

a/ Includes Rp.6,006,000 for 7 part-time teachers
b/ Includes Rp.4,290,000 for 5 part-time teachers

TABLE 7.37

ANNUAL COST PER STUDENT
WITH PROPORTION OF FUNDS FROM PUBLIC SOURCES AND TOTALS
(1985 Rupiah)

	STM		SMEA	
Cost Category	Total	Public	Total	Public
Salaries	148,664	122,396	107,400	81,132
- Teaching	(137,376)	(111,108)	(98,828)	(72,560)
- Nonteaching	(11,288)	(11,288)	(8,572)	(8,572)
Textbooks	4,643	3,482	4,652	3,489
Materials	8,048	1,268	8,322	1,542
Maintenance	5,369	17	5,373	21
Students' Contributions	10,000	--	10,000	--
TOTAL	176,724	127,163	135,747	86,184

a/ Unit costs may differ slightly if calculated from rounded figures in Table 7.38 as the number for per student costs are calculated from exact totals.

investment in STM versus SMA graduates. This study calculates rates of return for each program, but does not address unit cost questions. Given the Government of Indonesia's current interest in expanding the technical skills of the labor force, it is of critical importance that policy makers have a clear understanding of the relative costs and benefits of the STM and SMA tracks in preparing secondary graduates for additional technical education or for entry into the workplace. A first important step in increasing this understanding is a clearer definition of cost differences between the two tracks. This section has provided a very preliminary analysis of these cost differences, but there are many important gaps in the analysis. To be addressed most immediately are those dealing with laboratory and workshop materials and maintenance costs in STMs (and perhaps the annual cost of facilities) and, in general, more information on the costs of private STMs. The subsection on returns discusses the relative benefits of these two programs.

Cycle Cost Comparisons

This section brings together the unit cost information of the previous section and the information on instructional years per graduate (see Chapter Two). Combining the cost data with information on student flows and instructional years per graduate, costs per graduate or "cycle costs" can be estimated for each educational level. These cycle costs overestimate the total costs incurred per graduate to the extent that they include the costs of drop-outs, but disregard the value of education acquired by students who do not complete the cycle. Cycle costs, however, allow the inefficiencies represented by dropouts and repeaters to be calculated in monetary terms. Simply multiplying annual

unit costs by the average number of years it takes a graduating student to complete the cycle underestimates total costs because it does not account for the resources that have been spent on repeaters and dropouts. The cycle cost measure allows for the calculation of an "attrition cost index" which indicates the difference between cycle costs in an ideal system with no repeaters or dropouts (assuming a constant unit cost), and actual cycle costs under prevailing dropout and repetition rates. In a very rough way, the difference between actual cost per student and optimal cycle cost for a student who completes the program expeditiously represents the level of resources wasted on internal inefficiencies. The attrition cost index is a ratio of actual to optimal cycle cost. Hence, an attrition cost index of 1.00 would suggest there is no "waste" of resources on attrition. The higher the level of resources spent on repeaters and dropouts, the lower the internal efficiency.

Table 7.38 summarizes unit costs, optimal cycle costs, instructional-years per graduate, actual cycle costs, and attrition cost indices for all levels of education. This summary allows for a comparison across subsectors of annual costs and the relative efficiency with which these resources are used. Table 7.39 presents the repetition and drop-out figures used in the calculation of instructional years per graduate.

The ratio of unit costs at the various levels of education to primary education allows for a comparison of annual per student costs across subsectors. All unit costs were calculated in 1985 prices except those calculated for higher education. These were based on 1984 budget

TABLE 7.38

SUMMARY OF UNIT AND CYCLE COSTS
ALL LEVELS OF EDUCATION

	TOTAL COST/ STUDENT	RATIO TO AVG PRIMARY	OPTIMAL COST/ GRAD	INSTRUCTION YEARS PER GRADUATE	ACTUAL COST/ GRAD	ATTRITION COST INDEX
I. PRIMARY						
- AVG. INDONESIA	78,948	1.00				
- JAKARTA	63,455	0.80	380,730	6.88	436,570	1.15
- JAVA + BALI	82,702	1.05	496,212	7.80	645,076	1.30
- OUTER ISLANDS	75,011	0.75	450,066	8.43	632,342	1,41
II. JUNIOR SECONDARY						
(A) GENERAL:						
- PUBLIC SMP	107,300	1.36	321,900	3.29	353,017	1.10
- PRIVATE SMP (I) *	118,609	1,50	355,827	3.56	422,248	1.19
- PRIVATE SMP (II)**	94,205	1.19	282,615	3.56	335,370	1.19
(B) VOCATIONAL/TECHNICAL						
- PUBLIC ST/SKKP	107.300	1.36	321,900	3.57	383,061	1.19
III. SENIOR SECONDARY						
(A) GENERAL:						
- PUBLIC SMA	131,797	1.67	395,391	3.45	454,700	1.15
- PUBLIC SMA/JAKARTA	131,797	1.67	395,391	3.25	428,340	1.08
- PUBLIC SMA/JAVA+BALI	131,797	1.67	395,391	3.21	423,068	1.07
- PUB. SMA/OUTER ISLANDS	131,797	1.67	395,991	3.71	488,967	1.24
- PRIVATE SMA (I) *	198,456	2.51	595,368	3.80	754,133	1.27
- PRIVATE SMA (II) **	114,276	1.45	342,828	3.80	434,249	1.27
(B) TECHNICAL						
- PUBLIC STM	176,724	2.24	530.172	4.58	809,396	1.53
(C) COMMERCIAL						
- PUBLIC SMEA	135,747	1.72	407,241	3.33	452,038	1.11
(D) TEACHER TRAINING						
- PUBLIC SPG	149,894	1.90	449,682	3.29	493,151	1.10
- PRIVATE SPG (II)	119,562	1.51	358,686	3.41	407,706	1.14

IV. HIGHER

A. PUBLIC

- (AVE. PUBLIC)	399,000
- MEDICINE	501,000
- NATURAL SCIENCE	656,000
- ENGINEERING	377,000
- AGRICULTURE	270,000
- ECONOMICS	196,000
- SOCIAL SCIENCE	170,000
- EDUCATION	297,000
(AVG./WEIGHTED)	(280,000)

B. PRIVATE

- MEDICINE	350,000
- NATURAL SCIENCE	832,400
- ENGINEERING	616,800
- AGRICULTURE	511,900
- ECONOMICS	301,600
- SOCIAL SCIENCE	266,900
- EDUCATION	356,700
(WEIGHTED AVG)	343,800

* Scenario I : "action" private schools; based on actual budget data for 10 schools in Jakarta

** Scenario II : Estimates based on current salaries figures + other assumptions for "typical" private school.

TABLE 7.39

REPETITION AND DROP OUTS BY GRADE LEVEL
PRIMARY AND JUNIOR SECONDARY

SENIOR SECONDARY	SMTA	SMA		STM		SPG+SGO		SMEA	
		PUB	PRI	PUB	PRI	PUB	PRI	PUB	PRI
GRADE LEVEL									
I:									
Dropout	8.3	2.8	10.6	20.1	11.3	7.8	0.9	8.5	12,0
Repetition	1.3	1.9	1.0	2.0	0.7	1.5	0.9	1.6	0.7
II:									
Dropout	5.6	6.5	5.7	15.4	1.6	3.1	NA	4.9	6.5
Repetition	1.2	1.4	1.1	2.7	1.1	1.1	1.0	1.2	0.7
III:									
Dropout	9.4	6.6	12.6	17.2	13.2	2.8	9.0	2.2	8.6
Repetition	2.3	1.0	3.2	1.8	2.9	1.3	5.0	1.6	2.3

