

POPULATION AND DEVELOPMENT POLICY PROGRAM

FINAL COUNTRY REPORT: SUDAN

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Human Affairs Research Centers

2030 M Street, N.W. Washington, D.C. 20036

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Abbreviations

CDSS	Country Development Strategy Statement
DOS	Department of Statistics, Ministry of Finance and Economic Planning
DSRC	Development Studies Research Centre
ESRC	Economic and Social Research Council
GOS	Government of Sudan
IFRP	International Fertility Research Program (currently, Family Health International)
IMF	International Monetary Fund
IPDP	Integrated Population and Development Project (Research Triangle Institute)
MCH/FP	Maternal and Child Health/Family Planning
MOH	Ministry of Health, Government of Sudan
MOP	Ministry of Planning, Government of Sudan
NPC	National Population Committee
NRC	National Research Council
PRB	Population Reference Bureau
PSC	Population Studies Centre (University of Gezira)
REDSO/EA	Regional Economic Development Support Office/East Africa
SFCA	Sudan Fertility Control Association
SFPA	Sudan Family Planning Association
SFS	Sudan Fertility Survey
SSU	Sudanese Socialist Union
UK	University of Khartoum
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Assistance

Acknowledgments

The Population and Development Policy Program enjoyed particular success in the Sudan. The projects developed through this program led to the re-establishment of a successful and active National Population Committee which continues to lobby for improvements in population policy. High level leaders expressed their support and commitment to the development of a Sudanese population policy, and our project materially contributed to the synthesis and dissemination of a wide body of previously under utilized demographic data and population research. Follow up activities, both Sudanese and donor assisted, are currently being planned and implemented.

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Summary

Sudan, the largest country in Africa and ninth largest in the world, has both extraordinary potential for development and extraordinary constraints to achieving this potential. With vast amounts of arable and irrigatable land available, the Sudan is potentially a leading exporter of agricultural products. On the other hand, the Sudan's geographic and cultural diversity, highly undeveloped transport and communication systems, and limited capacity to meet basic human needs in health and education severely limit the speed with which this potential can be realized. This situation is reflected in a highly negative current balance of payments (-\$3,097 million, or 37.2% of GNP in 1980 -- IBRD, 1982) and slower than expected progress in all sectors of the economy.

Population dynamics significantly influence the pace of the Sudan's development, although this has only recently been recognized among governmental and political leadership in the Sudan. Though four-fifths the size of India, the Sudan has only 3% of its population (approximately 21 million), most of which is poorly educated and experiences high rates of mortality and morbidity. In this situation, Sudanese leaders are naturally less concerned with population size (current or projected) than with its quality. The poor quality and amount of demographic data for Sudan further limit awareness or concern with population issues among Sudanese leaders. On the other hand, recent experiences with limited population activities, and a growing recognition of the implications of the rate of growth of the Sudanese population for the provision of basic human services, improvements in agricultural production (labor force issues are a major factor underlying difficulties in the agricultural sector) and health of women and children, have sharpened Sudanese concern with population issues and interest in developing appropriate policy initiatives to address them.

This interest is reflected in the recent reactivation of a high-level National Population Committee in Sudan. In April, 1982 the National Population Committee sponsored a National Population Conference which led to the first formal statement by the Government on the need for and basic outlines of a population policy for the Sudan. Although primarily an internal initiative, this progressive step also resulted from the provision of technical assistance for the improvement of population policy through the Battelle Population and Development Policy Program (PDP).

The Battelle PDP strategy for the Sudan was designed to encourage and support growing Sudanese interest in population policy. It concentrated on attempts to strengthen the capacity of the National Population Committee (NPC) to meet its objectives and on broadening awareness of the role of population factors in Sudanese development. Projects based at the NPC and at the Population Studies Centre at the University of Gezira (PSC) were designed to place population concerns on the political and administrative agenda and to provide links between political leadership and the population research community. Projects were designed to assist in the publication of basic demographic information and to support the NPC's efforts to articulate future directions and goals for a Sudanese population policy. The central project activity included the National Population Conference, held in April, 1982. The rationale for and a detailed description of these activities, the institutions responsible for their implementation and an assessment of program impact are provided in this document.

Introduction

PDP Objectives

Foreign assistance funds are limited, and those that are allocated to a given country must be invested in activities and organizations that show the greatest promise of meeting country needs and fulfilling donor objectives. The design of effective development assistance programs for LDCs therefore requires thorough knowledge of the problems to be addressed, the social, cultural, economic, and demographic contexts, and the status of past and present efforts to find workable solutions.

The principal objective of Battelle's Population and Development Policy (PDP) Program was to assist selected LDCs to improve their population policies in the interest of promoting socioeconomic progress. To accomplish this objective, Battelle established subcontract agreements with LDC institutions for the conduct and dissemination of research designed to increase LDC leaders' awareness and understanding of relationships between population dynamics and socioeconomic development, and to clarify needs and options for the improvement of national population policies.

This document is one of a series of PDP Final Country Reports. Each report provides an account of the rationale, procedures, and outcomes for PDP activities in a given country. These reports have evolved through several stages. Following initial discussions among Battelle staff, indigenous researchers and policymakers, USAID Mission and AID/Washington officials, a draft country strategy was prepared. That initial strategy provided a rationale for the selection of research topics and collaborating institutions, as well as a description of relevant country background conditions. Over the course of PDP work, the country strategy was revised as necessary, reflecting additions to the original project scope, progress toward completion of scheduled activities and events, and newly acquired background information. This country report constitutes the final revision of the PDP strategy. It adds to previous versions the results of the research undertaken, the organization and outcomes of dissemination efforts, and the effects of these activities on policymakers' understanding of population and development relationships and on national population policies and programs.

These country reports are intended to serve several purposes. First, they give a concise description of each country's demographic and socioeconomic characteristics. Second, they summarize the current status of population policies and programs, and provide an inventory of indigenous organizational and human resources for work in population. Third, each report presents substantive and policy-related results of one or more research projects. Finally, these reports offer practical guidelines for increasing awareness of population issues and strengthening the linkages among researchers, policymakers, and planners.

Initiation of the PDP Program in Sudan

Staff of Battelle PDP first visited Khartoum in December, 1979, to provide assistance in the preparation of the FY 1980 Country Development Strategy Statement. Dr. Susan Stout and Ms. Anne Kubisch were asked by USAID/Khartoum to prepare a profile of the poor in Sudan, with particular attention to an assessment of regional differences in basic human needs (see Stout and Kubisch, 1979 and PDP Trip Report #54 for a detailed account). The visit provided an excellent opportunity for Battelle to learn about Sudan and its unique demographic and development characteristics, as well as to establish a working relationship with USAID/Khartoum and leading members of Sudan's family planning movement. Since the visit occurred as the first PDP program was drawing to a close, Sudan was not selected for PDP activities until the beginning of the PDP II program in the summer of 1980. However, the visit did provide a base for the subsequent development of PDP activities in Sudan (see Trip Report #54 and the PDP II proposal).

During the summer of 1980, Sudan was selected for PDP technical assistance by AID/Washington and USAID/Khartoum. Principle factors in its selection included its size and political significance in East and North Africa, the fact that no progress had been made toward a population assistance strategy in the previous years, and the interest of USAID/Khartoum in policy development activities in Sudan, particularly in the area of human resources and social and health development.

As detailed in the following chronological overview, the PDP program started vigorously with a strategy development visit in September/October 1980 during which the Economic and Social and Research Council (ESRC), an arm of the National Research Council (NRC), a cabinet level scientific advisory body charged with policy analytic responsibilities for the development of GOS policy, expressed its interest in population policy research and the core project program of technical assistance.

Plans for a core project to collect and disseminate a broad range of population research, designed to provide knowledge key to the definitions of the objectives of population policy in Sudan, were finalized during a February, 1981 visit by Dr. Stout. At the same time, the ESRC and members of the then defunct National Population Committee began to view the PDP program as a useful context for re-establishment of the NPC. This ultimately became the primary objective of the PDP program in Sudan. The core project and two subsidiary projects developed at the Population Studies Centre at the University of Gezira were also designed to improve the availability and utilization of extant population research and clarify aspects of a possible population policy for Sudan, since it became clear during the early stages of project development that a considerable body of information, and more important, institutions and individuals in Sudan were interested in population policy and related activities but had not yet found a context for coordinated action toward these goals. The PDP program was designed to provide a context for building a series of activities to make this nascent network operative.

Chronological Overview of Activities:

A chronology of major events in the development of the PDP program in Sudan is outlined below.

<u>Date</u>	<u>Activity and Remarks</u>
December, 1979	Stout and Kubisch provide technical assistance to USAID/Khartoum in preparation of FY1980 CDSS and prepare background for possible inclusion of Sudan in PDP II program. See Stout and Kubisch, 1979 and Trip Report #54 for details.
September, 1980	Stout and Kubisch return to Khartoum for strategy development visit. Discuss core project and possible activities with ESRC, DSRC, University of Khartoum, MOH and others (see Trip Report #202).
November, 1980	First Draft Strategy for Sudan prepared and submitted for review to ST/POP/PDD and USAID/Khartoum.
February, 1981	Stout returns to Khartoum and works with ESRC on the preparation of a Core Project proposal titled "Aspects of Population Change and Development in the Sudan: Implications for Policy and Research;" USAID/Khartoum approves draft strategy. ESRC selected as core project institution since it will act as secretariat to re-established National Population Committee (see Trip Report #215). Discussions with President of National Population Committee initiated.
June, 1981	Under sponsorship of separate project, Stout returns to Khartoum with subcontract for core project to be signed by ESRC. ESRC objects to general provisions and details of subcontract, negotiations momentarily suspended (see Battelle Internal Trip Report, July, 1981).
October, 1981	Stout and Kocher return to Khartoum, are unsuccessful in re-negotiating core project subcontract with ESRC; however, do develop an agreement to work directly with the National Population Committee to assist in the preparation of the Proceedings of the results of the National Population Conference which NPC proposes to implement on its own. Project proposal for a regional analysis and presentation of 1973 Census data submitted to Battelle PDP by Population Studies Centre.
November, 1981	Revised Draft Strategy for Sudan, reflecting change from ESRC to NPC institutional base submitted to AID/Washington and USAID/Khartoum, subcontract for PSC project prepared and approved. Dr. Osman Nur, then returning to Khartoum from University of Michigan, submits proposal for a study

of infant mortality and reproductive behavior, based on Sudan Fertility Survey (SFS), to Battelle PDP. Proposal is modified and subsequently approved by Battelle, AID/Washington and USAID/Khartoum.

