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REVALIDATION OF THE RURAL HEALTH
SUPPORT PROJECT
MINISTRY OF HEALTH, SUDAN

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BACKGROUND

Background And Purpose

The project paper for the presently funded Rural Health Support Project (RHSP) was prepared in 1980. At that time, the Sudanese economy, although under increasingly severe pressure, looked somewhat stronger than it does today. Moreover, under the current administration in Washington, AID has expressed a greater concern for the issue of recurrent costs of AID projects in the LDCs. The present RHSP was identified as a project requiring closer scrutiny from this perspective.

Thus, the issue was defined in economic terms: Can the Government of Sudan (GOS) carry on the health programs initiated with RHSP support following termination of project funding? Is there a danger that the primary health care program developed with AID assistance will exceed the financial and management capability of the GOS? If so, will the program collapse upon termination of funding? If this appears likely, is it possible to refocus the RHSP strategies and project outputs in such a way as to meet these criticisms? Should the RHSP be discontinued entirely?

At the request of the USAID Khartoum Health Officer and AID/Washington, a joint team of a health economist and a public health physician was dispatched to the Sudan to conduct what was termed a revalidation of the Rural Health Support Project. A copy of the scope of work is appended (see Appendix I). In brief, however, the consultants were asked to (1) examine the project documents and previous consultant reports; (2) interview MOH staff, USAID personnel, the contractors, and other concerned individuals and organizations; (3) analyze the current and future status of the Sudanese economy from the perspective of long-term health sector funding; (4) develop a revised implementation plan for the Rural Health Support Project that reflects a concern for handling recurrent costs; and (5) identify ways of increasing the cost-effectiveness of health programs and increasing community involvement in financing their own health care.

The additional emphases reflected the concerns stated in a recent policy document on health assistance, published by AID in 1982. These include (1) strengthening of program design, management, and implementation; (2) development of health policy; and (3) transfer of technology. These considerations were also kept in mind during the consultation.

Major Goals Of The Rural Health Support Project

The RHSP has three broadly defined goals. These are: (1) To strengthen the management of primary health care programs of the Ministry of Health; (2) to strengthen the delivery of MCH/FP services, and (3) to strengthen the logistics and supply component of the PHC program.

Our critique of the RHSP focused on means of assisting the Government of Sudan to achieve these major objectives through the most efficient and effective use of project inputs.

Methods Used

Dr. Dunlop, the health economist, focused primarily upon an analysis of Sudan's current and projected economic status. This included an examination of imports and exports, the growth of the national GDP, changes in national debt and debt servicing obligations, and balance of trade. This analysis provided a context within which to examine trends in funding of health programs and in the distribution of expenditures for health among central, regional, and district/local levels of government. The purpose of this analysis was to provide a framework for considering the recurrent cost implications of an expanded PHC network.

At the same time, the public health physician, Dr. Mack, reviewed existing documents related to the previous PHC project as well as the current RHS. He and Dr. Dunlop interviewed staff at the Ministry of Health in Khartoum and in Juba together with several officials from the health department in Kordofan Region. Other donor agency personnel were interviewed, including the UNFPA, UNICEF, WHO (EPI program personnel), and several private agencies. Dr. Mack also made a field trip to Wad Medini in the Central Region to examine current health care projects there. He also visited the village midwife demonstration project north of Khartoum. Individuals interviewed are noted in Appendix II.

During the latter part of May and early June, the One America contractor, working with Ministry of Health personnel, carried out a needs assessment survey in Kordofan Region. Two teams were organized. Each team spent 1 week in each of four districts interviewing health care personnel at various levels of the system, including local village councils. A fifth week was spent in El Obeid, the capital of the Kordofan Region, conducting interviews with staff of the ninth District as well as in the regional government. During the latter part of this consultation the teams were in the process of analyzing their

data and preparing a report of their findings. The report was to assist in the development of a specific work plan for the first year of operation of the RHSP in the region.

The AMREF team responsible for the southern component of the RHSP had carried out a needs assessment in 1982. The consultants visited Juba and met with the long-term advisors who were present, together with Regional Ministry of Health and Ministry of Planning officials. The team leader, Dr. Tito Lopez, was on home leave at the time of our field visit. However, he was subsequently interviewed in Washington, D.C., on June 24.

During the week of June 13-16, a series of meetings were held at the Ministry of Health in Khartoum. On the first day, Dr. Dunlop presented his analysis of the Sudanese economy. This was to provide a context within which to make followup recommendations for possible revisions of the implementation plan for the RHSP. On the following 2 days, five work groups were established to discuss specific recommendations for activities to be conducted under the RHSP over the coming 12 months. The groups addressed the following topics: (1) Management, planning, and budgeting; (2) MCH/FP services; (3) logistics and supply; (4) training; and (5) research and evaluation. The results of these discussions were presented to the combined group on the final day in a plenary session. Minutes of some of these meetings were prepared and are appended (Appendix III). They form a basis for a number of the recommendations made in the present report.

In a final meeting on June 16 attended by the (GOS) RHSP Project Director Dr. Ali Beily, the One America chief of party, the USAID health officer, and the consultants, Dr. Micka emphasized that the final report of this consultancy should serve as a revised implementation plan for the RHSP in the North. Specific work plans, drawn up in accordance with the contract agreement and covering the next 12 months, would then need to be developed in the near future.

In a separate meeting with Dr. Chris Wood, medical director of AMREF in Nairobi, and Dr. Kofi Asante, acting team leader of the AMREF team in Juba, who were present in Khartoum during the week of June 12-17, the consultants reviewed their recommendations regarding RHSP contract in the South.

II. FINDINGS

FINDINGS

Summary Of The Macroeconomic Situation¹

President Nimeiri has best summarized the economic situation of Sudan in a recent statement from which the following quotations are taken:

The economic difficulties of the Sudan are historical structural problems typical of the newly independent developing countries which are, and will be for some time be under the yoke of poverty and historical backwardness.

The harsh international economic pressures have worsened such conditions and have even made it impossible for those countries to emerge from their backwardness.

The effect of these negative elements has been multiplied by many policies favoring consumption to the detriment of production, by expanding public expenditure and continued failures in some of the public production units. The unrealistic exchange rates have increased consumption and led to serious losses by producers and exporters. The enormous expansion of social services and inflated government expenditures have created enormous pressures on the national economy which are incommensurate with the productive capacity of the country.²

The Primary Health Care program, which was initiated in Sudan in 1975, was planned during a period of relative prosperity. The annual per capita growth of the country was around 2.7 percent, despite the fact that over the decade of the 1970s per capita income actually declined. Exports of the principal commodity, cotton, were at a relatively high level. The political situation in the country had stabilized following the 1972 Addis Ababa accord, which settled the North-South conflict. The country was being viewed by many of its wealthy Arab neighbors as the future bread basket of the Middle East and was receiving considerable external financial support.

At the same time, the country was relatively free of external debt. Debt servicing comprised only 1.8 percent of gross domestic product (GDP) in 1976. Tax receipts were covering nearly 70 percent of total central and regional government expenditures. In the same year, the central government deficit was approximately 20 percent of total central government expenditures.

By 1982, the situation had deteriorated dramatically. The rate of economic growth per capita was negative during the first 2 years of the 1980s. Export crop production had declined since the peak production years of the mid 1970s. Cotton production, the primary export crop, had declined by about 40 percent from what it had been during the peak years. This was in large part due to the poor producer price conditions established by the government. Unfortunately, imports continued to increase so that by 1981, the annual balance of trade was negative by over \$1 million. In addition, many development projects had been initiated. Foreign borrowing, from both public and private sources, expanded to finance these projects. By 1982, the debt had mounted to \$8 million and the country was experiencing increasing difficulty in meeting its debt servicing obligations. These amounted to nearly \$700 million annually, or almost 14 percent of GDP. With the negative balance of trade, the country was forced to borrow additional funds with which to pay for not only its development activities, but also to meet current consumption requirements, e.g., oil, food, and even drugs. The government has rapidly expanded its currency base to finance even larger expenditure deficits. In 1982, these deficits comprised approximately 40 percent of total government expenditures. These occurrences have led to rapid inflation. Since 1979, inflation has been between 20 and 30 percent year. The government tax base, which is heavily dependent upon import duties, is not growing despite additional efforts to expand the range of taxes and improve the collection of existing taxes. The President's comments about the state of the Sudanese economy thus appear to be both candid and accurate.

The rapidly changing economic environment has had a negative impact on Sudan's health care system in several significant ways. A rural-based PHC system was initiated in 1976 with strong donor support. It rapidly expanded to include over 2,200 primary health care units by mid-1983. Simultaneously, there was a more moderate but substantial increase in the number of hospitals, health centers, and dispensaries. (A more detailed review of this expansion is provided in Appendix IV.) Expenditures on health care by the central and the regional and local governments increased substantially over this period, especially at the local level.

Taking both inflation and population growth into consideration, real per capita government health care expenditures increased by about 45 percent between 1975 and 1982. However, considering the fact that the number of facilities also increased over this period of time, it is likely that the actual expenditures per facility declined, leading to reductions in service in all types of facilities, despite their expanded numbers.

The real value of drug imports per capita has tended to decline since the 1970s. In 1982, critical shortages of common essential drugs occurred. The government has purchased approximately \$65 million of drugs to meet its drug requirements in 1983 and 1984. However, shortages of fuel and transport make distribution of the medical supplies throughout the country difficult. Without a steady and continuing supply of drugs and the complementary logistic system to move them to the health facilities throughout Sudan, the curative health services will not function effectively.

Limited case studies conducted in Sudan show a positive relationship between drug availability and the utilization of facilities. This represents one clear link between the current and continuing shortage of foreign exchange and underutilization of existing health facilities. The Government of Sudan increasingly recognizes the need to expand its exports and thus its foreign exchange earnings. The necessary policy changes are occurring which will lead to increased exports. In the long run, this may make it possible to provide the necessary support for an expansion of the health care system. In the short run, however, it appears highly unlikely that the Government of Sudan can afford to continue the expansion of its primary health care program through training and placement of additional PHC personnel, particularly those with a heavy curative orientation.

Recurrent Cost Implications

Seven outputs are identified in the log frame of the RHSP paper. These are as follows: (1) Train 4,863 frontline health workers (CHWs); (2) construct six training facilities; () construct 12 dispensaries; (4) construct 12 warehouses and provide eight trucks to improve logistics and supply situation; (5) produce and use seven radio programs in the development of a radio health education program; (6) train 1,860 health workers, including CHW's, in maternal and child health and family planning to integrate such services into the PHC program at the village level; and (7) develop three regional health plans, including annual budgets, in the process of institutionalizing a regional planning and information system capability.

Clearly, the original RHSP project paper envisioned a further expansion of the entire primary health care program along the lines laid down in 1976. The construction of training facilities and the training of additional CHWs represents a familiar pattern of PHC development in the third world countries. Until quite recently, the recurrent cost implications of this type of activity have largely been

ignored. However, the evaluation of the PHC project in the Sudan in 1982 and various consultant reports since that time have indicated that the trained CHWs who are now back in their villages are largely unsupervised and without a continuing supply of drugs and equipment. Furthermore, the monthly salaries of various cadres of PHC workers have recently been shifted from regional down to district and local council budgets. Formerly, the salaries were budgeted more centrally. The transfer to more peripheral governmental units has rapidly brought the issue of at least this component of recurrent costs sharply into focus at those levels.

It is of interest to note that, not only the cost of construction (training schools, warehouses, dispensaries), but also the cost of training health workers has been considered a development cost. By implication, training is a one-time expense. When the project is completed, training stops. The government often has not considered the need for long-term continuing education or staff development as a recurrent cost of the system. Nor has the government dealt seriously with the issue of ongoing supervision of trained staff. Even maintenance and upkeep of facilities are chronically underfinanced. The results are readily apparent on inspection and have been repeatedly noted by various evaluation teams.

Through the concept of self-help, villages have been encouraged to construct small primary health care units that can be used by the CHWs and village midwives. The construction and involvement in the development of health care services and now the salaries of the CHWs and VMWs are budgeted at the district and local council level.

There has been an expectation in the past that the central and/or regional government will make drugs freely available to the PHC workers. This has been part of the constitutional guarantee of free health care, and USAID/Khartoum has reinforced this expectation by programming \$2.2 million for drugs to supply the needs of the CHWs in Kordofan and the southern region over the life of the RHSP project. The extent to which the PHC workers are being provided adequate drugs presently, let alone whether they will continue to have adequate drugs at the end of the project period, are issues which have not been squarely addressed.

Aside from drug donations by UNICEF, USAID, and other NGO's working primarily in the South, there has been little systematic attention given to maintaining a continuing supply of drugs and equipment to dispensaries, primary health care units, and dressing stations. These facilities constitute the bulk of the PHC facilities. As a consequence, leaving aside for the moment the issue of recurrent costs for maintenance and

replacement of trucks and for maintenance of warehouses and equipment, it appears unlikely that providing these inputs (or project outputs, as defined above) will serve to increase or assure the availability of drugs and supplies to the PHC system in rural Sudan, especially after the life of the project.

A decision had been made to eliminate the radio broadcasting component of the AMREF project in southern Sudan. The recurrent cost of this operation is not further considered.

The recurrent cost implications of the last three project outputs do not appear to create a problem. In fact, training of existing health workers to provide a broader range of services, including MCH/FP, makes better use of existing resources. Developing stronger planning and management capabilities at the regional level represents a long-term development goal that should lead to more rational use of available resources than is presently the case.

In summary, there is little evidence that the Government of Sudan can provide the logistical or supervisory support for a further expansion of its primary health care system. Construction of additional training facilities and increasing the numbers of frontline PHC workers has recurrent cost implications that have not been considered to date by the Government of Sudan. Strengthening the logistics and supply system with additional construction will be far less effective than investments in strengthening the management capability within the system. Exploring alternative means of meeting the drug needs of peripheral units similarly may be more effective in the long run than providing free drugs to perpetuate the existing system of free care.

Efforts By Sudan To Finance PHC And Related Services

Many people in Sudan, including the President, have become increasingly aware of the problems of financing health care and other social services. Besides financing health care via taxes administered by the central and local governments, efforts have been made to expand the financial base of support for the health care system operated by the public sector, despite the constitutional provision that health care be free. First, all public employees have at least 25 piasters deducted from their pay each month for health insurance. However, it is unclear how this fund is administered and what specific benefits public employees receive as a consequence of these funds being collected. Further, the analysis conducted by John and Jean Due on government financing in the southern region shows that the funds raised from the medical/health insurance deduction are comingled with all other sources of government revenue and do not comprise a significant source of revenue (0.1% of estimated total revenue to the region in 1980/81).³

The GOS Minister of Health, Dr. Ali Fadl, is very interested in developing a more comprehensive health insurance program to cover all wage and salaried workers in the country and is investigating the feasibility of using the health insurance plan developed in Alexandria, Egypt, as the model for use in the Sudan. He has received assurance from the Ministry of Finance that the priority of the health sector in obtaining foreign exchange would improve if the sector could raise additional local revenues to cover its recurrent costs.⁴

Second, many health facilities, from PHCU's to hospitals, have developed committees for raising self-help funds for local recurrent purchases, e.g., paper and pharmaceuticals from local private sources and new construction or additions to the existing physical plant. Many of these committees have established visitor and other fees at hospitals and other health facilities.

Third, a number of fees or contributions have been established. Some facilities have contribution boxes at the door and a few have even experimented with a facility entrance fee. It is also common to find a fee paid to the health worker as a gratuity or an expected tip to ensure continued good service in the future.

Fourth, there is an ever increasing number of people's pharmacies, to which patients are often referred by health facilities when their drug supplies are low or nonexistent. These pharmacies commonly charge a fee which is less than that charged by private pharmacies.

This brief summary suggests that there are many different mechanisms being used in different parts of the country to accumulate revenues from service users. Exactly how much is being collected, for what, by whom, how often, in what manner, how administered, and how spent represent but a few of a number of important questions remaining unanswered at present. However, it is clear that a more systematic study of these mechanisms is warranted.

Fifth, in the southern region financing study conducted by Jean and John Due,⁵ there is evidence that all six provincial governments in the South expected to collect a certain amount of health fees and a social service tax. It was not specific in the paper what these fees or tax consisted of or how or why they were collected. It is also unclear whether these taxes and fees were collected by local or district councils and used at that level or sent to the provincial or regional level. It is important to further investigate these sources of revenue since the health fee and the social service tax were expected to generate nearly 4 percent and 43.7 percent, respectively, of total provincial revenue in FY 1981.

Finally, since the people of Sudan already pay directly for a significant share of their health care to private providers, it is clear that a substantial proportion of the total recurrent cost of health care is being directly financed by service users. At the present time, little is known about the private sector services providers, both traditional and modern. A more systematic analysis of the private health sector is clearly warranted to ascertain location, use patterns, potential sources of competition or cooperation with public providers, and the role of health providers in each sector. Since most government physicians commonly practice privately in the evenings, it is important to understand more about the way the private and public sectors relate.⁶ This information is probably best obtained by conducting a carefully designed household medical/health care expenditure survey. Among other things, such a study would also confirm the extent to which health facility utilization patterns are affected by household expenditures for health and related services, e.g., transport.

This brief summary of the many ways in which individuals and communities are seeking to finance health care suggests that there is a considerable willingness to pay for PAC. The exact quantitative magnitude and the way utilization is affected, however, is not well documented. The RHSP can provide policymakers with important information by supporting studies of demand and financing as indicated throughout this section.

Overview of the Sudan Government

To provide a context for the reader to understand the findings and recommendations for revision of the existing RHSP, some of the salient features of the Sudan Government that bear on certain activities within the health sector are presented.

The Sudanese Government has become increasingly decentralized. This is appropriate for a huge country with sparse population and poor transport and communication infrastructure. The central government is responsible for foreign affairs, defense, and over 80 percent of government revenue collected. Regional governments have a great deal of autonomy in all other sectors. In health, the Central MOH retains a responsibility for (1) relations with bilateral and multilateral international health agencies; (2) the establishment of broad health policy (including the health component of the next six-year socioeconomic development plan); (3) health information and statistics; and (4) training. Within very broad policy guidelines, the regional governments are free to develop their own health programs. The central

minister of health has very limited control over health program development and management at the regional level. He has no authority to review regional health budgets or to advise regional health authorities. He retains some authority to transfer senior professional personnel from one region to another.

The Ministry of Finance and the Ministry of Economic Planning were united several years ago into a single ministry. The planning section of the ministry handles the development budget. The finance section is the stronger of the two sections and handles recurrent expenditures and revenue collection. This part of the ministry reviews and approves the regional recurrent budgets as well as the recurrent budgets of the other ministries at the central level.

Within the Central MOH are directorates for health planning, health manpower development, preventive services, curative services, primary and rural health care, statistics, and central medical supplies. The director of MCH is assigned to the Preventive Services Directorate, as are epidemiology and endemic disease, EPI, and a number of other activities. The Central MOH is currently undergoing some organizational changes that may serve to consolidate primary health care within a directorate with other related activities. Maternal and child health may be given the status of a separate directorate. The Directorate for Health Manpower Development was established April 1983 and will assume responsibility for establishing performance standards for all cadres of health workers as well as for undertaking health manpower planning.

Regional governments have varying combinations of ministries. For example, the central regional government has a Ministry of Health. However, in Kordofan Region, the Regional Ministry of Public Services contains a Directorate of Health and Welfare. Thus, the senior health official in Kordofan is far lower in the government bureaucracy than is the minister of health in the Central Region.

Because of the stronger revenue-collecting capability of the central government, up to 80 percent of the regional budgets flow from the central government as block grants-in-aid. The central government's Ministry of Finance and Economic Planning must approve the regional recurrent and development budgets. However, once the budget is approved, the actual expenditures may be for nonbudgeted items. The central government has limited capability for auditing the pattern of expenditures at the regional level.

In the area of training, the central government establishes standards for all categories of health practitioners. This includes the determination of appropriate entrance

requirements. Regional governments operate their own training facilities for most cadres of health workers and appear to do so in a fairly autonomous fashion.

Management, Planning, and Budgeting

Management. It is difficult to comment in more than very general terms about the management capability within the public health sector. As in any bureaucracy, strong interests of senior personnel are often reflected in both policies and programs. Written job descriptions and operation manuals are largely absent. We encountered many examples of situations in which both senior and junior personnel were uninformed about activities and developments within their area of responsibility and concern.

Supervision at lower levels (between regional and district levels, or between district and more peripheral health units) is extremely difficult because of the poor transport and communication infrastructures. This is compounded by lack of training in supervisory skills at all levels. Personnel rise through the upper ranks of the Ministry primarily by seniority. Only the minister is appointed. There is little opportunity for rapid upward mobility at the lower levels based on performance.

In the past there generally was little emphasis upon staff development or continuing education as a means of improving efficiency. However, within the last 12 months, the Management Development Centre (MDC) in Khartoum has been involved in several management training workshops for middle level personnel from the regional health departments. This was one fostered by the previous primary health care project. Also, a staff member from the MDC participated in the recently completed needs assessment survey in Kordofan Region. This represents the first opportunity for staff from the MDC to be directly involved in looking at the structure and function of the public health sector from a management perspective.

The senior staff at the MDC appear to be quite keen on further involvement in assisting the MOH to strengthen its management skills. However, it was unclear as to the capability of the MDC to successfully carry out this mission. The MDC appears to represent the strongest management training and analysis resource available, although further exploration of other possible alternatives is warranted.

Planning. The Central MOH has a continuing responsibility for establishing broad health policy. The director general for health planning at the Central MOH plays an important role. He will be involved in the development of the next six-year

socioeconomic plan for the country during the coming months. The director general for health planning indicated that he has very limited technical support to assist him in undertaking the kinds of studies upon which he can base rational long-term health policies. His role in planning as related to primary health care is also unclear. Apparently this responsibility is within the purview of the DG for primary and rural health services. The DG for health planning did not appear to be actively involved in PHC planning.

The newly established Health Manpower Development Directorate was mentioned earlier as the focus for health manpower planning. The new DG for this directorate appeared to be a capable individual with clear ideas about the directions in which he wished to develop his directorate. Such a unit could play a valuable role in defining personnel requirements for various cadres of PHC personnel throughout the country.

At the regional level, the Department of Health and Welfare in Kordofan has separate preventive and curative medicine units. The maternal and child health services fall under the preventive unit. The dispensaries, staffed by medical assistants, and the community health workers at the primary health care units fall under the curative unit. This bifurcation makes coordination of PHC services difficult. Currently, a proposal is under discussion to organize both regional and district health services into four units. These include hospital administration, community services (including MCH, EPI, all PHC facilities, epidemiology), environmental health, and a unit which includes training, planning, and health information (TPHI).

The TPHI unit corresponds roughly to the newly created health manpower development directorate at the Central MOH. This reorganization may facilitate the development of supervisory activities at the more peripheral levels. There will also be a focus within the TPHI unit for health planning at the regional level. This responsibility has not been clearly assigned heretofore.

The planning and management situation in the south is discussed in a section below.

Budgeting. The budgeting process is complex and is undergoing many changes at the present time. Because the central government has the greatest revenue-generating capability, it makes block grants to the regional governments. The regional governments, in turn, make monetary grants to the district governments. In the south, the district councils had for the first time this year developed and voted on their own budgets. However, the budgets had to be reviewed and approved by the Ministry of Decentralization at the regional level. There is no corresponding ministry of Kordofan.

The district councils are rapidly coming to grips with the problems of finding new sources of revenue. There appears to be a very limited capability for generating additional revenue at this level. However, with decentralization the salaries of many primary health care workers were passed down to districts. Several districts in the south apparently found it impossible to assume responsibility for the salaries of some of the medical assistants in their health facilities. Because these personnel had been seconded to the district by the Regional Ministry of Health, the Region Ministry continued to be responsible for finding a district that can pay the medical assistants' salaries. However, by placing responsibility for salaries at a lower level of government, many local governments have been forced into making difficult decisions about whom they would or would not continue to support in staffing the primary health care facilities.

To a certain extent, budgeting has been a matter of taking the previous year's figures and adding them to an inflation factor plus an additional increment. This weakens the power of the budget as an instrument of importance for planning and management. In addition, the grant-in-aid portion of the budget often becomes a political bargaining document between central and regional governments, thus reducing any incentives there may be to carefully budget expenditures by specific ministries, including health.

The budget has three categories, known as Chapters I, II, and III. Chapter I consists of all salaries. Chapter II covers the other recurrent costs. Chapter III represents the development budget. The planning section of the Ministry of Finance and Economic Planning handles the latter budget, which represents an increasingly smaller share of total expenditures. It should be noted that salary requests are honored before other recurrent expenditures. If there is a shortfall, only a portion of the other recurrent expenses are met. As little as 5-10 percent of the amounts budgeted for individual items may actually be released and expended on a year-to-year basis. For this reason among others, the budget has not been an important program planning document.

Management, Planning and Budgeting, Southern Region. The southern component of the RHSP was designed as an extension and an expansion of the previous PHC project. The project was designed to include a long-term adviser in health planning stationed at the Regional Ministry of Health in Juba. He and the other AMREF advisers would work directly for the Ministry of Health. In addition, the project called for provincial coordinators to be stationed at Wao and Malakal in Bahrel Ghazel and Upper Nile provinces, respectively.

The AMREF health planning adviser, Dr. Tito Lopez, arrived in September 1982. As the senior technical officer, Dr. Lopez was assigned the responsibility of team leader in early 1983, with the concurrence of USAID/Khartoum. There have been reservations expressed by both AMREF/Nairobi and USAID/Khartoum that the responsibility of team leader for the large AMREF staff could make it difficult for Dr. Lopez to fulfill both the technical planning and leadership and coordination.

The recent decision by the Government of Sudan to divide the south into three separate regions has further complicated the task of designing an effective and coherent project in the south. The extent to which foreign donor agencies such as UNICEF, WHO, the UNFPA, and USAID can work in all three regions while keeping their base of operations in Juba was unclear at the end of June 1983. A second question is whether the AMREF team can develop working relations with the regional health departments, now that they are separate and autonomous regional (previously provincial) governments. Formerly there was but one regional government, and the provincial governments functioned under the direction of the regional government at Juba. Although it is conceivable that the original strategy of stationing most of the AMREF staff in Juba and providing backup support to provincial coordinators in several of the provinces may remain viable, this is not assured.