JUNIOR SECONDARY	SMTP	SMP		ST/SKKP a)	
		PUB	PRI	PUB	PRI
GRADE LEVEL					
I:					
Dropout	5.9	4.3	7.6	11.8	25.0
Repetition	1.5	1.8	1.2	1.4	1.0
II:					
Dropout	4.4	4.1	4.6	8.7	24.4
Repetition	1.6	1.8	1.4	1.8	1.9
III:					
Dropout	5.6	3.0	8.5	4.7	39.9
Repetition	2.0	1.3	2.8	1.4	2.4

SOURCE: Calculated from 1983/84-1984/85 beseline data
dropouts are a residual, hence contain all of the error

a) The small number enrolled in ST/SKKP may have a particularly large distortion effect on dropouts.

data and do not reflect the large salary increase for civil servants (including public university professors) that occurred in 1985. To make higher unit costs roughly comparable to the other unit costs, the portion of higher education unit costs that goes to salaries was adjusted to reflect the 1985 salary scale increase.

The following conclusions may be drawn about the relative costs and efficiencies for each of the education subsectors:

1. In general, there is not much variation in unit cost from one level of education to another. Compared to the average unit cost for primary, public general junior secondary is 1.36 times higher and public general senior secondary is 1.67 times more expensive. The ratio of public higher education to primary is quite low by international standards. This supports earlier observations about declining annual budget allocations in public universities.
2. At the senior secondary level, the ratio of private SMA, scenario I, and public STMs is approximately 2.24 times higher than the unit costs for primary school.
3. Optimal costs per graduate are calculated for each level of education. This indicates the ideal cycle cost per graduate if unit costs were held constant and there were no repetitions or dropouts. The unit cost for each level of education is multiplied by the number of years in a cycle (e.g., 3 years for senior technical school).

   Instructional years per graduate are given for all levels of education in column 4 of Table 40. By standards of most

developing countries, these years per graduate are quite low. The only figure that is noticeably different from the rest is the 4.58 years per graduate observed for STMs.

4. Even more interesting, from an Indonesian policy maker's perspective, are the variations in instructional years per graduate and their impact on cycle costs.

   Although the unit costs are higher for the private SMA, scenario I, than the public STM unit costs, the cost per graduate or "cycle cost" is higher for STMs. This reflects the relative inefficiency of this program's use of existing resources in producing graduates. A comparison of attrition cost indices, shows that, of all the levels of education, public senior secondary STMs appear to be using existing resources the least efficiently (i.e., the attrition cost index for STMs is highest at 1.53).

5. Primary schools in the Outer Islands appear to be the second most inefficient, with an attrition cost index of 1.41. Public SMAs in Java and Bali, with an attrition cost index of 1.07, appear to be using available resources most efficiently.

In the Economics Chapter (Chapter Two), these costs are related to the returns to education at each level to produce benefit/cost ratio. The reader is referred to the Economics Chapter for these important comparisons.

7.4 Conclusions

Conclusion 1

Given the complexity of the vocational/technical education delivery system in Indonesia, there is a large amount of data on which to base policy decisions for the further development and modification of the system; however, the data are sometimes contradictory, and they have not been assembled into an effective data base -- although efforts to do so are underway.

There is a lack of information on which to judge individual training programs, school by school, or to determine adequacy of staff, facilities, and equipment. This information is needed to determine whether actual training environments meet government standards. The standards themselves are sometimes unclear, making it difficult to plan effective upgrading programs or to establish priorities for budgeting resources.

Due to a lack of information on the effects of training, it is difficult to make informed policy decisions which consciously take into account the trade-offs between quality of training and number of students enrolled and graduated.

Conclusion 2

Expansion strategies for vocational/technical education have yet to be detailed. Translation of expansion objectives into planning strategies is still in progress, providing an opportunity to consider newly identified alternatives. Responsible officials are eager to incorporate refinements which do not require fundamental change.

Conclusion 3

Indonesia is at a critical juncture in vocational/technical education. There is opportunity to redefine structures to take advantage of findings in other countries which have come to challenge traditional patterns of manpower development and their assumptions. This is particularly true with regard to the examination of the relationship between vocational and general secondary education.

There is an insufficient level of coordination between vocational/technical training strategies and other government policies relating to investment, manpower, taxation, and international trade. There is some evidence of a gap between performance of vocational graduates and employer expectations in many specializations. Vocational schools tend to be isolated from the employers and industries served, with little systematic feedback or analysis of success of graduates, career patterns, or employee satisfaction.

Conclusion 4

Many training programs lack flexibility -- the ability to respond quickly and easily to new performance demands or training programs. The presence or absence of specific training programs seems to be more an accident of history than the result of analysis of national need and priority.

Conclusion 5

The government's concern about vocational school accountability, expressed through recent directives requiring alumni follow-up, has not yet produced tangible results. There are almost no mechanisms for program accountability, and few incentives to develop them.

Conclusion 6

The formal curriculum may not encompass the competencies needed to prepare a person for work. In addition, the curriculum, as practiced in the field, may not reflect the intent of the curriculum designers. A curriculum based on competencies needed to perform in an occupation is greatly improved by practice in the real skills required on the job. There are indications that some curriculum time is devoted to activities that are unrelated to the skills required on the job. Appropriate review mechanisms do not appear to be in place.

Conclusion 7

There is poor articulation between the vocational schools and business and industry. There is no formalized requirement for the local schools to involve business and industry in program formulation, implementation, or assessment. Some schools have informal advisory groups but this important link between the school and the world of work is absent for the most part.

There are no job certification and proficiency standards for specific occupations. The development and implementation of proficiency standards could improve the quality of vocational programs by establishing criteria against which the output of programs could be measured. Such standards would also allow employers more accurately to anticipate what to expect from a new graduate hired after completing a vocational program.

Conclusion 8

The causes for the relatively low completion rates in vocational schools need to be examined if the internal efficiency of programs is to be improved. Improved completion rates produce immediate and dramatic reductions in per-trainee costs.

There are very few data on the cost of vocational training. Such cost data are essential for identifying the most cost-effective means of providing skilled manpower while vocational expansion alternatives are under consideration. Cost data are needed to calculate total cost per graduate in various programs, as it is a better indicator than annual training cost.

Conclusion 9

The quality of vocational/technical education needs to be improved. Lack of proper tools, equipment and facilities in the vocational/technical schools is an apparent problem. The government has responded by establishing a few Technical Training Centers (TTCs), but they serve only a limited number of students. A number of the technical schools have been upgraded most recently through World Bank loans, but many schools still need attention.

Conclusion 10

Inadequately prepared teachers also contribute to the lack of educational quality in the programs. Teachers are often not proficient in the trade skills they are to teach. Inservice training for teachers, conducted through the teacher upgrading centers, has begun to raise teacher competency levels. As the teacher is the key to quality,

teacher improvement is very important if the vocational/technical programs are to undergo the projected large expansion with any degree of success.

Conclusion 11

Admission policies need to be reexamined in an attempt to reduce the number of students who are admitted to programs and do not complete them. In 1983/84, only 38% of the applicants to STM/SMTs were accepted for the existing openings, yet there was a 24% dropout rate. In the STMs in Jakarta, the non-completion rate was 27%.

7.5 Policy Recommendations

Recommendation 1. Develop a detailed and comprehensive plan to expand the capacity of the vocational/technical education system to accommodate 1,112,000 students.

