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IMPLEMENTATION OF

A CHILD SURVIVAL STRATEGY

IN THE SUDAN

USAID/SUDAN
Implementation Plan
May 1988

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April 27 - May 17, 1988

Barton R. Burkhalter, Consultant (PRITECH)
Larry Forgy, Consultant (REACH)
Mary Ann Micka, A.I.D.:AFR/TR/HPN

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LIST OF ACRONYMS

ACSI-CCCD	-	Africa Child Survival Initiative - Combatting Childhood Communicable Diseases
ADRA	-	Adventist Development Relief Agency
CARE	-	Cooperative Agency for Relief Everywhere
CBFHP	-	Community Based Family Health Project
CDC	-	Centers for Disease Control
CDD	-	Control of Diarheal Disease Program, Ministry of Health, Sudan
CHW	-	Community Health Worker
CMS	-	Central Medical Stores
CS	-	Child Survival
CSWA	-	Child Survival Working Group
DG	-	Director General
DMD	-	Dietary Management of Diarrhea
EPI	-	Expanded Program of Immunization
FEWS	-	Famine Early Warning Systems
FY	-	Fiscal Year
GOS	-	Government of the Sudan
HCF	-	Health Care Financing
HIID	-	Harvard Institute o International Development
HKI	-	Helen Keller Foundation
IARA	-	Islamic African Relief Agency
IEC	-	Information, Education and Communication
IM	-	Infant Mortality
KAP	-	Knowledge, Attitude and Practice
LC	-	Local Currency

LS	-	Sudanese Pounds
MCH	-	Maternal and Child Health
MOH	-	Minstry of Health
NESMP	-	Nutrition Education and Social Marketing Project
NGO	-	Nongovernmental Organization
NPC	-	National Population Commission
ORS	-	Oral Rehydration Salts
ORT	-	Oral Rehydration Therapy
OYB	-	Operating Year Budget
PASA	-	Participating Agency Service Agreement
PHC	-	Primary Health Care
PL	-	Public Law
PPPSP	-	Population Policy Program Support Project
PRICOR	-	Primary Health Care Operations Research
PRITECH	-	Technology for Primary Health Care
PVO	-	Private Voluntary Organization
REACH	-	Resources for Child Health
RHSP	-	Rural Health Support Project
SCF	-	Save the Children Federation
SERISS	-	Sudan Emergency Relief Information Surveillance System
SGND	-	School Gardening and Nutrition Division
SSS	-	Salt/Sugar Solution
TA	-	Technical Assistance
TACS	-	Technical Advisor in Child Survival
TT	-	Tetanus Toxoid
UNICEF	-	United Nations
USAID	-	United States Agency for International Development (field Mission)
USDA	-	United States Department of Agriculture
WHO	-	World Health Organization

I. EXECUTIVE SUMMARY

USAID's Child Survival (CS) Strategy emphasizes sustainability, integration and management in relation to immunization, oral rehydration therapy and child spacing. Nutrition activities, outside of on-going nongovernmental programs, will be integrated with these three interventions of immunizations, oral rehydration therapy and child spacing, rather than stand alone as a separate intervention. Health care financing studies are needed to provide data for planning to improve the efficiency and equity of resource use in a badly fragmented system.

This Implementation Plan is intended to focus on selected activities which are built around the objectives of the CS Strategy and must be read in conjunction with the strategy. In an effort to address sustainability, the CS Implementation Plan stresses coordination, management, planning, budgeting and evaluation tasks designed to build upon initiatives that are beginning in the Ministry of Health's (MOH) Expanded Program of Immunization (EPI) and Control of Diarrheal Diseases Program (CDD). These tasks will be supported through on-going activities in the Rural Health Support Project (RHSP) and SERISS (Sudan Emergency Relief Information Surveillance System), local currency (LC) support to child survival activities, a grant agreement with UNICEF and technical assistance provided by a Technical Advisor in Child Survival (TACS) and three centrally funded CS contractors.

The areas of concentration for fiscal year (FY) 1988 activities are intended to address issues of sustainability through the following:

(a) Coordination and integration of CS activities in the Sudan with particular focus on EPI, CDD and, as appropriate, MCH nutrition and water and sanitation at regional and district levels in relation to planning, supervision and a management information system,

(b) Improved technical and managerial planning and supervision of the CDD Program with strengthening of the nutrition component and

(c) Development of monitoring and costing studies to improve EPI program accountability.

The CDD program which has concentrated on case management to date, will develop a new three year plan of operations including an increasing emphasis on dietary management of diarrhea, weaning foods and community education through a planned information, education and communication (IEC) program. The 1988/89 target is to increase access to oral rehydration salts (ORS) from 20 percent to 30 percent. Studies on local production of ORS and cost-sharing for the distribution of locally produced liter containers will be completed.