From May 10 through June 15, 1983, Dr. Lopez was on leave in the United States for medical reasons. Our understanding of this proposed plan of action was gleaned from conversations with Dr. Kofi Asante, acting team leader in Juba, and Dr. Chris Wood, medical director of AMREF in Nairobi, together with an outline of activities that was prepared by Dr. Lopez before his departure and from a conversation with Dr. Lopez in Washington, D.C., in late June 1983. Although Dr. Lopez has indicated a readiness and desire to return to Sudan in the fall of 1983, there remains an uncertainty that will be resolved over the coming months.

The modus operandi established by Dr. Lopez was to work very closely with the senior MOH staff in Juba, especially Drs. Noel Warille and Oliver Duku. Dr. Lopez was in the process of assisting these men to draft a revised organizational plan, including functional job descriptions for the regional MOH. He was developing some contacts within the Ministry of Finance and Economic Planning to obtain an understanding of the regional budgeting process. Finally, he was beginning to coordinate the activities of the other members of the AMREF team so that they would interact and supplement each other to accomplish the broader objectives of the RHSP in the south.

There are, therefore, several factors operating in the southern RHSP that are not operative in the North. First there

is uncertainty over the future status of the South as a political entity. Will donor agencies continue to be able to remain stationed in Juba and provide technical assistance within the other two independent regions? Will air transport between these regions be permitted? Are new agreements required between AMREF, USAID, and the regional governments? The answers to these questions may become clear by September 1983 as the President meets with the southern governors and as the regional governments are established. Other donor agencies, faced with the same uncertainties, appear to be waiting for an answer to these questions as well.

Second, the AMREF team leader's return to the field within a reasonable period of time is uncertain. This may be resolved within roughly the same time frame as the first series of questions. For the purposes of short-term planning, it seems most reasonable to assume that Dr. Lopez will return to his post in the fall.

Summary. The major issues that must be dealt with in an attempt to strengthen the planning, management, and budgeting process within the primary health care component of the government health sector can be summarized as follows: First, with the relatively high degree of autonomy existing at the regional level, which has occurred as a consequence of the Decentralization Acts of 1980 and 1981, the Central MOH must negotiate with the regional governments for permission to undertake any kind of activity at the regional level. In this sense, the Central MOH staff involved in the RHSP operate under many of the same constraints as the USAID contractors in initiating activities at the regional level. In the South, although the contractor was working within the regional government, there are now three separate governments with which to develop working relationships.

The major implication, for implementation of the RHSP, appears to lie in the need for the Central MOH to respond to the perceived needs of the regional health authorities. The relationship must be one of partnership and support, using the RHSP funds to strengthen the regional governments' capability to plan and carry out their own health programs.

Second, the Central MOH in Khartoum, like the regional and district governments, must submit its budget annually for approval. However, it is usual that only a small and unpredictable fraction of the amounts approved in the budget for nonsalary recurrent cost items will ultimately be released. This makes rational programming very difficult.

It may be possible to anticipate the future level of expenditures basing the estimates on the money actually

released the preceding year. Such data are not readily available in detail. To develop these data in a timely manner represents an important area for project assistance to regional and district governments so that they might come to grips with the true costs of their health programs. Actual expenditures for health services as well as for other sectors are not precisely known. The books for most regions have not been closed since the mid-1970s.

Third, there is poor communication between the different levels of the health and government systems. Clearly defined levels of responsibility and accountability are not well understood by many who work in the health systems. There has been little formal training in management and promotion is not generally based on merit. There has been virtually no staff development or reward system for efficiency or other job incentives. Finally, wages have tended to lag behind other options available to government health workers, particularly those that have prevailed in other middle eastern countries. These all represent pervasive patterns throughout the government bureaucracy that militate against the strengthening of management in all sectors.

The implications for the present RHSP clearly lie in the need to consider the broader management environment within which the project is operating. It will be important to identify incremental steps that may lead, in the long run, to more efficient management and planning in the government health sector.

Logistics and Supply

Drugs, equipment, and supplies represent essential components of the health care system. Except for personnel, drugs often constitute the largest expenditure items in a health budget. For a country without its own pharmaceutical industry and supply of raw materials, drugs also represent a large drain on foreign resources. Distribution of drugs, supplies, and equipment to the health facilities throughout the country represent a second major recurrent expenditure. The greater the number of facilities and the more widespread they are, the greater the cost of distribution will be. Logistics and supply represent a major impediment to health services development.

Current Status of Central Medical Stores (CMS).

The CMS is a major unit within the Central MOH, with the director general for CMS reporting directly to the undersecretary of health. Drugs are ordered centrally by the CMS for all publically operated health facilities and are

officially purchased and owned by the Ministry of Finance. A major public tender is issued every 2 years, with smaller tenders in between.

The Ministry of Finance makes the foreign exchange available for purchase of drugs. Although the sources of the funds were not documented, Ministry of Finance personnel indicated that the Saudi Government loans up to \$30 million per year for the purchase of drugs, with lesser amounts of foreign exchange being made available via the commodity import programs of the French and Italians. The recent drug tender for approximately \$65 million, lent in late 1982 following a period when even essential drugs were unavailable, has led to overflowing warehouses at CMS and a false sense of abundance--somewhat analogous to temporary drops in the price of gasoline in the United States. Additional donations of drugs are sought from other European countries and UNICEF channels drugs into the Sudan from various countries on a year-to-year basis.

The CMS complex consists of about 12 warehouses, built mostly in the early 1950s. The facility has received very little maintenance since then and is in poor condition, with leaking roofs, broken doors and windows, and essentially no equipment for handling stores. The result is a very high loss from damage due to rain, rough handling, heat, and theft. The Director General gives an estimate of 10-20 percent loss, but this is unsubstantiated by any accurate data.

The present CMS has a rudimentary inventory system. There is no central stock control system at present. Thus, drugs are not rotated and there is loss from expiry of dated drugs. Cartons arriving from Port Sudan and from the International Airport in Khartoum are not routinely opened before onward shipment. Since there is no receiving area and no shipping warehouse, the large inventory of drugs now on hand has created chaotic conditions. Shipments are often stored outside, leading to even greater loss.

An effort has been made to develop a systematic schedule for shipment on to regional warehouses. But this has not been fully implemented. As a consequence, the health facilities in Khartoum Province and the Central Region, which are closer to CMS, receive a disproportionate share of the drugs available while health facilities in more distant areas of the country obtain less than their share of drugs.

A overview of the current situation at the CMS was recently prepared by the director general and is attached (see Appendix V).

Contributions of Previous PHC Project

The primary health care project that preceded the present RHSP had as one of its major objectives the strengthening of logistic and supply capabilities of the Government of Sudan. A long-term logistics adviser was assigned as the counterpart to the DG for Central Medical Supplies. Twenty-four five-ton trucks were purchased and distributed to the CMS and the regional warehouses to facilitate the distribution of drugs and supplies. Staff from the CMS were given overseas training in stores management by Crown agents in Nottinghamshire, England.

A recent logistics consultant visited the Sudan in the Spring of 1983 to review progress made in strengthening the system. He noted many improvements, particularly in the operations of Port Sudan and its movement of drugs to Khartoum and other locations. He also noted, however, that there were many areas for improvement. The vehicle control program, which was to make possible the obtaining of cost data on vehicle operation for later budgeting purposes, had never been properly instituted. Although the Government has operated a fleet of trucks for the last 3 years, there is no solid data on the cost or the effectiveness of this program. Thus, comparison with alternative (private sector) transport capabilities is not possible.

The logistics adviser has been chiefly responsible for setting up a spare parts warehouse and inventory system for the trucks that were donated by AID. Keeping this activity functioning properly requires approximately 20 percent of the adviser's time, by his estimate. The adviser functions as the counterpart to the DG and has not taken a direct responsibility for any section within the CMS other than the spare parts warehouse. He feels that he might be more effective if given a more defined scope of work with greater operational responsibility.

Contribution of Other Donors

Although the current status of all other donor support to the logistics and supply system was not system optically documented, the CMS pointed out that the Government of the Netherlands has a keen interest in providing support to the central logistics systems. They are willing to provide both technical assistance and financial support for construction and renovation at CMS and in Port Sudan. The Dutch charge d'affaires mentioned that the Dutch Government intends to dispatch a technical assistance team to Sudan to better define project inputs. The Dutch would like to assume direct responsibility for warehouse construction as they have done elsewhere in Africa. They would also like to institute a comprehensive supply management system under the direction of

their technical advisers and train the Sudanese to operate the system over a 2- to 3-year period. To date, the technical mission has not materialized. The Dutch are interested in a \$3-4 million project.

There is a CMS master plan that calls for complete renovation and construction of warehouses, with one outcome being the threefold expansion of storage area. However, the estimated cost of this plan exceeds the capability of the Government and presently identified donors. Certainly, the AID contribution to CMS outlined in the RHSP project paper represents but a small fraction of what would be required.

As is many other countries, UNICEF has been heavily involved in the provision of drugs, supplies, and equipment to the primary health care program in Sudan. The concept of a drug and supply kit was developed several years ago, and these kits now form the main import item for UNICEF. It was felt that the importing of these kits for delivery to the CHW and medical assistant would simplify the problem of inventory control and procurement of separate items. Of course, on the negative side, the risk is great that no CHW or medical assistance has an average practice. Some items will be used up and others will be wasted.

UNICEF staff indicated that, in 1983, UNICEF has approximately \$30,000 available for the purchase of UNICEF kits for the primary health care program in Sudan. In addition, other donor countries may make additional contributions for the procurement of UNICEF kits. It turns out that the cost of providing sufficient kits to meet the drug requirements of current CHW and medical assistant staff stationed throughout the Sudan is about 10 times the amount being provided by UNICEF, i.e., about \$3 million per year.

Although the UNICEF kits have been arriving in Sudan for several years, field trips reports have indicated that a number of problems exist in their distribution. Kits have been found to be broken down before reaching their destination. Others are stored in regional warehouses and not distributed. Many CHWs and medical assistants must function without drugs. UNICEF has recently assigned a full-time expatriot to work at CMS and in the field to document the distribution problems with UNICEF kits.

The director general for CMS considered the procurement and distribution of UNICEF kits and the entire issue of drug requirements for PHC facilities to be out of his jurisdiction. There appears to be no central planning for meeting the drug requirements of the PHC system. Whatever UNICEF or USAID-donated drugs are made available for distribution to the

PHC facilities represent the major supply for this program. The DG did not consider these drugs or the additional requirements of the PHC system to be his concern. Rather, he thought it was the responsibility of the donor agencies.

The director general for CMS feels that the procurement, storage, and distribution of drugs and supplies for the entire system must be dealt with and that the drug requirements of the PHC system should not be dealt with separately. Given this orientation on the part of the government, the building of additional warehouses and the procurement of additional transport capability represents a solution to the wrong problem. Unless the central government via the CMS assumes primary responsibility for procurement and distribution of drugs to the PHC system, improving the CMS system will not lead to a better flow of drugs to PHC facilities. This appears to be a situation in which well intentioned aid intended to strengthen the situation has led to official neglect of the overall problem and a worsening of the situation.

Alternatives to the Present Drug Procurement and Distribution System

Private pharmacies have sprung up rapidly throughout the Sudan, particularly in urban areas. In Wad Medini, the second largest city in Sudan, there are about 18 private pharmacies. These pharmacies obtain their drugs through private drug import firms. Prices tend to be high. But when free drugs are unavailable through the Government-operated pharmacies, the private pharmacies provide the only alternative. Drugs are sold without prescription.

There is a growing awareness on the part of the government that the provision of free drugs is not feasible. The constitutional guarantee of free medical care is often mentioned as a barrier to more rapid implementation of various cost-sharing mechanisms, including a charge for drugs. However, there has been some experimentation with what have been labeled People's Pharmacies. The first of these was apparently opened in Khartoum in 1979. Drugs were made available through the CMS. They were sold with slight markup, and the money was used to purchase additional drugs from the CMS. An expansion of this type of facility occurred in the Central Region in 1982. According to the current minister of health for the Central Region, foreign exchange was made available to him through the Ministry of Housing in the Central Region. With this foreign exchange, the minister placed an order directly to Europe, using the offices of the WHO in Alexandria. With \$300,000 of essential drugs, the minister capitalized about 12 pharmacies. Pharmacists were seconded from hospital pharmacies and additional staff were recruited. Space was rented. Drugs were sold only on a prescription basis

with between 6- and 15 percent markup. The drugs are purchased either from CMS or from private drug houses in Khartoum. The WHO-purchased drugs provide a final source which is drawn upon only as a last resort.

Although the pharmacies have thrived over the first several years, it is too soon to know how they will fare in the long term. Foreign exchange represents a major problem. Informal mechanisms exist for obtaining foreign exchange in the private sector, largely through Sudanese living in the Gulf. However, once the drugs are available within Sudan, the People's Pharmacies represent an alternative to both the expensive private pharmacies and the unrealistic free drug program of the government. They represent an interesting attempt to provide drugs in such a way as to cover costs without discarding the concept of free care.

Development of Drug Production Capabilities

A number of individuals have expressed a keen interest in the development of drug production capabilities within Sudan, including the minister of health and the director general of Central Medical Stores. The particular projects that were mentioned to us included a spirit production unit and a unit for production of distilled water for injection. Later, more sophisticated intravenous fluids might be produced. Oral rehydration packets were also mentioned, as well as production of tablets and capsules from bulk items such as chloroquin. The director general felt that salvaging silver from X-ray development fluid in the Khartoum area was relatively simple and feasible.

There are a limited number of drug production units in the Sudan. The government has purchased cotton bandages from a local plant that uses Sudanese cotton. However, the plant has been heavily subsidized by the government and is not competitive with imported cotton supplies. This represents a sobering experience when contemplating other units that use locally available raw materials.

Maternal And Child Health/Family Planning Services

The strengthening of MCH/FP services in the Sudan is one of the major objectives of the Rural Health Support Project. Available data indicate high rates of both infant and maternal mortality. However, there appears to be little reliable data collected on an ongoing basis upon which to base estimates of either infant or maternal mortality.

MCH services are provided by traditional birth attendants (TBAs), village midwives (VMWs), nurse midwives (NMs), and health visitors (HVs) in ascending order of training. The

original primary health care program launched in 1976 did little to strengthen MCH services because neither the community health worker nor the medical assistant were trained to provide such services. Both cadres of workers are overwhelmingly male. MCH knowledge and skills were not included in their training curricula. The male medical assistants have been legally barred from the delivery of normal infants. However, they have been called upon for emergency conditions for which they were not trained.

These problems have been widely recognized. Efforts are being made to reduce the educational requirements for CHWs so that females can be recruited. Introduction of MCH components into the CHW and medical assistant curricula is planned. It was not clear to us whether training of the medical assistant to deliver routine midwifery services has been dealt with at a policy level. But there appears to be a practical effort underway to provide these workers with training in normal obstetrics so that they can provide necessary technical support and backup to village midwives.

Organization of MCH/FP Services at the Central MOH

At present, there is no strong focus for development of MCH/FP policy or programs within the Central Ministry of Health. The current project director of the UNFPA-funded MCH/FP project, Dr. Baldo, is assigned to the Directorate of Preventive Health Services within the Ministry of Health. He is a gynecologist on the staff of the Omderman Maternity Hospital near Khartoum. He has little experience in public health or orientation to development of MCH services.

The Rural Health Support Project director is also the director general for primary health and rural health services. The responsibility for training of CHWs falls within the purview of this directorate. All other categories of paramedicals are the responsibility of the Directorate of Health Manpower Development. The assistant to the RHSP Director, Dr. Magda, functions as a coordinator of MCH activities. Dr. Magda has a masters degree in community medicine and is committed to the development of MCH services through the RHSP.

The creation of a separate Directorate of Maternal and Child Health was under active consideration at the Central MOH as of June 1983. This could provide a higher level of visibility for development of MCH/FP policies and programs within the Central Ministry. The effectiveness of such a unit, however, would depend upon the quality of the unit's leadership and the support given to the unit by the minister of undersecretary.

Meanwhile, the creation of a Directorate of Health Manpower Development meets some of the need that a separate MCH Directorate might be expected to address. These include the development of data on the distribution of all types of MCH personnel throughout the country, a potential activity of the health manpower planning unit within the directorate. The task of revising the various curricula in order to incorporate MCH/FP tasks in the job descriptions of these cadres of workers is the responsibility of the directorate. Currently, there is consideration being given to transferring responsibility for the CHW training to the new MCH Directorate and of transferring many of the other functions of the Directorate of Primary Health and Rural Health Services to a directorate that combines many of the other functions that are primarily within the Directorate of Preventive Health Services. However, these proposed changes have not yet occurred.

Organization of MCH/FP Services at the Regional and District Levels

In Kordofan, as outlined above, there is a proposal to reorganize the Department of Health and Welfare so that MCH services are assigned to the same section as CHWs and medical assistants. This will facilitate medical assistants in providing the technical and administrative supervision of VMWs they are supposed to exercise.

Current Providers of MCH/FP Services

There is only sketchy information available about the actual delivery of MCH services. In the South, the population in rural areas is sparse, and nearly 70 percent of women have delivered at least two or three infants. Conversely, only a few women deliver more than six or eight per year and could thus be designated TBAs. This becomes an important issue in attempting to identify women for training as TBAs.

In Kordofan, there is a TBA training program of 3 months duration. According to the Regional Department of Health and Welfare, the training program is to be evaluated soon, with a decision made as to whether to continue the training based on the findings (see Appendix VI, para. 8).

Village midwives (VMWs) represent a second group of MCH providers. There are nine 18-month training programs in VMW training schools in most regions. However, in the south, the admissions policy has been lax and many wives of local civil servants have been trained. Not having come from rural villages, the women are unwilling to work there. For this reason, the VMW school in Malakal has been closed for 2 years and is in a state of disrepair. The southern regional government had been seeking support to construct a new facility in the smaller city of Rumbeck (Lake and Province).

The VMW curriculum requires an initial 6 months of theory, followed by a requirement of delivering approximately 20 infants. The women are usually illiterate. Emphasis has been primarily on obstetrics, with very little teaching about prenatal care, postpartum care, or child health services. It was our understanding that the VMW curriculum has recently been revised to incorporate these tasks into the VMW job description. However, this was not verified. Although theoretically supervised by medical assistants, the VMWs have functioned without supervision except for rare visits from the district nursing superintendant.

Nurse midwives are women who have been trained as nurses and have practiced for several years before receiving midwifery training. They are responsible for hospital deliveries and also work as tutors to the VMW schools. It is unclear the extent to which their roles could be expanded to include prenatal and postpartum care and child health care since the work settings of NMW were not analyzed.

Health visitors (HVs) are drawn from the ranks of nurse midwives and are responsible for MCH services in health centers. The health centers tend to be located in urban areas. Health visitors also function as tutors in the nurse midwife training schools.

Existing MCH Training Programs

In Kordofan there are approximately three VMW training schools and one nurse midwife school. The program implementation plan that was prepared by the Directorate of Health and Welfare (see Appendix VI for summary) indicates a need for assistance in expanding the VMW and NMW curricula to include child spacing, infant and child health, and health education. This represents a potential entry point for RHSP inputs at the regional level. Similarly, the training of CHWs and medical assistants is to be reviewed with the idea of including MCH components within these curricula. It was hoped that a larger proportion of females could be recruited for CHW training, compared with the 17 percent so far trained in that Region. Refresher courses for CHWs must also be developed to include these tasks.

In the South, the former AMREF MCH advisor had completed a revision of the nurse midwife curriculum, which is being used currently at Wao. However, the MCH adviser position is now vacant, but a heavy emphasis on training is part of the envisioned role for this adviser.

According to AMREF, it has conducted brief training courses for TBAs, VMWs, and nurse midwives in the south. The duration

and content of these courses was not documented. A continuation of similar courses was identified as a primary project activity in the future.

Reviews of any of the existing or recently revised curricula for the various categories of MCH personnel were not conducted. In the North, most are Arabic, often without English translation. Apparently the revision process is usually carried out by a committee, with individuals drawn from appropriate training institutions, the Central MOH, and the Educational Development Centre. Although the concept of competency-based training has been mentioned, the extent to which the MCH curricula actually implement this approach and the extent to which the teaching and learning methods used at the training institutions are based on are unclear. Previous consultants have commented on the curricula and the teaching techniques generally utilized. In general, it appears that traditional didactic teaching methods are used, with little emphasis on self-instruction, AV materials, or practical skills development techniques.

Additional Strategies for Delivery of MCH/FP Services

A school-based project for delivery of MCH services was visited in the Central Region. The originator of the project is the head of the pediatric department at the Wad Medini Hospital and Gezira University Medical School. In this program, students in the secondary school were each assigned five younger children, including young siblings. The older students became responsible for insuring that the younger children were taken to the child health clinic for growth supervision and immunizations. The students were taught nutrition messages, including information about breast feeding and introduction of weaning foods. They were expected to teach their parents these concepts. The project has now been formally taken over by the Ministry of Education. No formal evaluation of the program has been conducted. It appeared to represent a potentially valuable way of extending MCH services and health education into the community through the schools.

The community-based family health program north of Khartoum was also visited. This project, operated by the Department of Community Medicine, University of Khartoum, has as its objective the utilization of village midwives to deliver a package of preventive and promotive services (nutrition education, child spacing with the use of the pill, facilitation of immunizations with EPI personnel, and oral rehydration for diarrhea and dehydration). The pilot project was developed in approximately 90 villages on either bank of the Nile. There are plans to expand the program on a larger scale in the Central Region over the coming year. However, the project appears to deserve replication in other regions as well. If

carefully developed and carried out, the project would provide very valuable and persuasive evidence that VMWs are an important source of extended MCH services. This is a message which needs support through demonstration education, child spacing with the use of the pill, facilitation of immunizations with EPI personnel, and oral rehydration for diarrhea and dehydration). The pilot was developed in approximately 90 villages on either bank of the Nile. There are plans to expand the program on a larger scale in the Central Region over the coming year. However, the project appears to deserve replication in other regions as well. If carefully developed and carried out, the project would provide very valuable and persuasive evidence that VMWs are an important source of extended MCH services. This a message which needs support through demonstration.

III. RECOMMENDATIONS

Recommendations

Strengthening Management, Planning, and Budgeting Capability

The seventh and final project output of the original RHSP project paper was to "develop three regional health plans, including annual budgets, in the process of institutionalizing a regional planning and information capability." This is a review of the current situation in Sudan as well as the discussion that took place during the week of June 15 on this topic. The following recommendations focus on more specific strategies for achieving this goal.

Analyze Actual Expenditures for Health Activities at Levels.

Discussion with the needs assessment team members returning from Kordofan indicated that data on actual expenditures for health activities at the different levels (regional, district, and local) are very difficult to piece together. Although a rough estimate could be obtained retrospectively, monitoring of these expenditures over a 12-month period would provide a far more reliable indication.

Such a study should be designed to monitor expenditures in a sample of primary health care facilities within one or two districts, the cost of operating a District Health Department, and the cost of at least the PHC component of an entire region.

The purpose of this project is to assist the regional health authorities in developing a more realistic estimate of the recurrent cost of the health care activities within the region. Such a study, in and of itself, will not lead to overnight changes in the existing system. However, it is assumed that a clearer and more concise knowledge of exactly how monies are expended throughout the regional health budget may over time improve the use of the available funds most efficiently and effectively, particularly if concomitant utilization and outcome data are also made available.

Assist the Regional Government in Planning and Management

A number of strategies are available for assisting the regional government to strengthen district health operations. One approach would be through establishment of a staff development or continuing education activity for the district health staff. This might take the form of a series of workshops, each designed to provide district health personnel with an opportunity to address one aspect of district health operations.

The long-term objective of working with district teams would be the development of a district operations manual that

is based specifically on the needs and organizational structure within the Sudan.

An example of a potentially useful exercise would be to assist the Statistics Department at the central level to complete the analysis of the South Kordofan Village Survey (Appendix VII) and feed the information back to the regional and south Kordofan districts. The data includes distribution of primary health care personnel, village by village, throughout the southern half of Kordofan Region.

Both AMREF and the health manpower development staff, University of Hawaii (MEDEX), have developed operation manuals that might serve as a starting point in creating a Sudan-specific district operations manual. Short-term consultants should be obtained, if required, to assist in implementing this strategy. A staff member from the management development centre (MDE) should be recruited to work with the RHSP team at the regional level in the development of this activity. This experience will be invaluable in increasing the MDC capability to improve health program operations in other regions.

A provincial coordinator for Kordofan should be sought who has the skills or who can be oriented to function as a management adviser. It is very likely that fluency in Arabic will be a major prerequisite to the job, and that appropriate management skills can be taught with the assistance of short-term management consultants.

Develop a Strategy for Strengthening Management and Planning in the Southern Regions

The southern component of the RHSP, in contrast to the North, has already undertaken a plan for strengthening management and planning of health services. However, because of the recent division of the South into three separate regions, and because of the prolonged absence of the AMREF team leader/health planner, there is a strong need to take a fresh look at the entire situation in the south and to define concrete objectives in the planning and management areas that maximize the contributions to be made by the health planner, provincial coordinators, and the other long-term advisers on the AMREF staff.

USAID/Khartoum should request AMREF to recruit a planning and management consultant for a 1-2-month consultancy to assist the AMREF team to develop a work plan that reflects the current political constraints as well as the capabilities of the AMREF long-term advisers. To the greatest extent possible, there should be coordination between the approaches and possibly resources used in the South and in the North.

Assist in Establishing Drug and Supply Procurement Operation

The lack of coordination between UNICEF, the Central Medical Stores, and the regional governments in meeting the drug and supply requirements for PHC facilities requires attention. We have recommended above that a procedures manual be developed for CMS that includes the procedures involved in shipment to the regions and in procurement by the regions from CMS. There should be close coordination between these activities at the central level and the development of the corollary procedures at the regional and district levels.

The respective contractor's provincial coordinators should undertake an analysis of the existing drug procurement and distribution procedures in their regional and districts. This activity should be carefully coordinated with the development of the CMS procedures manual so that the regional and central activities are congruent.

Strengthening the Logistics and Supply System

The original project paper emphasized the construction of new warehouses and supplying equipment and additional vehicles to assist in distribution of drugs and supplies. As discussed above, a redefinition is now warranted for this aspect of the RHSP. This redefinition is spelled out in the six recommendations that follow.

Strengthen the Management Capability of CMS Senior Staff

Improved management is absolutely essential if procurement, storage, and distribution of drugs and supplies are to come more efficient. It is difficult to tackle this problem directly. However, one or more of the following projects may provide an incremental approach toward improved management.

Develop a CMS stock control system. The idea of a stock control system has been discussed with the director general of CMS and his USAID-financed counterpart. Both feel that the lack of such a system is a major obstacle to improve management at CMS. Without such a system, it is very difficult to track drugs, to reorder at the appropriate time, and to avoid expiration of drugs. A basic inventory system appears to be functioning at the present time, and the next step in improving the overall system is to implement a stock control system.