Discussion

Braden and Paul (1975), in Occupational Analysis of Educational Planning, identified two levels of vocational education planning (macro and micro manpower planning) that are required to match training programs rationally with the demand for labor. Macro planning is done at the central government and regional levels, and consists of 12 suggested steps:

1. Developing a manpower policy.
2. Identifying data requirements.
3. Analyzing population data.
4. Analyzing manpower supply.

5. Matching manpower supply and population data to determine skill gaps.
6. Analyzing manpower demand data.
7. Interfacing manpower supply and demand to determine net manpower needs.
8. Setting priorities to meet identified needs.
9. Developing strategies to meet identified needs.
10. Selecting strategies.
11. Translating selected strategies into specific occupational training program recommendations.
12. Evaluating products and re-cycling all steps on a yearly basis.

Micro planning, done at the occupational program level, is the preparation for the actual delivery of the instruction; it consists of the following six steps:

1. Reviewing manpower requirements data from the macro planning process to identify occupations and their classification descriptions which are, or will be, in need of trained manpower.
2. Identifying a scientific sample of employing establishments which have expressed a need for specific manpower classifications, and conducting a task analysis.
3. Establishing program objectives in behavioral terms by reviewing potential instructional content, as suggested by results of the task analysis.

4. Reviewing the program objectives in relation to social, economic, and administrative constraints, and the characteristics of the target populations.
5. Developing revised program objectives, program units, and procedures for program tryout.
6. Conducting evaluation of graduates and dropouts in order to obtain feedback for program improvements.

Information on the match between programs to be developed and labor market needs, programs recommended, facilities required, instructional requirements, and implementation strategies should be assembled into a specific planning document outlining how the expansion will take place. The development of a complete document would enable educational planners to critique the plan initially, and monitor progress more effectively.

Implementation Alternatives

Some aspects of vocational/technical education, or mechanisms for its improvement, to be addressed in a detailed planning document include the following:

1. Clarification of responsibilities between the Ministry of Education and the Ministry of Manpower for various aspects of vocational/technical training. It is possible that a higher level of coordination would allow the sharing of some facilities and staff.
2. Any efforts to improve the relevance or efficiency of vocational/technical education will be enhanced by a clear

understanding of its role. More recognition should be given to the reality that students enter this type of education only because other alternatives are not open to them. The direct recognition of this by staff and students can clarify the status differential of programs without jeopardizing the dignity of individuals involved.

3. Substantial attention should be given to expanding data collection and analysis. Three goals should be considered: the generation and use of data to improve standards and accountability; improving feedback as to the effectiveness of programs and courses to make them more relevant to employer needs; and providing policy makers with more accurate information on which to make decisions.
4. More complete cost information should be gathered. Such expanded information could help policy makers consider alternative patterns of vocational/technical education as well as determine the scope and amount of vocational education in balance with general secondary education. It is important for policy makers to know the level of investment by students and their families to understand the proportion of private participation in educational costs of public education.
5. Potential institutional arrangements and patterns of cooperation should be explored between vocational/technical schools and the polytechnics.
6. Supervision and monitoring roles should be reconceptualized to make supervisors feel more accountable; consequences for

schools should be introduced for meeting or violating government standards. Rewards and penalties should be identified, understood, and dispensed in a way perceived by schools to be fair and reasonable.

7. Consideration should be given to the decentralization of staff appointments for vocational/technical school faculty, giving individual headmasters the authority to appoint certain categories of staff. Specification of staffing positions could still be controlled by Jakarta. One possibility would be to tie certain staff appointments to enrollment levels, particularly in fields where both student enrollment and staff availability are often uncertain.

8. Consideration should be given to the development of on-site staff training programs for tradesmen and craftsmen who might be available in much larger numbers if the proportion of afternoon schools were increased. Headmasters should be given additional honoraria for development and presentation of such training.

Recommendation 2. Improve the external efficiency of vocational/technical education by establishing effective linkages between training programs and employment needs.

Discussion

The business and industrial community must be brought into closer contact with the schools. This could be accomplished by requiring each level of education -- national, provincial, and local -- to have an

advisory board made up of prominent business and industrial leaders. At the local level, every teacher of every program should have a trade advisory group made up of local people in the trade. The board would help assess what is being taught and its relevance to the local job requirements, and would assist in the placement of students after graduation.

Implementation Alternatives

1. Plan systematic involvement of business and industry in advisory councils for individual crafts and trades. Care should be taken not to create an overly complex network of committees and councils at national, provincial, and local levels. At the local level a general advisory council for the entire school should suffice.
2. Performance tests should be developed for generic vocational/technical skills. National standards should be developed for diplomas or certification in various trades and crafts. These standards should include both academic and performance criteria. Consideration should be given to the establishment of Ministry of Education awards for outstanding vocational/technical schools in various categories. The publicity surrounding such awards can be a substantial incentive for other schools to strive for excellence. In addition, the competition for such awards makes the specification and understanding of standards of excellence more likely.

3. Secondary education graduates who desire to enter higher education must sit for the SIPENMARU exam, as acceptance to higher education is based on the results of this examination. To do well in the SIPENMARU, vocational/technical students should have access to the more general academic instruction available to SMA students. Although technically able to sit for the exam, vocational/technical graduates have little real opportunity to do well on it and gain access to higher education. Outstanding graduates should be able to gain admission to the polytechnics, but probably through some alternative admissions procedure other than that appropriate for SMA graduates.
4. Consideration should be given to eliminating vocational/technical education entirely at the junior secondary level. STs and SKKPs could either be upgraded to senior vocational/technical schools, converted to general junior secondary schools, or converted to special vocational/technical training centers for relatively short programs (perhaps one year or less) to train SMP and SMA graduates in technical skills for specific employment.
5. Consideration should be given to additional support for alternative forms of vocational education -- for example, apprenticeships, internships, or cooperative education arrangements in which theoretical training is offered in a school setting, and practical experience gained in job settings, with or without compensation.

6. Afternoon schools (those operating after the normal working hours of full-time tradesmen and craftsmen) should be substantially increased. At present, only about 50 of 2000 schools operate in the afternoon hours. There are substantial benefits possible in afternoon schools. Tradesmen and craftsmen could be more readily available as faculty for schools on such schedules. Facilities would be better utilized. There may also be access to trade and industrial facilities to allow students to gain practical experience after normal operating hours.
7. Establish job certification and proficiency standards for trade and technical programs. These standards should be set in cooperation with the National Vocational Training Board in the Ministry of Manpower.

Recommendation 3. Improve internal efficiency by exploring various alternative modes of providing vocational/technical training in a more cost-effective manner.

Discussion

To a large extent, in-school vocational/technical programs must be generic in nature. As a student cannot know beforehand where his place of employment will be, he must learn general skills in his occupational area.

Much current thinking among manpower planners and vocational specialists supports the advisability of using formal general secondary schooling to provide a broad-based foundation of knowledge and skills,

rather than specific occupational preparation. The case against formal vocational schooling at the secondary level is made on the basis of its external and internal efficiency. Specialized programs often involve ineffective articulation with employer needs, lengthy turn-around time in responding to employment needs, poorly prepared staff, outmoded equipment, and inappropriate curricula or pedagogy. Such external and internal inefficiencies can also be found in out-of-school programs.