- January, 1982 Stout returns to Khartoum to provide assistance and to secure signatures to revised agreement with National Population Committee and PSC project. Contact with core project authors indicate work is proceeding in spite of subcontract problems with ESRC and prospects for successful conference are 'cautiously optimistic' (see Trip Report #242).
- March, 1982 Battelle PDP receives confirmation of firm dates for National Population Conference.
- April, 1982 National Population Conference held, with patronage from the President of Sudan, in Khartoum with wide publicity and considerable impact. Subcontract for Nur project signed with Population Studies Centre. Stout and Kubisch provide technical assistance during Conference and handcarry Proceedings to Washington for preparation of English volume.
- June/July, 1982 Editing and production of Proceedings conducted in Washington; discussions underway on Battelle PDP collaboration with The Futures Group for conduct of RAPID presentations in Sudan, under auspices of NPC. Follow-up plans for future work at NPC submitted to USAID/Khartoum and Africa Bureau.
- July, 1982 President of NPC and two members of NPC Steering Committee visit Washington en route from USAID sponsored visit to Mexico and brief Office of Population and other population organizations in Washington on the activities, objectives and plans of the NPC.
- February, 1983 Stout returns to Khartoum to finalize plans for the preparation of the Arabic version of the Proceedings of the National Population Conference and monitor progress on the two PSC projects; also assists The Futures Group in presenting RAPID to members of the NPC, US Embassy, and leaders of the MOH, and in securing invitations for a presidential level presentation later in 1983. Copies (950) of the English Proceedings delivered and distributed in Sudan.
- April, 1983 Final report for Dr. Nur's study of infant mortality and reproductive behavior submitted and approved, project closed. Second project at PSC, after some delay gets to draft stage, preparations for Arabic proceedings near completion.

Part I: Country Background:

Adequacy of Population and Development Information

Demographic data for the Sudan are limited and of very poor quality. The most recent population censuses were conducted in 1956 and 1973, but most of these data have never been analyzed. A Third census was conducted in February, 1983 and the results of this are currently under preparation. Preliminary tabulations indicate that this census reveals a total population of approximately 21 million; final results will likely be available for analysis in late 1983 or early 1984. The Sudan Fertility Survey (SFS), taken in 1979, provides another source of data for the Northern region of Sudan (logistic problems prevented its implementation in the South) and its results were distributed in Sudan in 1982. Secondary and detailed analyses of the SFS have been limited thus far to a single PDP sponsored study of infant mortality, and there is a need to translate the reports of the survey into Arabic for greater utilization. Consequently, current demographic indicators are based largely on projections and estimates. UNFPA conducted a needs assessment in Sudan in 1979 and this provides an important source for estimates. The Sudan does not now have an operative vital registration system, though one is developing under AID and UN support. Development data is similarly restricted and of generally low accuracy. Principle responsibility for economic monitoring is based at the Ministry of Finance and Economic Planning which depends on the Department of Statistics and the Census Office for demographic support. Only one household budget survey has been undertaken in the last 10 years, and this has not been widely disseminated. The strongest data base is that used for agricultural planning and investment and this is currently being redeveloped with outside technical assistance. The weaknesses in Sudan's available data, and data collection/utilization systems has been identified as a major constraint to development in Sudan by most outside donors.

Population Characteristics and Trends

The principal demographic characteristics of the Sudan are listed in Table 1. The most recent estimate of the size of the Sudanese population is nearly 20 million (the 1983 census estimate above is unofficial). Sudan is characterized by low population density, rapid growth and continued high fertility and mortality. The age structure is sharply pyramidal, implying a high momentum for future growth. At the current rate of natural increase (3.1% per annum, PRB, 1980) the population of Sudan will double by the year 2002. The dependency ratio of 93% shows that each productive adult has to support not only his own role in the economy, but that of .93 other persons (as opposed to .45 for every productive adult in the U.S. economy). Sudan's population is highly mobile. Approximately 20% of the Sudanese people are in semi- and nomadic-tribal groups; in addition, rural-urban population flows are significant, as indicated in an urban population growth rate of 7%.

The Sudan Fertility Survey, the findings of which were presented during the Battelle PDP supported National Population Conference, provides important new data on fertility levels and trends in Sudan. The SFS estimates the Total Fertility Rate (TFR) in Sudan at approximately 6.9 children per woman. Fifty one percent of all ever-married women say they have heard of some

contraceptive method, with younger, urban and educated women showing greater knowledge than older, rural and illiterate women. The SFS estimates that 12% of ever-married women have ever used contraceptives, with urban and educated women more likely to have ever used a method than rural, uneducated women. Only 6% of women exposed to pregnancy who are currently married, fecund and not pregnant are currently using any contraceptive method (Ministry of National Planning, 1982).

It is important that the Sudan's demographic characteristics, typical of those found elsewhere in Africa, be evaluated within the context of its natural and human resource base. (See Table 1 for summary indicators.) The largest country in Africa, Sudan is approximately the same size as the United States east of the Mississippi River, and three times the size of Texas. The Sudan's most valuable resource is the wide availability of potentially arable land. However, one of the major constraints to the development and utilization of this resource is the low educational and health status of the population. Overall literacy is estimated at 20% and life expectancy at birth is estimated to be 46 years. There are wide regional differences in basic indicators across the major regions of the Sudan, for instance, life expectancy in the South is estimated to be 12 years lower than that in the North (Farah, 1983). It is not surprising, therefore, that many Sudanese feel that population size is not itself a problem in the Sudan. Rather, current population dynamics--particularly high fertility, close child spacing, and high infant mortality--are obvious constraints to the development of an improved quality of life. In addition, population mobility, particularly the flow of nomadic and seasonal labor through the principal agricultural production areas (see Map 1), frequent shortages of short-term labor in these regions, and the extensive brain drain of all forms of skilled labor to the Gulf States, are viewed as significant population problems. (For example, the government recently estimated that 8,000 student doctors have left Sudan, along with 40% of the staff of the National Research Council.)

Development characteristics

The Sudan faces a severe balance of payments deficit due to extensive over-borrowing during the mid-1970s. Efforts are now underway to renegotiate foreign debts, and further capital lending from the IMF is expected. The financial crisis is exacerbated by declining yields in the modern agricultural schemes in the central region which are the primary source of foreign exchange earnings. One result of these problems is that concern with human development issues (e.g. health, education, and population policy and programs) takes a lower place on the "priority list" of various government leaders than may be desirable. One analysis shows that expenditures in the social services have declined more in absolute terms, and relative to other expenditure categories under these conditions (Vogel and Greenspan, 1979:30).

At the same time, as evidenced by intensive activities in the health and education sectors, the GOS is committed to meeting basic human needs as resources (internal and external) allow. Government support for activities relating to the role of Sudanese women in development, for extending educational services to rural areas (e.g. the Universities at Gezira and

Map 1.

The Sudan



Source: The World Bank, "Memorandum on the Economy of Sudan," Report No. 2652-SU, Eastern Africa Region, Country Programs II, October 24, 1979.

Demographic Indicators

Population (mid-1983)		20,600,000 ^a
	Urban	24.8 ^c
Population by Year 2000		33,200,000 ^a
Annual Rate of Growth (1975-80)		3.18 ^d
Annual Rate of Growth (1955/56-73)		2.2 ^e
Annual rate of urban growth		7.4 ^e
	North	7.1 ^e
	South	10.9 ^e
Annual rate of rural growth		1.5 ^e
	North	2.0 ^e
	South	0.03 ^e
Crude Birth Rate (per 1,000) 1960/80		47/47 ^b
Crude Death Rate (per 1,000)		25/19 ^b
Total Fertility Rate		6.7 ^b
Natural Increase (Annual		3.0 ^b
Infant Mortality Rate (per 1,000)		123 ^a
	North	67/82 ^f
	South	100/142 ^e
Average Household Size		5.06 ^e
Population Under 15 Years		44.0 ^a
Population Over 65 Years		3.0 ^a
Dependency Ratio		89 ^g
Women 15-49 Years		44.9 ^h
Median Age (Years)		17.9 ⁱ

Demographic Sources

- a Population Refence Bureau, 1983. World Population Data Sheet, April, 1983.
- b IBRD, World Development Report 1982.
- c United Nations, 1982. Demographic Indicators of Countries: Estimates and Projections as Assessed in 1980.
- d IBRD, 1979. Memorandum on the Economy of Sudan
- e International Labour Office, 1976. Growth, Employment and Equity: A Comprehensive Strategy for the Sudan.
- f Berry, L., et al., 1979. East Africa Country Profiles: The Republic of Sudan.
- g Nortman, Dorthy L. Population and Family Planning Programs: A Compendium of Data Through 1981.
- h UNFPA, 1979. Sudan: Report of Mission on Needs Assessment for Population Assistance.
- i IBRD, 1979. Social and Economic Data Base (Sudan).

Development Indicators

Physical Quality of Life Index		34 ^a
Population Density (per km ²).		7 ^b
	Khartoum	55.6 ^b
	Upper Nile	3.2 ^b
Potential Arable Land (as % of total)		14 ^c
GNP per Capita (\$U.S.)		410 ^d
Average Annual Growth 1960-80		-0.2 ^d
Average Annual Household Income (1-U.S. \$2.50 5/79)		189 ^e
	Rural	148 ^e
	Urban	411 ^e
	South	80 ^e
Gini Coefficient		.42 ^e
	Rural	.35 ^e
	Urban	.40 ^d
Labor Force (% of Population Working Age) 1960/80		53/53 ^d
	Agriculture	86/72 ^d
	Industry	6/10 ^d
	Services	8/18 ^d
Average Annual Growth of Labor Force 1970-80/1980-2000		2.3/2.7 ^d
Percent of Women in Total Labor Force		10 ^g
Population per Physician 1960/80		33,420/8,780 ^d
Population per Nursing Person 1960/80		3,030/850 ^d
Percentage of Population with Access to Safe Water 1975		46 ^d
Population Malnourished		30 ^f
Adult Literacy Rate 1960/77		13/20 ^d
	Males	27.6 ^h
	Females	6.0 ^h
Primary School Enrollment 1960/79		25/51 ^d
	Male 1960/79	35/60 ^d
	Female 1960/79	14/43 ^d
	Rural	19.4 ^h
	Urban	64.2 ^h
	South	22.0 ⁱ
Secondary School Enrollment 1960/79		3/16 ^d
	Rural	2.5 ^h
	Urban	41.8 ^h
Enrollment in Higher Education as % of of Population Aged 20-24		2 ^d

Development Sources

- a Overseas Development Council.
- b UNFPA, 1979. Report of Mission on Needs Assessment for Population Activities.
- c IBRD, 1979. Sudan Agricultural Sector Survey.
- d IBRD, World Development Report 1982.
- e International Labour Office, 1976. Growth, Employment and Equity: A comprehensive Strategy for the Sudan.
- f Population Reference Bureau, 1982 World's Children Data Sheet.
- g AID, July 1979 Sudan Health Sector Support Project Paper.
- h Berry, L., et al., 1979. East Africa Country Profiles: The Republic of Sudan.
- i International Labor Office, 1976. Population and Manpower in the Southern Region of the Sudan.

Juba), and for the implementation of an effective primary health care system indicate an awareness among Sudanese leaders of the importance of investments in human capital to the achievement of equitable patterns of development.

Steps toward achieving goals in basic human needs have only begun. Debate over the relative priority of productive investments (e.g., in modern agriculture or basic transportation and communication infrastructure) continues both within USAID and the GOS. There is therefore considerable potential for building awareness of population factors into specific projects and programs in relevant sectors at an early stage of design.

The Sudan is characterized by extraordinary regional variation in culture, economic potential, resource base, and social organization. Differences between the South and the politically dominant, Arabic-speaking North and Central Regions are exacerbated by poor transportation (the Sudan has a total of approximately only 1500 miles of paved road) and communication links. A 17-year civil war between the regions ended in 1972, but political strains between the regions, and financial dependency of the South on the North continue to threaten political and economic stability.