The director general at CMS agrees that the introduction of a stock control system within a single unit, such as the cold storage unit, represents a well-defined project involving a quite limited number of items. Nevertheless, introduction of the system within this limited area would provide an

opportunity to simultaneously develop a procedures manual which could then be expanded to cover other items.

Because the stock control system lies at the center of the CMS operation, introduction of the system must be meshed with nearly all of the other sections. These would include the procurement section, the accounts section, the inventories section, and the drug controller.

A management specialist should be recruited to assist the present logistics advisor in developing the stock control system and in writing the procedures manual. It must be translated into Arabic as it is developed. The manual will form the basis for subsequent training of CMS staff in further implementation of the system.

Conduct a management analysis of the accounting system at CMS. Accounting represents the interface between the Ministry of Finance and the Central Medical Stores. The operation of the present accounting system requires documentation as a part of the procedures manual for CMS. The staff in the accounting section can be trained and supervised more efficiently with the aid of such a document.

A short-term consultant in accounting should be recruited to work at CMS for the purpose of assisting the chief of the accounts section to develop a written procedures manual that can be used for subsequent staff training and supervision. This should be undertaken concurrently with the development of the stock control system.

Develop an in-service training program for CMS staff. Following the development of the stock control system on a pilot basis in the cold storage unit and the analysis of the accounting system, it will be necessary to systematically train and supervise CMS staff to operate the new stock control system as well as to alter their activities in procurement, accounting, and shipping. The procedures manuals must form the basis upon which such training must be carried out.

At an appropriate time, after a draft of the procedures manual has been prepared for CMS, the director general for CMS should seek assistance in establishing an ongoing in-service training program for his staff. The section chiefs who are responsible for supervision of staff should be primarily responsible for conducting the in-service training, but they should be given assistance by an experienced management trainer.

Conduct Feasibility Studies for Production of Pharmaceuticals in Sudan

As discussed above, there is a keen interest in development

of a drug production capability. This interest has been expressed by both the minister of health and the director general for CMS. A number of possible items have been suggested as potentially capable of being produced in the Sudan.

The Dutch Government has had extensive experience in development of local drug production units. For example, the Dutch have assisted the Government of Lesotho in establishing a number of drug production units, importing the raw materials from abroad. In addition, other countries in East Africa are exploring ways of expanding the local production of pharmaceutical items, in part via the assistance of the Danish Government, e.g., in Tanzania.

Technical assistance should be sought to ascertain first the feasibility of local production alternatives and then to develop a local production capability. Technical assistance may be obtained from the Dutch or Danish Governments, or possibly from the Private Enterprise Bureau of AID via USAID/Khartoum.

Initiate People's Pharmacies

The experience to date in development of an alternative to the existing system of free drugs has been encouraging. However, the experience has not been well documented. Furthermore, most of the experience has been in Khartoum Province and the Central Region. These areas are relatively close to the supply point, so transportation costs have been minimal. Furthermore, these are the wealthiest areas with the greatest access to foreign exchange. Whether a similar type of operation can be successfully developed in more distant regions remains to be tested.

The experience with People's Pharmacies in Khartoum and the Central Region should be carefully documented. Following this, the RHSP should undertake the development of similar operations in El Obeid and Kidugli in Kordofan Region and perhaps a similar operation in Juba, Malakal, and Wao in the South. The funds that are available for purchase of drugs can be utilized to capitalize these pharmacies. If the pharmacies prove successful, subsequent expansion of the operation to more rural communities through revolving funds might then become feasible.

Government-Operated Vs. Private Distribution of Drugs and Supplies

The government has a fleet of trucks, among which are 24 5-ton International Harvester trucks donated by USAID as a part of the prior PHC project. These trucks have been in use since late 1980 for distribution of drugs and supplies to the various regions. Yet there are no data available on the actual cost of

operating fleet. Nor are there data on the cost per ton-kilometer for movement of drugs between discrete points in the network. Such information is essential for making cost comparisons with private haulage rates.

A prospective study of perhaps 4-6 months duration should be conducted to determine, to the extent possible, what the true costs of drug distribution via alternative approaches actually are. The study should precede any further investment in trucks by USAID for the logistics component of the RHSP.

Construction and Equipping Warehouses

Further planning and discussion of capital development activities at the CMS and in the regions should be delayed until the intentions of the other donor agencies are clarified and a joint plan can be developed that avoids duplication. Although a similar recommendation could be offered in regard to development of a stock control system and improvement of the accounting system, the indefinite delay which this represents seems unwarranted. The U.S. logistics adviser can provide a useful contribution in this area now, whereas the Dutch team may be 1 or more years away.

Strengthening MCH/FP Services

The sixth project-output of the original RHSP project paper was to train 1,860 health workers, including community health workers, in maternal child health and family planning to integrate such services into the PHC program at the village level. This review of the current situation in Sudan and discussions with MOH staff and other as developed above represents the basis for the following recommendations. A major recommendation for strengthening MCH/FP services through curriculum development and improvement is addressed in the following section on training.

Evaluate Current TBA Training Activities

A 3-month course for TBAs was established in Kordofan Region. The Regional Directorate of Health plans to evaluate the effectiveness of the course and continue or discontinue it on the basis of this evaluation. Other participants in the evaluation were to be UNICEF and the Central MOH (see Appendix VI, para 8).

The RHSP should also participate in the evaluation. The evaluation should be focused not only on the change in performance of TBAs before and after the course, but on the effectiveness of the instructional methods used and the student evaluation techniques incorporated into the course design. It would be unfortunate to discontinue training of an important

cadre of MCH providers because the training was not effectively carried out and the results reflect this factor rather than an innate problem in retraining of TBAs.

As the AMREF team has been involved in training of TBAs, technical assistance might be sought in-country for this evaluation activity.

Strengthen Instructional Methods at VM and NM Institutions

In the following section on training, it is recommended that instructional materials be developed that emphasize a competency-based approach. To be effective, these materials must be used by tutors who have been trained in competency-based instructional methods. Experience in use of these techniques should be a skill possessed by the long-term MCH advisers in both the North and the South and should be an explicitly stated prerequisite for recruitment to these positions. Alternatively, provision of an opportunity to learn these skills should be arranged for the advisers after recruitment.

The One America contractor should make a strong effort to recruit an MCH adviser who is fluent in Arabic. Further discussion of this issue is warranted in view of the limited effectiveness of a non-Arabic adviser at the regional level.

Replicate the VMW Demonstration Project

The role of the VMW has traditionally been limited to provision of midwifery services. The VMW has received little training in child health, family planning, nutrition, or other preventive and health promotion activities. Moreover, there is a reluctance on the part of many to expand the VMW role to include these kinds of activities. For this reason, the demonstration project carried out by the Department of Community Medicine of the University of Khartoum north of Khartoum represents a significant development.

Because of reservations about broadening the role of the VMW expressed by various Sudanese decisionmakers, the time is not ripe to implement a wide-scale effort along the lines demonstrated in north Khartoum. However, a carefully conducted replication of this project, perhaps in a district adjacent to El Obeid in Kordofan, might represent a feasible step toward this goal. Therefore, planning and conducting such a replication study in Kordofan should be given a central place in the MCH/FP component of the RHSP.

Retrain Medical Assistants

Retraining medical assistants to provide a limited range of

MCH service is a complex issue. Medical assistants should be able to provide technical supervision of MVWs in midwifery and MCH activities. To provide such supervision, it is necessary that a limited number of specific skills be added to the medical assistants' job description. This will require the development of instructional materials that cover these topics. It will also require conducting training workshops at the district level to provide the medical assistants with these additional skills. There should be close coordination between the activities of the Educational Development Centre and the Central MOH in developing the instructional materials and the instructional workshops at the regional level.

Training and Research

Training

A number of recommendations related to training have been made in earlier sections. The most important recommendation relates to strengthening the MOH capability for carrying out curriculum revision. There are curricula for every category of primary health care worker. However, the curricula currently exist in varying stages of development and implementation. An effective training program must include the following elements. First, there must be an analysis of actual job requirements, based on observation of a sample of practitioners. This analysis must include a careful assessment of the actual tasks that are to be performed in sufficient detail that the curriculum can be designed to communicate all of the essential knowledge and skills required to perform the tasks. The resources required for task performance (equipment, supplies, transport, communication, supervision) must be identified at the same time.

Second, a curriculum must be developed that includes not only test materials but also supplementary materials, such as audiovisuals, instructors' and preceptors' manuals, specific guidelines for evaluation of student skills, and training site requirements. Third, instructional materials must be developed for the preparation of tutors. Reorienting tutors so that they become effective in training and evaluating their students in performance of skills required for adequate job performance is difficult but is essential if job performance is to improve. Fourth, one or more senior instructors must be trained who can insure that the essential components of this approach are developed and that tutors are adequately performing their teaching and evaluating roles.

The Central MOH has a responsibility for establishing standards of performance and for periodic revision of the curricula for the various cadres of PHC workers. In turn, the MOH looks to the Educational Development Centre for assistance in carrying out the curriculum revision and for training tutors.

The RHSP should give major attention to strengthening the EDC capability to perform these tasks. Previous support to the EDC has been through payment for specific workshops. More substantial support should be given through the appointment of full-time staff to the EDC, funded through RHSP funds. A search should be made for an individual with a health background who can be trained in competency-based curriculum development. This person can receive on-the-job training in Khartoum, using a short-term consultant with these skills, or be sent for training overseas.

It is important that there be close coordination between the activities of the educational development specialist at the EDC and the actual performance of PHC workers in the field. This critical link is often overlooked. To establish this linkage requires that performance criteria be established for each major task or component of a PHC job. The level of performance of a sample of workers before and after training must be evaluated. This evaluation should be carried out by supervisors and tutors involved in the training. The information must be used to strengthen both the curriculum through further revisions and the instructional methods used. The precise sequence of steps to follow in revising curriculum in relation to job performance is described in a number of references, such as Hickerson and Middleton: Helping People Learn: A Module for Trainers, East-West Communication Institute, Honolulu, Hawaii, 1980. It represents a systematic approach to job development that is applicable to almost any type of job.

Research

A heavy emphasis should be placed on careful evaluation of pilot or demonstration projects that are developed by the RHSP. This type of operations research is most valuable in making decisions about broader implementation. Additional research activities have been briefly described in the preceding sections, particularly in the area of financing and cost of PHC.

There is an urgent need for an individual with practical skills in evaluation research methodology to assist in the development of an implementation of the various protocols that have been suggested. The working group on research and evaluation recommended the formation of a research review committee with the responsibility for assisting in development of protocols and insuring quality and timeliness of implementation (see Appendix III for more details.) Ad hoc members might be appointed to this committee for specific protocols, including short-term consultants, faculty at the University of Khartoum or Gezira University, or other individuals such as the current minister of health in the

Central Region, who have been involved in research and public health programs.

FOOTNOTES

1. An expanded statement on the economic situation in the Sudan is found in Appendix IV.
2. Pg. 13, President Nimeiri, A Mandate for Progress and Renewal, document of The Fourth National Congress of the Sudanese Socialist Union, March 4, 1983, Khartoum, Sudan.
3. John and Jean Doe, "The Financing of the Southern Region and other Regional Governments of the Sudan," International Bureau of Fiscal Documentation Bulletin (1982) 4-14.
4. This idea raises the policy option which may mark a very significant shift for the GOS. The potential for incentive revenue sharing entering the grant-in-aid program of the government could markedly improve the health care system, particularly if a district and/or region could pay for drugs provided at the Central Medical Stores (CMS) in Sudanese LS and with the Bank of Sudan guaranteeing the necessary foreign exchange.
5. Jean and John Doe, op. lit., 1982.
6. See David W. Dunlop, et. al., Korea Health Demonstration Project, AID Project Evaluation Report #36, (Washington, D.C., AID, July 1982) for an in depth investigation of the influence which the private sector had on the long-run sustainability of publically provided health care.

APPENDIX I

Scope of Work

Scope of Work

Revalidation of Project Design for Sudan Rural Health Support (650-0030) through analysis of the recurrent cost implications of project components (and collection of all relevant studies and data) and finalize the project design and implementation as the basis for a detailed work plan.

To: S & T/H Sarita Henry
From: AFR/TR/HN, James Shepperd, M.D.
Subject: Technical assistance Request-thru ADSS Contract

AFT/TR/HN requests the services of two consultants (Dr. David Dunlop/second to be identified) to complete the scope of work, listed below, for USAID/Khartoum. The consultation, to start on or about May 1, 1983, will require three weeks of services for both consultants. Pre-TDY-AID/W briefing will not be required for Dr. Dunlop. Pre-consultancy (one-day) briefing for second team member and a one day AID/W debriefing for both will need to be included in the contract.

The following is the tentative scope of work (detailed so it will be submitted by no later than COB May 19, 1983).

Revalidation of project design: Rural Health Support
Project 650-0030

1. Review the many studies and reports that have been collected.
2. Analyze the recurrent cost implications of the project components.

3. Finalize the project design and implimentation plan so that One America can complete its detailed work plan.
4. Submit draft report to Mission prior to departure of the team.

Department of State

INCOMING
TELEGRAM

PAGE 01 KHARTO 02998 01 OF 02 310900Z 4941 000694 A105273
ACTION AID-00

KHARTO 02998 01 OF 02 310900Z 4941 000694

ACTION OFFICE AFEA-03
INFO AAAP-02 AFDP-06 AFDR-06 PPCE-01 PPPB-03 FM-02 CMGT-02
CTR-02 STHE-01 SACT-01 MHS-09 AFDA-01 RELO-01 STHP-01
MAST-01 /042 A1 1131

INFO OCT-88 AF-00 /045 W

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P 300843Z MAR 83
FM AMEMBASSY KHARTOUM
TO SECSTATE WASHDC PRIORITY 2096
INFO AMEMBASSY NAIROBI

UNCLAS SECTION 01 OF 02 KHARTOUM 02998

AIDAC

NAIROBI FOR REDCO/EA/ENG

E.O. 12356: N/A

SUBJECT: SUDAN - RURAL HEALTH SUPPORT PROJECT (RHSP)
658-0038: REVALIDATION OF PROJECT DESIGN.

REF: A) STATE 66679, B) KHARTOUM 2671

1. SUBJECT PROJECT WAS ORIGINALLY DESIGNED IN FY 73/79 AND REVISED IN FY 80. IN THE ENSUING YEARS ECONOMIC CONDITIONS IN THE SUDAN HAVE WORSENER. AS A RESULT USAID HAS BEEN REVIEWING THE THSP IN TERMS OF RECURRENT COST IMPLICATIONS AND CONSISTENCY WITH THE COSS WITH ATTENTION TO INCREASING COMMUNITY PARTICIPATION AND SELF-HELP AND IMPROVING THE MANAGEMENT CAPABILITIES WITHIN THE RURAL HEALTH SYSTEM.

2. THE AFRICAN MEDICAL AND RESEARCH FOUNDATION STAFF HAVE OVER THE LAST 6 MONTHS REVIEWED THESE ISSUES IN THE SOUTH WITH THE REGIONAL MINISTRY OF HEALTH. A REVISED ACTION PLAN HAS JUST BEEN SUBMITTED TO USAID FOR OUR REVIEW.

3. IN THE NORTH, USAID HAS HAD LIMITED HUMAN RESOURCES TO DEVOTE TO THIS ACTIVITY. WE NEED ASSISTANCE IN (A) REVIEWING THE MANY STUDIES AND REPORTS THAT HAVE BEEN COLLECTED; (B) ANALYZING THE RECURRENT COST IMPLICATIONS OF THE PROJECT COMPONENTS; (C) FINALIZING THE PROJECT DESIGN AND IMPLEMENTATION PLAN SO THAT ONE AMERICA CAN COMPLETE ITS DETAILED WORK PLAN.

THE EXPERTISE NEEDED IS A) PUBLIC HEALTH PLANNER/ADMINISTRATOR WITH EXPERIENCE IN AID PROJECT DESIGN AND IMPLEMENTATION IN AFRICA AND (B) HEALTH ECONOMIST FAMILIAR WITH SUDAN AND WITH THE FINANCING PROBLEMS OF PRIMARY HEALTH CARE PROGRAMS.

4. WE SUGGEST DR. AL HENN AND DR. DAVID DUNLOP AS CANDIDATES FOR THIS ACTIVITY WHICH IS EXPECTED TO TAKE 3-4 WEEKS. WE WOULD LIKE THE TDY IN THE SUDAN TO BEGIN O/A APRIL 24.

5. USAID REQUESTS AID/W TO ISSUE PIO/T NO. 658-0030-3-23043, FOR SUBJECT PROJECT. NORTHERN COMPONENT; APPROPRIATION 72-1121021.8; 243-50-658-90-69-21; TO ENTER INTO PSC'S WITH APPROPRIATE CONSULTANTS TO COMPLETE ACTIVITIES OUTLINED IN PARA 3 ABOVE.

6. ESTIMATED BUDGET IS AS FOLLOWS: USDOLS

A. COMPENSATION USDOLS 246 13 DAYS 2
- (6 DAY WORK WEEK AUTHORIZED) 3856

B. OVERTIME 0

C. TRAVEL AND TO EL OBEID PER CONSULTANT AND
- THE VALUE OF GTR'S FURNISHED BY THE GOVERNMENT WHICH ARE NOT PAYABLE TO THE CONTRACTOR).
- IN-COUNTRY TRAVEL WILL BE PAID IN LOCAL CURRENCY. 5000
- CY.

D. SUBSISTENCE/PER DIEM

- 3 DAYS X 2 X USDOLS 38 (JUBA) 228
- 5 DAYS X 2 X USDOLS 28 (EL OBEID) 280
- 14 DAYS X 2 X USDOLS 115 (KHARTOUM) 3220
- 4 TRAVEL DAYS X 2 48
- 2 LAYOVER DAYS X 2 X USDOLS 100 400
- SUBTOTAL 4896

E. OTHER DIRECT COSTS, INCLUDING FINAL REPORT PREPARATION IN KHARTOUM. 448

F. FICA-U.S.G. CONTRIBUTION NOT PAYABLE TO CONTRACTOR 600
- OR 600
G. D.B.A. INSURANCE (6.7 OF SALARY) 600
- TOTAL USDOLS. 19,600

7. TO COMPLETE THE ACTIVITIES LISTED IN PARA 3 ABOVE IT IS ESSENTIAL TO REVIEW THE CONSTRUCTION COMPONENT IN THE NORTH. THIS WILL REQUIRE 3 WEEKS OF CONSULTANCY BY AN ENGINEER FAMILIAR WITH AID PROCEDURES,

A. TO MAKE SITE VISITS TO EL FASHIR, EN NAHUO, KHARTOUM,

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Department of State

TELEGRAM

PAGE 01 KHARTO 02998 02 OF 02 310900Z 5016 000695 AID5294
ACTION AID-00

ACTION OFFICE AFEA-03
INFO AAAF-02 AFDP-06 AFDR-06 PPCE-01 PPPB-03 FM-02 CMGT-02
CTR-02 STHE-01 SAST-01 HHS-09 AFDA-01 RELO-01 STHP-01
MAST-01 /042 A1 1131

INFO OCT-00 COPY-01 AF-00 /046 W
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P 300848Z MAR 83
FM AMEMBASSY KHARTOUM
TO SECSTATE WASHDC PRIORITY 2097
INFO AMEMBASSY NAIROBI

UNCLAS SECTION 02 OF 02 KHARTOUM 02998

AIDAC

NAIROBI FOR REDSO/EA/ENG

E. O. 12356: N/A
SUBJECT: SUDAN - RURAL HEALTH SUPPORT PROJECT (RHSP)
KADUGALI, NYALA AND PT. SUDAN.

B. TO REASSESS THE COSTS AND CONSTRUCTION SPECIFICATIONS
IN THE PROJECT PAPER.

C. TO REVIEW USAID EXPERIENCE IN CONSTRUCTION ACTIVITIES
WITH THE MINISTRIES OF HEALTH AND PUBLIC WORKS.

D. TO FINALIZE RECOMMENDATIONS ABOUT THE CONSTRUCTION
COMPONENTS OF THE PROJECT, IN VIEW OF RECUPRENT COST
ISSUES, AND ABOUT IMPLEMENTATION OF THIS COMPONENT IN THE
NORTH.

8. REQUEST ASSISTANCE OF REDSO/EA IN PROVIDING ENGINEER-
ING ASSISTANCE FOR THE ACTIVITIES IN PARA 7 ABOVE. EN-
GINEER MUST OVERLAP WITH THE TWO CONSULTANTS MENTIONED
PARA 4. S. BAKER CONDUCTED FIRST ANALYSIS FOR REDSO.

9. REDSO/EA PLEASE ADVISE OF AVAILABILITY OF ENGINEERING
ASSISTANCE O/A APRIL 24.

10. AID/W PLEASE ADVISE OF AVAILABILITY OF HENN AND DUN-
LOP O/A APRIL 24.

11. THIS PIO/T IS AUTHORIZED FOR A TOTAL OF USDOLS 19,600
KONTOS

UNCLASSIFIED

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APPENDIX II

Individuals Interviewed

During Consultancy

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APPENDIX II

INDIVIDUALS INTERVIEWED DURING CONSULTANCY

Personnel in Southern Region

AMREF staff:

Dr. Chris Wood, Medical Director, AMREF/Nairobi

Mr. Jim Paton

Dr. Kofi Asante

Mr. Mick Campbell

Mr. Daniel Marwa

Dr. Juma, AMREF Provincial Coordinator, Malakal

US AID staff

Mr. Robert McCandliss

Regional MOH staff

Dr. Oliver Duku, D.D. for Planning, Training
and Laboratory Services

Dr. Paremena Marial, Director,
Primary Health Care Programme

Four people from the Regional Ministry of Planning and Finance were contacted.

University of Khartoum

Prof. Abdel Rahman El Tom
Chairman, Dept. of Community Medicine

Mrs. Susan Wesley
Dept. of Community Medicine

Central Ministry of Health

Dr. Ali Fadl, Minister of Health
Dr. Kabbashi, Former Undersecretary of Health
Dr. Mohd. Shokir Al Sarrag, Undersecretary of Health
Dr. Ali Biely, Director General, Primary Health Care
and Rural Health Services
Dr. Abdullah, Secretary General, Public Health Board
Dr. Omar Al Baghir, Director General, Health Planning
Dr. Abdel Rahman AlRasheed, Director General, Central
Medical Supplies
Mrs. Sittana Hasan Ishag, MCH/FP Project, MOH
Dr. Baldo, Project Director, MCH/FP Project, MOH

Dr. Abu Obaida Magzoub, Health Education, MOH

Dr. Rahman Khairi, Statistics Dept., MOH

Dr. Magda, Moh. Ahmed Ali, Primary Health Care Program, MOH

Asma Al Rahim, Dept. of Statistics

Dr. Mohamed A/R Musbah, Primary Health Care Program

Dr. Taha Sid Ahmed, Senior Public Health Inspector,
Kordofan Region

Dr. Mohd, Yousif Al Awad, DG, Health Manpower Development

Dr. Haidar Abuahmed Mohd, Director, Epidemiology Dept.

One America Personnel

Mr. Bruce Strassberger, Chief of Party

Dr. Abraham Bekele, consultant

Dr. Bud Prince, consultant

Mrs. Robinson, Dir. of International Division

UNICEF Staff

Mrs. Vivian Sakkal, Acting Programme Officer (Health)

Mr. Tony Carter, Statistics Officer

Ministry of Finance and Economic Planning, Khartoum

Mr. Abdul Wahab

Deputy Undersecretary for Local Development

Mr. Faruk Farag

Senior Inspector, Section on Banks and Currency

Mr. Ahmed Suliman Atiya

Senior Inspector, Dept. of Foreign Loans and Tech. Assistance

UNFPA, Khartoum

Dr. Faysal Abdul Gadir, Director

Dr. Baldo, MCH/FP Project Director

Educational Development Centre, University of Khartoum

Dr. Abdul Rahman Abdul Salam, Director

Management Development Centre, Khartoum

Moh. Abd El Hamid Mohd

Dr. Suwar El Dahab A. Eisa, Director General

Central Region

Minister of Health

USAID/Khartoum

Dr. Mary Ann Micka, Health Officer

Mr. Art Mudge
Mission Director

Other USAID Contractors

Mr. B. R. Wisniewki
Logistics and Supply Advisor, CMS

Mr. Hilliard Davis
Health Information Advisor
Dept. of Statistics, Central MOH

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APPENDIX III

Reports of Working Groups to
Identify Recommendations for
RHSP Revision and Implementation

- 1) Planning, Management and Budgeting
- 2) Research and Evaluation
- 3) MCH/CS/FP

5/

I. Report of Working Group on Planning, Management, and Budget,
June 14, 1983

Present: Dr. Ali Biely, Prince, Wood, Mack, Dunlop, Asante;
Mssr. Ahmed, Baakala, Barrudi, Strassburger;
Mrs. Lewis. Rapporteur: Dr. Mack

The task of the committee was posed by Dr. Dunlop: To identify the major priorities of the Rural Health Support Project over the next several years in the light of the overall economic situation, and to develop recommendations for a specific implementation plan which can be reported back to the entire group on June 16.

Strassberger summarized progress to date on identifying the needs in Kordofan. He noted that the process of decentralization had not percolated down to the local level in the field of planning. Senior MOH personnel in Kordofan are prepared to follow the government's six year plan. The entire rural population is to be covered with primary health care units, with the disappearance of the dressing stations. The Ministry has not carried out any planning exercises other than the one required for preparation of the development budget.

Wood indicated that key AMREF people are not present in Khartoum. Moreover, the Southern Region is in an acute stage of decentralization and he has no idea where the whole process will go. AMREF has assigned individuals to the provincial health department as coordinators.

Mack asked what kind of study would be required in Kordofan to understand the budgeting process and health expenditures, and at what cost? Strassberger responded that an exercise should be

undertaken to disaggregate personnel costs. Such a study might require a Sudanese economist plus the cooperation of a statistician, with a rough estimate of 60 working days to carry out the study.

Dunlop suggested a two-phase study, with the first phase consisting of a retrospective look at actual expenditures. The second phase might be a prospective analysis of actual expenditures week by week over a 12 month period. Lewis asked whether the study would be focused at the regional or district level and Biely indicated that the budgeting process is quite new and it would be necessary to deal with both Regional and District authorities.