Implementation Alternatives:

1. Each individual school should be examined to determine whether, given the range of specialties offered, it is efficient in use of facilities and staff. Through consolidation and elimination of programs, a 50% -- and often greater -- reduction in programs offered in each school should be routinely possible.
2. Curriculum should be "blocked" -- taught in more standardized units which can be used in a variety of programs and specializations. For schools participating in the Technical Training Upgrading Centers where students may spend two days a week, non-practical courses could be programmed to meet four hours a week to conform easily to the practicum schedule. The objective is to simplify the curriculum for both faculty and students to increase productivity.
3. Consideration should be given to reducing the number of streams from 160 to 75 or fewer. The experience in most countries is that vocational/technical education in the great majority of cases provides basic skills which are most often non-job-specific, thereby requiring many fewer specializations. Where

job specific training is desirable, it might be better accomplished in one-year postgraduate programs.

4. Consolidate curriculum into common foundation courses. In addition to "blocking" the curriculum (see Chapter Six for detail on block curriculum in secondary schools), it is also desirable to reduce the number of different courses offered and make them more foundational in nature. This simplifies the provision of practical experience, the training of staff, and the development and administration of standards.
5. Expand the number of Technical Training Upgrade Centers (TTUC) and, where possible, the capacity of existing centers. Sharing of TTUC facilities by public and private institutions is encouraged.
6. Inadequacy of laboratory facilities is a handicap. In some instances, developing less than optimal training facilities is preferable to waiting until more complete facilities can be provided. Often it is possible to schedule more effective use of facilities so that more students can be accommodated in a single laboratory. It is also sometimes possible to share laboratory facilities with other schools, although such sharing requires cooperative scheduling between institutions.
7. Consideration should be given to consolidating the different types of schools into fewer, more standardized patterns of courses and offerings. At present, vocational/technical education seems to suffer from overspecialization.
8. Average school size is too small for efficient use of

facilities and staff. Consideration should be given to increasing school size significantly, especially in schools requiring expensive laboratory equipment. This is particularly important to consider in developing plans for the construction of new schools.

9. Several advantages exist with cooperative programs and contract learning such as assuring student access to up-to-date equipment or at least to what is being used in the local area, and to exposure to an actual work environment. However, there must be close monitoring to insure that training is really occurring, and that the employer is not just acquiring a subsidized work place.

10. Consideration should be given to the addition of vocational/technical electives in general secondary schools. These electives might be taken by students who desired to master certain skills to provide temporary employment opportunities while participating in further education, or as a backup skill if further education was not possible.

11. Consideration should be given to the development of a one-year training program for SMA graduates who are not admitted to higher education. Such a one-year program might be more cost effective than a full three-year program built on the SMP level.

12. The criteria used for determining which students are selected to enter a specific program should be broader-based. When only 38% of the applicants to STM/SMTs can be admitted, a 20% non-

completion rate is unacceptably high. Not only should scores on the National Examination be taken into account, but also teachers' recommendations and students' aptitudes. An interview with each student could be conducted to determine what his interests really are.

7.5.2 Recommendations for Further Research

Recommendation 4.

Data compiled for this study were not examined for provincial variation. Such examination is important for any future research. One example of the type of data that is lost in an aggregate national analysis without provincial breakdown concerns attrition rates: while the attrition rate for all STM/SMTs was 20% the rate for STM public schools in Jakarta was 27%. Provincial analyses could provide insight into other programmatic differences in the various areas of the country.

Recommendation 5.

An examination of the cost factors for each type of school and program would be very beneficial for planners. Cost data could be compared for in-plant training programs, cooperative programs, and contract learning programs to determine which are cost-effective and best suited for promoting the manpower development policies of the government.

Recommendation 6.

Follow-up studies of graduates from the various types of schools should be conducted. Timely data concerning the progress of graduates is important feedback for assessing whether the curriculum and instruction provided is relevant for the occupational world outside the education institution. Follow-up studies are essential now as new curricula went into effect in 1985.

APPENDIX A

THE DEVELOPMENT OF TECHNICAL AND VOCATIONAL EDUCATION DURING THE 4TH FIVE YEAR DEVELOPMENT PLAN

A Country Report prepared by DR. A.O.B. SITUMORANG* (Indonesia)

INTRODUCTION

The present National Development stage which has reached the industrialization era will give a strong impact to the manpower resources development system in general.

In several occasions the President of the Republic of Indonesia has stressed the importance of developing a stable system to provide manpower to cope with the present National Development era for ensuring the availability of skilled, trained and capable people who are ready for the labour world. In line with this hope, the Ministry of Education and Culture and the Ministry of Manpower have made intensive approaches to materialize it efficiently and effectively.

Vocational education development during the 4th Five Year Development Plan will follow the Basic Guidelines of State Policy as the Indonesian People's desire through its 1983 People's Representative Assembly Meeting and the President/Mandatory's speech as a starting base.

For that purpose the Minister of Education and Culture has declared a policy as contained in the results of the 1983 National Conference of Ministry of Education and Culture, whilst the Director General for Primary and Secondary Education has issued the implementation guidance for the Minister's policy.

Considering the present development growth rate, vocational education development basically will cover both qualitative improvement as well as quantative inrease.

The need for middle-level manpower in the labour force structure will continuously increase during the coming development stages, and therefore attention should be seriously paid to education in technical and vocational schools. For this purpose, the Indonesian young generation's interests should be systematically directed toward technical and vocational education.

At present under the scope of responsibility of the Ministry of Education and Culture there are 274 Junior Technical and Vocational Schools and 559 Senior Technical and Vocational Schools. Up to the end of the 3rd Five Year Development Plan there were:

a. 194 Junior Technical Schools
b. 80 Junior High Schools of Family Welfare
c. 145 Senior Technical Schools
d. 22 Senior High Schools of Agricultural Technology
e. 277 Senior High Schools of Business and Commerce
f. 88 Senior High Schools of Family Welfare/of Home Technology
g. 10 Senior High Schools of Social Work
h. 17 Senior High Schools of Arts and Handicraft

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* His present position is the Director of Technical and Vocational Education, under the Directorate General for Primary and Secondary Education, Ministry of Education and Culture.

VOCATIONAL EDUCATION PROGRAMS

As stated in the Basic Guidelines of National Policy, industrial development is a long-term endeavour to gain a better economic structure in which agriculture and industry become more in balance. It is further stated that the industrial development is aimed at enlarging employment opportunities, smoothing working opportunities, boosting exports, reducing foreign exchange expenditure, supporting regional development and making use of natural energy and manpower resources. In this connection, close relationship between small, medium and large scale industries are encouraged so that the development of large and medium industries will directly stimulate the development of small industries.

In the attempt to improve vocational formal education, conformity between education and training programs with the needs as well as the labour world requirements will be analyzed. It concerns with the quality of programs and graduates, to what extent they will fulfill the labour world requirements within the various types and levels of employment opportunities.

In other words, how far do vocational school graduates hold prevailing competencies in the occupancy market. In addition, sufficient reservation of manpower to meet the present and estimated future needs for various types and levels of manpower should not be neglected.

The utilization of manpower resources mentioned in the Basic Guidelines of National Policy will be widely viewed, not only from the conventional approaches for manpower planning, but based on more strategic thinking and planning, especially by paying attention to the development of small industries through competent working force groups and cooperative working organizations. It requires further an approach to environmental conditions, its natural and energy sources from its nearest surroundings and its relation to the economic growth centres.