Partially in response to this diversity, the GOS has decentralized major government programs to six regional offices. As planned, each region will have separate budgetary and administrative responsibility for planning and implementation in major development sectors. While still in the planning stages, this shift suggests that future policy support activities should include planners and decision makers at regional levels. Decentralization may also influence the development of administrative infrastructure for planned expansion of primary health care services (including family planning services) to rural areas.

In summary, the Sudan is a vast, extremely poor country with significant potential for economic growth through improvements in agricultural production. The speed with which the Sudan moves toward realization of this potential is constrained by extreme gaps in available economic, communication and transportation, and administrative infrastructure. Extraordinary investments in human capital will also be vital for achieving the Sudan's development potential. The Sudan's demographic situation, particularly its high rate of growth, will inevitably increase the costs of these investments. Efforts to improve the quality of life and human capital, including those directed at solving demographic problems, can therefore contribute significantly to the achievement of Sudan's development potential.

Status of existing population policy and political/social climate for population policy

Interviews conducted by Battelle PDP in September 1980 and February 1981 showed that several population issues were important to government decision makers. These provided a basis for the design of the PDP program and for further elaboration of GOS policy positions relative to population concerns.

Population quantity vs. quality: Sudanese leaders do not feel that population growth is a problem for the Sudan. The ninth largest country in the world, the Sudan currently has 15 million of a possible 200 million feddans (1 feddan = 1.038 acres) of arable land (with access to irrigation) under cultivation. The low ratio of population to cultivatable land is seen as a constraint to increasing agricultural productivity. This perception, in the context of an Islamic religious and cultural tradition, supports caution about a population policy focused on limiting the absolute size of the population--or controlling fertility for the sake of slowing population growth. While this form of opposition to population policy had not been articulated in a formal way, individuals active in family planning emphasized that policy level discussions of population issues should take these preconceptions into account. It was thus important that efforts to widen awareness of the interrelationships between population and development concentrate on the implications of the Sudan's high rate of growth rather than absolute size, and the positive benefits of achieving population growth at a more manageable, and healthier (for mothers and children) pace.

Migration: During one of our visits, President Nimeri, in a nationally broadcast radio speech, drew attention to the "brain drain" currently threatening the economy of the Sudan. The effects of out-migration of Sudanese workers from all occupational levels to jobs and much higher salaries in the Gulf states is felt throughout the public and private sectors of the economy. The Ministry of Planning, among others, is concerned that policy responses to this population issue be developed as soon as possible. However, this policy must be designed in an information vacuum since there are essentially no data for analyzing the dimensions of the brain drain problem.

Internal migration is also important to GOS planners, particularly the flow of migrant labor from Western Sudan to the Central Region. Migration dynamics, particularly migratory flows to the Central Region, may influence the productivity of these vital agricultural schemes. Analysis of the influence of increasing man/land ratios in the Central Region (rather than countrywide) for agricultural productivity is another important policy issue. Disaggregation of the question of population density may change current opinions on the relevance of population growth to Sudanese planning.

Existing population intervention programs

Ministry of Health: Discussions in the MOH and among private organizations working in family planning (SFCA, SFPA) provided opportunities to learn about current attitudes on family planning as a service activity. The GOS has made a high-level commitment to the general premises of Health for All by the Year 2000 and receives assistance to achieve these goals from WHO (with UNFPA participation) as well as USAID. Sudan's plan for HFA/2000 includes a plan to promote improvements in maternal and child health services (including family planning), especially in the rural areas of the country (MOH, 1980). Developing activities in maternal and child health are a key component of the GOS's approach to implementation of a primary health care system. However, several individuals in the Ministry of Health, including Dr. Shakir Musa, the Undersecretary of the Ministry and Deputy Director General for Rural Health Care, emphasize that family planning is a very sensitive issue in the Sudan.

They, and Dr. Micka of USAID, stress that family planning services are usually referred to as family health activities whose objectives are improved child spacing, reductions in pregnancy wastage and improved maternal health rather than population control. The activities now underway through the MOH, as well as in several donor supported projects (e.g. the Columbia Family Health Project and the UNFPA supported MCH/FP project based at Omdurman Hospital), provide an important base for the development of a family planning infrastructure.

Demographic data: Ministry of Health officials told Battelle PDP that the lack of demographic data in the Sudan constrains the further development of a national population policy, and health planning and management activities in general. The Sudan does not yet have a system of vital registration, though plans are being made to integrate this function into the primary health care system, according to Dr. Omar El Begir and Mr. Hillard Davis. Dr. Musa told us that as a result it is difficult to establish priorities for the development of MCH/FP services, or to identify and respond to regional variation in needs for preventive and curative health services.

The MOH's interest in improving MCH/FP care, its strong commitment to the development of a primary health care delivery system in the rural areas and felt need for better health and population data, are important elements of a future commitment to a broad based population policy. The Rural Health Support program currently being implemented by USAID/Khartoum will be exploring these opportunities.

Other Family Planning and Health Initiatives:

Private voluntary organizations first developed family planning services in the Sudan. Dr. A. R. Attabani, the President of the Sudan Family Planning Association (SFPA) and "grandfather" of family planning in the Sudan, has provided leadership to the movement for twenty years. The SFPA has secured the tacit support from the MOH for use of its facilities for family planning clinics, and has successfully secured a contribution to IPPF from the GOS. There is a continuing need for improved development and coordination of various service providers in Sudan.

The Sudan Fertility Control Association (SFCA), supported by IFRP and AVAS, has also provided leadership for the development of family planning. Led by Dr. Hadi El Zein and Dr. Hamid Rushwan, the SFCA conducts research on biomedical aspects of family planning, and communicates findings to members. Current research on the epidemiology of female circumcision (based at the Faculty of Medicine) and a study of maternal health and pregnancy wastage using the IFRP maternity records should be useful in clarifying needs for family planning in Sudan. The SFCA recently prepared a project proposal to build a model family planning clinic and related IE&C activities for USAID/Khartoum support. The project, approved by AID/Washington, is currently under review for local cost support at the Ministry of Internal Affairs, following failure to win local cost support from the Ministry of Health.

The most important family health initiatives in the service area are the efforts to strengthen MCH/FP activities through the MOH primary health care system. Both UNFPA and AID support is being used to bolster this effort. The

Columbia University Integrated Family Health Project, managed by Dr. A. R. El Tom at the Faculty of Community Medicine at the University of Khartoum, while not a part of the official government effort, is experimenting with techniques for training village midwives in 96 villages in rural Khartoum provinces as well as with techniques for strengthening village level participation in the conduct of the program. The project employs a comprehensive approach to family health, integrating the distribution of oral rehydration tablets with nutritional education and family planning service delivery. Dr. El Tom has launched serious efforts to evaluate the impact of the program through pre-and post-program surveys. Lessons from this project will be useful for the development of research on solutions to population and health problems in Sudan, and the development of further interventions of this type in the MOH. The Soba/Butri integrated MCH/FP and Nutrition project, supported by AID through FPIA, is also a source for future answers to questions concerning appropriate methods for introducing health services in rural (non-nomadic) areas of Sudan.

Other AID supported projects include efforts to train Sudanese physicians in the use of laproscopic equipment, and educational efforts directed to service providers through the JHPEIGO project. These efforts directly improve the family planning skills of the medical community and indirectly improve awareness of the health benefits of family planning. The UNFPA supported MCH/FP project, based at the Omdurman Midwifery Hospital, is also focused on training service providers, in this case village midwives and health visitors.

Several comments can be made about the character of current service provision efforts in the family planning/health field in Sudan. First, available resources are concentrated heavily on training service providers and trainers. There is as yet little activity in the development or dissemination of IE&C materials among potential acceptors of these services. There is also not yet programmatic attention to ensuring efficient distribution of contraceptive and other supplies to operating field level programs. Also, to date no consideration has been given to the possibility of promoting family health through commercial or private sector channels. Second, the fact that several different major projects are underway is beneficial in the sense that creative responses to the problems of delivering MCH/FP services in rural Sudan are more likely to be identified. However, as each program develops, there is some risk that competition among alternative approaches will also develop, leading to inefficient competition for project leadership and potential duplication of effort. Coordinated program development, and sharing of responsibilities for integrating experimental programs into emerging GOS initiatives will be important in future years. Finally, the village-oriented strategy common to all projects is particularly exciting in view of the increasing international interest in Health for All by the Year 2000. Lessons learned in Sudan can provide important input to the design of village oriented human resource projects in other countries, but only if deliberate efforts to learn from these experiments are developed. The effectiveness of family health approaches to meeting needs for fertility planning and reductions in maternal and child morbidity and mortality are particularly important topics for analysis, as is financial analysis of this approach to primary health care delivery.

Understanding migration problems

Several efforts to provide technical assistance to the GOS for developing the data base and research capability for policy analysis of the migration issue were initiated in mid-1981. The REDSO/EAS office is developing a plan in conjunction with USAID and the Economic and Social Research Council to conduct research on both the brain drain issue and the influence of internal migration on labor force dynamics and productivity in the prime agricultural areas. Also, the UNDP/IBRD Planning Advisory Team, a technical arm of the Ministry of National Planning, is implementing a field survey of labor force mobility in the Central Region in an attempt to elucidate the relative roles of economic (e.g. incentives) and demographic factors in determining the labor force shortages found in that region. The report of this survey should be available in the summer of 1983. Finally, the IPDP program is collaborating with the ESRC in the development of a program of studies in international migration. All three efforts will likely contribute to clarification of policy approaches to the Sudan's significant migration-related development problems.

Activities of Other Donor Organizations

Both UNFPA and USAID are developing population projects in Sudan. Following the Needs Assessment Mission in 1979 and the initiation of projects in MCH/FP training and family life education, the UNFPA has developed a program of service, training, and research in the population sector. There have been delays in implementing the program and not all component projects have been approved. The project officer, Dr. Faysal A. Gadir (based in the UNDP offices in Khartoum since July 1980), is responsible for coordinating the various projects. Severe budget cutbacks (estimated at approximately 75% of the original indicative planning figure) were made in the UNFPA/Sudan program in late 1981. UNFPA's largest impact has been in its support for the Third Population Census, conducted in early 1983. Efforts are currently underway to re-program currently available resources, and to coordinate UNFPA plans with those developing at USAID/Khartoum so as to maximize the effectiveness of the very limited resources now available for population activities in Sudan.

USAID/Khartoum has three major health projects (in various stages of implementation) and a collection of 14 centrally funded population projects. Dr. Mary Ann Micka, the Health Officer, has coordinated these activities since her arrival in Khartoum, also in July 1980. The activities of both donors are important to the development and implementation of Sudan's population policy.

The largest AID program in Africa, USAID/Khartoum is in the process of developing a strategy for its program, and is committed to integrating an approach to population and health issues into the strategy. Three large health projects (approximately \$18 million in bilateral funds) are designed to improve administrative and manpower infrastructure for primary health care. The Rural Health Support Project includes assistance for training village midwives in maternal and child health services, including family planning. This will be an important initiative for the future development and analysis of needs for family health services in Sudan. Components in the project are also designed to strengthen the collection and utilization of health information.

Centrally-funded projects executed by a range of PVOs and intermediaries (IPPF, JHPEIGO, FPIA, AEHA, IFRP, AVAS, RTI, Battelle) are key to the evolving population assistance strategy. Dr. Micka asked the Battelle team to assess the role of the various projects in a long-term population assistance strategy in view of our exposure to Sudanese perspectives on population policy. Our report, which analyzed possible goals, purposes, inputs, and outputs for a sectoral approach to population assistance, was submitted to Dr. Micka in October 1981.