Mack asked what would actually be involved in trying to undertake such a study. Biely indicated that it would be important to develop a proposal and to take it up with the Regional Ministers of Finance and Social Services to obtain approval. The concept of studying expenditures at both the Regional and the District level was put forward. The possibility of utilizing Dr. Bekele before he returned to the US to develop an appropriate protocol was suggested. Dr. Prince indicated that at some point, introduction of the Planning, Programming, Budgeting concept into this process would be important, but it was not clear how this might be done.

The possibility of carrying out a complementary study in the South was put on the table and recognized as potentially feasible.

Strassberger developed a second idea - the notion of "management by exception." He pointed out the value of looking for good management which may depend upon many factors, such as personalities or local circumstances, but where things are happening right. It is worth documenting what is actually happening. The District of Nahud was mentioned a number of times as a District in the Kordofan Region which seems to be distributing drugs and providing supervision. It would be of interest to study the District more intensively. Lewis suggested studying a neighboring District for comparative purposes. The same approach might be profitable in the South as well. Biely indicated that at this point in time, Districts are budgeting for themselves. It would be profitable to look closely at the process.

Biely made the point that the regional governments are not expecting a study. They want help. They want some recommendations about how to improve budgeting and management. Lewis asked what kind of tangible things could be offered before pursuing a request for permission to carry out a prospective study. Biely mentioned that job descriptions need to be developed. Assistance in logistics and drug distribution may be in order. At this point, the group addressed the kinds of resources which might be required to carry out this phase of the project. The potential importance of contacting groups such as the political party SSU, for political support was mentioned by Biely.

There was some discussion about other kinds of support which might be required, including financial support.

Strassberger indicated that the project called for establishing a project implementation unit which would include a long-term expatriot advisor. Mack asked whether the individual would require fluent Arabic to do the kinds of things which had been discussed. There appeared to be a consensus that this would be necessary.

At this point, Lewis suggested that the group make a list of other things which might be considered in the area of management. Strassberger mentioned that around the world, PHC programs seem to have a common set of problems. These include budgeting, logistics and supply, and supervision. Management is both information and feedback. There has been no concerted effort at community involvement before CHWs were placed in the communities. This kind of preparation could make a big difference in how effectively the CHWs were utilized.

Lewis asked what would be entailed in carrying out this kind of project. Taha indicated that although there is a system of sorts at the village level, it is not working very well. Bekele suggested that the first order of business is to define what is to be managed. One never finds a person who knows what he is to manage.

Biely indicated that the environmental personnel seem to have a clear idea of what their job is. This may be why they are further along in what they are doing and further along in

management. Mack suggested that an important task might be to carry out continuing education at the District level, and to touch on issues such as the use of data, planning, budgeting, supervision, and the other topics which managers need to become knowledgeable about. The end result might be some type of District Operations Manual. Biely indicated that personnel issues are very important. Finally, Lewis asked what the continuing education process involved, e.g.; is change to be achieved through training? Or through gradual changes in the mode of operation? Biely felt that it would involve both approaches.

In summary, there appeared to be four main thrusts to the morning's discussion.

1. The Regional personnel are looking for help. We should respond with what is, in essence, continuing education in management and planning at a very practical level. It might be focused at the District (Area) level. Topics such as budgeting, use of data in health planning, personnel supervision, and logistics represent appropriate areas in which to concentrate.

2. Given the rapid decentralization to District (Area) and rural levels, a prospective analysis of actual expenditures within the health sector would be very valuable in documenting the cost of the system and in attempting to move to a position where budgeting becomes a rational instrument in the planning process. Such a study might be conducted over a one year period at the regional level as well as within perhaps two Districts, and several lower councils and associated health facilities.

3. The resources required to carry out both the ongoing management analysis and the development of continuing education will include, at a minimum:

- input from a statistician, part-time,
- input from an economist, part-time,
- involvement of individual with management training and experience,
- expatriot advisor with some health planning and management background as well as fluency in Arabic, and
- other short-term technical assistance, the exact nature and extent must be further defined, however assistance in designing a research protocol was thought to be the most immediate need.

4. The kinds of prospective management analysis and continuing education which have been outlined as appropriate for Kordofan might also be appropriate in the South. Joint workshops to share experience would be most useful.

II. Report of Working Group on Research and Evaluation, June 15, 1983

Dr. Haidar, Director of Epidemiology, opened the meeting by introducing the topic of studies and research. He emphasized the importance of communicable disease research. Mr. Taha, Senior Public Health Inspector in Kordofan, noted that there was little information about schistosomiasis and leishmaniasis in that Region. Dr. Prince also indicated that migration of workers from the Gezira potentially leads to spread of bilharzia there and that this deserved study. Dr. Haidar indicated that this kind of epidemiological research would be helpful in developing methods of communicable disease control.

Ms. Maureen Lewis asked what studies had already been proposed in the three previous working groups so that this group could bring all of the ideas together. Mack and Dunlop outlined the earlier working group discussions.

1. Management and expenditures. A retrospective and prospective study of budgeting and expenditures to determine cost of health care sector in a sample of health care facilities from several districts represents one potential study. Examining the information being developed at each level of the PHC system and how it is currently being used and could be used more effectively in program planning and management represents a second important area. Finally, the concept of 'management by exception', noting examples of effective management in a selected District so that these approaches could be adapted elsewhere had been suggested as a third specific study.

2. Training. Examine performance of health workers trained under different curricula and conditions to evaluate the most cost effective approaches.

3. Logistics. A number of activities, mostly related to training and management were defined.

Dr. Magda outlined the MCH study priorities. She indicated a need to test alternative means of involving the community at the District and Rural Council levels to communicate the importance of MCH services. The possibility of tying MCH education to adult education had been suggested. This would require careful evaluation. Secondly, evaluation of a local adaptation of the community based family health care project, involving VMWs in provision of ORT, child spacing, nutrition, and EPI activities, would be important. A pilot study to evaluate the importance of career tracks, or the lack of upward mobility in recruitment, retention and performance of PHC workers. Prince noted that the Department of Community Medicine project in Upper Nile Province provided a useful and low cost data collection approach that should be considered in designing MCH studies.

Dr. Abraham Bekele presented his ideas about research, based on his six weeks in Korafan. He identified four topics: (1) role of local government in provision of environmental sanitation and curative services in order to explore alternative means of obtaining community resources for supporting PHC activities. (2) demand/utilization study of alternative health providers, including traditional and modern private and public

health services; (3) assessment of PHC program personnel performance, their expectations, their need for additional training, and proposed means of improving the training to conform to performance objectives (currently, many workers are unclear of what is expected of them and their proper lines of authority); and (4) health financing studies.

Wood noted that an overlooked area for assessment was the role of volunteers. CHWs range from paid civil servants to community volunteers, but Sudan had only considered the former. Biely indicated the Government's interest in the role of village volunteers as supplements to CHWs, and that it was something the MOH planned to consider. Haidar mentioned that one way to improve career potential of CHWs was to shift the current policy away from recruiting nurses for medical assistants training to recruitment of CHWs. This would make CHW training a more attractive option.

Kheiri Abdul Rahman, DG for Health Statistics, indicated a need for health utilization surveys in order to determine where people are getting health care now. A follow-up study a few years later could give the MOH information on shifts in health care patterns over time. There was general support for this proposal.

Haidar brought up the problem of data collection and use. He pointed out that neither the CHWs nor the higher level personnel have been trained to apply research to their own activities. Devising appropriate training might improve research

utilization and data collection. This appeared to be a problem under health information systems management.

Lewis noted that the financing research proposed by Bekele should evaluate ongoing experiments, including the extent of revenue generation and applicability in other settings. Asante pointed out that a complementary approach to financing research is to determine how communities presently raise money and how this can be tapped for health. He also recommended that supply logistics stop the practice of using average utilization rates as the primary means of allocating health supplies.

Dunlop questioned how many of these proposals could be implemented, and if there were any ideas on the processes involved in implementation. Bekele proposed consolidating the research questions already mentioned into broad categories in order to make the task of deciding on priorities easier. There were differences of opinion. An alternative approach would be to simply develop specific research topics over time. Individual researchers could develop their own proposals for submission and possible funding and the MOH could then fund a variety of studies under any heading.

Mack suggested that an alternative approach to developing research priorities would be on the basis of their practical application to ongoing RHSP activities. Lewis questioned how priorities could be set across such a diverse set of topics, noting that it might be easier to have broad categories and then prioritize within categories. Otherwise, MCH, epidemiology, and

management/financing studies would be competing with each other. Prince felt that the marginal cost of a research project would be a determining priority by the strength of the research proposal as it related to program implementation.

Dunlop raised the issue of research implementation bottlenecks, asking whether studies would be undertaken by MOH staff, outside consultants, or contractors. Furthermore, how were the implementors going to go about getting the work done? Mack thought such detail premature since the studies details were not yet known and the research needs were unestimated. Strassberger informed the group that the RHSP included funds for research either through local arrangements or via external consultants.

Biely indicated the need for more specific information on implementation, in particular the kinds of people who could be drawn on to determine policy guidelines and coordinate research. Perhaps a research review committee to oversee the development and funding of desired studies. Moreover, further details were required on how to announce MOH interest in such research, and how to determine the need for technical assistance for various components of the research studies. Having an established committee to undertake these functions would introduce some quality control and allow better links between research and program implementation. The group agreed. Dunlop suggested that the committee function essentially as a project research review committee that could set guidelines for topic priorities and

develop research selection criteria. Dunlop and Hydra further proposed that the committee be given specific tasks and deadlines for accomplishing its work.

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III. MCH/FP Program Recommendations: Presentation by Dr. Magda, June 16th, MOH

These are general recommendations based on observations collected from the field. They have been written in order to shed light on the various constraints impeding the delivery of MCH services. Specific recommendations will be finally reached when the report on the Kordofan assessment survey is completed later in 1983.

In an attempt to describe the various problems obstructing MCH services, it is important to recognize the following points.

1. Although MCH is an essential and critical part of primary health care, one finds that the CHWs working in rural areas together with other health personnel in dispensaries and health centers, are not providing proper MCH clinics in the form of proper antenatal care, nutrition, child care, postnatal care, child spacing, or reproductive problems. They may have antenatal clinics in the form of simple health services for pregnant mothers, but there are no well-baby clinics. In looking at the range of services presented by the health workers, there seems to be no focus on MCH. This may be due to the fact that at the Central level, there is no general policy or even a plan for MCH services.

2. The nursing superintendant who is a health visitor, is the one responsible for MCH services at the District level. The health visitor in a given health center together with some VMWs from nearby areas, do some antenatal services and health education activities to mothers. The health visitor does not

supervise similar activities at other health facilities in rural areas. In a given district, the health centre is the only site where these meagre services are presented.

At the rural level, the medical assistants and CHWs do some antenatal services, together with the VMWs. But again, like the health center, children are seen when they report sick. It seems that not all the nurses at Dressing Stations perform similar activities. Only in the presence of a VMW do dispensaries and PHCUs carry out these services.

In order that this service can reach the majority of the population in rural areas, it is essential to coordinate MCH with all the existing health facilities at dispensaries, PHCUs, and dressing stations and to involve all the health cadres in delivering this service. With the creation of an MCH planning and coordination body at the Central level, it would be able to follow up and implement such a plan.

3. There are several training activities done for most of the health personnel (H.V., MA.) in MCH. There is the Barakat training centre courses conducted by the MCH/FP programme in Omdurman, as well as the inclusion of some curricula about MCH (curriculum for CHW workers) but it seems that there has been no evaluation and follow up of the training to see whether these trainers have been using the skills they have learned.

Some of the problems found in the area of training are:

a. A number of nurses with degrees (sister midwives) have been trained in FP but have not been allowed to insert IUDs

outside the MCH/FP clinic. This is definitely a waste of limited resources.

b. Health workers rely on incentives given to mothers in the form of food supplements to encourage mothers to come to the health facility for health care. Thus, when the food aid stopped, the mothers stopped coming for the services. The health workers are not waiting for more food aid so that they can continue to deliver services. It is also important that the health workers be trained to share the problems of mothers regarding the care of their children so that there can be mutual trust between both and, thus, strengthen the continuity of services.

c. There are no basic lists for MCH equipment and supplies. This discourages the health workers when they return to the health facility and find there are no means by which they can carry out their work. At the same time, mothers will not come to an empty health centre or dispensary.

There are three dimensions for institutionalizing MCH in the health delivery system of the MOH. First, it is important to create a MCH department to develop an MCH policy in the MOH, and which is responsible for planning and evaluation of MCH programmes. This will prevent fragmentation of PHC.

Second, at the level of health delivery, it is important to include MCH/FP teaching in the curriculum of all health workers and improve inservice training of these health personnel. Orientation and refresher courses would be conducted

at the rural council level in dispensaries, PHCUs and Dressing Stations. Provision of equipment to all health facilities would also occur. Needless to say, training is an ongoing process and does not end with the initial formal training course. So that continued evaluation of the training is an important process to guarantee the assimilation of all the material of training by the health workers. Finally, the instructor should have experience in performing the tasks the auxiliaries will be expected to carry out and should have worked in similar conditions to those the auxiliaries will experience. Unless the teaching is based on realistic knowledge of the situation, the instructors will be less effective in preparing the students for their future responsibilities.

Third, at the community level, mothers, families, community leaders, and communities should understand the value of antenatal care. This can only be attained by educating them and explaining where they can receive the service. This is not easy even when the mothers have had a good education. Therefore, it may be much more difficult where mothers are without any formal education and where there are many taboos about pregnancy and lactation.

It is important to initiate an understanding of MCH even at school level so that a generation of mothers can be prepared who understand the importance of these services. The school health department should also be involved in the activity of health education regarding MCH so that it will include some MCH information in the curriculum of students on the importance of

child care. Finally, the health education activity done at community level should be part of the adult literacy activities which are carried out by the Dept. of Adult Education, Ministry of Education.

At the El Nuhud, the adult literacy centre graduates 1000 students a year of all age groups from 9 - 45 years. There are classes in home economics, where the curriculum contains some information on personal hygiene, and child care. This curriculum may be added in the curriculum of the other courses held at the centre. Using the radio as a means of informing the population on MCH is also very effective. Radios are found in the most remote Sudanese villages and it would be an effective means of providing health education to the communities.

It is essential to have a support system before health planners and administrators plan a certain program. The principle constituents of the support system include (a) the government and (b) the population involved. In addition, no health program will function without proper supervision, communication, and logistics.

Time as well as money are important factors in the success of programmes. Time is needed to determine the needs, to plan, to make administrative arrangements, to prepare curricula, to select recruits, to mobilize the community, and to even arrange classrooms in the field. At the same time supervision and referral must be established well before the initiation of the programme so that it is available at the end of training.

Supervision should be based on appropriate technology to guarantee the continuity of the service, eg., use local means of transport rather than chevrolet cars that never reach the right person and that are generally useless in the first year because of the problem of spare parts.

A support system is essential before the implementation of any programme. A basic factor, in this, is community involvement, because it is through the community that guarantees for the continuity of the service are developed. If the community is well mobilized, it will back up the service provided.

A further reason for including the community is the fact that most health care decisions are made by individuals and families in their homes. And health in communities is one of various other needs, eg., education, transport, water. Therefore, the community participation is essential to be able to make changes in the behavior of communities. "You can lead a horse to water, but you can not make him drink." These are priorities of the RHSP. I am of the view that programmes that do not support the above listed priorities would be a wasteful utilization of the nation's limited resources. We should not seriously think of FP without ensuring the presence of a functioning MCH programme.

APPENDIX IV

The Economics of Primary Health
Care Delivery in Sudan

by David W. Dunlop

Outline

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 - B. External Assistance to Sudan - Health
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BACKGROUND CONTEXT

SUDAN'S COMMITMENT TO PHC

In March 1975, the Government of Sudan (GOS) set out to develop a strategy and implementation plan for national health development. The plan which emerged from this exercise, the National Health Programme 1977/78-1983/84, which coincided with Sudan's six year economic development plan, clearly addressed the main health problems facing the socio-economic development of the country. It also sought to devise a coordinated intervention program which would focus on:

- (a) prevention and the amelioration of environmental problems;
- (b) equity of health care provision by strengthening the rural health services;
- (c) the expansion of trained health manpower by developing improved training materials, teachers, and facilities; and
- (d) consolidating the health care delivery system to allow for the expansion of the system in the more remote areas of the country.^{1/}

This intervention was one of several country specific models on which WHO based its global strategy for achieving Health for all by the year 2000 via a peripheral based primary health care (PHC) delivery system. Thus, Sudan has been in a world leadership position in developing and strengthening a health care system which has focused on equity and prevention.

EXTERNAL ASSISTANCE TO SUDAN - HEALTH

At the outset of this planning endeavor, Sudan fully recognized that it would require the assistance of many multi and bilateral donors to implement its ambitious health development program. A number of donors responded, not only from the official donor community, but also within the private voluntary community as well. The first AID health project paper which was designed to provide assistance to Northern Sudan in implementing the (GOS) PHCU plan, listed seven multilateral and fourteen bilateral donors, and three PVO's which had committed resources to the implementation of the Sudanese program.^{2/}

Further, in the Southern part of the country over fifteen PVO and five multi and bilateral donors are presently active in assisting the development of the health care system in that region of the country. Perhaps most critical, is that the Saudis have provided significant foreign exchange support via low interest loans to the health sector since 1980 for the purchase of drugs, and the Italians, Dutch and French have enabled further drug imports via the equivalent of their bilateral commodity import programmes (CIPs).

USAID has also been a significant donor to Sudan's primary health care program. Since 1978 it has provided about \$7 million to the country for professional and paraprofessional staff training, and strengthening several support systems, e.g. drug and supply procurement, storage and distribution, health information system, and supervision through procurement and maintenance of vehicles.^{3/}

It has also continued to provide assistance to the country via the present Rural Health Support (RHS) project (\$18.4 million to FY 1988), to strengthen (a) the previously trained manpower cadres in MCH/FP, management, and other preventive and promotive skills, e.g., nutrition, health education, and water and sanitation, (b) health system planning, management and logistics; and (c) supporting supervision and related systems. The activities of the RHS project have just begun implementation via the African Medical Research Foundation (AMREF), (South) and One America, Inc., (North).

The remaining sections of this paper analyze (a) the present and future macro-economic situation in Sudan and the implications of that situation for the further development of the health sector; (b) the economic implications of developing Sudan's PHC system in terms of recurrent costs, complementary resource availability, and financing primary health care units (PHCU's) in terms of costs, utilization and foreign exchange constraints. The last section of the report summarizes the findings and presents several conclusions based on the analysis of the findings.

THE DYNAMIC MACRO-ECONOMIC CONTEXT OF
SUDAN 1976 to 1982

1976 to 1982

In the mid 1970's when Sudan was beginning to develop its PHC program the country was experiencing a relatively rapid rate of per capita economic growth of about five percent per year.^{4/} The country had just reviewed its past development efforts and the National Planning Commission was formulating the next seven to ten year plan which foresaw an average annual rate GNP growth of about 7.5%, or about 4.7% per year in per capita terms which was consistent with the rate of growth achieved between 1973 and 1978 of 5/1% per annum.

The country had just improved its political stability, due to the 1972 Addis Ababa accord which settled the lengthy internal conflict between the north and the south. Optimism was high in the Middle East due to the rise in oil revenues and the potential that Sudan could become a significant food exporter to the rest of the region. Large grants and loans were made available by other Arab states for the development of the country. The country was suffering from a chronic foreign exchange crisis due to a persistantly negative balance of trade of over \$400 million in 1975, but public debt service was still rather modest (1.8% of GNP). Other relevant macro-economic statistics for the period 1975-1982 are provided in Table 1.

Table 1: Trends in selected macro-economic indicators:

Sudan FY 1976, 1980, 1982

Indicator	FY 1976	1980	1982	All Low Income African Countries ⁷	Year of Data
1) Population (mill)	16.5	18.5	19.4	159.1	1979
2) GNP/Cap (current US\$) ²	321.7	453.1	382.1	247 (weighted average)	1979
3) Rate of growth years in GNP/Cap. rate ³	73-78 5.1	78-81 -3.5	81-83 1.3	1.0	1960-79
4) Balance of Trade (mill \$)	-425 ⁴	-765 ⁵	-1339	-1400	1979
5) Exports as % of GDP	7.5	10.2	9.5	15	1979
6) Public Debt service as a % of GNP	1.8	4.5	13.0 due 3.7 pd.	2.8	1979
7) % Central Govt. Taxes is of GDP	14.8	11.6	11.3 ⁶	13.3	1977
8) % Central Govt. Taxes is of Total Govt. Expenditure (Recurrent and Capital)	68.8	53.3	51.8	63.5	1977
9) % of Total Central Govt. Revenue Collected in					
a) Import/Export Duties	50.2	43.7	42.0	NA	
b) Sales & Excise Taxes	23.8	21.1	17.3	NA	
c) Income Taxes	10.0	14.2	16.1	NA	
10) Central Govt. Surplus or Deficit (-) as % of Total Govt. Expenditure	-19.2	-37.3	-37.4	NA	

Notes:

(1) According to the World Bank report, Accelerated Development in Sub-Saharan Africa, 1981, seventeen countries in Africa are so listed. Sudan is one of these countries. These countries have about 45% of the Sub-Saharan countries population. The range of per capita income in 1979 varies from a low of \$130 to \$370.

(2) Based on official exchange rate prevailing during year.

(3) The average rate for the decade 1970-1980 was -0.2% per year.

(4) 1976/77.

(5) 1979/80.

(6) 1981/82.

Sources:

(1) World Bank, World Development Report, 1982

(2) World Bank, Accelerated Development in Sub-Saharan Africa: An Agenda for Action, 1981.

(3) IMF, Intl. Finance Statistics, Yearbook, 1981

(4) World Bank, Sudan Investing for Economic Stabilization and Structural Change, Feb. 16, 1982

(5) IMF, Standby Agreement Report, January 1983

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By 1980, the trade balance had worsened to a negative figure of nearly \$800 million. Public debt service had increased significantly, the central government expenditure deficit had increased from 19.2% of expenditures in 1976 to nearly 40% in 1980, and economic growth was negative in per capita terms during the 1978-81 period. The envisioned rapid economic growth of the period had not occurred largely because agricultural output, which comprises about 40% of GDP, had generally declined. For example, among principle export crops cotton production declined by nearly 40% between 1978 and 1980. Similarly, the production of gum arabic, sesame, ground nuts and oil seed cake also declined as well. The only increase in production recorded among principal export commodities occurred in dura and edible oil.

As can be seen in Table 1, row 9a, the central government's tax structure is heavily dependent on primarily import and, to a lesser extent, export duties. Over 40% of tax revenue is collected via import duties. Import duty revenue is, in turn, heavily dependent on the country's exports. Since the production of primary export crops were declining, the country's imports were constrained, thus constraining tax revenue to the government. Government controlled agricultural prices for key export crops was stifling further production and provided incentives to farmers to engage in smuggling, blackmarket trading, to use their land to produce items which were not subject to price controls. Thus, the country's ability to finance its own programs, including PHC, was undermined. The

data in Table 1, row 8, show that tax receipts only financed about one-half of government expenditures in 1980, whereas it had financed nearly 70% in 1976. Foreign loans were becoming due in increasing number and public debt servicing had increased significantly.

By 1982, the country was unable to fully repay the principal and interest owed on its debt to external creditors. As can be seen in Table 1, row 6, the proportion which these principal and interest payments comprised of GDP had increased from 1.8% in 1976 to 13% in 1982. However, in 1982, the country could only repay an equivalent of 3.7% of GDP, or only about 28% of that amount which was due. Between the end of 1980 and the level of external public debt had increased by nearly \$2 billion.

At the same time, the balance of trade had further worsened to around negative \$1.3 billion per year. Thus, between 1980 and 1982, several policy changes have been implemented to address these problems. First, several devaluations had occurred with the intent being to reduce the demand for imported items and increase exports by making Sudanese commodities relatively less expensive to international purchasers. However, there is an increasing source of foreign exchange available to individual Sudanese in the form of expatriate earnings from the gulf. These earnings are tapped to import considerably more than present exports would dictate. Thus the economic policy reforms which have been undertaken since 1981 have sought to both increase exports by raising incentives to agriculture and expand the

repatriation of expatriate earnings. To attain the latter, the Bank of Sudan has allowed private holdings of foreign exchange denominated savings in Sudanese banks which would also earn internationally prevailing interest rates. Finally, large central government expenditure deficit has become more carefully scrutinized, and, domestic financing of the deficit, via money supply expansion has been curtailed. In spite of these numerous policy changes, the availability of foreign currency to the government is extremely limited and government programs which rely on imported items to maintain services or output are continually suffering shortages and breakdowns in service and/or production. The implications of the lack of foreign exchange for the health sector are reviewed in subsequent sections.

THE FUTURE TO 1990

It is difficult to foresee the future, as the above analysis of the recent past clearly suggests. However, President Nimeiri recently specified his economic policies for guiding the country during his third term as president from 1983-1985.^{5/} These Policies include (a) reestablishment of internal financial equilibrium by controlling budget deficits of government and by controlling the growth of the money supply and related credit; (b) reestablishment of the external financial equilibrium to manage the balance of payments deficit and foreign account payments arrears; (c) removal of all economic distortions, eg., controlled agricultural prices, foreign exchange and budget subsidies on specific commodities, and other obstacles to growth and development to foster an atmosphere of efficiency, promptness, integrity and clarity; (d) acceleration of the economic and social development programs which are consonant with

the requirements of stabilization and reestablishment of equilibrium and the exemplary utilization of resources in the context of justice, social consciousness, and renewal; and (e) adoption of short term programmes to face emergencies and unforeseen emergencies.

These above established policies were, in part, addressing Nimeiri's identification of the primary problems which are affecting the country. These problems include, besides the harsh international economic situation, (a) the many policies favoring consumption to the detriment of production, eg. over valued exchange rate and expanded public expenditure and contrived poor economic performance of corporations; and (b) the enormous expansion of social services (including PHC) and related government expenditure which are incommensurate with the productive capacity of the nation.^{6/}

The IMF and the World Bank have worked with Sudanese Economic planners to establish what the implications of the collective policies might have on reestablishing economic stability and a more promising foreign exchange position by 1990, which has important long run implications for the continued sustainability of the health care system in thge country. The trends in the availability of this important resource from 1985 to 1990 is summarized in Table 2 and are based on the following important assumptions.

First, and perhaps most important, is when and how much oil will be exported. According to the most optimistic estimates, the earliest that the 900 mile pipeline can be completed from the site of the oil fields to the Red Sea Port is 1986. Most

estimates suggest that when the pipeline is completed the daily export level could approach 100 thousand barrels. There are also questions of oil prices and trends in those prices. One plausible set of oil price assumptions, based on international supplies and the responsible nature of the Saudis, would find oil prices stabilizing at about the present OPEC price of \$29/barrel until 1985, an only modestly increase at \$1/barrel/year over the remaining years of the decade.