This attempt will be supported by an effective instructional system which is alert toward changes and challenges. Within the framework of developing the entire Indonesian people, young generations will as early as possible be prepared with a foundation of competencies, i.e. the mastery of humaniora, intercommunication abilities among people and its environment, conceptual and logical thinking to enable them adjusting themselves to the dynamics of developing community life. Furthermore, as labour forces, young generations will be prepared with basic skills which could be further improved through special programs directed to various expertise specializations and possibly be repeated to suit real needs, scientific and technological advancement as well as their application in the world of work.

It is therefore expected that an instructional system which guarantees efficient and effective learning and teaching process will be realized resulting in student motivation and creativities, and a follow-up of student inisiatives.

To meet the rising and increasing needs for manpower quantatively as well as qualitatively, the Ministry of Education and Culture has made deliberate efforts for improvement, covering among others:

a. Preparing an inventory of specializations needed during the 4th Five Year Development Plan and estimation of needs for the 5th Five Year Development Plan.
b. Analyzing the validity of 61 programs in the present curriculum of Senior Technical and Vocational Schools and 12 programs of Junior Technical and Vocational Schools toward the prospect during the 4th and 5th Five Year Development Plans.
c. Arranging the development of new specializations on priority basis.

The curriculum of technical and vocational education will become a guidance in carrying out a dynamic vocational education and training program, in which flexibility would be still possible to suit different regional needs. In addition, the curriculum should also be acceptable for changes due to the impact of the ever developing science and technology and its application in the community life. This does not mean that any change will be translated into educational effort directly due to the relatively slow course of formal vocational education and training which must follow certain arrangement in a timely and orderly manner. Besides it will become a physical and staffing investment load which will face some limitation. What should be considered is that the vocational education and training programs always have to be alert toward the needs of development.

The design of vocational education curriculum must enable students to obtain basic abilities that could be developed further through special programs directed towards various specialization and managed repeatedly to meet real needs, science and technology advancement with its application in the world of work. For this purpose, a curriculum design with compulsory and optional programs might be considered.

Up to now there are 58 study programs which would be implemented in non-technical vocational schools to increase the provision of skillful manpower. Meanwhile similar study program identification for industrial and agricultural occupation is being carried out.

Prepared with vocational skills they have, graduates who have a talent for self-employment either individually or in groups are expected to participate within the informal sector of the economical development especially the development of small scale industries.

This should be supported by a sound practical knowledge of financial, marketing and other relevant management courses in general. This matter will be considered more sistematically in the new approach of curriculum development. As far as possible, it should also be supported by a special learning and training environment or other simulation exercises directed to real actions in enterpreneurship.

The curriculum of Junior Technical and Vocational Schools will be developed to reach the percentage composition of 80% for main subjects and 20% for optional subjects. The materials of main subjects will be made as close as possible to those of Junior High Schools because 13-15 year old pupils still need commands of comprehensive knowledge and behaviours necessary for their future life and especially for their further study. Optional subjects will be directed as much as possible to manual vocational skills to support adaptive technology application in rural regions. The types of skills presented will be conformed with the specific needs of the villages. This effort is also aimed at preventing too high rates of urbanization and retaining as many labour forces as possible for the development of their regions.

The Junior Technical and Vocational School programs should also provide opportunities to an adult who, due to some reasons, needs to be accredited as a graduate of such a formal educational institution. However, because of some psychological consideration, separated programs for adults might be held in the afternoon.

Both main and optional subjects should be based upon the need of manpower in the agricultural sector since rural activities still move around the said sector and about 70% of the Indonesian population reside in villages. This sector, in a broad sense, covers the food plantation, farming, forestry, cattle and poultry breeding, and fishery. However, the development of the programs should match with the most outstanding potency. New programs might be further developed toward fields closely related to the agricultural sector such as carpentry, masonry, irrigation, production of agricultural hand tools, maintenance and repair of agricultural machines and transportation as well as installation of housing electricity. Consideration should also be made for the possibility of developing handicraft skills on the basis of basic material availability within the nearest surroundings and particularly of agricultural product utilization.

The choice of new locations and decision for maintaining the existing schools should clearly support the needs of rural regions. It is expected that gradually the Junior Technical and Vocational Schools would hold the role of a rural community activity centre which eventually will become an effective cultural centre for the village concerned.

The curriculum of Senior Technical and Vocational Schools will be developed to reach the percentage composition of 60% for main subjects and 40% for optional ones. The former consists of two groups: the General Basic Subjects given in all Senior Technical and Vocational Schools, and the Vocational Basic Subjects only for Senior Technical and Vocational Schools having similar trades. The optional subjects consist of a selected group of vocational subjects leading to vocational skills, knowledge and professionalism required by various occupations in the universal business field and directed toward more specialized trades. These specializations will be further classified into certain occupational trades which are more individual (less occupational area specific, more occupational specific).

The educational and training programs in Senior Technical and Vocational Schools will be gradually attempted to the execution of multiple entry-exit program because of the rapid technological advancement which might cause the existing specializations out-of-date.

In general the spreading of schools should be oriented to environmental needs which are observed through provincial development programs paying attention to the development growth centres, natural resources, population density, existing industries and their development plans as well as their growth rates, regional development strategy and their relation with the necessities of the development growth centres.

Due to different conditions of the provinces and development growth centres, the spreading of schools and particularly their optional programs should be selective and oriented to real needs of the environment concerned. Because of the great variety of optional subjects required in rural regions, an accurate survey should be made by considering the development programs, receiving priority, needed skills

quantity of manpower, educational facility and teachers available outside the Ministry of Education and Culture, the intake of graduates in the 4th Five Year Development Plan, the most attractive subject among pupils and the streams giving highest contribution, in terms of graduates, to the world of work. In this connection the ratio of the number of graduates yearly and the need of graduates in the 4th Five Year Development Plan should be taken into account.

The opportunities for graduates to continue their studies should be opened and ordered in more official and formal way among the institutions concerned, either the public or the private education institutions, as well as other governmental departments. Its implementation will be still bound to certain requirements so that it would be still selective in manner. With these arrangements, it is expected that a mechanism could be realized to activate education, training and employment within a firm-system to overcome the problem of increasing productivity for people who will enter or those who are already in the world of work.

For this purpose, technical and vocational education programs should approach the economical growth centre as a starting point. In this relation intensive contacts through formal or informal ways, if necessary, should be made with authorities of BAPPEDA (Regional Administration Board) of the local governments, with individual or group of investors, to obtain inputs that will enrich the knowledge of regional and local needs, as well as potencies that might support the attempt to carry out technical and vocational education.

The available manpower resources in the world of work such as in domestic and foreign big oil companies and manufacturing companies including furtilizer and petrochemical industries in provices are basically potential for the cooperation in vocational educational development effort, but a more elaborate formulation of the case is required. It is expected that the BAPPEDA would take an inisiative and the Provincial Office of Technical and Vocational Education would give necessary inputs.

As follow-up actions after such an approach it is envisaged that a concrete plan which is based on realistic needs can be recommended for development during the 4th Five Year Development Plan. The preliminary guidance worked out together with the BAPPEDA should be based on the existing Secondary Vocational Schools and on the development prospect of the new Senior Vocational Schools in each province. The necessary consideration should be focused on the suitability of school locations viewed from the school capacity and surrounding potencies, the size of school by considering the occupational capacity and intake, the development pattern, the streams to be developed, and the development stages during the 4th Five Year Development Plan.

EDUCATIONAL STAFF DEVELOPMENT

Success in carrying out educational programs or curriculum does not only depend on the educational programs or curriculum themselves, nor the availability of educational facilities, but also and more important on the number and qualification of teachers as the educators.