Resources for Population Policy Research

A general survey of resources available for population policy research in the Sudan was conducted to assist in judging the feasibility of developing PDP activities. Members of public and private sector research institutions were interviewed. Primary institutions are described below:

The Development Studies Research Center (DSRC) of the faculty of Economics and Social Studies at the University of Khartoum (UK) provides an institutional base for coordination of various UK faculty resources for applied research on aspects of Sudanese development policy and programs. The DSRC conducts sponsored research and publishes research results for government and academic audiences. The DSRC is particularly interested in training UK students in development studies through its research activities. The DSRC has had experience in coordinating research efforts across the several faculties of the University, but has not developed a program or specific interest in population studies at this time.

A second important resource for applied and policy research is the National Research Council and its four specialized research councils--Agricultural Research Council, Science and Technology Research Council, Medical Research Council, and the Economic and Social Research Council. The NRC is responsible for the development and implementation of science policy in the Sudan. The four specialized councils are responsible for stimulating, conducting, and promoting research in their own areas of expertise. The Secretary General of the NCR sits on the Council of Ministers as a non-voting member.

The Economic and Social Research Council (ESRC) is potentially valuable as a resource for population and development studies. The ESRC is responsible for specifying priorities in scientific work in the sphere of economics and social welfare, especially as they relate to development planning. The ESRC attempts to encourage linkages, formal and informal, among various academic and governmental research institutions to prevent duplication of effort and promote attention to high priority issues. The ESRC has been active in the population field in the past. In conjunction with others in the population field, it coordinated activities of the National Population Committee for preparation of research on population issues in the Sudan in the early '70s. These activities culminated in a July 1974 population conference attended by the membership of what became the Sudan National Population Committee (NPC) and the preparation of background materials for the Sudanese Mission to Bucharest.

The ESRC had identified further development of population studies as an element of their future plans when we first visited Sudan. In particular, the ESRC was interested in acting as the secretariat to a reactivated National Population Committee. This proposal was formalized during 1982 and the ESRC currently has a General Secretary for Population (Dr. Atif Sagharayoun) and plans for the publication of a Population Studies Journal. The ESRC provides a useful mechanism for linking the larger policymaking community with population researchers. In playing this role, the ESRC places high priority on maintaining substantive linkages with other population researchers and institutions. It is particularly important that development of the Population Studies Center at the University of Gezira not be overshadowed by population research activities undertaken by the ESRC.

The Population Studies Center at the University of Gezira is in an early stage of development under UNFPA auspices. The University of Gezira, located at Wad Medani, is a new university oriented toward practical, field-based education in applied development fields. The new center shares this orientation. Funds have been allocated for hiring one expatriate staff member, a small documentation center and basic logistic support. Dr. Robin Mills, a former advisor on population and manpower development at the University of Juba with seven years of experience in the Sudan, joined the PSC as a full-time program advisor in January, 1982. Dr. Mills reports that efforts are now underway to hire at least two Sudanese post-graduate staff members for work in the PSC. Links between the UG, the PSC and research institutions in Khartoum (UK, ESRC) are strong, and the potential for sharing resources among these institutions is apparent to individuals in all settings. The PSC represents a key resource for future population research and policy analysis, and in our opinion, should receive continued and intensified assistance.

Other important resources for research on population and related issues include the Ahfad University for Women and the Babiker Bedri Scientific Association for Women's Studies (BBSAWS). The latter organization emerged from high level political concern with integrating Sudanese women into general development plans. The Association, led by an Executive Committee of highly trained women in economics, sociology, anthropology, business, law, and agricultural development, has initiated a study of needs of rural women in Sudan. The Association is able to conduct research with assistance from students at Ahfad University for Women. Members of the Executive Committee stress that pragmatic, problem-oriented research on women, their health and access to improved productive roles can only be met through continued logistical support for this type of research. Successful accomplishment of this goal requires continued links with other research organizations in Khartoum as well as direct support to the Association.

Each government ministry has one (or more) research departments; groups in the MOH and MOP are particularly relevant to population policy research and analysis:

Ministry of Health: The MOH's research and information capabilities are concentrated in the Directorate of Health Planning and Information. The lack of basic health and demographic data for the country and its geographic regions damages the MOH's health planning efforts as well. The AID-funded

Northern Primary Health Care Project is assisting the Ministry in its attempt to design and implement a national health information system, including vital statistics registration. This effort concentrates on the communication of basic data to the MOH through primary health care centers and the placement of statistical clerks in provincial and local level health facilities. Planning includes consideration of the problems of data collection and use at the village level. Reporting forms are being tested and a cadre of approximately 440 statistical clerks are being trained in health information management. Special efforts are underway to support the implementation of health information links with the Southern Regional health system. Facilities for data processing and management are limited at central, provincial, and local levels. The Ministry itself does not have computing facilities and contracts necessary data processing to the private sector and, occasionally, to overseas institutions. Data on such basic indicators as infant mortality and regional variation in causes of death are essentially unavailable. Most reporting from the health information system is restricted to descriptive statistics concerning numbers of facilities and personnel in the health system. However, data from the 1977-78 survey of infant and maternal mortality in three provinces are available in computer tapes at the Ministry, and a report summarizing the survey results was published in Spring 1981. Dr. Omar El Begir and others in the MOH feel that upgrading the capacity of the MOH to generate and utilize improved health information including basic demographic indicators in health planning is a high priority.

Ministry of Finance and Economic Planning: The Department of Statistics of the Ministry of Planning is a second key resource for population data and research. Dr. Omar El Tay, Director of DOS, and Dr. Wahab Medawi, Director of the Census and head of the Sudan's World Fertility Survey effort, brought us up-to-date on demographic data capabilities in the Department of Statistics of the Ministry of National Planning. The UNFPA is provided assistance to the Department for the third census, implemented in February 1982.

Results from the Sudan Fertility Survey, are now available through the Department of Statistics. The initial results were presented in tabular form in Khartoum in August, 1981, and the full report was distributed in Sudan in April, 1982. DOS plans to conduct three studies using these important data: a study of socioeconomic characteristics of the population from the household schedule, a report on the main tabulations from the women's schedule, and a report on the implications and methodology of the survey. DOS welcomes analysis of the available data by other research institutions and is eager to see the survey used in policy planning. DOS feels that it is important that the Final Report of the survey be published in Arabic to promote greater awareness of and utilization of the results of the SFS. The DOS computing facility, which is now on line and protected from electricity shortages with its own generator, will be available on a contract basis to other researchers for SFS and other types of analysis.

There are other research resources available in Khartoum. Dr. Mona Khalifa, a demographer based at the University of Cairo (Khartoum Branch) has conducted research on fertility and contraceptive attitudes in a three-town area and is interested in further research. The SFCA has the capacity to conduct record-based studies of reproductive health issues through its linkage with

IFRP. Potentially useful baseline surveys of village level health conditions will be available through the Columbia and the Soba/Butri family health projects. Utilization of these resources can enhance the creation of a body of population policy studies in Sudan.

Opportunities and Needs for Population Policy Assistance

Population policy research and demographic analysis are only useful to the degree that they are presented in interpretable form to policymakers. At the time Battelle PDP was preparing its strategy for Sudan, two approaches to ensuring that sponsored research would be disseminated at the policymaking level were identified.

Sponsor Population Policy Analytic Research:

Discussions with leaders in both the MOH and MOP indicated that there was considerable interest and support for the expansion of Sudan's capacity to develop a population policy. But, as Dr. El Tay expressed, formulation of policy requires that data relevant to understanding the linkages between Sudanese population dynamics (fertility, mortality, and migration patterns and trends) and development prospects (economic growth, current and projected basic human needs, etc.) be available. Studies are required that analyze these relationships and, further, researchers and analysts must have the time and money to perform the difficult task of defining potential policy interventions to meet agreed-upon goals. This kind of work will not be performed without resources explicitly devoted to the task. There was a need to develop mechanisms for enhancing demand for this type of work and coordinating resources for policy development already available in the Sudan. Leaders in both the MOH and MOP indicated they would also support activities oriented toward diffusing the results of policy research among their counterparts in other political administrative forums.

Re-establish National Population Committee:

Interest in re-establishing the NPC among leaders in the population movement in Sudan, researchers, and a leading member of the Sudanese Socialist Union (SSU) provided a second and highly influential channel for communication of the results of policy studies and creation of linkages among service, research, and policymaking groups. Mrs. Nafisa Ahmed El-Amin, one of thirteen members of the President's Advisory Council, leader of the Women's Federation of the SSU, and Member of Parliament from Khartoum Province, indicated to us in February 1981 that she felt "the time is ripe" for reviving the NPC, and that this would be an appropriate base for articulating needs for population policy. Fortunately, Mrs. Nafisa's interest in new activities for the NPC coincided with emerging interest in population studies at the ESRC, which had worked with the NPC's predecessor institution, and with important developments in the Sudan's demographic and policy research resources at the PSC in Wad Medani, the Department of Statistics, and the Ministry of Health. The growing interest in re-establishing the NPC during 1981 culminated in September with a formal call for re-establishment of the NPC from the President of the National Research Council, and a first meeting was held in September, 1981. One outcome of this meeting was the foundation of a Program Steering Committee

charged with responsibility for developing the NPC's 1981-82 Work Plan. Further information on the objectives and proposed activities of the NPC follows. Figure 1 is an organizational map showing the NPC and its relationship to other Sudanese research and policymaking bodies at the time our final strategy was developed.

a. Objectives of the NPC: The NPC's ultimate objective is to raise awareness of population issues within the GOS and to contribute to the development of a national population policy. In the short term, the NPC would like to lobby for the formation, by Presidential decree, of a National Population Council as the institutional base for the design, implementation and evaluation of a national population policy. The NPC felt it was particularly important that these objectives be pursued in 1982-83 since the GOS will prepare the Third Five-Year Plan in 1983, and a Presidentially mandated Council could facilitate the integration of population variables with components of the Plan.

b. Activities: The NPC (through the Program Sub-Committee) planned several activities to achieve these objectives:

- Sponsored a National Population Conference in early 1982, along the lines detailed in the original Core Project proposal. The Sub-Committee hoped to invite international participants to the Conference. Dr. Ibrahim said that the costs of the Conference (though not of the international participants) would be met with the ESRC's own resources. No local resources were available for the printing and dissemination of the Conference Proceedings.
- There were also hopes for a second population conference in 1982, designed to concentrate on the census planned for implementation in November 1982. The Conference was ultimately not held, though the NPC did contribute strongly to the public relations campaign promoting cooperation with the Census.
- The NPC hoped, and continues to plan, for a series of monthly lectures or informal meetings on population issues. These sessions would provide a setting for sharing information among the various members of the population community now active in the Sudan and for strengthening linkages among these groups.

The NPC, with representation from the several population service organizations, and decision makers from other ministries, provides an important forum for high level discussions of the implications of applied research and analyses of population issues for the evolution of a Sudanese national population policy.

Part II. The Battelle PDP Strategy

A Note on Strategy Development in the Sudan

Our first strategy for the Sudan resulted in the development of a core project at the ESRC which reflected a solid match between Battelle PDP's program

methods and policy needs in the Sudan. Events during the summer and fall of 1981 led to significant alterations in this approach which will be described here.