Other factors of importance to the availability of foreign exchange include (a) trends in exports, eg., cotton, and other agricultural items; (b) import growth; and (c) potential trends in remittances from Sudanese living abroad. Given more favorable agricultural price policies particularly with the respect to cotton (both input and output prices) and other commodities, the IMF estimated that the value of such exports will grow at about 12% annually throughout the decade. The IMF also assumed that the value of imports would grow at 7% per year.

Finally, remittance levels are highly dependent on the foreign currency denominated private accounts policy of the Bank of Sudan, the interest rate paid on such accounts, and the economic trends of the Persian Gulf economies which are heavily dependent on the price and volume of oil production. Certainly the rate of economic growth in the Gulf will decline from the unprecedented rates of the late 1970's and early 1980's. The IMF has assumed that the rate of remittances will increase about \$40 million per year. This level of increase would represent about 6% per year increase by the end of the decade.

All of the above assumed rates of increase may be optimistic. However they were made to ascertain what an optimistic projection may reveal with respect to the availability of foreign exchange throughout the 1980's. In Table 2, all of the above assumptions about imports, exports, and remittances are summarized for the period 1985-1990. The analysis shows that the balance of trade (exports minus imports) would improve considerably, from an annual deficit of over \$1 billion per year in 1985 to a deficit of about \$100 million by 1986 (or whenever oil became available). When remittances (private transfers) and other services receipts are included, a positive balance of about \$600-\$650 million per year is projected. However, the country is seriously in debt. By 1986 the country will have an accumulated debt of around \$12-\$14 billion, with at least \$3 billion of that amount of arrears. The projected minimum payments on interest and principle coming due over the period is about \$750 million per year which still leaves the country going further in debt on an annual basis of about \$100 million.^{7/} This optimistic projection leads one to conclude the foreign exchange will be in short supply over the rest of this decade.

Table 2

Projections of Foreign Exchange Availability
to Sudan in Millions of \$US 1985-1990

	1985 ^{1/}	1986	1987	1988	1989	1990
1. <u>Exports</u>	<u>890</u>	<u>2062</u>	<u>2196</u>	<u>2343</u>	<u>2501</u>	<u>2668</u>
Oil	-	1065	1095	1131	1168	1205
Cotton	335	375	405	437	472	510
Sugar	-	12	25	37	49	60
Other	555	610	671	738	812	893
2. <u>Imports</u>	<u>-1973</u>	<u>-2108</u>	<u>-2278</u>	<u>-2463</u>	<u>-2662</u>	<u>-2879</u>
Oil	550	605	665	732	805	886
Wheat	50	50	55	61	67	75
Textiles	20	25	30	35	40	45
Sugar	18	-	-	-	-	-
Other	1353	1428	1528	1635	1750	1873
3. <u>Services & Private Transfers</u>	<u>620</u>	<u>670</u>	<u>720</u>	<u>770</u>	<u>820</u>	<u>870</u>
Service Receipts	655	715	775	835	895	955
Service Payments	-555	-605	-655	-705	-755	-805
Private Transfers	520	560	600	640	680	720
4. <u>Balance on Goods, Services and Private Transfers</u> (1) - (2) + (3)	<u>-463</u>	<u>624</u>	<u>638</u>	<u>650</u>	<u>659</u>	<u>659</u>
5. <u>Debt Servicing Requirements on Outstanding Debt, Principal and Interest</u>	<u>-750</u>	<u>-750</u>	<u>-750</u>	<u>-750</u>	<u>-750</u>	<u>-750</u>
6. <u>Net Balance</u>	<u>-1213</u>	<u>-126</u>	<u>-112</u>	<u>-100</u>	<u>-91</u>	<u>-91</u>

Table 2

Projections of Foreign Exchange Availability
to Sudan in Millions of \$US 1985-1990

- NOTES:
- 1) 1985 Figures are based on data provided in recent standby agreement. Projections to 1990 are based on IMF assumptions provided in recent standby agreement. The IMF recognizes their optimistic nature.
 - 2) The debt servicing requirement is based on the annual amount of interest principle due each year between 1982 and 1985. This does not include any repayment of principle and interest which are in arrears.

THE ECONOMICS OF THE HEALTH SECTOR

Given the macro-economic trends as defined above, it is instructive to review the trends in the (a) supply of health care services; (b) availability of key inputs in the provision of health services; and (c) financing of those services. The analysis focuses on the government subset of the health sector, since the government has taken the leadership in implementing the PHC strategy. There is little systematic information available on the private sector. Its importance is not minimized however, and its inter-relationship to the public sector and the successful implementation of PHC is noted throughout this analysis.^{8/}

In Table 3, trends in the development of the public health care delivery system are highlighted. The data show the expansion of all facilities from 1968-1983. Between 1968 and 1977, the growth in hospitals, health centers, and dressing stations are particularly noteworthy. After 1977, the principle expansion of the delivery system was in the establishment of over 2200 Primary Health Care Units (PHCU's), with a decline in the number of Dressing Stations, as many were renovated as PHCU's. The number of Dispensaries also increased during this period, since they were viewed as the principle backup support unit for PHCUs. Thus, subsequent to 1977, when the economy was not performing well, and foreign debt was increasing at a rapid rate, the government health system was expanding, in part due to the

Table 3:
Regional Distribution of Health Facilities: Sudan 1968, 1977, 1983

Facility type: Year:	Hospitals			Health Centers			Dispensaries			Dressing Stations ¹			PKUs		
	1968	1977 ²	1983	1968	1977	1983	1968	1977	1983	1968	1977	1983	1968	1977	1983
<u>Region</u>															
Northern	10	15	21	5	31	20	72	126	152	30	271	152	-	-	149
Central	16	32	52	13	71	66	156	220	284	189	800	758	-	-	458
Eastern	7	19	16	14	18	23	69	67	121	95	176	141	-	-	266
Kordofan	9	11	16	6	21	27	72	102	124	83	209	165	-	-	553
Darfur	7	11	12	4	15	16	56	63	64	40	86	91	-	-	379
Khartoum	8	15	23	20	33	40	33	50	65	23	91	74	-	-	44
Southern	17	30	24	2	12	13	102	108	169	131	268	255	-	-	353
Total	74	133	164	64	201	225	560	736	978	591	1901	1636	-	-	2202
% Increase over Previous Year		79.7	23.3		228.1	11.9		31.4	32.9		221.7	-13.9		-	-

Notes:

- 1). A Dressing Station is a rural based, entirely ambulatory care providing facility, operated by a nurse or a similar level paraprofessional.
- 2) 1975.

Sources:

- 1) OS, MOH Annual Statistical Report 1967/68, 1968/69 (Govt. Printer, Khartoum, 1969).
- 2) AID, Rural Health Support PP (USAID/Khartoum, 1980).
- 3) OS, "MOH Statistics Division Memorandum", 1983.

considerable assistance provided by a number of external donors. (See section entitled "Financing PHC below for additional detail). Ever increasing amounts of government resources were required to pay the local and foreign exchange denominated recurrent cost of the healthcare system in order to sustain service provision in a manner which had become the quality standards of the care providers and to which consumers had come to expect.^{9/}

TRENDS IN KEY INPUT AVAILABILITY

To maintain expected levels of service provision, key resources must be available. In this section, an analysis of the trends in imported items is conducted to ascertain the extent to which the supply of drugs and transport equipment have been maintained. The analysis then reviews the extent to which the increasing recurrent costs of the government for health care can sustain these levels of service provision.

Medicine and Transport Equipment Imports

In Table 4, data are provided on trends in medicines and transport equipment imports. Both vehicles and drugs tend to show a declining proportion of total imports. In the case of drugs, the drop was more noticeable after 1978, when the second international oil price rise went into effect.^{10/} During the expansion of the PHC program in 1976, real import expenditures per capita was the highest for both inputs. Since 1979, however, the per capita level of drugs and transport equipment imports has dropped to the lowest levels of the decade.

Table 4: Trends in the Value of Selected Imports of Importance to the Health Sector in Sudan, 1972-1982

Fiscal Year	Value of Total Merchandise Imports (current \$) (Mill \$)	Transport Equipment, including spare parts		Medicines and Phamaceuticals (Price Based)	
		% of total Merchandise Imports	Value in constant \$ per capita $\frac{1}{1}$	% of total Merchandise Imports	Value in constant \$ per capita $\frac{1}{1}$
1972	125.0	10.0	2.17	3.0	0.64
1973	126.7	13.9	2.58	3.7	0.69
1974	188.3	10.9	2.33	2.9	0.69
1975	319.7	13.7	4.28	2.1	0.67
1976	369.7	13.5	4.26	2.8	0.87
1977	343.3	11.2	2.65	2.9	0.70
1978	413.7	9.2	2.18	3.5	0.83
1979	446.9	12.7	2.78	2.4	0.52
1980	643.7	9.6	2.33	2.5	0.59
1981	781.4	8.0	2.08	2.5	0.64
1982 (6 mos.)	473.4	14.2	1.92	0.7	0.10

NOTE: The deflator used is the general GDP deflator index, with 1978=100. A preferred deflator would be an item specific import price index. Given that such information was unavailable, the general GDP deflator was used as an approximation.

Source: Bank of Sudan, Foreign Trade Statistics, Various years.

In the case of drugs, the per capita figures are even more revealing. In the early 1970's private importation of drugs was considerably less than it is today. Since 1972, there has been a rapid expansion of private pharmacies. According to MOH estimates, about 50% of the value of total drug imports was imported privately. Thus, the percapita drug supply available via government facilities has declined from perhaps 0.5 LS in 1972 to about 0.3 LS in 1981.

To some extent, this reduction in per capita expenditures on drugs has been mitigated by more care being given to drug procurement by the Central Medical Stores and the MOH. Increasingly, most procurement for government and even private sector use has been dictated by more careful scrutiny, based on efficaciousness and cost-effectiveness. Thus, scarce foreign exchange has been stretched to obtain more therapeutic value. However, given the rapid expansion of facilities as presented in Table 3, the continuing increase in population constantly imposes greater pressure on drug availability, especially when drug import trends, as shown in Table 4, decline as they have since the late 1970's. This decline can be especially detrimental to the PHC system since it is the most peripherally based and most dependent on a logistics and supply system.

The reduction in real transport equipment imports per capita also indicated increased difficulties in all sectors; in health it has repercussions on maintaining a logistics and resupply system for the peripherally based PHC system. Thus, the

increasing gap between imports and exports leads to cuts in the availability of all inputs necessary to maintain a service delivery system at accustomed levels of provision.

Recurrent Health Sector Expenditures

In Table 5, data are provided which show the trends in total and health sector specific recurrent cost expenditures by the various levels of government. The real per capita recurrent expenditures of the central government has declined by two-thirds over the decade from FY 1971 to 1980 from about 1.4SL to 0.4SL. since the figures for 1981 and 1982 are based on budget estimates, the actual figures will undoubtedly be lower since actual expenditures have traditionally been considerably less than budgeted amounts. The decline in central government expenditures is largely due to the first oil price increase of 1973 and also due to the increased decentralization of authority between the central and local governments which began with the political settlement of the civil war in 1972.

The facility expansion of the 1970's and the PHC program of the mid 1970's has increased the financial responsibility of the regional governments. Real per capita recurrent expenditures on health have steadily increased since the settlement of the conflict in the southern region in 1973. There has been a 46% increase in total government real recurrent per capita expenditures on health since the launching of the rural based PHC program in 1975 from 1.81 LS to about 2.6 LS in 1982. Not all of the increase in per capita health expenditures is due to the PHC program. However, in 1981 the program comprised approximately

Table 5

Trends in Total and Health Sector Recurrent Expenditure
in the Public Sector: Sudan
FY1971 - 1982

Fiscal Year	Central Government			All Local Governments			(7) Tot. Govt. Per Capita Health Recurrent Exp. in constant, 1978 LS $\frac{1}{1}$, ((3)+(6))
	(1) Total Re- current Exp. (current LS in millions)	(2) % Health is of Total	(3) Per Capita Recurrent Exp. in constant, 1978 LS $\frac{1}{1}$	(4) Total Recurrent Exp. ^{2/} (current LS in millions)	(5) % Health is of Total	(6) Per Capita Recurrent Exp. in constant, 1978 LS $\frac{1}{1}$	
1971	140.5	5.6	1.42	33.0 (E)	18.2	1.08	2.50
1972	144.3	5.9	1.35	35.4	16.9	0.95	2.30
1973	162.1	5.2	1.13	25.0	24.0	0.80	1.93
1974	178.1	2.6	0.48	48.2	12.4	0.62	1.10
1975	249.1	2.2	0.50	72.6 (E)	20.0	1.31	1.81
1976	283.5	2.2	0.51	101.9	17.4	1.41	1.91
1977	332.4	2.2	0.49	109.4 (E)	22.9	1.65	2.14
1978	423.2	2.2	0.52	131.0 (E)	18.8 ^{3/}	1.37	1.89
1979	550.1	1.8	0.48	164.0 (E)	18.8	1.48	1.96
1980	598.4	1.8	0.41	260.0 (E)	18.8	1.84	2.25
1981	902.0	2.0	0.61	328.0 (E)	18.8	2.05	2.67
1982	1040.0 (B)	2.5 (B)	0.74 (B)	353.0 (E)	18.8	1.90	2.64 (B)

E = estimated

B = budgeted

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Table 5 continued

- NOTE: 1) Deflated using GDP deflator.
- 2) Where estimated expenditure figures are provided, the estimates are based on actual grant-in-aid figures from the central to local governments and local tax and revenue collections for selected years based on John and Jean Due's research. (see citations below). All local government tax and other revenue approximate 25% of grant-in-aid revenue.
- 3) The figure 18.8% for 1978-1982 is an estimated figure based on the mean for the years 1971-1977. Fragmentary evidence from selected provinces suggest that this average figure is approximately correct. For example, in 1982 the Jonglei province budgeted 18.6% of its recurrent expenditures for health.

- SOURCE: 1) Table 5.4, pg. 232 World Bank, Sudan: Investing for Economic Stabilization and Structural Change. Feb. 16, 1982
- 2) IMF, Standby Agreement Report, January 1983
- 3) IMF, Government Finance Statistics Yearbook, Vol. 6, 1982
- 4) GOS, National Health Programme, 1977/1978-1983/84, (Khartoum: University of Khartoum Press, April 1975)
- 5) John Due and Jean Due, "The Financing of the Southern Region and Other Regional Governments of the Sudan," International Bureau of Fiscal Documentation-Bulletin, 1982
- 6) John Due, "Financing Issues in Kordofan Region", (approximate Title), paper prepared for USAID/Khartoum, 1982.

15% of all expenditures on health by local governments, and will probably increase to about 20% by 1985. Thus, the PHC program represents about one third of the increase in total government real per capita health recurrent expenditures. The remaining increase in real recurrent expenditures has gone to train staff, equipment and supply the many other health facilities which have been constructed during the 1970's.

Unfortunately, due to increasingly binding foreign exchange constraints facing the Sudan during the 1970's and 1980's, the primary shortfall in recurrent health expenditures for the government operated health care system has been for drugs, supervision, and supplies transport since the launching of the PHC program in 1976. Many observers, including Dr. Biely^{11/} the head of the PHC program in Sudan, have commented on the reduced shipments of drugs. It is common to find in rural facilities that only 50% of the drugs were sent due to either a general lack in drug availability or that other facilities, eg., hospitals and health centers, have been accorded a higher priority. This typical 50% shortfall in expenditures only represents about 12-15% of total recurrent expenditures for a PHCU, and perhaps 10-12% of the recurrent expenditures for a rural dispensary. This shortfall, however, significantly reduces utilization of such facilities and creates uncertainty about expected levels of service provision, and does not provide the preventive and promotive health care aspects of the PHC program

with a "loss leader" which can then be used to facilitate communication about alternative health promoting behavior by both individuals and communities. It also tends to reduce community interest in participating in various self help activities to finance recurrent costs. In the section on the micro-economics of the PHCU, the quantitative implications of the foreign exchange constraint for additional drugs is discussed.

FINANCING THE HEALTH SYSTEM

According to the household expenditure survey conducted in 1967/68, about 2% of household expenditures was for medicine and pharmaceuticals and related services.^{12/} If the people of Sudan continue to privately spend on an annual basis about 2% on medical care goods and services (which is a conservative estimate, since existing evidence from many other countries show that as incomes and expenditure levels rise households tend to increase their proportion spent on health care related services), it is possible to show the trends in health care financing since 1970. In Table 6 these trends are depicted.

Perhaps the most important point identified in the analysis presented in Table 6 is the fact that private expenditures on health care have undoubtedly grown relative to public expenditures, despite the increases in public expenditures since 1975, including for the PHC program. In 1971 public expenditures comprised about 55% of total estimated health expenditures. However, 1975 public expenditures comprised only 46% and, in 1983, it is estimated that public expenditures will comprise just

Table 6: Trends in Estimated Total Health Sector Financing in Sudan, 1971-1982

Year	Estimated Private Household Expenditures ^{1/} (Millions of Current Pounds)	Public Expenditures on Health Central and Local Government ^{2/} (Millions of Current Pounds)	Estimated Total Expenditures on Health (Millions of Current Pounds)	Estimated Total Expenditures on Health as % of GDP
1971	10.6	13.9	24.5	3.2
1975	24.6	21.0	45.6	3.0
1980	66.8	59.8	126.6	3.1
1982	110.2	92.4 (E)	202.6 (E)	3.0

E = Estimated Data

NOTES AND SOURCES:

- 1) According to Figure 1, in Annex A, GOS, National Health Programme, 1977/78-1983/84, (Khartoum: University of Khartoum Press, April 1975) data from a household expenditure survey (unclear as to date, but probably 1967/68, although attributed to 1971 in the above reference) estimated that private households spent about 2% of total household expenditures on health care and related goods and services, including medicinal supplies and pharmaceuticals. The estimated expenditure figures for 1971, 1975, 1980, and 1982 found in Table 6 are based on this 2% figure applied to the proportion of GDP which comprises private consumption expenditures.

There are at least three more recent household expenditures surveys which have been conducted in Sudan. The data from the 1976/77 survey, conducted by the Central Bureau of Statistics of the Ministry of France and Economic Planning is expected to be released in the next several months. The other two surveys were conducted in 1979/80 and, I believe, 1981. These latter two may not be based on a national sample, however, USAID Khartoum will have the data tapes from these surveys on their computer later in 1983, for use by the mission. It would be useful to corroborate the findings of 1971 (or 1967/68) that 2% of total household expenditures was going for health care and related items. Given the proliferation of private pharmacies and the tendency for many physicians and other care providers to operate private practices in the evening, this figure is probably not unexpected or too high.

- 2) Figures based on data and sources provided in Table 5 above.

slightly over 40% of total expenditures on health. In part, private expenditures have continued to increase because the private pharmacies have access to foreign exchange held outside the country in order to continue to import drugs, whereas the government is more constrained.

FINANCING PRIMARY HEALTH CARE

In 1980, Dr. Shakir Musa, conducted a study of the costs and financing of Sudan's Health Care Program.^{12/} His analysis showed that the financing of recurrent costs of the program in the Southern Region in 1980 was disaggregated as follows:

<u>Source of Financing</u>	<u>% of Recurrent Cost, Including Technical Asst.</u>	<u>% Recurrent Cost, Excluding Tech. Asst.</u>
Community	0.3	0.8
Local & Central Gov't	25.1	77.6
External Assistance	<u>74.6</u>	<u>21.6</u>
Total	<u>100.0</u>	<u>100.0</u>

This analysis suggests that while there is considerable discussion about local participation in financing PHC via self-help committees and possibly even fees in certain experimental settings, the predominate source of financing in southern Sudan, excluding external technical assistance personnel costs, is from central and local government resources. External assistance was largely in the form of UNICEF drugs and medical instrument kits and some modest support for vehicle operating and maintenance costs.

Dr. Ali Biely's analysis of the financing of a single PHCU in North Kordofan provides additional information regarding (a) community participation and (b) disaggregated information about

the source of governmental support.^{14/} His 1978 analysis can be summarized as follow:

<u>Source of Financing</u>	<u>% of Total Financing Recurrent and Capital Costs (Cap. Inc. Train)</u>	<u>% of Recurrent Cost (Exc. Depn. on Physical & Human Capital)</u>
Community	8.0	-
Local Government	37.0	52.5
Central Government	25.0	-
External Asst. (UNICEF)	<u>30.0</u>	<u>47.5</u>
Total	<u>100.0</u>	<u>100.0</u>

This analysis shows that the community provided the resources for the building but did not cover any of the recurrent costs. The local government paid the CHW salary and paid for transport. UNICEF provided drugs and medical equipment and instruments and the central government provided the training resources, including a year's stipend to the CHW while in training.

These two studies of PHC financing suggest that the predominate source for financing the recurrent costs of the PHC program in the Sudan have been local and regional governments. The predominate source of financial support for these governments, however, is via the grant-in-aid program of the central government, operated by the Ministry of Finance. In both parts of the country external sources of financial support have also been crucial, particularly for drugs and maintenance and running costs of vehicles. The primary support from the community has tended to be in financing the initial construction cost of a PHCU and in the minor annual repairs required to maintain the facility.

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Other Comments Re: Financing
Publically Provided Health Care

Considerable evidence exists (anecdotal and otherwise) that the financial base of support for the health care system operated by the public sector in Sudan is, defacto expanding, despite the constitutional provision that health care is "free". First, all public employees have from 25 piasters to one LS deducted from their pay each month for "health insurance". However, it is unclear how this is administered and what specific benefits public employees receive as a consequence of these funds being collected.

It appears from the analysis conducted by John and Jean Due on Government Financing in the Southern Region that the funds raised from the medical/health insurance deduction are coming with all other sources of government revenue, and, do not comprise a significant source of revenue (0.1% of estimated total revenue to the region in 1980/81 in comparison with health expenditures comprising between 15 and 20% of total regional government expenditures).^{15/} The GOS Minister of Health, Dr. Ali Fadl, is very interested in developing a more comprehensive health insurance program to cover all wage and salaried workers in the country and is investigating the feasibility of using the health insurance plan developed in Alexandria, Egypt as the model for use in the Sudan. He has received assurances from the Ministry of Finance that the priority of the health sector in

obtaining foreign exchange would significantly rise if the sector could raise additional revenues to cover its recurrent cost.^{16/}

Second, many health facilities throughout the country, from PHCU's to hospitals, have developed local committees for raising self-help funds for local recurrent purchases, e.g. paper and some pharmaceuticals, as well as for new construction or additions to the physical plant. Many of these committees have established visitor fees at hospitals and other fees as well. Further, it is increasingly common that the feeding of hospital inpatients is no longer the responsibility of the government. Friends and/or relatives must shoulder this responsibility. Some facilities have "contribution" boxes at the door and a few committees have even established a facility "entrance fee". It is also common to find a fee paid to midwives and to health workers as a gratuity or an expected tip to ensure continued good service in the future. Finally there are an ever increasing number of "people's pharmacies" to which patients are often referred by health facilities when their supplies are low or non-existent. Thus, there are many different mechanisms being used in different parts of the country to accumulate revenues from service users. However, documentation of how much is being collected? for what? by whom? how often? in what manner? how administered? how spent? is presently unavailable. The needs assessment team in Kordofan may provide additional information on some of the above unanswered questions. However, a more systematic study of these mechanisms is warranted in order to

determine the full nature of the extent to which the "financing of recurrent costs" is and will continue to be a problem.

Third in the Southern Region Financing study conducted by Jean and John Due,^{17/} there is evidence that all six provincial governments in the South expected to collect a certain amount of "health fees" and a social service tax". It was not specific in the paper what these fees or tax consisted of or how or why they were collected. It is also unclear whether these taxes and fees were collected by local or district councils and used at that level or sent to the provincial or regional level. It is important to further investigate these sources of revenue since the "health fee" and the "social services tax" were expected to generate nearly 4% and 43.7% respectively of total provincial revenue in FY 1981.

Finally, since the people of Sudan are likely paying directly for over 55% of their health care (see Table 6), it is clear that a substantial proportion of the total recurrent cost of health care is being directly financed by service users. At the present time, little is known about the private sector service providers, both traditional and modern. It is known however, that pharmacy is one of the most lucrative professions in the country. A more systematic analysis of the private health sector is clearly warranted to ascertain location, use patterns, potential sources of competition or cooperation with public providers, and the role of health providers in each sector, since most government physicians commonly practice privately in the

evenings. In summary it is important to understand more about the way the private and public sectors relate.18/

THE MICRO-ECONOMICS OF THE PHCU

THE RECURRENT COSTS OF A PHCU

In Table 7, the recurrent cost of a typical PHCU in Sudan is summarized. The costs are disaggregated in two ways: (a) Whether the cost items are foreign exchange using and (b) whether the cost are in the form of annual capital depreciation cost or annual recurrent expenditures. The total recurrent cost for a local "Tukul" type constructed PHCU, including capital depreciation and supervision, manpower, drug transport and information system costs is approximately 2570LS per year in 1983, with the annual recurrent expenditures being about 2410LS.

For the local, Tukul type construction, the annual foreign exchange costs approximate 47% of the total cost, with over 90% of that foreign exchange cost being for drugs and drug transport (See Table 7). It should be noted that the drug cost included in this estimate is based on the price of UNICEF kits, which according to drug procurement experts, represents the lowest cost method of drug procurement and distribution since international bulk drug procurement, handling, bulk-breaking in country, and other storage and warehousing processes are minimized. Obviously, if drug procurement were not done on such a basis, the foreign exchange component of the recurrent cost of a PHCU would rise above the 47% figure.^{19/}

Besides using Tukul type construction, what other costs can be reduced to minimize the recurrent cost of a PHCU? Reviewing

the other cost items included in Table 7, it is possible to operate a PHCU without a "cleaner", thus saving about 15% of the total recurrent cost, or nearly 30% of the local currency, non capital costs. Information system and supervision costs theoretically could also be reduced. However, these support systems presently operate very poorly, in part because they are under-financed.

It is also possible to economize on the use of drugs, and thus, drug transport costs, resulting in foreign exchange savings. However, due to the national foreign exchange constraint, drugs for PHCUs have been restricted. Beily, (1979) found that only 40% of the drugs which were planned for a PHCU in North Kordofan actually arrived during the year.^{20/} Similarly, AMREF (1981) noted a similar problem in the South.^{21/} Thus, while some recurrent cost and foreign exchange savings may result from reduced drug use, these "savings" are already being realized. Further, there is a substantial "opportunity cost" borne by the health sector in the form of the inefficient use of care providers who continue to obtain their salaries without producing any services since communities realize that drugs are an important complementary resource required in the provision of health care.