The problem in providing educational staff for technical and vocational schools is the constraint to have sufficient number of qualified professional instructors in vocational subjects for the existing educational institutions and for their development demand in the future as well.

With regard to teaching qualification, an integrated plan to supply educational staff will be made by the Directorate General for Higher Education as the institution responsible for the provision of teachers and the Directorate General for Primary and Secondary Education as the user. Educational staffing training programs should be oriented to the user's needs and in this case the programs should be able to overcome the shortage and weakness of present vocational teachers and instructors for workshop practices. Various diploma programs have been regularly developed through Faculties of Education and other relevant faculties within the universities as well as crash-program efforts through cooperation with Vocational and Technical Teachers Upgrading Centres.

These efforts will be enhanced and at the same time possibilities will be considered to mobilize additional staff such as from industries to become workshop instsructors for their skills inspite of their right to teach. Career development for these instructors will also be viewed further and teaching rights will be given to them provided that certain requirements have been met.

In this connection a concrete attempt will be made by expanding teacher input sources through the involvement of Senior Secondary School graduates, Vocational and Technical School graduates, Primary or other non-vocational Schools teachers, university students, professional workers in industries, who are interested to become vocational teachers.

The shortage of teachers for Technical and Vocational schools will be to an amount of 28.900 teachers for public schools while the estimation to meet the urgent need of private schools will be 14.000 teachers making the total number of 42.900 (See Annex).

During the 4th Five Year Development Plan it is estimated that about 10.000 graduates of Technical Training Institutes will be recruited and some 1.200 teachers will be transferred to new assignments.

Since teaching staff in technical and vocational education is a relatively rare investment, the available staffs should be continuously improved. This will not only concern with their skills but also their welfare. In general, efforts to improve the social welfare of all vocational teachers will be done. This will be supported with a mobile system of assignment to avoid boredom and also to be related with career development.

The inservice teacher training programs for vocational teachers will be improved and more directed to work experiences in industries and other enterprises in general. It will concern with the needs for public as well as private schools.

EDUCATIONAL FACILITIES

The educational program relevancy and quality improvement requires consequencies to meet the standard of minimal need for educational facilities in line with the curriculum requirements. Educational facilities consisting of land, building, furniture, workshop/laboratory equipment, materials for practice and book components are conditional requirements for vocational school students to obtain ability to observe and prepare themselves when they enter employment opportunities in the future.

The supply of vocational educational facilities is the most expensive component as compared to other components. As mentioned earlier, besides orienting to competences required in the labour market, the development of vocational education will also be planned on the basis of environmental need approach. It means that different places may have different programs. For this purpose the supply planning for vocational education facilities should be managed carefully and seriously due to the possibilities of applying different needs.

To overcome the problem of providing educational facilities, in addition to the conventional approach, the following will be considered:

(a) to double or increase the use of the available facilities including its service.
(b) to plan educational facilities in multidisciplinary or multischool manner which will enable the communal use of certain educational facilities by several schools.
(c) to plan educational facilities through vocational training centres.
(d) to provide new educational facilities on the basis of planning of specializations which conform with the regional needs.

Coinciding with the aforementioned efforts it is necessary to study the possibilities of expanding the learning resources through other sources outside schools especially facilities available in enterprises. This is very important for the students in order to be well prepared before they are launched to the labour world, at least to bring their abilities closer to job specific requirement. Among others the following possibilities will be considered:

(a) placement/appointment of professional personnel from enterprises and industries on the basis of a day release in schools.
(b) placement of students/teachers in industries for field practice and placement of graduates for job-training.

In this connection all junior as well as senior technial and vocational education institutions which have not been improved during the 3rd Five Year Development Program will be rehabilitated. Furthermore, to expand and increase the educational facilities in the framework of increasing enrollment capacities of vocational schools during the 4th Five Year Dvelopment Plan, the following schools will be established:

- 43 Senior Technical Schools
- 30 Senior High Schools of Agricultural Technology
- 40 Senior High Schools of Business and Commerce
- 10 Senior High Schools of Arts and Handicraft

Due to the substantial role of private vocational schools to increase the enrollment capacities for students during the 4th Five Year Development Plan, a number of private school buildings and classrooms will also be rehabilitated and new ones including 4 special Technical Training Centres will be built.

EDUCATIONAL MANAGEMENT

The role of vocational education which is clearly different from that of other types of education creates different mission loads on its personnel. To cope with the increasing work volume in promoting vocational education programs during the 4th Five Year Development Plan, the following improvements in educational management will be done:

a. Improvement of organization structures at schools as a technical implementation unit and the organization structure at the provincial office of the Ministry of Education and Culture that concerns with vocational education as the supervisory unit at the province.
b. Improvement of managerial staff and managerial capabilities.
c. Improvement of learning cost to meet the quality and quantity demand of vocational manpower required by the labour world.

In managing and developing the vocational education activities it is eventually expected that there will be integral, efficient and effective activities to achieve the intended objectives and targets economically. All managers from the lowest up to the highest levels are expected to act as highly-dedicated, responsible and respective managers, administrators and organizators as well. This expectation should also be supported by an attempt to create harmonious and pleasant working condition to improve the staff working spirit. In this connection, the principle of group dynamics should be applied to create the sense of belonging among the staff members, the feeling of proudness among them as members of the staff and good cooperation among group members supported by open management.

INCREASE OF ENROLLMENT CAPACITIES AND GRADUATES

The number of public and private Technical and Vocational School students in 1983/1984 is 556,400. This figure is expected to become more than 1,1 million in 1988/1989, or an increase of 20% in average per year. The problem which appears will be how to provide proper educational facilities. It will also be very much depending upon the proper provision of teaching staff.

In addition there are also problems related to students' interests to enter technical and vocational schools. Three main constraints are: First, young people think that vocational education is less intellectual and trivial. This idea is supported by the fact that its educational facilities are not interesting. Second, the feeling of uncertainty among them after graduation. Third, they also think that the prospect of their career development will not be clear.

The attempts to improve the technical and vocational schools enrollment capacities and graduates will be made through intensive guidance and councelling offered to students, parents, common publics, industries and enterprises.

Basically attempts should be made to change the interests of students to enter vocational schools only as a second choice into a choice for living based on a view that the working is an opportunity for someone to participate creatively and most contributary.In other words, a choice which is based upon talent, interests and desires, in line with the future they will face.

This will touch the value system faced by young generation at present where they still have a consumptive pattern of life which should be systematically altered into a more productive pattern. Convincingly appreciation toward vocational jobs which hold high economical value and automatically have high social value should be grown. This should be supported by good prospect for vocational school students and graduates' career development. Opportunities to enhance and improve vocational education and training should be made possible horizontally and vertically as well.

Recognation and remuneration to vocational school graduates should further be solidified. It mostly will concern with the rights and obligations of user institutions. Particularly in the private sector this matter should be handled and strengthened within the coordination of trade association, profession association, industry association, chamber of commerce, etc. Furthermore, it might be necessary to think about the criteria and mechanism to sanction not only on the basis of the graduates' membership and experiences but attention should be more paid to their competences or merit in the vocational labourer domain.

RELATION BETWEEN VOCATIONAL EDUCATION AND THE WORLD OF WORK

The policy of the Ministry of Education and Culture administration basically stresses the importance of vocational education for being more oriented to the labour world. The conformity of vocational education programs with the various existing or future working opportunities requires an approach which is based on the increasing efforts to communicate and consult with the labour world especially with institutions that make use of the vocational school graduates. In principle this will call for the importance of realizing periodic and intensive activities. The said relation will be made more institutional not only for its organization but for its activities, scope and follow-up. Such relation within certain administration constraints should cover mutual needs in the attempt to develop comprehensive vocational education covering input, process and output of the vocational education. In this way the participation of industries and enterprises should be intensified. It should be supported with more simple decision making for justified decisions.