Based at the Economic and Social Research Council (ESRC), a subdivision of the cabinet-level National Research Council, the core project was designed to focus research attention on the problem of defining the appropriate goals for a population policy in the Sudan. Papers were to be prepared to highlight aspects of population change and growth on both macro and micro level development issues in the Sudan. The ESRC was selected as the base institution for the coordination and implementation of proposed work because of its prestigious reputation, previous and current interest and capabilities in population research, and strong links with population activists, particularly the emergent NPC, the general research community, and leading governmental decision makers. Earlier versions of the Battelle PDP strategy, available at AID/Washington give details of the research and dissemination activities proposed by the ESRC for accomplishment of the original core project objectives.

A key component of the original core project plan was the possibility of linking Battelle PDP program support to the ESRC with the reactivation of the National Population Committee (see above). The ESRC, which played a key technical role in the original establishment of the NPC in 1974, proposed to act as the secretariat for reactivation of the NPC. Thus, core project activities (preparation of analytical papers, symposium, government commentary and publication of the project results), to be funded by Battelle PDP, would indirectly provide a context and necessary technical and financial resources for the further development of the NPC and its program objectives.

This serendipitous link between the interests of Battelle PDP and the Sudanese interest in the re-establishment of the NPC at the ESRC and elsewhere in the Government of Sudan, led to significant changes in Battelle PDP's program of activities. In the summer of 1981, the leadership of the ESRC approached the National Research Council for support of the core project in anticipation of successfully, and promptly, finalizing a formal subcontract with Battelle--in effect, seeking an advance for the proposed work. Sadly, this unusual display of enthusiasm resulted in the eventual collapse of the ESRC/Battelle PDP working relationship in September, 1981, since our subcontract language eventually proved unacceptable to the ESRC, which then took the decision to continue the project with NRC resources, unsupported by Battelle PDP. (See Trip Report #236 for a more complete discussion of these events and Battelle PDP's unsuccessful efforts to revise the project documents to meet the ESRC's needs.)

The changes in the ESRC's approach and financial arrangements for conduct of the core project (using National Research Council funds) ultimately resulted in changing the focus and elements of Battelle PDP's strategy for policy support work in the Sudan. In particular, since the ESRC, in conjunction with the reactivated NPC, planned to conduct the basic elements of the core project (at a somewhat lower level of effort), Battelle PDP's resources were allocated to the development and implementation of additional activities to complement those developing at the ESRC/NPC. The rationale and descriptions of the activities by PDP are provided in the following section.

Rationale for Activities

The overall objective of the PDP program in Sudan was to promote and strengthen awareness of the significance of population growth and change on aspects of development among governmental and research communities. This was to be accomplished through the development of applied research projects to exploit available data and previous research and draw attention to population policy issues not yet on the political and administrative agenda of the leadership of the Sudan. We anticipated that the re-establishment of the NPC would provide an excellent channel for ensuring that sponsored research would be communicated to appropriate decision makers. Two activities were developed to accomplish these objectives:

- Supporting and encouraging the re-establishment and further development of the National Population Committee through both formal and informal means. This support was provided through the implementation of a "Core Project" with the National Population Committee. This project involved the development of eighteen papers by local researchers which summarized various aspects of already available data and research pertinent to population policy. For instance, the findings of three special surveys on fertility in Sudan were summarized by one of Sudan's leading demographers for the project. A second component of the project, and as it turned out, the most important component, was to disseminate the information developed through these papers to leading government officials through holding a National Population Conference. The purpose of this conference was to discuss the implications of each of these papers for the definition of a population policy appropriate for Sudan. (See Knowledge Dissemination below for more details.)
- Sponsoring, through subcontracts, applied policy analytic research on themes and issues critical to the further development of population policy in the Sudan. These activities were designed to focus on the problem of dissemination of research results, through the NPC and other channels, and sought to enhance both research implementation and research communication capabilities among participating institutions, particularly the Population Studies Centre. Two specific research projects were implemented at the Population Studies Centre. The first involved the preparation of a simple descriptive analysis and cartographic presentation of the results of the 1973 Census for distribution to administrators and policy makers at the regional level of the GOS. The second involved an analysis of the relationship between infant mortality, child spacing and fertility in the Sudan through secondary analysis of the results of the Sudan Fertility Survey.

Our overall program was designed to build up interest and capabilities in applied population research on one hand, and demand (at the governmental level) for further action, including foreign assistance, for population related programs on the other.

Description of Projects

Battelle PDP supported three projects to accomplish the objectives outlined above. While we describe each of these separately in the following sections, our approach to the development of the projects, and to the implementation and monitoring of them once in place, emphasized creating linkages, formal and informal, among the projects, multiplying the impact of each project.

a. The National Population Committee: Preparation of the Proceedings of the National Population Conference (P231SU/H818A):

As discussed above and in Trip Report #236, the ESRC had successfully located resources for implementation of most of the components of the original core project plan. Even more significantly, the NPC, formally reactivated, held two meetings, one involving the full membership and one of the Program Sub-committee, in the Fall of 1981. The Program Sub-committee charged with developing the work plan for the overall NPC, concentrated on a plan and background papers for a National Population Conference to be held in early 1982. This plan was based on that developed in the core project discussions with the ESRC and relied on the resources of the ESRC and the National Research Council for implementation. Although the ESRC was able to secure resources for the proposed National Population Conference in early 1982, they were unable to secure support for the publication of the papers and commentary to be prepared prior to and during the Conference. In discussing the Program Sub-committee's plans with Dr. Ibrahim (Director of the ESRC) and subsequently, Mrs. Nafisa (Chairperson of the NPC), it became clear that Battelle could contribute to the achievement of the NPC's goals by helping to support the preparation and distribution of the proceedings of the proposed National Population Conference.

Accordingly, Battelle PDP prepared and secured necessary approvals for financial support to the NPC for the preparation of a volume to be titled "Proceedings of the National Population Conference" for implementation with the NPC. The support was provided in two stages to allow for maximum flexibility given the indefinite nature of the plans for the National Population Conference. First, an implementation schedule was agreed upon between the NPC and Battelle PDP which stipulated that the assistance would only be available to July 31, 1982, to provide an incentive to the organizers of the NPC and the proposed paper authors to complete their work on a timely basis, and in accord with Battelle PDP's own contractual schedule.

The implementation schedule also provided for three Battelle PDP visits to Khartoum, to attend the Conference, and later to share the draft volume of the Proceedings with authors in Sudan following preparation here in Washington, for overall monitoring and support of the activity. These visits provided a context for continuing our contacts with the NPC and various of the proposed authors as well as opportunities to provide technical assistance in the preparations and dissemination of the Conference proceedings on an "as requested" basis. This approach facilitated the preparation of the papers in Sudan according to NPC/ESRC plans and priorities, and the preparation of the proceedings in a report volume here in the U.S. faster than would be possible in Sudan.

Second, we prepared a simple subcontract with the NPC for distribution of the Proceedings once they were available. This subcontract provided for the staff time and materials necessary for the distribution of the Proceedings in the Sudan and among selected organizations in the international population community. In addition, the subcontract stipulated that Mrs. Nafisa visit Washington, D.C. at the close of the project. This visit provided the leadership of the NPC with an opportunity to brief leading members of the donor community on the activities of the NPC, and particularly, the conclusions and recommendations of the National Population Conference as they relate to future population assistance needs.

b. The Population Studies Centre at the University of Gezira: "The Population of the Sudan and Its Regions: The Current Situation, Trends and Implications." (P232SU/H820):

A second component of Battelle PDP's strategy for the Sudan was also directed at strengthening awareness of population issues. This project, based at the new Population Studies Centre at the University of Gezira, concentrated on dissemination of key demographic data in a readily usable format among decision makers and administrators throughout the GOS. More specifically, the project involved the preparation and dissemination of a two volume report on the 1973/74 Census. This Census contains the only national demographic data available for the country, and, with the exception of some highly technical reports, had not been well disseminated. In addition, while the Sudan recently restructured its government along six new regional lines, and is preparing a Third Five-Year development plan in 1983, no efforts had yet been made to make demographic data available in usable form to various planners and planning agencies organized along the newly established geographic/administrative boundaries of the GOS. The report employs cartographic and simple descriptive tables as well as easily digested text (in both English and Arabic for a first summary volume) to present the basic demographic analysis of these data in terms of planning needs in several sectors. The project was also valuable as a model for developing methodologies and tools for making the results of the 1983 Census available to policymakers in the Sudan once these become available.

The project was implemented through a subcontract with the PSC. Dr. Robin Mills, a UNFPA-funded advisor to the Centre, agreed to help coordinate the effort and advise graduate population research students and other staff of the Centre in conducting the work.

c. The Population Studies Centre at the University of Gezira: "Infant and Child Mortality and Its Effect on Reproductive Behavior in the Northern Provinces of Sudan" (P233SU/H820):

In the late fall of 1981, Dr. Osman Nur, a recent graduate of the demography program at the University of Michigan, submitted a proposal to Battelle PDP to conduct secondary analysis of the SFS to analyze the relationship between infant and child mortality and fertility in Sudan. The proposal, after some technical modification, was developed into a subcontract based at the PSC which was formally signed in April, 1982. The project included the production of a monograph reporting the results of the study, and English and Arabic

policy briefs summarizing the implications of the research for policymakers. The project was the first secondary analysis of SFS data conducted in Sudan. Dr. Nur performed the data analysis for the project during a two month visit to the University of Michigan in the summer of 1982, and prepared the reports for the project in Khartoum and Wad Medani during the late fall and winter of 1982/3. The reports were produced and distributed from the printing facilities of the PSC.

Subcontracting Institutions and Individuals

a. National Population Committee: A description of the structure of the National Population Committee as well as its objectives and activities is provided above. As a voluntary Committee organized by the National Research Council, the NPC serves as a forum for initiating high-level discussions of population issues and 'lobbying' the GOS for the formation of a national population policy. The NPC hopes to contribute to the formation of a more permanent institution within the government charged with responsibility for population policy research, design, and implementation. As a new organization, the NPC clearly required assistance in implementing its program plans; carrying out the Proceedings project was useful in this respect.

Mrs. Nafisa Ahmed El Amin is currently the Chairman of the NPC. A leading politician in the Sudan, Mrs. Nafisa sits on the Politburo as one of the thirteen key advisors to President Nimeri and is also head of the Women's Federation of the Sudanese Socialist Union (the dominant political party in Sudan's one party government). Her longstanding interest in such issues as improving the health and status of Sudanese women, as well as more general political/administrative issues in Sudan (for instance, decentralization), and access to and visibility within top levels of the SSU and GOS will undoubtedly strengthen the impact of the NPC's program.

b. Population Studies Centre/University of Gezira: The University of Gezira was established in 1978 as a development-oriented institution with Faculties in Agriculture, Medicine, Science and Technology, and Economics and Rural Development. Located in Wad Medani, a major town in the irrigated agricultural area of central Sudan, the University is rapidly emerging as a leading resource for development research and planning expertise in the Sudan. In addition to having a mandate for serving the needs of rural development planning in several sectors, the University has already established a reputation for pragmatic research, training, and demonstration projects in both agriculture and in its highly innovative medical education program. In addition, the University is well-placed to draw upon the considerable research capabilities associated with the Sudan Gezira Scheme, such as the Agricultural Research Corporation and the Blue Nile Health Project, also located in Wad Medani.