The EPI plans to increase full immunization coverage for children under one year of age from 30 percent to 55 percent and to evaluate the use of solar refrigerators, the factors contributing to a high drop out rate from initial to full vaccination and a high vaccine wastage rate. Planning and accountability will be strengthened by a study to determine the operation costs of the program and by the addition of locally procured technical assistance in accounting to act on audit recommendations.

In view of the numerous and diverse activities included in the program, the following table represents a summary of the FY 1988 activities:

FY 1988	Implementing Agency	Funding
- Coordination of donors and MOH program (including TACS)	MOH/USAID/(CDC)	$500,000
- Integrated planning Region District	 EPI, CDD, Nutrition MOH-Kordofan	 SERISS RHSP
- Integrated supervision	CDD	LC
- Integrated data system	UNICEF/MOH	$113,000
- CDD planning and IEC	CDD/PRITECH UNICEF	$175,000 $120,000
- Dietary Management of Diarrhea and Weaning Foods	CDD/Nutr. Ed. & So. Mkting	$150,000
- Increase ORS access from 20% to 30%	CDD/UNICEF	$456,000
- Increase immunization coverage from 30% to 55% for under 1's	EPI/UNICEF	$2,111,000
- Determine the cost to fully immunize a child	EPI/UNICEF/REACH	$175,000
- Improve accountability of EPI	MOH/UNICEF	$200,000
Subtotal for "buy-ins"		$1,000,000
Subtotal for USAID/UNICEF Grant		$3,000,000
Grand Total		$4,000,000

The Mission expects to design a bilateral population project for obligation in FY 1989. It will emphasize policy support, private sector, (including factory based) child spacing activities, social marketing of contraceptives and ORS and the addition of EPI and CDD activities after child spacing services are well established.

During FY 1989 additional buy-ins are planned to supplement mission management (CS Fellow to monitor research activities) and on-going activities in health care financing (HCF) studies on the costs of outpatient facilities. Support to the EPI and CDD programs through UNICEF will continue if 1988 programs with UNICEF are satisfactory.

The Mission may design a follow-on CS project for FY 1990 obligation. The areas for emphasis are management, HCF and a district level approach to the CS interventions of EPI, CDD and maternal and child health. Support for the EPI and CDD programs could be continued through a grant to UNICEF, as appropriate, under the project.

II. BACKGROUND

The Government of the Sudan (GOS) has been committed to a national primary health care program (PHC) since the mid 1970's. However, community health workers (CHW) became paid civil servants, rather than volunteers as the Alma Alta Declaration of 1978 advocated. With the ever increasing work force created by the popular demand for CHW's and as economic conditions have worsened in the face of continuing civil strife, regular payment of personnel has become more problematic resulting in curtailment of services and fragmentation of the health care system.

Despite the long commitment to PHC, few health workers beyond the most senior officials can cite the eight elements of PHC. When examples of integration of PHC services are described, the most frequently mentioned elements are immunizations, control of diarrheal disease, maternal and child health (MCH) and water and sanitation. These are the foundation of child survival (CS) programs. It is probable that narrowing the focus of PHC to the core of CS interventions could provide the basis of a more sustainable PHC program. Thus, it is timely for USAID to assist the GOS, specifically the Ministry of Health (MOH), in developing a CS Strategy and Implementation Plan in coordination with other donors.

To encourage the MOH efforts to increase the emphasis on preventive health care, USAID during 1987, entered into a grant agreement with UNICEF/Sudan to augment Mission support for child survival programs in the Sudan. In the meantime, the Mission developed a broad based, multi-year Child Survival Strategy that was recently approved by A.I.D./Washington.

This implementation document prioritizes the many interventions suggested in the Strategy and builds upon on-going activities emphasizing management needs and feasibility of activities. The document attempts to weave together the many on-going CS activities in USAID's health, population and nutrition portfolio. Under the unifying theme of child survival, this road map shows the major implementing avenues and navigable routes to achieve the identified targets under the MOH primary health care program.

III. IMPLEMENTATION PLAN

A. INTRODUCTION

Resembling a double helix supporting the Ministry's PHC program, USAID's Child Survival Strategy, revolves around two major forces - UNICEF and the Rural Health Support Project (RHSP). These activities provide mutual support and the action force field that holds together MOH/National and regional CS activities .

The major impetus of the UNICEF program is increased coverage for immunizations and oral rehydration salts (ORS). The major RHSP output is improved management and integrated service delivery. Both projects provide coordination of health information system development, as well as analysis and detailed planning. The two create the double nucleus around which other donor and USAID support to

the health sector revolve. A.I.D.-funded projects implemented by private voluntary organizations (PVO) such as the Adventist Development Relief Agency (ADRA), CARE (Cooperative Agency for Relief Everywhere) and Save the Children Federation (SCF), the Vitamin A projects and SERISS (Sudan Emergency Relief Information Surveillance System) complement these programs.