To summarize, when examining each cost item in the recurrent cost of a typical PHCU, it is difficult to find many items which can be cut without completely suspending the provision of services for which there is a demand. In addition, it is important to reflect on the fact that over 45% of the total

Table 7

Average Recurrent Cost of Typical PHCU
in Sudan 1983 (Local Tukul Construction)

Item	Annual Cost	
	Foreign Exchange	Local Currency all in LS
<u>I. Annual Recurrent Expenditure</u>		
1) Personnel ^{1/}		
a) 1 CHW		504
b) 1 cleaner		378
Total		<u>882</u>
2) Medicine. 4 UNICEF kits ^{2/} /year	608	
3) Information System ^{3/} Costs, e.g. stationery, recording books		195
4) Supervision Costs ^{4/} - Region & District = 9% of total, (Based on Macro estimates by Shakir Musa, 1980)		246
5) Drug Transport, ^{5/} incl. vehicle depr. 33%/yr, maintenance, fuel and driver	473	6
Subtotal	<u>1081</u>	<u>1329</u>
<u>II. Annual Capital Depreciation Costs</u>		
1) Equipment and Instruments 20%/year	119	
2) Building Maintenance and Depr. 20%/yr, Tukul type construction		40
Subtotal	<u>119</u>	<u>40</u>
Total	1200	1369
Total of All Items		<u><u>2569</u></u>

Table 7
(continued)

Average Recurrent Cost of Typical PHCU
in Sudan 1983 (Local Tukul Construction)

Notes to Table 7:

- 1) Total wages paid in the South are slightly lower e.g., by about 5%.
- 2) The cost of medicines are based on an average cost for both Northern and Southern kits, weighted by the number of CHWs in the North and South. The average cost per kit in Sudan = \$17,000 US and valued in Sudanese L at the official rate of 1.3SL/1\$US per Ministry of Finance regulations.
- 3) Based on figures provided in the "Brown Book", 1976 and inflated to 1983 prices based on GDP inflator.
- 4) Based on the annual running costs of the PHC program at the District and Regional level provided in Shakir Musa study, 1980.
- 5) Transport cost is based on two trucks per region and driven 30,000 miles/year each, including driver = 384SL/yr in a region with about 200 CHWs visited two times per year, each time with 2 kits. A foreign exchange rate of 1.87 SL per \$US was used in this estimate.

- Sources:
- 1) Shakir Musa, "Cost and Financing Pattern of PHC at the Community Level: Sudan, "WHO/UNICEF Workshop on Cost and Financing of PHC, Geneva, Dec. 1-5, 1980, about pg. 50.
 - 2) Ali Beily, "Primary Health Care in the Sudan: Does it Work?", Ms. Thesis, University of London, London, 1979.

recurrent cost of a PHCU is foreign exchange using, a resource in scarce supply in Sudan. Thus, while the recurrent cost of maintaining an individual PHCU may, in one sense be modest, eg., 2500 pounds per year, it may be a much higher cost proposition to maintain an entire system of PHCU's eg., 2200 of them in 1983, in conjunction with all of the other facilities and in light of the macro-foreign exchange problem analyzed above.

UTILIZATION PATTERNS OF PHCU'S

In Table 8, existing data on the utilization of Sudanese PHCU's are summarized. These data show that utilization patterns vary, depending upon (a) type of method used to collect the data, i.e., actual analysis of daily record books, vs. estimates made by health personnel in charge of a PHCU when asked about the number of attendances, and (b) other factors such as population density and the existence of all weather roads. The data obtained by the AMREF Needs Assessment study indicated that the average daily utilization was about 25 with a range of between 10 and 40, whereas studies which reviewed daily record logs suggest average daily utilization of between 5 and 15.

In order to obtain an estimate of annual utilization, an additional factor must be considered, the number of days per year the PHCU is open. For example Beily found that the PHCU he studied in North Kordofan was only open 218 days during the year, perhaps in part due to a lack of drugs.^{22/} On the other hand, the Dressing Station in the same area was open for 280 days. Donaldson found that the average number of days per month six

Table 8

Summary of Utilization of PHCUs
Sudan, around 1980

Source of Info	Reported No. of attendees per day	No. of PHCUs	Comments
1) RMOH/AMREF, Needs Assessment, 1981	10	0	Figures are based on response to a general question to health worker in charge of specific PHCUs visited.
	10-19	2	
	20-29	6	
	30-39	3	
	40	<u>1</u>	
	Total	<u>12</u>	
2) Ali Beily Study 1978	Average = 14.2/day		Actual count in daily record books for 4 months and checked by investigator. Variance over 4 mos.; low = 7.3/day high 22.4/day
3) Day Donaldson, 1982 quoting German Medical Team Report 1981, Western Equatoria	Average No. per day		1) 4 mos. data: low 3.9 high 5.6 18 mos. data: low 3.6 high 3.7 11 mos. data: low 4.4 high 16.6 14 mos. data: low 6.6 high 16.3
	5	1	
	5-7	1	
	8-10	3	
	10	<u>1</u>	
	Total	<u>6</u>	2) Actual records including number of days worked per month

Table 8
(continued)

Summary of Utilization of PHCUs
Sudan, around 1980

- Sources:
- 1) AMREF, Health Sector Assessment Studies, Upper Nile, Lakes, Bahr El Ghazal, and Jonglei Provinces, (Juba: AMREF, 1981)
 - 2) Ali Beily, "Primary Health Care in the Sudan: Does it Work? Ms. Thesis, University of London, 1979
 - 3) Day Donaldson, personal communication to Dr. Mary Ann Micka, USAID/Khartoum, May 20, 1982.
 - 4) Rolf Heinmuller and Winfred Kern, Kurbericht Zum Primary Health Care Programme, Southern Sudan Region in Gebiet des Ibba PHC Complex, German Medical Team, Juba 1981.

PHCU's in the Southern region were open in 1980 varied from a low of 8.2 days per month to a high of 22.4 days, with an average being around 13.5 days.^{23/} Given this rather substantial range in the number of days during which a PHCU is open, it is difficult to provide a narrow estimate of the annual rate of attendances at a PHCU. As a consequence, it is difficult to summarize what is known about costs and utilization to obtain an estimate of the average cost of an attendance or visit to a PHCU. (A plausible range of estimates and a field appropriate methodology is contained in Annex A to this paper.) Without knowing the average cost per visit and the related utilization level, it is difficult to ascertain the extent to which any particular financing strategy will cover costs. Thus, considerable effort is warranted to strengthen the basic information system to obtain accurate utilization data.^{24/}

SUMMARY OF FINDINGS AND CONCLUSIONS

First, the macro-economic situation of Sudan has continued to deteriorate since 1976. Even with the potential of future oil revenues on the horizon, the country is heavily in debt and is behind on meeting its external financial obligations. Even if oil is exported before the end of the 1980's, the country will need between \$100-200 million in grants per year to meet its foreign exchange requirements for imports and debt servicing, let alone repay the additional debt and interest which are in

arrears. Thus, the foreign exchange constraints will remain very binding for the foreseeable future. The recent economic policy changes, however, related to agricultural prices, devaluation, and remittances are realistically based and can facilitate an improvement in conditions.

Second, there is a substantial private health sector operation in the country. There are many private pharmacies, physicians practicing on their own time, and traditional providers of various types. To the extent that private providers have an advantage in acquiring drugs by tapping available foreign exchange from private external sources, it can be expected that the private sector will continue to expand relative to the public sector. It is important to more carefully study the way in which private and public providers relate in order to achieve the desired objectives of a national PHC program.

Third, despite an increasingly binding foreign exchange constraint, the government health care system has witnessed unparalleled expansion over the last 15 years in the number of trained manpower. Drug availability as measured in Table 4 in terms of the real value of imported drugs per capita has lagged behind the rapid expansion of other service providing resources. Given that there is a significant private sector which has also been expanding, per capita drug supplies via the PHC and other publically administered facilities is even lower than the import statistics show, despite increased efficiencies in drug procurement. Given the lagged expansion of drug availability via

the public sector, it has undoubtedly lost some of its earlier attractiveness with consumers, where alternative care options are available.

Fourth, in Table 5, the data on recurrent expenditures by the central and local governments for health care reflect the increasing importance of local governments in health care provision including PHC. The decentralization acts of 1981 further enhance the importance of local decision making on the future development of PHC and other health care services. Since the decentralization acts have enhanced the jurisdiction of local councils with respect to employment decisions, PHC expansion plans must be more closely coordinated with these local decisions.

Fifth, in analyzing the recurrent costs of a PHCU, it is striking to find that at least 50% of the total recurrent cost of operating such a facility requires foreign exchange (primarily drugs and transport). With foreign exchange in short supply over the rest of the decade, the availability of drugs will continue to be the binding constraint to the expansion of the PHC program. Future manpower training must be coordinated in light of this basic constraint. In addition, health sector decision makers must be constantly seeking ways to increase the efficient use of all foreign exchange using resources. This is especially true in the transportation and communications area. Pilot efforts to test more intensive use of such resources should be encouraged.

Finally, there are many experimental financing mechanisms in existence, from social insurance schemes to fees for service as well as renewed efforts at the local government level to increase tax revenues which can be used to finance locally provided health care. Little is presently known about the relative success of these collection efforts but it is clear that much can be learned by monitoring this dynamic situation. However, all local revenue raising efforts still do not increase the availability of foreign exchange for such inputs as drugs, transport and supervision, with more locally generated revenue. However, there is a distinct possibility that the health sector's priority for foreign exchange can rise. Further, greater purchases can be made - even in bulk - from private pharmaceutical importers who can more easily tap externally based foreign exchange resources if local generated revenue is increased.

The health sector in Sudan is undergoing a period of dynamic change. Competition, decentralization, increased financing, improved manpower management of the meager resources available are creating a dynamic for new models of delivery and opportunity for change. There is uncertainty, but one can be optimistic that the changes will reflect the realities of this new economic environment. By addressing these changes Sudan can provide renewed leadership to many others experiencing similar circumstances.

Annex A

Estimates of the Average Cost of Service Provision in PHCU's

It is useful to conclude a micro-economic analysis by combining what is known about cost (supply) and utilization (demand). This information is summarized in two different ways in Figures A1 and A2, drawing on the evidence embodied in Tables 7 and 8. Since the data on utilization was so fragmentary, this analysis is provided for purposes of illustration of a technique which can be employed in field situations for estimating the average cost of health services provided via various types of providers and/or facilities. This analysis only reviews one application of this method of average cost estimation for two types of comparisons in the provision of basic health services via PHCU's in Sudan in 1983.

The first comparison, summarized in Figure A1, depicts what the average total recurrent cost of a PHCU visit might be, given different cost estimates (in the case of Figure A1, construction depreciations costs), and differences in utilization (only based on differences in average daily attendances and not on the number of days open per year). Assuming a full complement of drugs and an optimistic utilization pattern, B, of 20 attendances per day, and the facility being open 250 days per year, the average recurrent cost per visit would be 0.53 LS, given Tukul construction. If more "modern" construction techniques were used, holding utilization at level B, the average cost would be LS. 0.73 per visit. (See points L and M on Utilization Line B.) On the other hand, at a more realistic level of utilization, A, of 10 attendances per day (times 250 days open), the average cost

per attendance would be about LS. 1.04 (Tukul) and LS. 1.43 (Modern).

In both instances the foreign exchange cost per attendance would represent at least 47% of the cost, with the drug component being undervalued in terms of Sudanese pounds given that they are imported at the official 1.3 rate of exchange. If drugs were valued at the 1.87 rate, which more nearly represents the equilibrium price of foreign exchange, the foreign exchange component of total recurrent cost would increase by about 5% to 52%. Thus, at an optimistic level of utilization, represented by B, and using the 1.87 rate of exchange for foreign currency, the foreign exchange cost per attendance at a Tukul type PHCU would be about LS. 0.28 per attendance (52% x 0.52 LS per visit). At a more realistic utilization level, A, of 10 attendances/day, the foreign exchange cost would be LS. 0.57 per attendance (52% x 1.04 LS per visit).

In Figure A2, the influence of drug availability on utilization patterns at a PHCU is depicted. When a full complement of drugs are made available to the PHCU, the average cost curve B and utilization level B, lead to an average cost per attendance of about LS. 0.54 represented by point B. However, when foreign exchange and other constraints limit drug availability to PHCU's to about 50%, utilization tends to drop. The important question is, by how much? The data analyzed by Ali Beily^{1/} suggests that when drugs were unavailable at Um Arrada PHCU the attendance rate fell from an average of 22 visits per

day to about seven visits per day. According to the RMOH/AMREF Needs Assessment Study^{2/} community health workers reported significant variations in utilization depending on the availability of drugs, from around 25 visits per day when drugs were available to about five visits per day when drugs were unavailable. Similar utilization patterns have been reported in many other countries as well, eg., Korea, Uganda, and Nepal. Thus, in the case depicted in Figure A2, utilization level A, with average cost curve A, which is lower than B by the cost difference of the 50% drug reduction and the attendant reduction transport costs, intersects at point A', or about LS. 1.03 per attendance.

This illustrative case points out that even though there is a marginal foreign exchange saving at the national level, there is a substantial break-down in service use at the community level. In the case depicted in Figure A2, the "low cost" alternative in terms of foreign exchange, by cutting drug availability by 50%, turns into the "high-cost" alternative in terms of (a) complementary resource use, eg., idle manpower, and (b) reduced utilization and related equity of service availability. In addition, to the extent that key drugs are unavailable at peak demand times for agricultural labour, the health effect on total output can extend into the monetary sector of the economy.

Footnotes to Annex A

- 1) Ali Beily, "Primary Health Care in the Sudan: Does it Work?" M.S. Thesis, University of London, London, 1979.
- 2) RMOH/AMREF, Health Sector Assessment Studies, Upper Nile, Lakes, Bahr el Ghazal, and Jonglei Provinces (Juba: AMREF, 1981):

Figure A1

Average Recurrent Cost of a Typical PHCU in Sudan, 1983
Given Alternative Utilization and Capital Costs

Average recurrent
cost 1983 £

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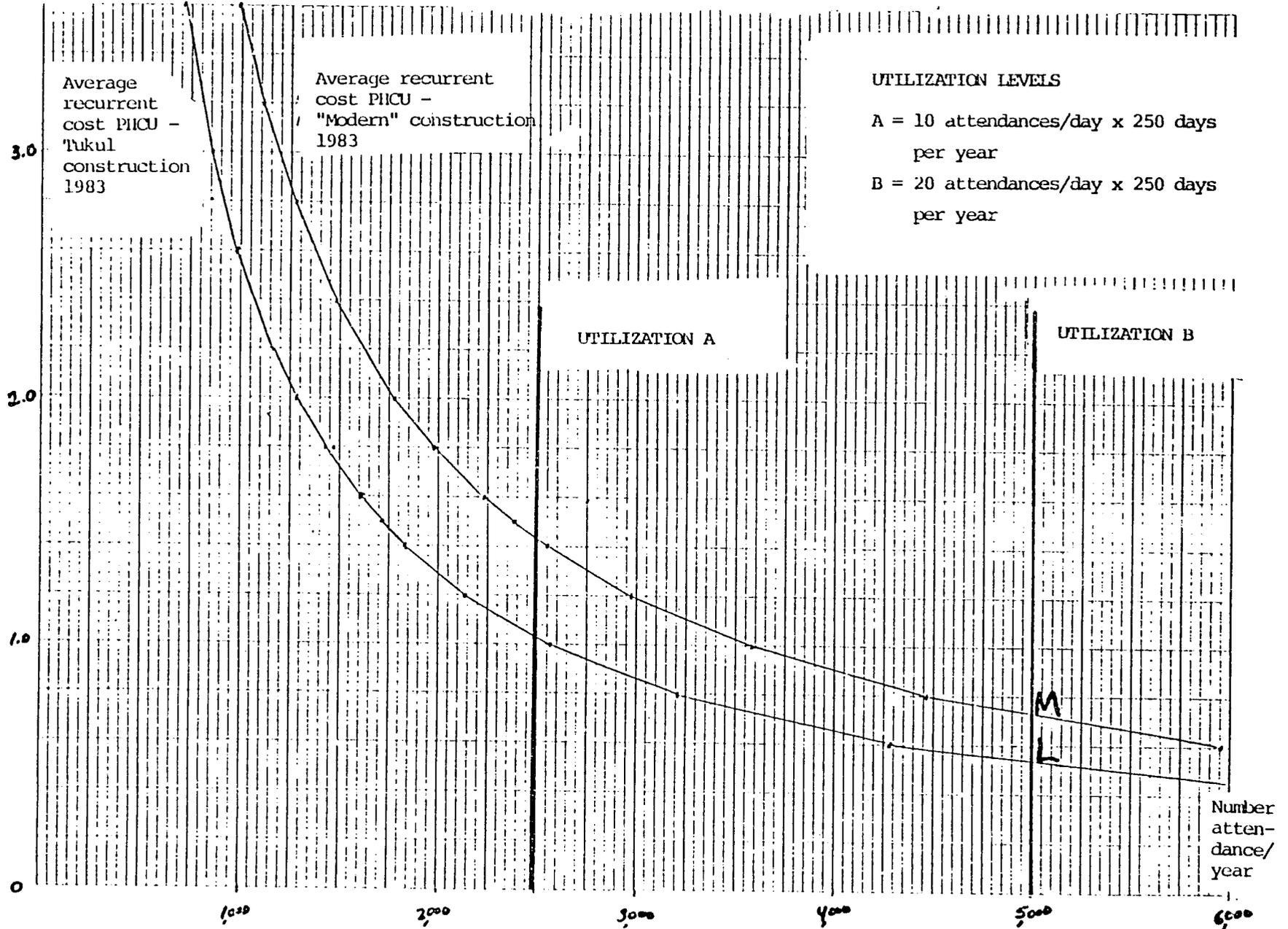
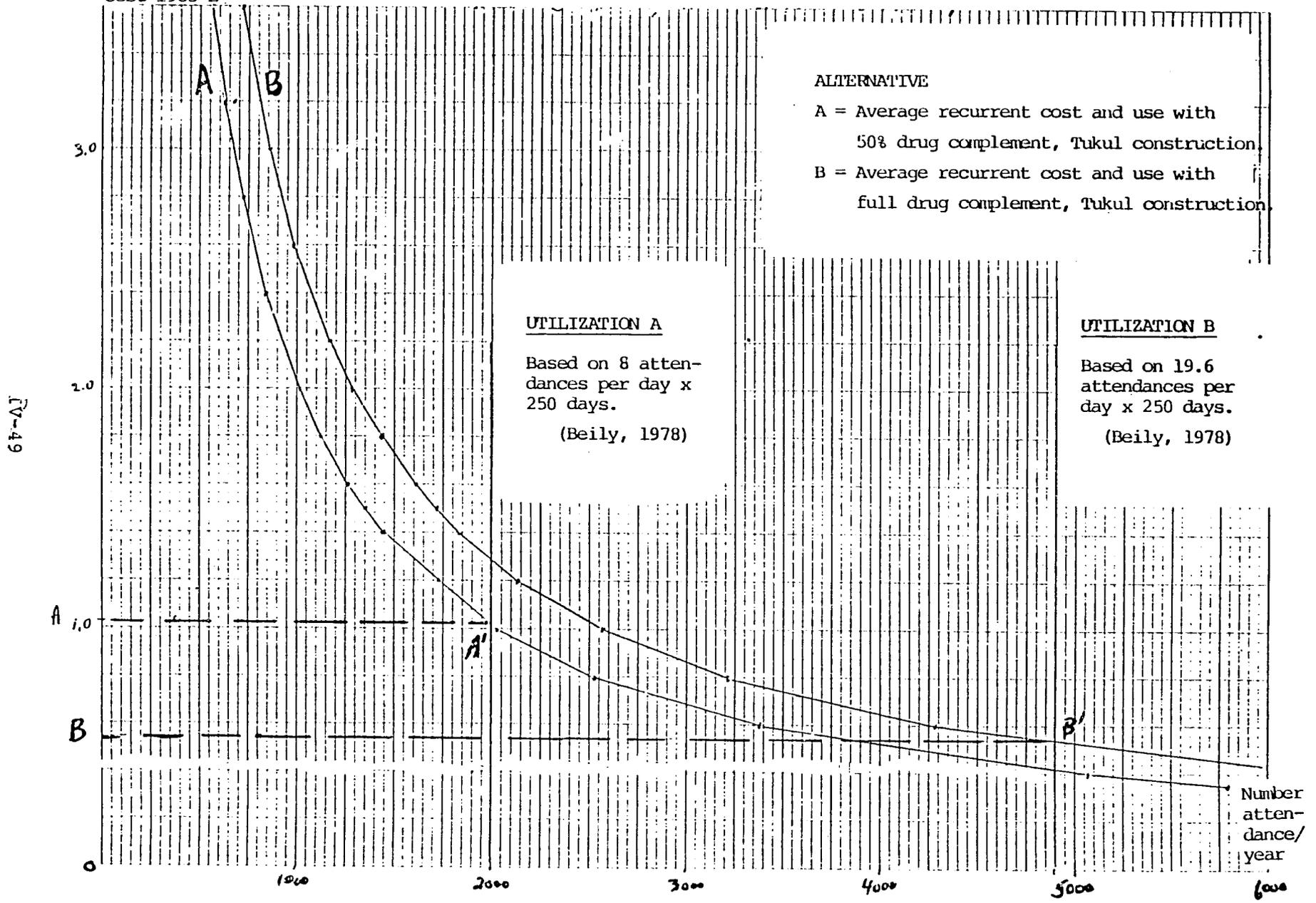


Figure A2

Average Cost and Utilization of a Typical PHCU in Sudan 1983
With Full Drug Complement and 50% Full Drug Complement

Average recurrent
 cost 1983 £



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Footnotes

1. Pg. 1&2, the Democratic Republic of the Sudan, National Health Programme, 1977/78 - 1983/84 (Khartoum: Univ. of Khartoum Press, April 1975), known as the "Blue Book".
2. Table 5, Pg. 112, "USAID, Northern Sudan Primary Health Care Phase I #650-001, Project Papter" (USAID/Khartoum, January 26, 1978).
3. USAID, "PES for North and South PHC Projects, Sudan", (USAID/Khartoum, April 1983).
4. Between 1973-1978, the real rate of GNP/capita growth per year was 5.1% despite the negative rate of growth experienced over the 1970-1980 period (0.2% per year).
5. Pp. 20-21, Gaafar Nimeiri, A Mandate for Progress and Renewal, May 1983-May 1989, Documents of the Fourth National Congress of the SSU, March 4, 1983, Khartoum, Sudan.
6. Pg. 13, Gaafar Nimeiri, A Mandate for Progress and Renewal,..., *ibid.*, 1983.
7. The country's balance of payments situation will obviously change if it continues to receive significant amounts of foreign assistance on highly concessionary, if not grant terms. At the same time, since the country has such a large debt, with at least one fourth of it in arrears, if the country improves its balance of payments situation, there will be considerable external pressure imposed to repay its debts in a more timely manner. Thus, the continued availability of foreign assistance will not significantly change the basic thrust of the above analysis.
8. The work of the One America, Inc., needs assessment team in Kordofan in 1983 represents one step in developing more information about private sector health activities.
9. In all countries, both care providers and consumers of health care develop standards for service provision and expectations about what they may receive from care providers. To a greater or lesser extent they dictate perceptions about service quality and whether the health care system(s) are providing "adequate" service. This perceived quality standard becomes a norm which can be called an accustomed level of service provision. In the Sudan where health services have, for many years, been provided "free", which includes "free drugs", this represents an important cultural norm which helps to define the term accustomed level of service provision for the Sudan. Such norms obviously define resource requirements which, if impossible to maintain, creates dissonance among care providers, consumers and country leaders, which inevitably leads to change, either of accustomed levels of service provision or of resource commitments.