The Population Studies Centre was created with support from the UNFPA to the Faculty of Economics and Rural Development in the late 70s. Although financial support to the Centre has been limited to date, the PSC has successfully conducted several research studies on subjects such as migration in the agricultural areas and child mortality, and conducted an international

seminar in 1979 on labour supply in the irrigated schemes of the Sudan. The Population Council has worked with the PSC, and supported an academic advisor to the Centre for work on migration issues in that setting during 1979.

At the time our projects were designed the PSC was chaired by Dr. Ali Mohammed Hassan, Dean of the Faculty of Economics and Rural Development and former Director of the Economic and Social Research Council (ESRC) in Khartoum. In the latter role, Dr. Ali was co-chairman of the First National Population Conference implemented in preparation for the World Population Conference in Bucharest in 1974. Unfortunately, the initial proposal to the UNFPA for formation of the PSC was not fully funded, although it did provide for a staged approach to the development of the institution and some of the basic needs of the Centre (vehicles, initial documentation, etc.). The PDP program was thus able to contribute to the PSC's limited resources for applied policy research through the two projects described above.

Project Monitoring and Technical Assistance

Battelle PDP fully supported the development and successful implementation of these projects through active and steady monitoring of the projects in Washington and through periodic country visits. Monitoring and technical assistance were also supported by USAID/Khartoum which provided important backup in communications and contacts with the project implementors. We also made arrangements to work through the UNFPA Project Coordinator in Khartoum to maintain steady communication with the Population Studies Centre at the University of Gezira.

a. National Population Committee: Our support to the National Population Committee was implemented through two mechanisms. First, a simple subcontract was signed with the National Population Committee for financing the distribution of the proceedings with the Sudan. Second, we prepared an implementation schedule outlining the commitments of both Battelle PDP and the NPC for ensuring that the materials are made available and necessary preparations completed in a timely fashion.

Battelle PDP visited Khartoum three times to monitor and support the NPC and PSC projects, following formal approval of the subcontracts for each of the projects.

Visit 1: (See Trip Report #242.) In January, 1982, Battelle PDP visited Khartoum to discuss and agree on the proposed implementation schedule for the NPC project. Early plans for the Conference were discussed during this visit, and although the NPC was clearly hoping to develop the Conference, it was not clear whether the Conference would actually occur. The visit also provided an opportunity to discuss, on an informal basis, the work on the background papers for the National Population Conference. While Battelle PDP did not have formal technical monitoring responsibility for their content or quality (under the changes in the ESRC subcontract, technical responsibility for the project was entirely up to the NPC), we were able to provide informal assistance to several authors.

Visit 2: (See Trip Report #256.) In March, 1982 Battelle PDP received confirmation of the final dates for the National Population Conference for late April. Dr. Susan Stout visited Khartoum in early April to assist in preparations for the Conference; at this time the NPC requested additional assistance from Ms. Anne Kubisch. Both Stout and Kubisch provided technical assistance to the NPC in the final preparations for the Conference and attended the conference. Key elements of this assistance included the formation of rapporteur groups for the drafting of the recommendations of the conference, and assistance in logistical arrangements for the conference. Following the conference, Battelle PDP brought the Proceedings in draft form to the United States for editing and production of the English volume, which was accomplished during the summer of 1982.

Visit 3: (See Trip Report #283.) Plans for follow-up technical assistance and efforts to coordinate a visit to Khartoum in collaboration with the Futures Group were developed by Battelle in June and July, 1982. The follow-up ideas stressed the need to assist the NPC in the conduct of formal planning sessions to move toward the implementation of a National Population Council, and NPC sponsorship of a high level series of RAPID presentations. Due to several postponements and conflicts between Battelle PDP and Futures Group schedules, the visit to conduct these recommendations was not taken until February, 1983. During this visit, Stout worked with Mr. Jonathan Bye of the Futures Group and Mr. John Crowley to organize and conduct a series of RAPID presentations with the NPC, US Embassy staff, representatives of each major line Ministry and the Minister of Health. The presentations were favorably received and Mrs. Nafisa and the MOH proposed presenting the material to the President and his Council of Ministers later in 1983. Additional technical assistance at the time included review of NPC 1983/4 plans and monitoring of progress on the two PSC projects. The project on infant mortality was nearing completion, and arrangements were made to adjust the schedule on the 1973 Census project which experienced some delays due to staffing constraints at the PSC.

Our approach to technical assistance and monitoring the NPC project was designed to maximize interaction between Battelle PDP and the National Population Committee during the latter's first year of operation. In addition to the country visits, this involved facilitating visits to Washington by the leadership of the NPC during the summer of 1982 and close collaboration in the production of the English version of the Proceedings of the National Population Conference.

b. Population Studies Centre/University of Gezira:

"The Population of the Sudan and Its Regions." The monitoring and technical assistance requirements of this project were met through the same set of visits outlined above. Monitoring and technical assistance focused on

maintenance of the proposed schedule of work (see below), provision of any requested background materials, and assistance in ensuring effective dissemination of the proposed work in the Sudan. Dr. Mills' presence at the PSC minimized the need for intensive technical assistance on this component of the Sudan Strategy.

"Infant Mortality and Reproductive Behavior in the Sudan." Battelle PDP monitored this project's implementation and provided necessary technical assistance during the visits described above. Considerable technical assistance was devoted to the development of the project at the proposal stage in order to enhance the linkages between this project and other components of the strategy. Further, the Population Studies Centre at the University of Michigan also provided computer facilities and technical assistance to the principal investigator during the analysis stage of the project which was conducted in Ann Arbor.

Part III. Results

Significant Research Findi

The primary focus of research activities sponsored by PDP II in Sudan was on the collection and dissemination of already extant population research and data, as described for each of the projects below:

Core Project. The project implemented by the National Population Committee involved the preparation of eighteen research review papers on a wide range of topics chosen to highlight problems of defining the objectives for population policy in the Sudan. Managed by the ESRC as secretariat for the NPC, the research papers were prepared by authors representing key academic, governmental and population institutions in the Sudan, and covered a wide range of topics, as outlined below:

. Population and Development - General Issues:

Integrating Population in Development Planning. -- Dr. Faysal Abdel Gadir, UNFPA Program Coordinator, Khartoum

A Review of Retrospective and Prospective Population Data in the Sudan. -- Mr. Abdel Wahab Ali Modawi, Department of Statistics, Ministry of Finance and Economic Planning.

Population and Development in the Sudan. -- Dr. Mustafa M. Khogali, Department of Geography, University of Khartoum.

. Population, Mortality and Health

Population, Health and Development. -- Dr. Tewfik El Deeb, Khartoum North Hospital and JHPEIGO project advisor.

Mortality Levels and Differentials in the Sudan. -- Mr. Mahmoud K. Rizigalla and Mr. K.V. Ramachandran, Department of Statistics, Ministry of Finance and Economic Planning.

Child Mortality Differentials in Sudan. -- Dr. Abdel Azziz Farah and Dr. Samuel H. Preston, Department of Statistics, Ministry of Finance and Economic Planning, and University of Pennsylvania.

. Fertility and Family Planning in the Sudan:

The Sudan Fertility Survey, 1979. -- Staff of the Department of Statistics, Ministry of Finance and Economic Planning, and Dr. Samir Fareed and Dr. V.C. Chidambaram, World Fertility Survey, London.

Family Planning Activities and Services in the Sudan. -- Dr. Abdel Rahman Attabani, President, Sudan Family Planning Association, Dr. Abdel Rahman El Tom, Dean, Faculty of Community Medicine, University of Khartoum, and Dr. Mohammed Hassan Baldo, Director, Maternal and Child Health Training project, Ministry of Health.

The Demand for Family Planning Services in the Sudan. -- Dr. Mona Khalifa, Faculty of Statistics, Cairo University - Khartoum Branch.

. Population Mobility and Distribution:

Rural Population Translocation: Some Implications for Sudanese Agriculture -- Dr. Mohammed Mirghani Abdel Salam, Director, Economic and Social Research Council.

The Sudanese City: Its Rise and Growth. -- Dr. Ali El Hassan Kuku, Manpower Planning Unit, Ministry of Finance and Economic Planning.

Socioeconomic and Demographic Effects of Refugees on Sudanese Society. -- Dr. Amin Ali Omara, Department of Social Welfare, Ministry of Internal Affairs.

. Other Social Issues.

Some Methodologies, Contents and Concepts in Population Education. -- Dr. E. Wardini, UNESCO Regional Office, Alexandria.

Integrating Concepts of Population in Education: The Sudan Case. -- Dr. Osman El Hassan Nur, Population Studies Centre and Ministry of Education.

Integrated Population Programs for Rural Women: A Suggested Approach for the Sudan. -- Ms. Amna El Sadik Badri, Ahfad College for Women, Omdurman

Women, Development and Education. -- Ms. Belgis Badri, Ahfad College for Women, Omdurman and Ms. Amna Humodi, Department of Geography, University of Khartoum.

Each of these papers summarized past Sudanese research on their respective topics and presented the policy implications, including recommendations for further research, of these materials. The papers on fertility and mortality in particular represented the first efforts to collate and synthesize available research and data on these topics undertaken in Sudan.

Other Projects (Population Studies Centre):

The principal research task for the 1973 Census project based at the PSC involved the collection and cartographic and graphic presentation of the results of that Census, in both English and Arabic volumes, assembled according to the new regional administrative boundaries now being used by the GOS. Narrative text summarizes the principle trends and implications of the data.

Dr. Nur's research concentrates on a quantitative assessment of the quality of infant and child mortality data in the SFS and on a multiple regression analysis of the principle determinants of infant and child mortality in Sudan based on this data. His results show evidence of significant mis- and under reporting of infant and child deaths in this survey. The analysis highlights the important role of socioeconomic status and short birth intervals in determining Sudan's mortality experience, and draws attention to the need to integrate maternal and child health and family planning programs in Sudan to lengthen birth intervals and reduce high levels of fertility.

Dissemination Activities:

All of the projects included in the PDP program in the Sudan concentrated resources on the dissemination of information on population issues. This is appropriate given the need to strengthen the understanding of current population dynamics, as well as possible future policy options among Sudanese decision makers.

Core Project: National Population Conference: The principal dissemination activity for the core project was the highly successful National Population Conference held April 26 - 28 at Friendship Hall in Khartoum. As reported in detail in Trip Report #256 and in the Fourth Semi-Annual Report, the Conference was highly successful in reaching the highest levels of government with its message that Sudan needs a population policy. The President of Sudan patronized the Conference with a grant of approximately \$23,000 to defray the costs of the Conference and further support the activities of the NPC. The recommendations of the Conference, including a call for the establishment of a National Population Council, were accepted as a basis for Sudan's population policy on behalf of the Government by the First Vice President of the Republic. The Conference was widely covered in print, radio and TV media. Battelle PDP assisted in the editing and final production of 1000 copies of the Proceedings of the Conference, a book length monograph containing all of the papers, speeches and recommendations of the Conference. This volume, the first collection of population research and policy recommendations published in Sudan, is being distributed throughout the government and among key research institutions in Sudan by the NPC. An Arabic version of the Proceedings to accompany this English version was also prepared and distributed by the NPC. The impact of the volume is reflected in a request from the NPC for an additional 500 copies to supplement the original 950 copies distributed by the NPC within two weeks of initial distribution in Khartoum.