The participation, when necessary, will include the development, planning and implementation of vocational training education program, quality control, placement and recognition of graduates.

So schools will be in a better position in informing and facilitating various job opportunities to graduates. In addition, this condition will enable initial attempts toward uniform vocational skill evaluation which eventually will create national vocational skill standards.

WS/RA/Pradip 83/84

ANNEX A

LIST OF INTERVIEWEES

Vocational/Technical Education

Bakri, Assistant Director of Vocational/Technical Education
Bell, Malcolm, Secretary to the Director, Hawthorn Institute of Education, Australia
Dernot, Cranny, International Labor Organization
Djazal, Abdul, Head Planning Bureau, Dikdasmen, MOEC
Hadisoebrata, Soemardi, Staff Puslit, Balitbang Dikbud, MOEC
Hopkins, David, Consultant on Vocational Technical Education, UNESCO
Karzadi, Benny, Coordinator of Curriculum, Balitbang, MOEC
McKenzio, G. Iain, International Labor Organization
Nuh, Aida, Vocational/Technical Education, MOEC
Situmorang, Benny, Director, Vocational Education Division, Dikdasmen, MOEC
Soemardi, Staff Puslit, Balitbang, MOEC
Suprapto, Benny, Director General, High Schools Division, Dikdasmen, MOEC
Suwandono Tony, Director of Polytechnic Development, MOEC
Swasono, Yudo, Staff Manpower Department, Ministry of Manpower
Zenick, Manuel, Education Officer, World Bank, Jakarta

ANNEX B

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ANNEX C
TERMS AND ACRONYMS

	ENGLISH	INDONESIAN
ADB	Asian Development Bank	Bank Pembangunan Asia
AKTA I	Tertiary Level Teacher Training Certification: Primary	Program AKTA I
AKTA II	" " Jr. Sec.	Program AKTA II
AKTA III	" " Sr. Sec.	" AKTA III
AKTA IV	" " University	" AKTA IV
AKTA V	" " University	" AKTA V
APBN	Gov.t Expenditure & Revenue Budget	Anggaran Belanja Negara
APDB I & II	Local Gov.'t Budgets	Anggaran Pembangunan Daerah I & II
BAKN	National Personnel Office	Badan Administrasi Kepegawaian Negeri
Balitbang Dikbud	Office of Education and Culture Research and Development	Badan Penelitian dan Pengembangan Pendidikan & Kebudayaan
Bappeda	Regional Planning Office	Badan Perencanaan Pembangunan Daerah
Bappenas	National Development Planning Board	Badan Perencanaan Pembangunan Nasional
Biro Perencanaan	Bureau of Planning	Biro Perencanaan
PLKI	Vocational Training Center	Pusat Latihan Kejuruan Indonesia
BP3	Parent Teacher Assoc. Fee	Beaya Pungutan Persatuan Orang Tua dan Guru
BPM	Regional Training and Material Center	Badan Pembangunan Masyarakat

BPG	Teacher Education Center	Badan Pendidikan Guru
BPKB	National Training and Activity Center	Badan Pusat Kegiatan Belajar
BPS	Office of Statistics	Biro Pusat Statistik
Bupati	Head of District	Kepala Kabupaten
BUTSI	Indonesian Volunteer Service Corporation	Badan Tenaga Sukarela Indonesia
Camat	Head of Sub-District	Kepala Kecamatan
Dalam Negeri	Ministry of Home Affairs	Departemen Dalam Negeri
Dati I and II	Local Gov.'t levels	Daerah Tingkat I & II
DepKeu	Ministry of Finance	Departemen Keuangan
Dept. Agama	Ministry of Religion	Departemen Agama
DGB	Directorate General of the Budget	Direktorat General Anggaran
Dharma Pertiwi	National Org. of Wives of Army Officers	Persatuan Istri ABRI
Dharma Wanita	National Org. of Wives of Civil Servants	Persatuan Istri Pegawai Negeri
DIK	Budget Document	Daftar Isian Kegiatan
Dikdas	Direktorate of Primary Educ.	Kantor Pendidikan Dasar
Dinas	Regional Office	Dinas
DIP	Project Document	Daftar Isian Proyek
Ditjen PDM (Dikdasmen)	Dir. Gen. of Primary & Secondary Educ.	Direktorat Jendral Pendidikan Dasar & Menengah
Ditjen PT (Dikti)	Dir. Gen. of Higher Education	Dir. Jendral Pendidikan Tinggi

Ditjen PLSPO	Dir. Gen. of Out-of-School Education Youth & Sport	Dir. Jen. Pendidikan Luar Sekolah, Pemuda, dan Olah Raga
Ditjen Kebudayaan	Dir. Gen. of Culture	Dir. Jen. Kebudayaan
Dosen	Lecturer	Pengajar
DUP	Project Proposal Document	Daftar Usulan Proyek
D1	Teacher training Certificate: Primary	Program Diploma 1
D2	" " Jun. Sec.	" " 2
D3	" " Sen. Sec.	" " 3
EBTANAS	Primary School Finishing Examination	Evaluasi Belajar Tingkat Nasional
FKIP	Faculty of Education in University	Fakultas Keguruan Ilmu Pendidikan
GBHN	Guidelines for State Policy	Garis-Garis Besar Haluan Negara
GDP	Gross Domestic Product	Pendapatan Dalam Negeri
GOI	Government of Indonesia	Pemerintah Indonesia
IAIN	State Institute of Islamic Religions	Institut Agama Islam Negeri
IBM	International Business Machines	International Business Machines
IBRD	International Bank for Reconstruction and Development	Bank International Pembangunan & Rekonstruksi
IGGI	Inter-Governmental Group on Indonesia	Group Antar Negara untuk Indonesia
IIEP	International Institute for Education Planning	International Inst. for Educ. Planning
IKIP's	Teacher Training Colleges	Institut Keguruan Ilmu Pendidikan

Inpres SD	Primary School built under Presidential Decree Funds	Sekolah Dasar Inpres
Inspector Jendral	Inspectorate General	Inspektor Jendral
IPA	Science	Ilmu Pengetahuan Alam
IPB	Institute of Agriculture at Bogor	Institut Pertanian Bogor
IPS	Social Studies	Ilmu Pengetahuan Sosial
ITB	Institute of Technology at Bandung	Institut Teknologi Bandung
Kancam	MOEC Sub-District Office	Kantor Kecamatan P & K
Kandep	MOEC District Office	Kantor Departemen P & K
Kanwil	MOEC Provincial Office	Kantor Perwakilan P & K
Kas Negara	MOF Regional Office	Kas Negara
Kasi Dikmas	Head of Community Education Section	Kepala Seksi Pendidikan Masyarakat
Kasi SD	Head of Prim. School Section	Kepala Seksi SD
KBKM	Vocational Skills Training	Kursus Belajar Kejuruan Masyarakat
Kejar Paket A	Basic Education	Kelompok Belajar Paket A
Kejar PD	Community Education Out-of-School Learning Group	Kelompok Belajar Pendidikan Dasar
Kejar Usaha	Income Generating Learning Group	Kelompok Belajar Usaha
Kewajiban Belajar	Universal Compulsary	Kewajiban Belajar