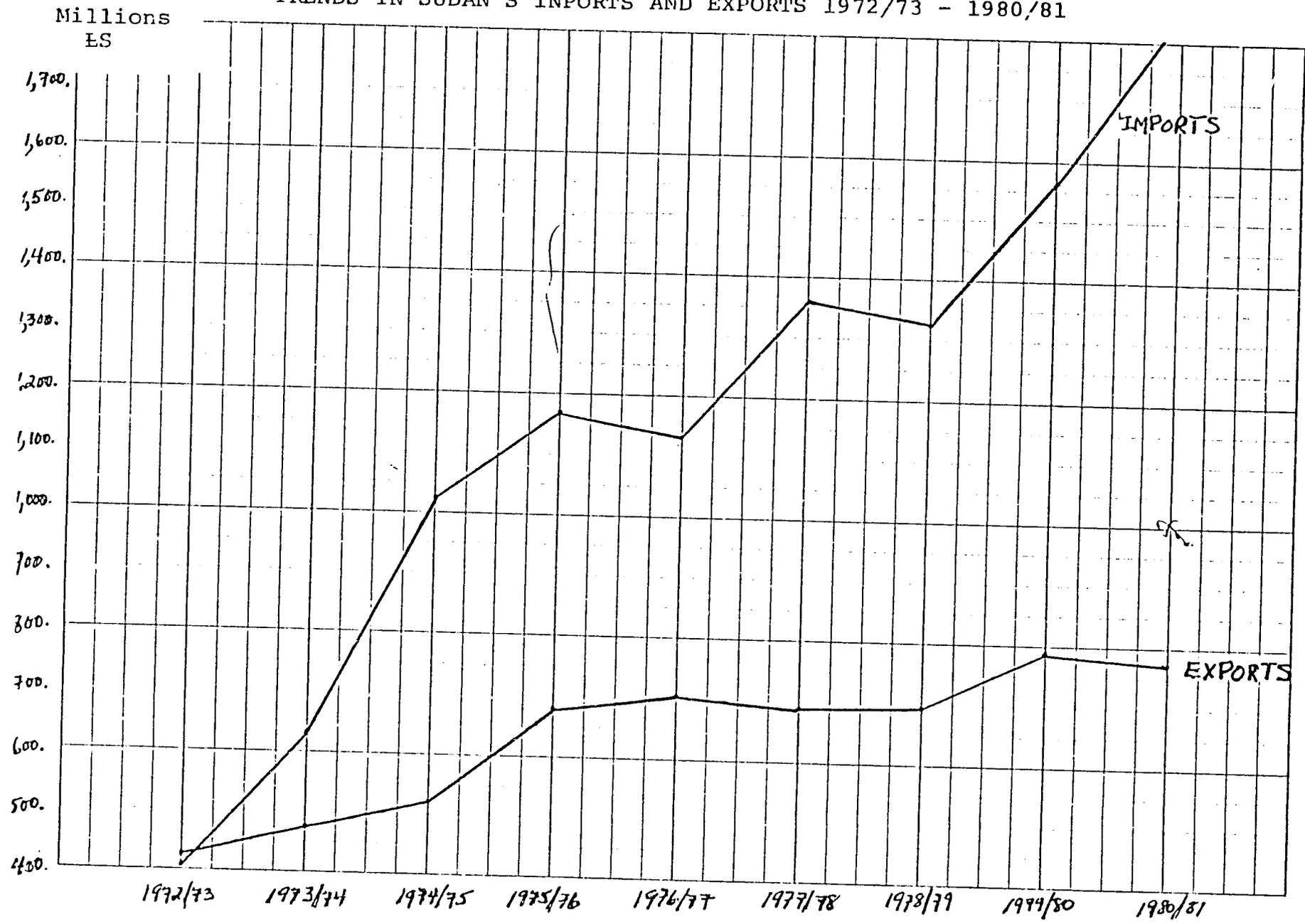
10. Fluctuations in drug imports are to be expected since the Central Medical stores of the Ministry of Health tends to order in bulk on a three year cycle. This bulk ordering tends to cause fluctuations in the volume and value of imported drugs from year to year.
11. Dr. Biely found in his case study of Um Arrada PHCU in 1978 that less than 40% of the expected drug supply had been sent to the facility. See pp. 62-65, Ali Biely, "Primary Health Care in the Sudan: Does it Work?" M.S. Thesis, University of London, London, 1979. See also RMOH/AMREF, "Health Sector Assessment Studies Upper Nile, Lakes, Bahr el Ghazal and Jonglei Provinces", AMREF/Juba, 1981, for a detailed description of the availability of drugs at the facility level.
12. Figure 2.1.3, pg. 18, of Annex 1, The Democratic Republic of the Sudan, National Health Programme, 1977/78-1983/84, op. cit., 1975. There have been other household expenditures surveys conducted, most notably in 1978/79, and again in 1980, but the results from these surveys are unavailable.
13. Pp. 50-52, Shakir Musa, "Cost and Financing Patterns of PHC at the Community Level: Sudan", WHO/UNICEF Workshop on Cost and Financing of PHC, Geneva, Dec. 1-5, 1980.
14. Pg. 63, Ali Beily, "Primary Health Care in Sudan...", op. cit., 1979.
15. John and Jean Due, "The Financing of the Southern Region and Other Regional Government of the Sudan," International Bureau of Fiscal Documentation - Bulletin (1982) 4-14.
16. This idea raises the policy option which may mark a very significant shift for the GOS. The potential for incentive revenue sharing entering the Grant-in-aid program of the Government could markedly improve the health care system, particularly if the region could pay for drugs provided at the Central Medical Stores (CMS) in Sudanese pounds and with the Minister of Finance and the Bank of Sudan allowing the MOH, via the CMS, to accumulate a fund for drug procurement based on "local participation".
17. John and Jean Due, "The Financing...", op. cit., 1982.
18. See David W. Dunlop et al., Korea Health Demonstration Project, AID Project Impact Evaluation Report #36 (Washington D.C. AID, July 1982) for an indepth investigation of the influence which the private sector had on the long run sustainability of publically provided health care.
19. The figure of 47% foreign exchange component of total Tukul type recurrent cost, excluding training, for 1983 was approximately the same as that derived in earlier analyses of the recurrent costs by Aly Biely, "Primary Health Care in Sudan...", op. cit., 1979, and Shakir Musa, "Cost and Financing Patterns...", op. cit., 1980.
20. Ali Beily, "Primary Health Care in Sudan...", op. cit., 1979.

21. AMREF/RMOH, Health Sector Assessment Studies...", op. cit., 1981.
22. Ali Biely, "Primary Health Care in Sudan...", op. cit., 1979.
23. Dayl Donaldson, personal communication to Dr. Mary Ann Micka, USAID/Khartoum, May 20, 1982, citing data from Rolf Heinmuller and Winfred Kern, "Kurzbericht zum Primary Health Care Programme in Southern Sudan Region in Gebiet des Ibba PHC Complex", German Medical Team, Juba, 1981.
24. The Sudanese PHC information system has undergone considerable redesign. The implementation problems are now being addressed. Certainly many aspects of the more detailed data obtained from this system will assist in developing improved delivery system methods of operation. It is crucial, however, to at least obtain reasonably accurate utilization data for designing financing strategies which will cover the program costs.

Supplementary Figures

Note: The data in several of the Tables have been summarized in a different manner for those who prefer to review data presented in graphical form. This alternative format is presented in the Seven Supplementary Figures included below.

TRENDS IN SUDAN'S INPORTS AND EXPORTS 1972/73 - 1980/81



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SOURCE: IBRD, 2116182

Figure S2: TRENDS IN PUBLIC DEBT, 1970-1990

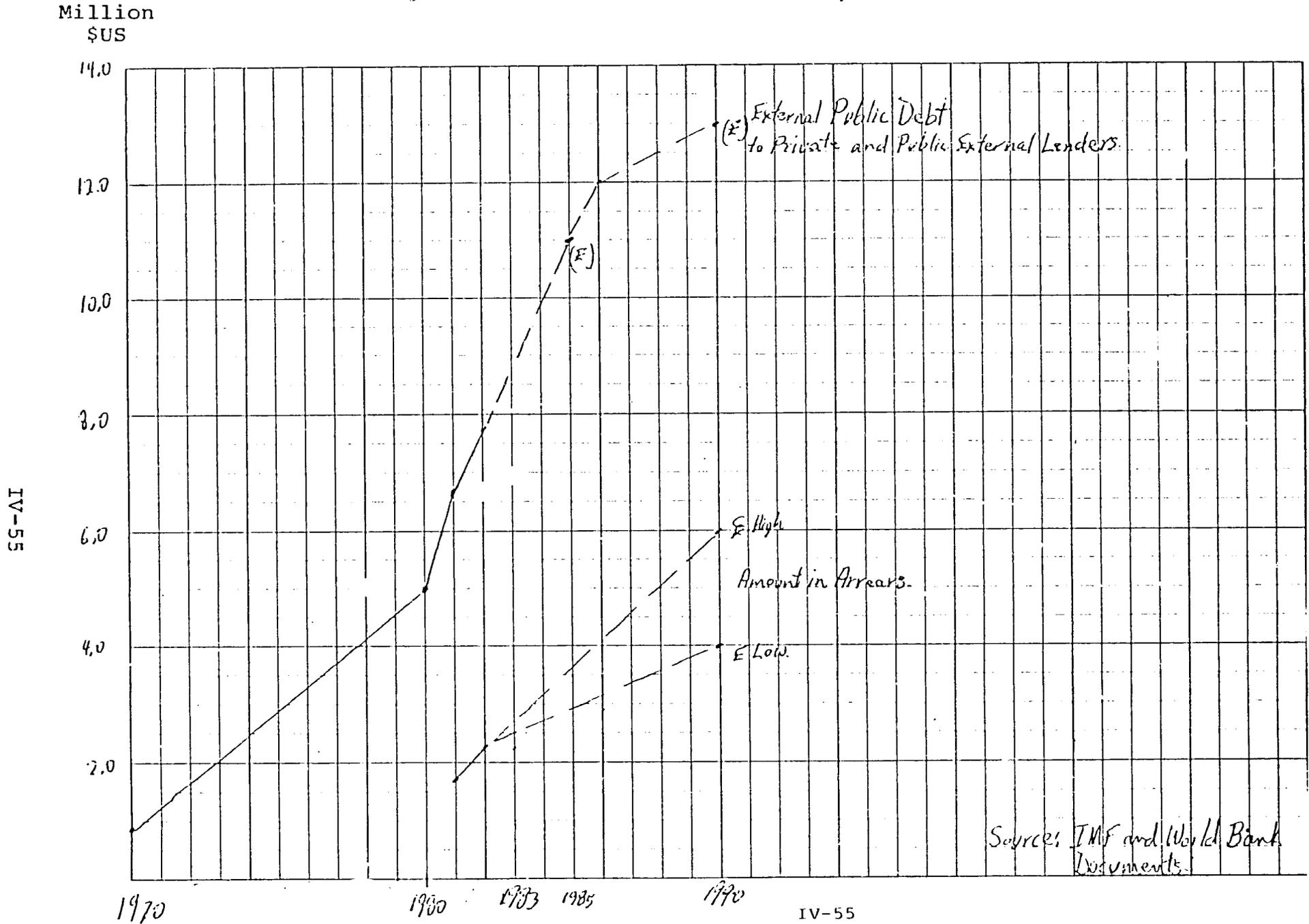
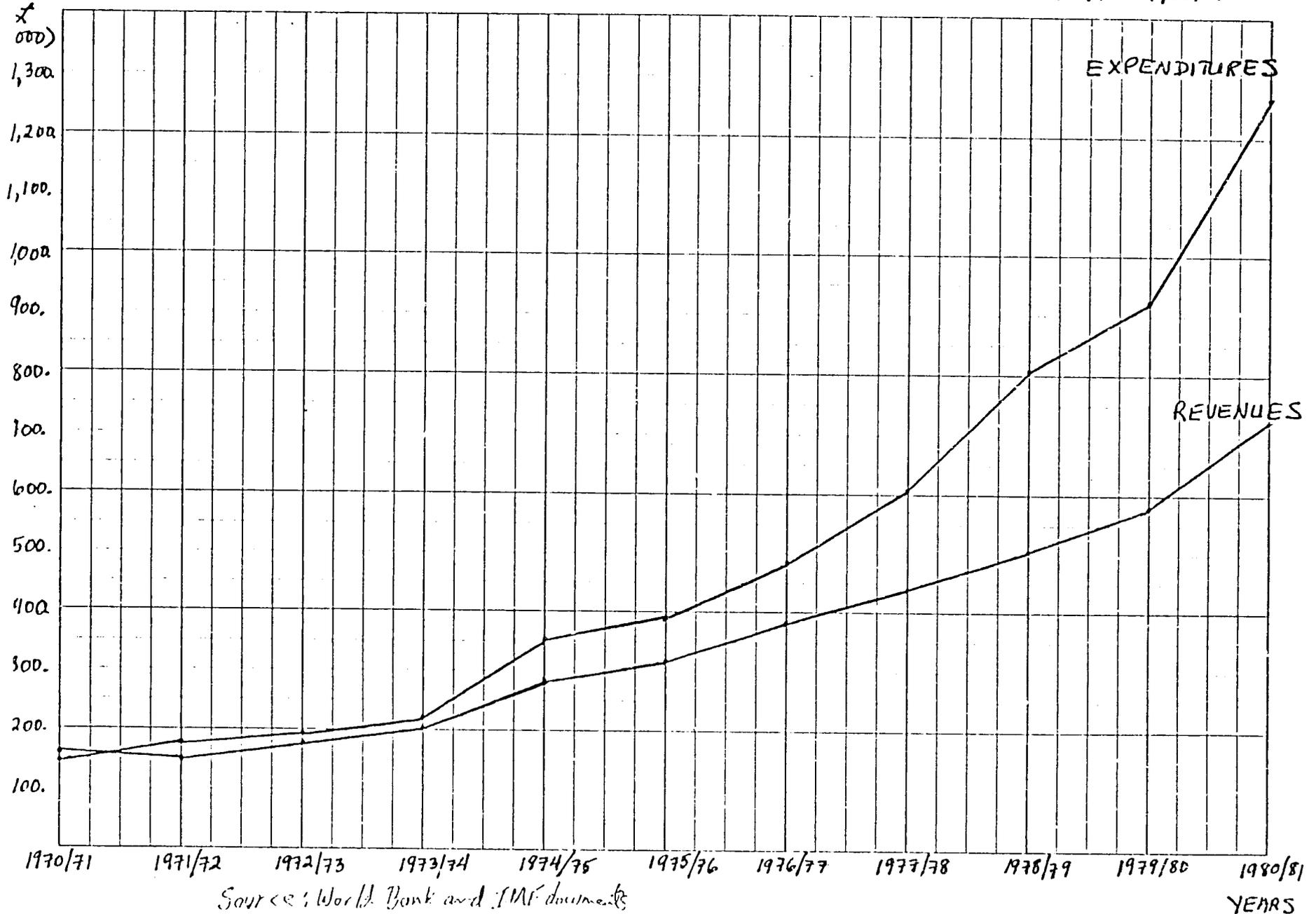


Figure S3

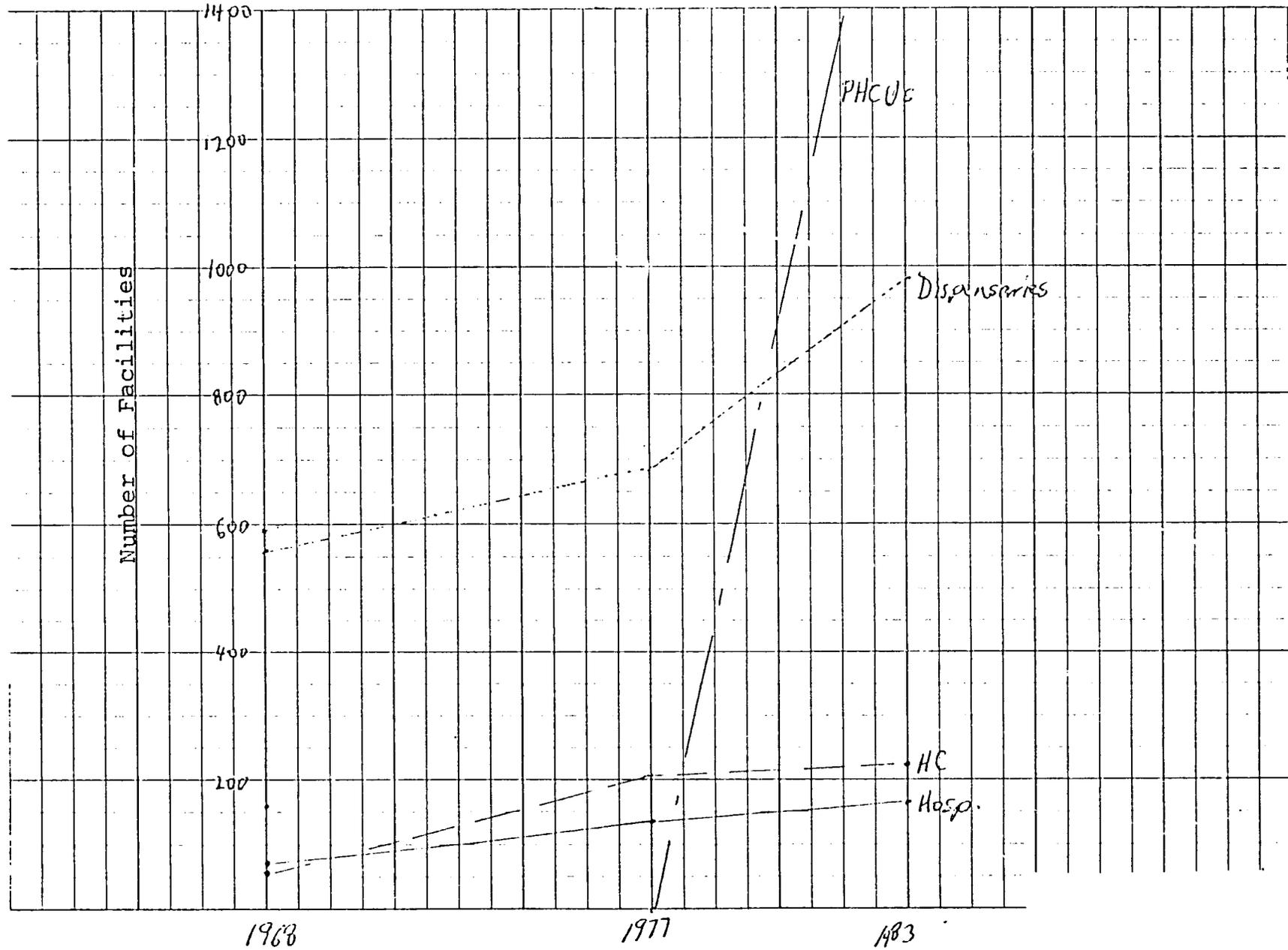
TRENDS IN CENTRAL GOVERNMENT REVENUES AND EXPENDITURES 1970/71 - 1980/81



IV-56

YEARS

Figure S4: HEALTH FACILITIES IN SUDAN 1968-1983



Source: Ministry of Health/Sudan

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13

Figure S5: REAL PER CAPITA DRUG IMPORTS INTO SUDAN 1972-1982

Б (1978=100)

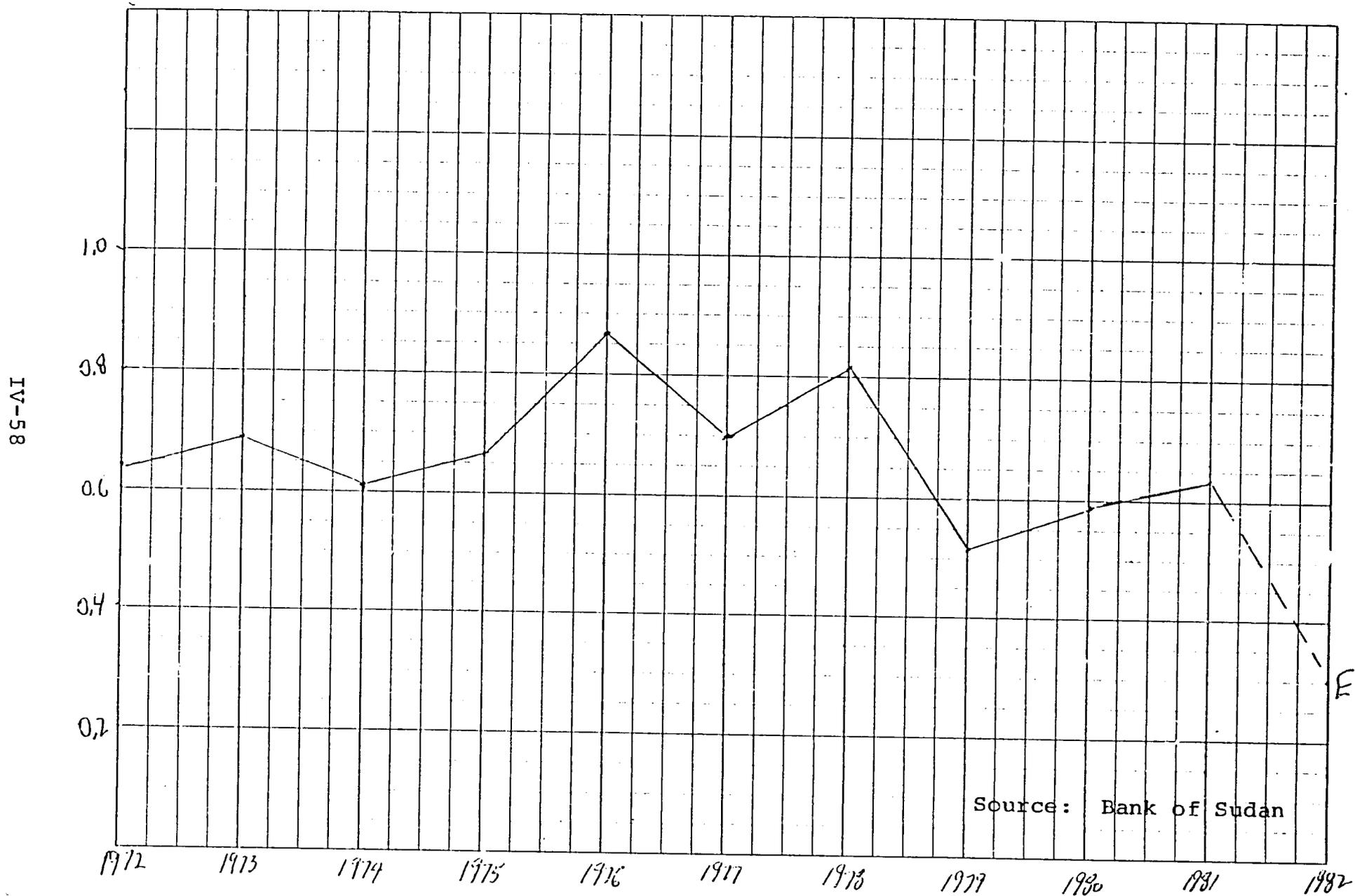
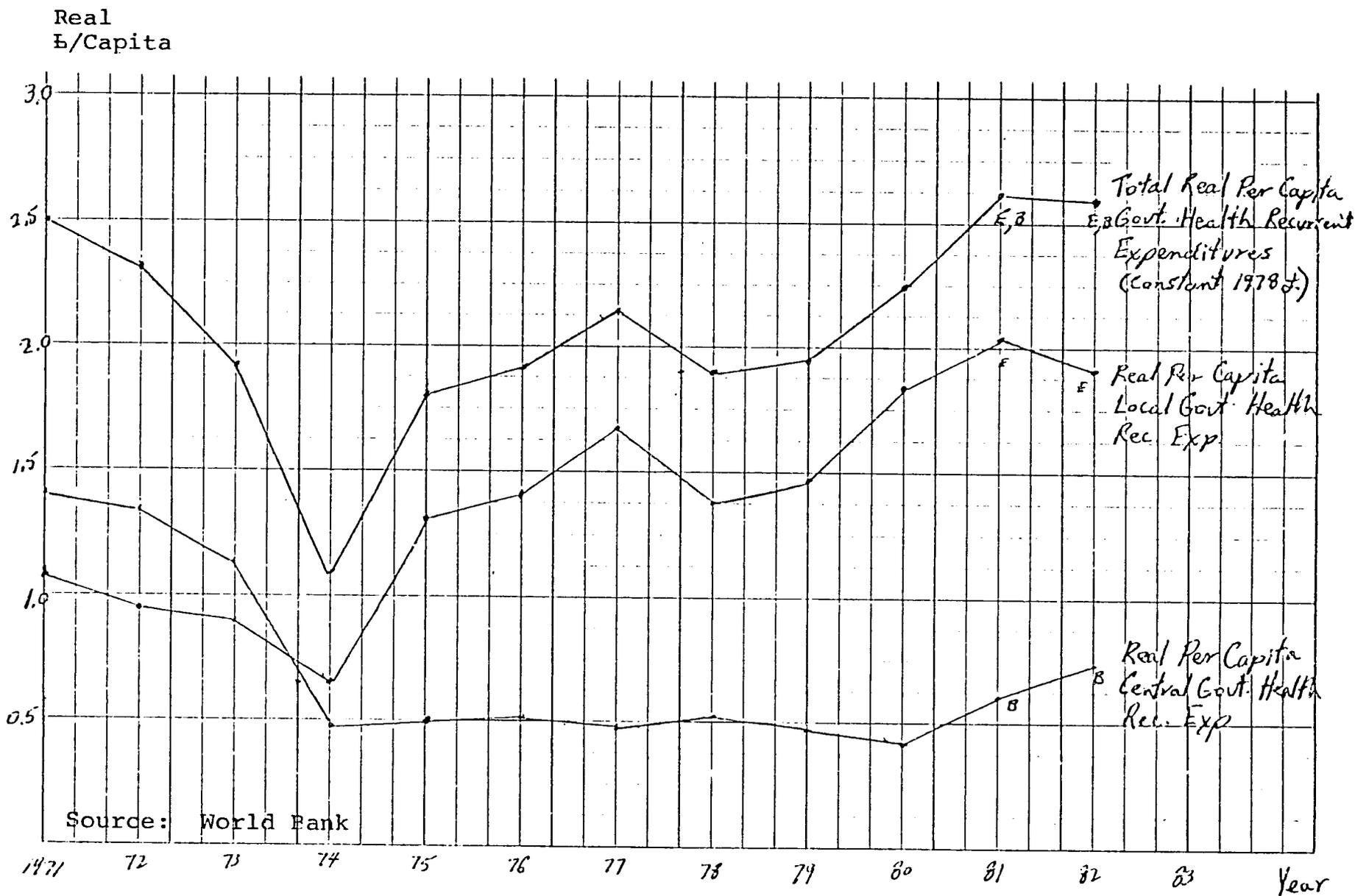


Figure S6: PUBLIC SECTOR RECURRENT HEALTH EXPENDITURES
PER CAPITA (1978 £), 1971-1982

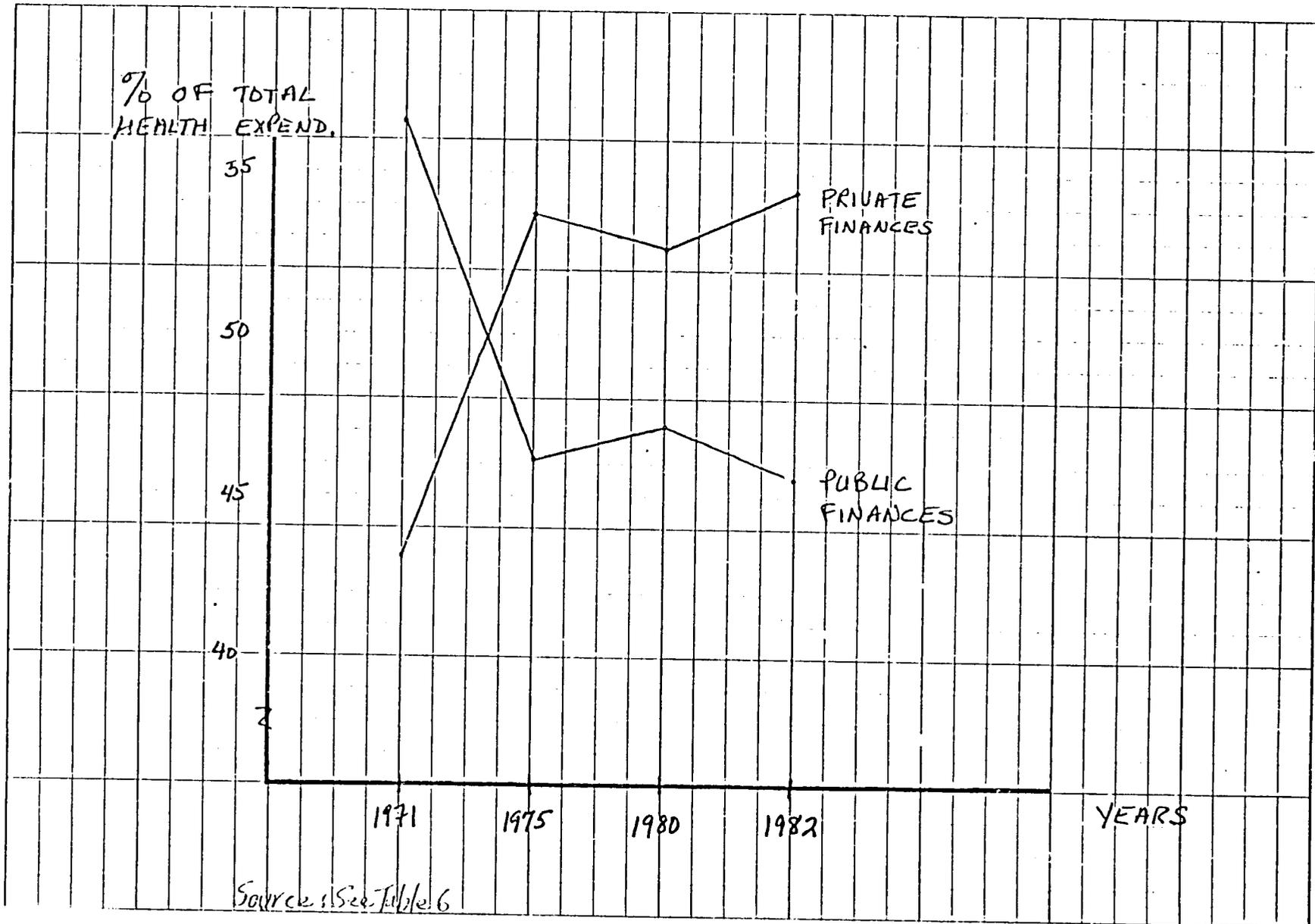


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Figure S7: TRENDS IN ESTIMATED PRIVATE/PUBLIC FINANCING PROPORTIONS 1971-82

09-AI



APPENDIX V

Priorities for Central Medical Stores

MEMORANDUM

To: Mr. I.M. de Jong
Charge d' Affaires
Royal Netherlands Embassy
Khartoum, Sudan

Subject: Priorities for Central Medical Stores

Date: 30 January 1983

Reference our discussions with you and Mr. Von Rinsum, the attached reorganization plan and list of priorities for central medical stores is forwarded for your review and information. The assistance and cooperation shown by you and your staff are sincerely appreciated.