Frequent face to face meetings between members of the NPC and its secretariat and key government policy makers during the design and implementation of the core project was also an important component of the dissemination of the research activities of the project. Government leaders participated as commentators and session chairpersons during the National Population Conference, further enhancing the wide dissemination of the research work.

The results of the National Population Committee's work have also been disseminated among members of the international donor community through two visits of the leadership of the Committee to Washington and their participation in the PDP II final conference, held in March, 1983.

Other Projects (The Population Studies Centre): Both projects at the PSC include explicit dissemination activities. The Census project will distribute 500 copies each of Arabic and English versions of the report to key policy makers and planners at regional and central levels of the GOS. Dr. Nur's project results are being disseminated through distribution to key institutions and individuals (lists specifying the recipients for both distributions are available at Battelle). In addition, Dr. Nur has prepared English and Arabic policy briefs describing the principle policy implications of the research for wide distribution in the GOS. He has also organized formal briefing sessions with the NPC, the Ministry of Health and the Population Studies Centre to discuss the research and policy implications of his project.

Part IV. Conclusions and Recommendations

The projects designed to accomplish the objectives of the PDP program in Sudan were developed on our understanding of 'ideal' population policy systems. A brief review of the policy system thus provides a useful framework for the subsequent description of the role these projects played in strengthening population policy in Sudan.

The Population Policy System:

Our framework for the design and implementation of technical assistance views population policies within the broader system of host-country public policies. (This is expanded from material presented in Freymann, 1978.) The population policy system can be seen as having six major components which in reality do not sequence as neatly as envisioned, but nonetheless, are primary elements of the development and implementation of population policy (see Stout, 1983, for a more complete analysis of the PDP's experience in Sudan within this framework).

In this view, goals of the country and its leadership provide the ultimate base for planning and evaluating population policy and action programs. The choice of which of the many consequences of rapid population growth are analyzed in a particular policy development project should be made relative to a sensitive analysis of the country's goals to achieve maximum impact on policymakers in terms that they can readily interpret.

The effects of current population patterns (fertility, mortality, migration, and rates of changes in each), and their projected trends on goal achievement can be estimated and presented, to increase awareness of the links between population characteristics and the future of a country. Accordingly, a fundamental axiom of population planning is that population patterns can be 'optimized' for the achievement of broader public policy goals.

Once a certain pattern of population (e.g., low fertility, low-mortality) is determined to be more beneficial to the achievement of goals than the present situation, it is important to analyze the means through which shifts in such patterns can be promoted or developed. This requires analyses of the mechanisms bearing on fertility (e.g., proximate determinants of fertility), mortality, and migration and the ways in which various social and economic structures, processes, and events effect changes in these mechanisms. Policy and decision makers need estimates of the approximate magnitude and direction of change caused by various adjustments in underlying social processes and structures, to anticipate and assess the impact of general economic and social policies on demographic behaviors and trends, so that they may select policies to positively affect the links between goals and demographic patterns.

The most promising means (e.g., direct provision of family planning, creating opportunity costs for childbearing through improving accessibility of education and jobs for women) need to translate into specific policy content. Policies can be expressed in a number of forms, including direct legislative language, executive orders, allocation of budgetary and personnel resources and so on. Identifying specific policy forms requires consideration of the general policymaking processes of a country, as well as questions of political and administrative feasibility and effectiveness.

The implementation of policy content, expressed in general forms, will often require further decisions at various lower levels, involving such issues as allocating responsibilities among various executive agencies, staff training and orientation, establishment of fiscal control mechanisms, and setting up information systems to monitor and evaluate the influence of program implementation on mechanisms underlying demographic patterns and the effects of changes in patterns on overall goals and objectives.

The Role of Technical Assistance: Clearly the match between this conceptualization and the realities of policymaking processes in developing countries is not perfect. All of the components of the population policy system exist, but the process of clarifying the specific characteristics of each component in a given country, and mobilizing the various links between components in ways that optimally use resources requires explicit attention and work. The role of technical assistance in the population policy field is, in our view, to use available resources to (1) understand the characteristics of the population policy system, and each of its components in each country, and (2) design and implement activities (policy research projects, training, and dissemination activities, specialized presentations and analyses) which help to clarify and improve the links between each of these components. Clarifying and improving such links can be accomplished through (1) the improved mobilization and interpretation of extant knowledge (e.g., from family planning program service statistics and surveys, past population

research, census and national survey results, etc.) to clarify the relationships between components of the population policy system; (2) dissemination of this knowledge among policy and decision makers playing a key role in each of the components of the system; and (3) utilization of this knowledge to refine and strengthen each of the components of the population policy system and the links among them.

Each of the PDP sponsored projects in Sudan employed one or more of these elements of technical assistance (knowledge creation, dissemination and/or utilization). The knowledge creation (research) and dissemination components of these projects were discussed above. Our conclusions about the PDP program's impact in Sudan are based on an analysis of the utilization of this research.

Ultimately, effective policy development work depends on the utilization of new information by those to whom it is disseminated. Promoting effective utilization of information, once it has been developed and communicated, is perhaps the single most important and challenging aspect of intervening in policy systems. As any review of the extensive literature on public policy and decision making would illustrate, and is increasingly clear in the literature on knowledge utilization itself (see, e.g. Rich, 1981, or Micklin, 1982 for a discussion in the population field), improved utilization is not simply a problem of making information available, it also requires an understanding of the political and administrative environment in which information is used. Furthermore, judging whether 'improved utilization' has resulted from any given policy development effort is a subjective and difficult exercise. In fact, defining what is meant by 'improved utilization' is itself problematic. When considered in terms of our model of population policy systems, it is worthwhile to consider such improvements in terms of either:

- . Changes in the links between the components of the population policy system, such as improved awareness among those who are setting goals for demographic patterns, or improved relationships and communication between those conducting research on the determinants of fertility and those designing policies to change fertility, or of course, between those providing resources to improve knowledge creation and utilization, and those specific individuals and groups responsible for policy goals, content and design. Without improved links among the components of the system, newly created knowledge, no matter how carefully communicated, is not likely to be used by the right people on the right issue or decision at the right time.
- . Changes in any one of the components of the system, such as re-defined policy goals, development and use of improved information on demographic data, changes in policy content (e.g. government statements, budgetary patterns) reflective of understanding the means to effect change in demographic patterns, or alterations/improvements in program implementation procedures could all be seen as cases of improved utilization of knowledge.

It is useful to consider the evidence of improved utilization that can be derived from the PDP experience in Sudan. Two examples, relating to both types of desirable change, are relevant.

First, the PDP program effort in Sudan did result in positive change in the links between various individuals and agencies active in each of the components of the population policy system in that country. Through the NPC, members of the President's staff, several different Ministers and their staffs, academics and policy analysts came together to deliberate about population issues and Sudan's policy position on these issues. Valuable in itself, the Conference led to a set of firm and practical recommendations for further work in the population field which should serve to strengthen and institutionalize these linkages, an outcome which both reflects the utilization of knowledge and should promote continued utilization of demographic information in the future. In particular, the most important recommendation of the Conference was its conclusion that the Government should form a National Population Council. The Conference recommended that this Council have authority and resources for the design, implementation and evaluation of population policy and be placed at the highest levels of policy making within the Government. This recommendation was supported by the Vice President, the President of the NPC, and the Ministries of Health and Internal Affairs, and was formally endorsed by the approximately 200 attendees of the Conference. This is an especially important positive development in the evolution of Sudan's population policy. The creation and maintenance of such a unit will provide for deliberate efforts to strengthen the links between the research, governmental policy making, and technical planning and implementation offices of the GOS on an on-going basis in the future. If implemented, and significant progress toward implementation is underway, the Council could play a vitally important leadership and coordination function in the management of the 'population policy system' in the future. Ideally, such a Council could in the long run and with appropriate institutional and personnel resources, substitute for the 'technical assistance' component of the policy system.

Another recommendation of the Conference, that the Ministry of Health concentrate resources for the promotion of MCH/FP services in rural areas, is also apparently being utilized in on-going decision-making within the Ministry of Health. The Ministry is now actively pursuing such a strategy, and has altered its decisions on the use of donor resources for family planning consistent with this recommendation. In addition, many of the recommendations for further population research to clarify aspects of population behavior relevant to development, particularly as concerns the relationship of population dynamics to problems of rural labor supply, are being pursued as a result of the Conference.

An example of the second type of positive change, where knowledge is used to strengthen institutions playing a role within particular components of the population policy system is also available from the PDP experience in Sudan. The two projects based at the Population Studies Centre directly contributed to that organization's capabilities to design, implement and communicate the results of population research to local policy makers. Through the two projects at the PSC, that group acquired additional demographic staff, a

capability to print and distribute population documents, and an important visibility within the population community. In fact, during the last technical assistance visit to the Sudan, the Ministry of Health was actively discussing with staff of the PSC the need for research on the determinants of infant mortality for the modification of health policies and programs to promote improved child-spacing. This is clear evidence that resources created through intervention in the policy system are being put to effective use.

Conclusion:

The above comments on the design and implementation of the PDP program in the Sudan are only illustrative of the many possible avenues and forms that technical assistance to intervene in population policy systems can take. The Battelle PDP program is gratified that the projects did achieve positive results, most particularly to the degree that our approach to policy development has been transferred to Sudanese institutions themselves, as reflected in the proposed formation of a National Population Council. Upon reflection, it seems that the following features of this effort are relevant to similar efforts in other settings:

- . The activities were based on a thorough strategy for technical assistance. The strategy which was modified and revised throughout the approximately 20 months of the project in Sudan, was based on 1) a comprehensive review of Sudan's development and demographic status, which helped target the choice of policy research topics to salient issues where population variables play a fairly easily understood role; and 2) an understanding, developed through interviews and lengthy efforts to meet face-to-face with various political, academic and program implementors in the population field, of the specific nature of the policy system in Sudan. This strategy served an important role in both identifying and securing agreement to the project activities which made up this technical assistance program. The development of such a strategy is, to this author, a key component of the design of a successful policy intervention effort.
- . Our approach to policy development rests on a systems view of the process of policy making, which naturally draws attention to the importance of 1) creating and strengthening links between components of the system, and 2) working in close collaboration with local researchers and policy makers to design, implement and continually modify the program through time. True collaboration is the only way in which one can become sufficiently involved in the development of a country's population policy to identify interventions which are appropriate, feasible, and genuinely influential.
- . The three projects varied considerably in the type of 'knowledge creating' function they played in the Sudan's population policy system but all three emphasized creating new information from already extant resources and studies. We employed this strategy for two reasons. First, prior to the development of this program, no effort had been made to develop an understanding of what information on various components of the 'policy system' was available, nor to make

an assessment such as this available as a tool for targeting and prioritizing future research efforts. Second, the high costs of developing and implementing original data collection efforts were beyond the resources of our program. In hindsight, this 'resource constraint' was highly beneficial for overall program impact; the forced use and concentration on already extant data and information helped to uncover a surprising (to both Sudanese and outsiders) store of population policy related research. Prior to the project, most Sudanese felt that data useful for population policy were simply unavailable; after the project, the more frequent complaint was that data (and research capability) were simply under-utilized. The distinction between these two possible obstacles to policy formulation may be one of the more significant findings of our work in Sudan.