	Primary Education	
KKG	Teacher Work Group	Kelompok Kerja Guru
LKMD	Village Development Program	Lembaga Ketahanan Masyarakat Desa
KPUA, B, C	Pre-Primary Teacher Training	Kursus Pendidikan Umum A, B, C
LIPI	Research Foundation of Indonesia	Lembaga Ilmu Pengetahuan Indonesia
LNG	Liquified Natural Gas	Gas Cair Natural
Madrasah Ibtidaiyah	Islamic School (Primary)	Madrasah (Tingkat SD)
MenPan	Ministry of Administrator Reform	Menteri Aparatur Negara
MOEC	Ministry of Education and Culture	Departemen Pendidikan dan Kebudayaan
NFE	Nonformal Education	Pendidikan Luar Sekolah
NTCC	National Technical Coordinating Committee	Koordinator Bantuan Tehnis Luar Negeri
ODA	Overseas Development Assistance	Lembaga Bantuan Luar Negeri
Patjar	SD PAMONG Out-of School site	Tempat Belajar
Pancasila	State Ideology	Pancasila
PEDC	Polytechnic Education Development Center	Pusat Pengembangan Pendidikan Politeknik
Pengawas	Supervisor	Pengawas
PENMAS/Dikmas	Community Education	Pendidikan Masyarakat
Penilik	Education Supervisor in Kancam	Penilik Tingkat Kancam
Penilik TK/SD	Supervisory for Pre-Primary and Primary	Penilik TK/SD
PGA	Religious Teacher Training	Pendidikan Guru Agama

Pimpro	Development Project Leader	Pimpinan Project
Pusinfot	Office of Information (Balitbang)	Pusat Informatik
Puslit	Office of Research (Balitbang)	Pusat Penelitian
Pusisjian	Office of Testing (Balitbang)	Pusat Pengujian
Puskur	Office of Curriculum (Balitbang)	Pusat Kurikilum
PTPG	Higher Education Institute for Teacher Training	Perguruan Tinggi Pendidikan Guru
P3D	Primary School Development Project	Proyek Pengembangan Pendidikan Dasar
P3GTK	Technical Teacher Training Unit Center	Pusat Pengembangan Pendidikan Guru Taman Kanak2
PKK	Family Life Education Program	Pendidikan Kesejahteraan Keluarga
PKG	In-Service/On Service Teacher Training Program	Pusat Kegiatan Guru
PKG	Teacher Activity Office	Pusat Kegiatan Guru
PMP	Civics	Pendidikan Moral Pancasila
Pola Tinggi	Integrated Public /Private Higher Education	Pendidikan Tinggi Terpadu
PPPG	Teacher Education Development Office	Pembinaan & Pengembangan Pendidikan Guru
PPSP	Development School Project	Sekolah Pembangunan

Pramuka	Scouts	Pramuka
Proyek Buku Terpadu	Integrated Textbook Project	Proyek Buku Terpadu
PSPB	Indonesian Political History	Pendidikan Sejarah Pengembangan Bangsa
PU Wajar	Office of Universal Compulsary Educ.	Pendidikan Umum Wajib Belajar
RADIN	Meeting of Provincial Officials for Budgeting	Rapat Dinas
RAKERNAS	National Working Meeting of Budget	Rapat Kerja Nasional
RARAS	MOEC Echelon I Officials Meeting	Rapat Teras
REPELITA	Five Year Plan	Rencana Pembangunan Lima Tahun
Raudhatul Athfal	Pre-primary Religious (Moslem)	Taman Kanak Kanak Islam
Sakernas	National Labor Force Survey	Survey Tenaga Kerja Nasional
Sanggar	World Bank In Service On Service Teacher Training Center	Sanggar
SBPP	Government Subsidy to Primary School	Subsidi Bantuan Pemerintah untuk Pendidikan
SDLB	Integrated Schools for Handicapped	Sekolah Dasar Luar Biasa
SD-Negeri	Public Primary School	Sekolah Dasar Negeri
SD PAMONG	Primary Education by Parents Teachers, and Community	Pendidikan Dasar oleh oleh Masyarakat, Orangtua dan Guru
SD-Swasta	Private Primary Schools	Sekolah Dasar Swasta
Sekjen	Secretariate General	Sekretaris Jendral

Sekneg	National Secretariat	Sekretariat Negara
SGA	Religion Teacher Training Secondary School	Sekolah Guru Agama
SGB	Teacher Training Primary School	Sekolah Guru Bantuan
SGTK	Pre-Prim Teaching Certificate	Sekolah Guru Taman Kanak Kanak
SGO	Sports Teacher Training Secondary School	Sekolah Guru Olah Raga
SIAP	Unexpended funds	Sisa Anggaran Pemerintah
SIPENMARU	University Selection Examination	Sistim Penyaringan Mahasiswa Baru
SKB	District Training & Material Center	Sanggar Kegiatan Belajar
SKKP	Home Economy Junior Secondary School	Sekolah Kejuruan Kepandaian Putri
Skripsi	Undergraduate thesis	Karangan Ilmiah Mahasiswa
SLB	Schools for the Handicapped	Sekolah Luar Biasa
SLB Terbuka	Open Schools for the Handicapped	Sekolah Luar Biasa Terbuka
SMA	General Senior Secondary School	Sekolah Menengah Atas
SMEA	Commercial Senior Secondary School	Sekolah Menegah Ekonomi Atas
SMKK	Home Econonomy Senior Secondary School	Sekolah Menengah Kesejahteraan Keluarga
SMP	General Junior Secondary School	Sekolah Menengah Pertama

SMP Terbuka	Open Junior Secondary School	SMP Terbuka
SPG	Teacher Training Senior Secondary School	Sekolah Pendidikan Guru
SPGLB	Teacher Training Senior Secondary School for Special Education	Sekolah Pendidikan Guru Luar Biasa
SPP	Gov.'t Subsidy to Secondary School	Sumbangan Pemerintah untuk Pendidikan
ST	Vocational Junior Secondary School	Sekolah Teknik
STM	Technical Senior Secondary School	Sekolah Teknik Menengah
STTB	Primary School Graduation Certificate	Surat Tanda Tamat Belajar
Subdit Monitor	Sub-directorate for Monitor	Sub-direktorat Monitor
S1	Bachelor's Degree	Sarjana Muda
S2	Master Degree	Sarjana Lengkap (Pasca Sarjana)
S3	Doctoral Degree	Program Doktor
SUPAS	Intercensal Population Survey	Survey Penduduk Antar Sensus
SUSENAS	Economic & Social Survey	Survey Ekonomi dan Sosial
TK (Taman Kanak Kanak)	Pre-Schools	Taman Kanak-kanak
TTUC	Technical Teacher Upgrading Center	Pusat Upgrading Guru Teknik
UDKP	Village Development Unit	Unit Kerja Pembangunan Desa
UGM	University of Gajah Mada	Universitas Gajah Mada

U.I.	University of Indonesia	Universitas Indonesia
Ujian Persamaan	Primary School Equivalence Examination	Ujian Persamaan
UNAIR	University Airlangga at Surabaya	Universitas Airlangga
UNDP	U.N. Development Program	U.N. Development Program
Universitas Terbuka	Open University	Universitas Terbuka
UNPAD	University of Pajajaran at Bandung	Universitas Pajajaran Bandung
USAID	U.S. Agency for International Development	U.S. Agency for International Development
WB	World Bank	Bank Dunia
Yayasan	Private Institutes	Yayasan