Abdel Rahman Elrasheed
Director, Supplies Department
Ministry of Health

CENTRAL MEDICAL SUPPLIES

A. FUNCTIONS (PRESENT & FUTURE)

Today CMS is a supply department for all Medical Units throughout the country. It avails Drugs, Dressings, Lab. Chemicals, sutures X-ray materials and insecticides together with Medical Equipment and Instruments, finance papers, stationeries and non-medical items used in hospitals. It avails these items through purchases locally or from outside the country, according to the different government procedures. It stores the items purchased and issues them according to the requisitions from different units. Therefore, at present CMS is only a storing department.

What is forecasted for the future CMS is to procure needed items on scientific basis, store them according to storage requirements followed internationally, distribute them and trace them to their destinations with the appropriate records. It is also forecasted to produce and manufacture items needed by the medical units specially drugs. CMS is expected to function on a scientific basis with a statistical quantification for realistic budgeting and reasonable distribution according to the need of different regions of the country. It is projected to become a referral information center and logical drugs utilization. It is also planned to be fully modernized, mechanized and computerized.

B. PRESENT OUTLAY

1. PROCUREMENT SECTION

- i Tenders Section (Head Department)
- ii Tenders Staff Office
- iii Tenders Record Staff
- iv Market Purchases
- v Other Government Stores
- vi Follow Up

2. ACCOUNTS SECTION

- i Accounts Machine Section
- ii General Section
- iii Head Dept. Office

3. RECORD SECTION (One Office) →

4. ADMINISTRATION SECTION (Two Offices)

- i Director General Office (Top Floor)
- ii Deputy Director
- iii Assistant Director for Procurement
- iv Assistant Director for Administration
- v Administration Staff

5. INTERNAL AUDITOR (One Office)
6. PERSONNEL SECTION
 - i Head Dept. Office
 - ii Staff Section
 - iii Clerks
7. Stock Control Section
8. Regional Section
9. Indents Section
10. Training Section
 - i Head Dept.
 - ii Institute
11. Drug Controller (Two Offices)
12. Equipment and Non-Medical Controller (One Office)
13. Medical Workshop
 - i Small Spare-Parts Section
 - ii Workshop Controller
 - iii Electricity
 - iv Electronics
 - v Welding
 - vi Mechanics
 - vii Anesthesia
14. DRUG SECTION
 - i Cold Chain
 - ii Poison Section (3 ware houses)
 - iii General Drugs Section (2)
 - iv Powder Section (1)
 - v Dressings Section (3)
 - vi Solutions (1)
 - vii International Organizations
15. EQUIPMENT
 - i General
 - ii Specialities
 - iii Spare Parts

16. NON-MEDICALS

- i Non - Medicals A
- ii " " B
- iii Stationeries

17. Reception

18. Generators

19. Buffet

The above mentioned is the present status of the CMS.

ATTENTION IS DRAWN TO:

1. Insufficient storage capacity.
2. Old, rusty and un-repairable warehouses.
3. Scattered storing and warehouse usage.
4. Scattered insufficient administration offices.
5. Total manual handling.
6. No pavements with the courtyard /area dusty.
7. Insufficient toilets.

WHAT IS NEEDED IMMEDIATELY IS TO REORGANIZE

Reorganize the CMS to accomodate for the functions stated on Page (1). Please refer to attachment (AI).

PRIORITIES:

1. Coordination is essential during the lay-out of the organizational plan of the CMS (AI) between the different sections so that the flow of documents and indents must be streamlined and uni-directional. (Attachments A2, A3 and A4, A5).
2. Space is immediately needed as a relief area during the the first steps of the execution of the plan.
3. A 30 x 60 meter warehouse is immediately needed as a receiving area for all incoming goods. (A2).
4. A 30 x 60 meter warehouse is immediately needed as a dispatch area to distribute goods to different units (A3).
5. A suitable area to accomodate the records section. The Stock Control Section, authorizing officers and indent handling is also a priority and these sections must be placed within one big building.

ATTACHMENT AI

ORGANIZATIONAL LAY-OUT FOR THE DIFFERENT FUNCTIONS OF THE CMS

1. Procurement Section
2. Accounts Section
3. Record Section
4. Administration Section
5. Internal Auditor
6. Personnel Section
7. Stock Control Section
8. Regional Section
9. Indents Section
10. Training
11. Drug Section
12. Equipment Section
13. Non-Medical Section
14. Repair and Medical Workshop
15. Foreign Aid Section
16. Receiving Section
17. Dispatch Section
18. Production
19. Quality Control
20. Information and Statistics
21. Microfilming Section
22. Computer Section
23. Clinic
24. Buffet and Cafeteria
25. Conference Room and Library
26. Permanent Exhibition Room

Telex service, inter-communication, mechanization for handling.

e.g. Forklifts, trucks, trolleys, electric belts, conveyors, baloonies, etc., Alletization, Central Cooling.

ATTACHMENT A2

PURCHASING AND RECEIPTS

STOCK - CONTROL

PROCUREMENT

FOLLOW-UP

RECEIPTS

Control and Quarentine
Costing and Pricing
Warehouses

The above sections must be layed out in the order shown and adjacent so as to facilitate complete coordination and streamlining.

ATTACHMENT A3

ISSUING AND SHIPPING

RECORD SECTION

DRUG KARDEX

STOCK CONTROL

EQUIPMENT KARDEX

NON-MEDICALS KARDEX

AUTHORIZING OFFICERS

PRE-POSTING

POST-POSTING

ACCOUNTS

WAREHOUSES

DISPATCH SECTION

PERSONAL
COLLECTION

SHIPPING

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ATTACHMENT A4

WAREHOUSES

A. DRUG SECTION

1. Cold Section
2. Narcotic Section
3. Poison Section
4. General Drug Section
5. Solutions and Fluids
6. Powders and Chemicals
7. Ointments, Creams and Topicals
8. Dressings
9. X-ray, Dentals and Surgicals

B. EQUIPMENT SECTION

1. General Equipment Section
2. Specialties
3. Spare parts

C. PACKING MATERIALS

1. Lab. Bottles
2. Reagent and Pharmaceutical Bottles
3. General Containers
4. Envelopes, Labels, etc.

D. NON-MEDICALS

1. Furniture
2. Utensils
3. Stationary

N.B. More elaboration is needed here to store items in groups according to some classification systems. Standard indexing must be followed which will fit in the computerization plan.

LIST OF PRIORITIES

1. Central Medical Stores:

- a. Construction of a warehouse (30 x 60 meters) to be used as a receiving area for all incoming goods. It would provide a central location for the receipt of goods to be inspected and checked prior to movement to their permanent storage location.
- b. Construction of a warehouse (30 x 60 meters) to be used as a dispatch area to distribute goods to other medical facilities. It would provide a focal area for goods to be assembled into consolidated shipments to various locations pending availability of rail and/or lorry transportation.
- c. Construction of a temperature controlled warehouse for the storage of x-ray film, rubber goods and other items in order to prolong their serviceability and prevent deterioration due to storage in the extreme heat.
- d. Construction of ramps to facilitate the loading and unloading of commodities received and shipped from Central Medical Stores.
- e. Paving of roads within the Central Medical Stores complex to facilitate the use of material handling equipment between the warehouse and reduce the dust and dirt now generated by vehicular traffic.
- f. Procurement of material handling equipment, shelving and pallets for storage of commodities in loose issue and bulk storage areas.
- g. Renovation of existing warehouses to include adequate lighting and cooling if considered more economical than complete replacement.

2. Port Sudan:

- a. Procurement of 2 vehicles, 5-8 ton flat-bed, to be used by Ministry of Health Port Sudan Personnel to transport supplies from the port complex to their warehouse pending further transport to Central Medical Stores or to regional storage locations. This procedure would hasten the receipt and delivery of supplies and also eliminate or reduce the sea port storage fees now being paid by the Ministry of Health.

3. Technical Assistance:

- a. In order to closely monitor the progress of the project

and to strengthen the infrastructure of the Central Medical Stores operation, request for long-term technical assistance is considered to be most important. The technical advisors would be fully utilized and work closely with their Sudanese counterparts in their respective areas of expertise.

- b. Technical assistance would be highly desirable in the following areas:
1. Stock Control - Responsibilities would include, but not be limited to, establish and/or improve the stock control system within Central Medical Stores as to stock control levels, reorder points, procurement and follow-up actions. Establish back-order or due-out system, record consumption experience on items issued. Supervise and train fellow workers and subordinates.
 2. Warehouse (storage) Management - Responsibilities would include, but not be limited to, strengthen the procedures now used in the receipt, storage, issue and dispatch of all items processed by Central Medical Stores. Supervise and insure physical inventories of are completed, maintenance of applicable records relative to receipts and issues, rotation of stock, storage of sensitive items (narcotics, flammables, gasses, vaccines, etc.) safety and security procedure
 3. Financial Accounting - Responsibilities would include but not be limited to, improve/strengthen the present financial accounting system, in order to provide the Director, Central Medical Stores, with the financial status of his operation as to the monetary value of receipts, issues and stock on hand. Maintain financial control on budgets submitted by regional governments maintenance of all financial documents relative to the receipt and issue of supplies.

4. Formal Training:

Formal training of "key" personnel selected by the Director, Central Medical Stores, is also considered essential in order to broaden the educational experience of the personnel selected and equip them to develop and improve existing supply procedures and plan new supply systems. The following formal training courses as suggested.

- a. Crown Agents "Supply and Materials Management" course 12 weeks in length, held at Worthing, Sussex, England. Suggest personnel from Central Medical Stores to be selected to attend. Upon course completion, these 4 individuals, together with

Misters Mohammed Mutalib, Minshawi and Salah would give the Director a staff of trained people to take over responsibility for the major departments in his organization.

b. Crown Agents "Training - Its Design and Management" course - 9 weeks in length, held at Retford in Nottinghamshire, England. Suggest 2 personnel from Central Medical Stores be selected to attend. Upon course completion, they can establish a training program within Central Medical Stores to train less senior people in the basics of supply management, storage, safety and security.

c. Welsh Regional Management Center "Management of Hospital Supplies" course - 12 weeks in length, held in South Wales, U.K. Suggest 6 personnel from Central Medical Stores be selected to attend. Upon course completion, they would be capable of being placed in charge of the supply departments in the six regions under the Director, CMS overall supervision. This course offers a broad concept of supply management but also focuses on the management of supplies from depot level to the end-user in the medical facility. A trained man in each region once the regionalization of stores is put into operation, is considered essential to the success of the decentralization of the supply operation.

d. The Eastern and Southern Africa Management Institute (ESAMI) offers two formal supply training courses held in Arusha, Tanzania. One is "Supplies and Materials Management" course, 6 weeks in length and the other is "Inventory Control and Stores Management" course, 4 weeks in length. Suggest chief storekeepers, middle managers and supervisors from Central Medical Stores be selected to attend. They would receive formal training in supply management and be better equipped to manage their respective stores and areas and also train their subordinates in the basics of proper supply procedures, such as storage, record - keeping, safety, security and inventory.

e. Computer training could be offered by Wang Laboratories as part of their overall project to computerize Central Medical Stores. Wang Laboratories probably has a list of sites where one of their computers is already in operation in a supply activity and personnel from Central Medical Stores could be sent to one of the sites for training.

f. Computer training is also available from Perry Point, Maryland at the U.S. Public Health Service Center. They are willing to accept personnel for training for either long or short term training in computerized supply procedures.

g. The Brethren Service Center in New Windsor, Maryland offers a flexible training course in receiving, shipping and inventory systems as it is a major warehousing distribution station for the National Council of Churches.

h. The Afro-American Purchasing Center located in New York City offers classroom instruction and practical training in contract administration, transportation and packaging, purchasing procedures and practices. The on-the-job training offers the participant training in handling the purchase of items through the entire procurement cycle. Duration of the training is flexible.

APPENDIX VI

Summary of and Outline for the Program Implimentation Plan
for Training Activities, "The Primary Health Care Program"

Summary of Document Entitled "An Outline for the Program Implementation Plan For Training Activities, The Primary Health Care Program, Kordofan, 1st April 1983 - 30th June, 1984", Directorate of Health and Welfare, Ministry of Public Services, Kordofan Region.

1. The establishment of a new Department of Training, Planning and Health Information (TPHI) has been proposed by the Directorate of Health and will cover training activities, health manpower development, planning, and health information system. Communication and coordination with the central MOH will be promoted through the new TPHI. Assistance with training and material equipment and supplies will be sought through USAID, UNICEF, WHO, and CARE.
2. A new emphasis will be placed on task oriented job descriptions. Greater emphasis will be placed on preventive and health promotion activities as well. Teaching guides and manuals presently in use will be reviewed to reflect these new emphases.
3. The tutors of the various training programs for PHC workers will receive continuing training in teaching methods, development and use of simple AV aids, and education by objectives. These activities will be coordinated with the Central MOH and the Education Development Centre for Health Professions of the University of Khartoum.
4. When the new TPHI department is established, the coordination of extramural support will be the responsibility of the new chief. The extramural programs whose support will be sought include:
 - Directorate of Agricultural Extension
 - Directorate of Veterinary Medicine
 - Department of Rural Cooperatives
 - Department of Social Work
 - Municipality Sanitation Department
 - Nutrition and Gardening Department

The direct responsibility for carrying out these negotiations will lie with the senior CHW and PHC tutors.

5. Training of CHWs. In North Kordofan, 360 CHWs have been trained, of whom only 14 were female. Similar numbers were trained in South Kordofan. The fifth course is scheduled to commence in April/May 1983, with 65 students at Khor Taggat (North K) and 45 students at Kadugli (South K). An attempt will be made to admit more females. This will require flexibility in admission requirements. Thirty trainees will be enrolled at El Foulah (S.Kordofan).

Equipment for training on environmental sanitation, agricultural extension, premises repair and maintenance will be sought from donor agencies.

Additional construction requirements exist for both CHW schools as well as the NCHW school in El Foulah.

6. Training of Village Midwives (VMWs). The three VMW schools located in El Obeid, Kadugli, and El Nehoud admit 40, 50, and 20 students annual for one year courses. Training starts in July/August and is performed by senior nurse midwives. A fourth school is under construction in Om Rwaba to admit 30 new trainees. Assistance being sought for revision of the curriculum to include child spacing, infant and child health and health education.

7. Training of Nurse Midwives (NMW) Sixteen students will be admitted to the one NMW school in El Obeid in July/August. Graduates, after three years practice, can be admitted to the Health Visitors school. Special stress will be placed on child spacing, infant and child care, and health education. Reassessment of need to train more NMWs will be made on annual basis by the Directorate of Health and the MCH/CS Unit.
8. Training of Traditional Birth Attendants (TBAs) A school was established in El Kaweek village near Kadugli to offer a three months basic midwifery course. The class consists of 45 women, trained through repetition and demonstration. Continuation of the program should depend upon an evaluation of the effectiveness of the training. This will be carried out by the Directorate of Health, the Central MOH, and UNICEF.
9. Training of Medical Assistants (MA) A two year course is offered in El Obeid, training 40 MAs annually. All are nurses, and most are males with at least two years of experience. The lack of emphasis on prevention and health promotion is recognized. The curriculum is to be reviewed. The school premises need rehabilitation. Equipment, furniture, and teaching materials are needed and assistance of CARE, UNICEF, AND USAID will be sought.
10. Training of Nurses. The school of nursing in El Obeid offers three year courses and graduates 30 trainees every year. A greater emphasis is to be placed on practical application in prevention of disease and promotion of health. The facility requires rehabilitation. Assistance in obtaining equipment, furnishings, and supplies will be sought through UNICEF, USAID, and CARE.
11. Training Outside the Region. The major objective is promotion of training of PHCP workers such as tutors and middle and senior management staff through continuation of utilization of training resources outside the region. Preparation of this plan for training outside the region will be coordinated with national and international institutes and agencies. This will be the responsibility of Dr Farid, the new Director of the PTHI, and the training agencies.
12. The Director General of Health will organize a meeting of the Regional and 9 Area health leaderships in August, 1983, to review existing policies and propose new ones. Additional policies which will lead to greater self-sufficiency of PHC services through community participation are to be developed by the Ministry of Public Services and the DG of Health during the second and third quarters. Review of all training programs to improve the quality of PHC training will be coordinated with the MOH.
13. A reorganization of the Kordofan health administration at both Regional and Area levels is currently under discussion between the Minister of Public Services, the Minister of Finance and Economic Planning, and the DG of Health. At the regional level, it is proposed to have four major departments:
 - Dept. of Hospital Administration (medical supplies, pharmaceuticals, medical licensing and forensic medicine, laboratories and blood banks)
 - Dept. of Community Health (health care centers, dispensaries, dressing units, PHCU, MCH/CS, school health, epidemiology and endemic disease unit, EPI)

- Dept. of Training, Planning, and Health Information (health manpower development, health planning, statistics, special studies)
- Dept. of Environmental Health (water safety, sewage and garbage, mosquito and pest control and rodent control).

If approved, the reorganization will be implemented at the beginning of the next fiscal year (2nd Quarter)

14. At the Area level, a reorganization is also proposed, with the appointment of a Director of Area Health Services who is a community health specialist. He will be assisted by a medical supervisor (a general practitioner), senior dispensary inspector, senior public health officer, and senior nursing and midwifery inspector.
14. Maternal and Child Health and Child Spacing (MCH/CS) The major objective is to strengthen the MCH/CS components of the CHWs and MAs curricula. This will be accomplished in coordination with the central MOH by the senior tutors of those programs. The nurse midwife tutors will be reoriented to these emphases. The MCH/CS Unit will provide support to this activity.
15. Chapters on Expanded Program of Immunization, school health, health education and epidemiology and endemic diseases review proposed training activities.
16. Health Information System. To promote health information system component in the CHW training and refresher courses for all categories of workers, the senior regional statistician (El Gesouli Ishak) will prepare appropriate materials. Senior tutors will integrate them into the training. This will be monitored by the chief, TPHI.
17. Special Studies. To analyse and help overcome the problems which are impeding the expansion and quality of PHC services, a program to prioritize and plan special studies according to need and feasibility will be developed during the second quarter by Dr Farid. A number of possible studies have been suggested, including:
 - alternative cost-effective methods for patient feeding in hospitals
 - strategies to promote preventive aspects in CHW work, such as use of PPP
 - study of excessive use of medicines, and experimenting with cost reduction strategies such as use of generic medicines and herbal medicines
 - study of alternative ways of improving supervision in PHC
 - study of disease patterns and disease control among special groups, e.g. the nomads

The individuals responsible for analysis and implementation of findings are Drs Farid, Taha, and Abbas.

18. Logistics and Commodities. A need to train local personnel in planning, managing and supervising the supply, storage, distribution of all supplies and commodities is recognized. Specifically, the training of 3 storekeepers for El Obeid warehouse, 9 storekeepers for the Area warehouses. Responsibility assigned to Dr Taha, Dr Farid, and The Central MOH, CMS)
19. Construction needs have been identified and include the following:

APPENDIX VII

South Kordofan Village Survey, 1981 Proforma.

SOUTH KORDOFAN VILLAGE SURVEY, 1981

TEAM: LIST NO

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Arabic:
English:

DISTRICT COUNCIL	RURAL COUNCIL	VILLAGE COUNCIL	VILLAGE

1. MAP REFERENCE

a. LATITUDE _____
b. LONGITUDE _____

CODES			
DEGREES		MINUTES	

2. HOME LANGUAGE

WHAT LANGUAGE IS MOST COMMONLY USED IN THE HOME?

.....

--	--

3. POPULATION MOVEMENTS

a. DO ANY VILLAGERS REGULARLY MOVE AWAY FROM AND BACK TO THIS VILLAGE?

YES, ALL OF THEM	YES, MANY (OVER 1/2)	YES, SOME (1/2 OR LESS)	NO, NONE OR VERY FEW
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--

b. IF 'YES' i. DESCRIBE THE REASONS FOR THESE MOVEMENTS

.....

--	--

ii FOR WHAT PERIODS ARE THEY NORMALLY AWAY EACH YEAR?

FROM TO

FROM TO

4. POPULATION NUMBERS

a. NUMBER OF RESIDENTS NOW LIVING IN THIS VILLAGE _____

b. NUMBER OF RESIDENTS TEMPORARILY ABSENT _____

c. TOTAL = NUMBER OF RESIDENTS _____

5. WATER SUPPLY

a. DURING WET SEASON

i. FOR DRINKING; TYPE OF SOURCE: HOW FAR? (KM) _____

ii OTHER H/H USE; TYPE OF SOURCE: HOW FAR? (KM) _____

b. DURING DRY SEASON

i. FOR DRINKING; TYPE OF SOURCE: HOW FAR? (KM) _____

ii. OTHER H/H USE; TYPE OF SOURCE: HOW FAR? (KM) _____

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6 HEALTH UNITS (HU)

a. TYPE OF HU IN THIS VILLAGE

NONE If 'NONE' go to b.c

PRIMARY HEALTH CARE <input type="checkbox"/>	DRESSING STATION <input type="checkbox"/>
DISPENSARY WITH BEDS <input type="checkbox"/>	WITHOUT BEDS <input type="checkbox"/>
HEALTH CENTRE WITH BEDS <input type="checkbox"/>	WITHOUT BEDS <input type="checkbox"/>

OTHER (GIVE DETAILS):

b. IF THERE IS A HU IN THIS VILLAGE, BUT IT HAS NO BEDS.

i. WHERE IS THE NEAREST HU WITH BED?

ii. HOW FAR IS THAT? (KM) _____ →

--	--

c. IF THERE IS NOT A HU IN THIS VILLAGE

i. WHERE IS THE NEAREST HU?

ii. HOW FAR IS THAT? (KM) _____ →

--	--

iii. DOES THAT HU HAVE BEDS

YES	<input type="checkbox"/>
-----	--------------------------

NO	<input type="checkbox"/>
----	--------------------------

iv. IF 'NO' WHERE IS THE NEAREST HU WITH BEDS?

v. HOW FAR IS THAT? (KM) _____ →

--	--

7. HEALTH STAFF

IS THERE A:	LIVING IN THIS VILLAGE? YES/NO	IF 'YES' HERE TODAY? YES/NO	IF NOT LIVING IN THIS VILLAGE WHERE IS THE NEAREST?	HOW FAR IS THAT? KM		
a. i. SANITARY OVERSEER				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
ii. ASSISTANT SANITARY OVERSEER				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
b. i. MEDICAL ASSISTANT				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
ii. NURSE/DRESSER				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
iii. PRIMARY HEALTH CARE WORKER				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
c. MOSQUITO CONTROL MAN				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
d. TRAINED VILLAGE MIDWIFE				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
e. TRAD BIRTH ATTENDANT				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		
f. TRAD MEDICINE MAN (KUGOR/PAXIR)				→ <table border="1" style="display: inline-table;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;"></td></tr></table>		

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8. PRIMARY SCHOOLS

a. IS THERE A PRIMARY SCHOOL IN THIS VILLAGE?

YES	
-----	--

NO	
----	--

if 'NO' go to 8c

b. IF 'YES' i. GIVE THE NUMBER OF SCHOOLS OF EACH TYPE

COED	→	
BOYS	→	
GIRLS	→	

ii. THE NUMBER OF PUPILS ENROLLED IN THE SCHOOLS)

IN THIS VILLAGE

(INCLUDING PUPILS FROM OTHER VILLAGES)

BOYS	→			
GIRLS	→			
TOTAL	→			

iii. THE NUMBER OF CLASSES

iv. THE NUMBER OF TEACHERS APPOINTED

MALE	→		
FEMALE	→		
TOTAL	→		

v. DOES THE SCHOOL HAVE PIT LATRINES?

(OR A LEAST ONE SCHOOL IF THERE IS MORE THAN ONE IN THIS VILLAGE)

YES	
-----	--

NO	
----	--

c. IF NO PRIMARY SCHOOL FOR BOYS IN THIS VILLAGE:

i. WHERE IS THE NEAREST?

ii. HOW FAR IS THAT? (KM)

--	--

d. IF NO PRIMARY SCHOOL FOR GIRLS IN THIS VILLAGE:

i. WHERE IS THE NEAREST?

ii. HOW FAR IS THAT? (KM)

--	--

9. FORM COMPLETION

a. NAME OF ENUMERATOR

b. SIGNATURE

c. DATE FORM COMPLETED

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