Knowledge can be created, but if not disseminated to appropriate audiences, it will not be used to change or alter decisions or policy. In terms of our framework, it is important to recognize that in reality, the links between various components of the population policy system are made up of actual people and institutions who act as the channels through which policy relevant knowledge flows and is employed. In any given country, identifiable people and groups are closely associated with each component of the system, and effective policy development work depends on careful analysis of who these people are, and how to disseminate policy information and knowledge among these groups. Our project with the NPC provides a good example of how effective dissemination activities can be developed. The project involved the preparation, by several Sudanese researchers, of background papers on various aspects of population change and development in Sudan. In addition, commentary on the papers and active participation in the National Population Conference, where the papers were presented, was solicited from specific policy making groups, including the First Vice President of the Sudan, a close advisor to the President. In addition, Battelle PDP supported the preparation of both Arabic and English copies of the Proceedings of the Conference for dissemination to the wider policy making community. While this form of dissemination, widespread distribution of a carefully edited volume, is perhaps less influential than frequent face to face meetings with decision makers, the publication of the results of such a conference is a valuable mechanism for alerting a wide body of decision makers to the relevance of population issues to their own work. When such Proceedings contain the commentary and conclusions of both the researcher and policy making communities, their impact is strengthened.

Additional forms of dissemination are also useful tools in the policy development process. For instance, the mass media can be a useful mechanism for ensuring that policy discussions reach out to the larger community. In Sudan, the large scale and high visibility of the Conference generated considerable interest in the media, and news of the conference and its recommendations was reported daily in print, radio and TV throughout the three day event. Also, we built

face to face meetings into the design of the project, to employ a dissemination tool at the other end of the breadth of impact scale from the distribution of written materials.

Recommendations:

In spite of the progress made during through the PDP program in Sudan, several constraints to further progress in the population field remain. Three problems appear to be particularly important and in need of both short and long term solutions:

1. There is a need to continue and broaden efforts to improve awareness of the impact of Sudan's population dynamics on its prospects for economic and social development. Although PDP activities, particularly the National Population Conference, contributed significantly to this problem, much remains to be done. Important audiences which remain include leaders in the Ministry of Finance and Economic Planning, leadership in the agricultural field, and regional level policy makers and administrative groups. While the NPC can contribute to this need, it will need both financial and technical assistance to buttress its own resources to continue to play its important 'awareness creating' role.
2. There is a strong need to move toward the institutionalization of population policy work, particularly improved capacity to collect, interpret and disseminate demographic data, within the GOS. The Conference recommendation that a National Population Council be formed is particularly valuable, and provides the rationale for pushing further on this front.
3. Last, while policy work logically precedes the development of specific programs and action, it is important that the latter not be ignored, particularly given the emergent and still flexible evolution of MOH planning and programs in rural health, including MCH/FP delivery systems. It is particularly important that further steps be taken to promote the delivery of family planning services and the development of a strategy to improve information, education and communication about family planning and family health services. Program development is important not only for meeting family health service needs, but will also be valuable as input into future policy planning, particularly if sensitive research and evaluation methods are incorporated into program design.

Possible Solutions:

Progress toward solving these three major constraints to population action in Sudan will necessarily be incremental and requires the creative use of available resources. Although bilateral resources have not yet been employed for population activities in Sudan, it is our assessment that Sudanese interest in further work in the field, and the limited resources available within both the GOS and USAID/Khartoum for concentrated attention on the issues, may well justify a greater commitment of bilateral resources in the

short run. Although, as we suggest below, centrally funded population programs can play a vital role in furthering population work in Sudan, their use is necessarily diffuse and fragmented. A stronger bilateral program could serve as a vehicle to promote greater coordination and more carefully planned division of labor among centrally funded groups. At the same time, bilateral support can be useful in providing a more solid base of institutional support, within the GOS, for continued progress in population policy and programs in the long run. Some suggestions for the possible use of both central and bilateral resources to develop solutions to these problems are outlined below.

Centrally Supported Activities:

Several centrally funded activities could be valuable in continuing the process of strengthening and broadening awareness of the impact of population on development:

1. The RAPID II program, once in operation, will be a valuable follow-up to both the completed Battelle PDP projects and the first round of RAPID presentations. The approach to developing future RAPID models for Sudan may benefit from greater collaboration with local population researchers and advocates (particularly the NPC) than was feasible under the terms of the first RAPID project. It might also be valuable for model development to build on the interest in regional differences in population dynamics that emerged during both PDP and RAPID supported activities in the recent past. Although this will require considerable effort to develop appropriate data, particularly for the Southern region, the effort is likely to have high pay off in refining Sudanese understanding of the nature of their population problem. By the same token, finding ways to expose regional level government personnel, particularly those representing the Southern and Central regions, will maximize expected project impact. Another important area for model development will be the use of the SFS data, perhaps through the development of models of the levels, trends and implications of the proximate determinants of fertility. Although receptivity to the current RAPID models is currently limited by the perception that the models were developed without adequate input from Sudanese researchers, we anticipate that the more collaborative approach that will be possible under RAPID II (regardless of contracting agency) will be acceptable. Collaborative model development will also enhance research capabilities and interest in the use of research to promote improvements in population policy among participating researchers.
2. RAPID II might also be used to channel additional support to assist the NPC in formulating and performing a workplan to continue to lobby for population policy and programs, as well as assist the GOS in planning for and developing a National Population Council. Key activities in this respect might include the conduct of a planning workshop, with outside participation, designed to hammer out the major roles, functions, staffing and institutional requirements for the effective operation of such a Council within the GOS. It might also be valuable to engage the NPC in more systematic analyses of other country experience with population policy units (e.g. those of Kenya and Egypt) as an element of this planning activity.

3. The availability of the SFS, and in the very short term, of the results of the Third Population Census also provide significant opportunities for useful employment of central resources. Both the RAPID II program, and the Demographic Data for Development (DDD) project being implemented by Westinghouse Health Systems, Inc., could contribute to the need to fully exploit and disseminate these data among Sudanese decision makers. Experience during PDP indicates that the Sudanese welcome outside assistance in such data analytic activities, but place high priority on genuine collaboration in such work. Research staff at the Department of Statistics, the ESRC, and the PSC might be interested in such collaboration. The research agenda recommended by the National Population Conference (see NPC, 1983 for a summary) might be useful in selecting topics for such investigations. In addition, the Census Office of the Department of Statistics is preparing a plan for secondary analyses of the Third Census (tentatively titled 'Population II'), to be available in late 1983 which will also be useful input to planning this assistance.
4. Central resources can also be useful in developing family health services and related information, education and communication support activities. The Population Communications Services project being implemented at Johns Hopkins University can provide assistance in assessing needs in the IE&C area, as well as in developing projects to respond to those needs. It is particularly important that program level outside technical assistance be well coordinated with both GOS planning and programming, and among the various outsiders (e.g. IPPF, UNFPA, centrally funded project assistance) to ensure that the assistance matches GOS goals and procedures and does not result in duplicative or competitive efforts (see below).

Bilateral Program Support:

Currently, assistance to the population sector in Sudan is characterized by a multiplicity of centrally funded projects providing bits of assistance without overall guidance or relationship to a unifying strategy and plan for work in the population sector. This is a result of historical changes in the USAID/Mission, in the priority accorded overall and population-specific aid to Sudan in Washington, and the availability and interests of Sudanese counterparts, both institutional and individual. This approach was useful at the early stages of population work in Sudan. It served to identify local interests and capabilities and produced tangible positive impact, particularly in the training of service providers and development of policy support for population. Building on these products through an appropriately designed bilateral program presents a major challenge. On the one hand, it seems clear that sufficient interest and commitment to population activities (of a variety of forms) now exists in the GOS and among Sudanese private voluntary groups to justify a larger commitment of bilateral support. On the other hand, past experience in other sectoral work in Sudan indicates the need to be cautious to avoid overloading the existing administrative framework and network of population activists with outside technical and administrative assistance. Further, in the absence of a clearly defined population policy on the part of the GOS it will be important that such bilateral assistance be designed and

channeled in ways which provide for flexible response to emerging GOS priorities and policy positions as they become more refined in the next few years.

Two directions seem worthy of pursuit in the context of a bilateral program given these challenges and the major problems for population work in Sudan discussed above.

1. Population Assistance Strategy Development: Although USAID/Khartoum did collaborate with AID/Washington on the preparation of a population assistance strategy for Sudan in 1980/81, this document has not, to our knowledge, been revised to reflect changing conditions in Sudan since its first preparation. A practical first step for the preparation and implementation of bilateral population support might accordingly be to revise this strategy with the specific goal of defining areas for intervention and the relative roles of various centrally funded inputs vs. those which might be provided in the context of a bilateral program. In view of the large number of intermediaries now operating in the Sudan it would be valuable to conduct a meeting of all population organizations now active in Sudan as input to the strategy development process. Such a 'donor's conference' would provide a useful opportunity to identify progress and needs to date and to promote improved collaboration among the various organizations now working in Sudan. Such a meeting would likely be very cost beneficial given the relative proliferation of activity in Sudan in the last three years.

In view of the importance and large scale of USAID/Khartoum's health assistance to the Sudan, and the high degree of complementarity between GOS health goals and apparent approach to population policy and programs, it might also be valuable to use the latest available health strategy/assistance plans as input to population assistance planning. This could be achieved through ensuring active participation in strategy preparation by both Sudanese and outside technicians who are working in the health sector in Sudan.

2. Support the development of a National Population Council: Perhaps the single greatest constraint to the further development (not to mention implementation) of an effective population policy for Sudan is the lack of any institutional focus for such activities within the GOS. Although private voluntary groups such as the SFCA, the SFPA and more recently, the National Population Committee (with its links to the quasi-governmental National Research Council) continue to contribute to the need for leadership and authority in this field, they ultimately can not substitute for the commitment of GOS political and administrative resources to the population problem. The development of a specific entity within the GOS charged with responsibility for the design, implementation and continuous evaluation of population policy and programs would serve several important needs now limiting the effectiveness of Sudanese population policy making. First, such a body, if placed at a high level of authority and with clear and operationally meaningful links to

economic planning technical authorities, would ensure that an understanding of population variables is incorporated into relevant aspects of general development planning. Second, such a body could provide leadership and guidance to the growing interest in improving the collection and utilization of demographic data, in collaboration with relevant bodies such as the Department of Statistics and the University and in response to the needs for such improvements now articulated by MOH, MOP and others. Last, but perhaps most important, such a Council could provide leadership and resources to the development of specific programs and interventions in the population field through sponsorship and technical support to action research linking policy goals with program planning. An analogous approach to administrative reform and improved policy planning is now under active consideration in the health sector, and it is not impossible to see these two functions integrated within the same organizational unit. This role could be particularly important in providing leadership and resources (technical and financial) for testing approaches to the provision of family planning and related services through a program of action research to implementation authorities in the health and social affairs ministries.

Several models are available for planning this type of a bilateral program in the population sector. For instance, AID/Washington has provided bilateral support to a National Population Commission for the Government of Nepal; also, the World Bank and AID are jointly supporting a National Population Commission to provide greater impetus and effectiveness to population policy in that setting. These models and lessons learned (not all positive) as well as input from the National Population Committee could be very valuable for designing this sort of a program.

Pursuit of these recommendations would, we feel, do much to build on the significant progress that has been made in the population field in Sudan in the last three years.

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APPENDIX 1: Key Contacts

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Others

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