The Dutch play a major role in providing technical assistance (TA) to the Central Medical Stores (CMS). European PVO programs play an important supporting/participatory role through standardizing health reports, assisting in coordination of logistics, developing community pharmacies and testing local health financing schemes. All concerned donors support implementation of both the Control of Diarrheal Disease Program (CDD) and the Expanded Program of Immunization (EPI) in localized geographic areas and participate in regional and national health planning and implementation committees. In these on-going programs, the mutual trust and confidence built over the past six to eight months through shared resources and technical assistance provided through A.I.D.-funded programs has begun to pay dividends through more effective planning, policy dialogue and general idea sharing. The A.I.D. child survival programming will provide the necessary staff, funds and resources to assure continued collaboration, expanded service delivery and program sustainability.

A. OVERVIEW OF USAID'S FY 1988 ACTIVITIES

Based on the information put forth in the Mission's Child Survival Strategy and in this implementation plan (Implementation of A Child Survival in the Sudan), the fiscal year (FY) 1988 CS project is described below. The areas of concentration for the project are intended to address issues of sustainability through the following:

1. Coordination and integration of CS activities in the Sudan, with particular focus on CDD, EPI and, as appropriate, MCH, nutrition and water and sanitation at regional and district levels in relation to planning, supervision and a management information system (MIS),

2. Improved technical and managerial planning and supervision of the CDD program strengthening the nutrition component and

3. Development of monitoring and costing studies to improve EPI program accountability.

The A.I.D. inputs for this project are basically directed to (1) overcoming the verticalization within the MOH PHC Program (which has been a deterrent to more rapid progress in providing a full range of integrated CS interventions), (2) supplementing on-going CS activities which are unfunded or underfunded in order to achieve coverage targets, (3) providing TA and studies for areas of the MOH CS program which require fine tuning to achieve performance targets in future implementation and (4) evaluating issues related to private sector production of ORS materials. The discrete funding activities to be undertaken are fully described in the budget section.

The inputs intended to increase coordination among MOH divisions (e.g. reduce verticalization) are (1) funding of a Technical Advisor in Child Survival (TACS) who will act as the Mission's representative on the MOH CS Working Group and who will supplement the Mission technical staff in monitoring all CS related activities, especially A.I.D.-funded whether bilaterally, centrally or regionally funded, (2) funding of improvements in the communications and MIS activities will enhance communications between the field and central headquarters and among divisions of the MOH (CDD, EPI, etc.) which will allow access to current information not previously shared among MOH divisions.

Toward the objective of assisting the MOH in obtaining projected levels of coverage for CS activities, the Mission will fund a grant to UNICEF. This grant will provide for inputs which are not yet funded, or are underfunded, by other donors, such as ORS, vaccines, needles and syringes. Although these appear to be rather discrete "commodity drops" they are in fact critical inputs necessary to achieve MOH CS coverage levels. The MOH CS program being implemented with the assistance of UNICEF was developed anticipating other donor assistance for inputs for which neither MOH nor UNICEF has the resources. The least-cost method of achieving these CS targets while concentrating Mission management on sustainability issues is through utilization of the UNICEF procurement system for these critical inputs.

The third major objective of this FY 1988 project is to provide technical assistance in specific areas of CS which if unattended would reduce the effectiveness of the MOH CS program. Specifically the U.S. has a technical advantage and cost effective method of providing TA to (1) evaluate private sector production of ORS materials, (2) evaluate the capability of management and planning at the program and district level, (3) evaluate and develop nutritional education programs, (4) conduct cost studies in the EPI program and (5) stimulate cost-recovery activities.

Given the state of budgeting within the MOH, management and planning for resource use is minimal. Health care financing will focus on a number of areas discussed in Section V. C. The types and extent of self-help financing activities in the Sudan, is an important development with valuable lessons and great potential, as are prospects for privatization.

The MOH will contribute to the project by means of in-kind contributions of MOH staff, facilities and equipment. In addition, the GOS will provide local currency (LC) to support specific studies, evaluations and technical assistance.

Individual activities and how they relate to the overall achievement of the project achievement of the project objectives are fully described in Section V.A-E. It should be noted that other bilateral, regional and central projects will provide additional inputs to the MOH CS program. This requires a central coordinating position which is the A.I.D.-funded TACS. Implementation of all A.I.D.-funded activities is described in the Action Plan which follows.

UNICEF's mandate focuses primarily on increasing the numbers of children reached by interventions such as immunizations or oral rehydration therapy (ORT), while USAID has chosen to focus on sustainable interventions to achieve similar goals. This accounts for the changes in emphasis in the current document, where UNICEF has received less assistance and other targets have received additional attention.

USAID/Sudan has chosen not to play a leading role in implementation of the MOH CS program but has taken the responsibility of monitoring its inputs into the program and to provide critical inputs which other donors have not or cannot provide. Although USAID/Sudan's role is not central in achieving MOH CS objectives, it nevertheless can play an important part in ensuring a coordinated, effective and enduring CS program in the Sudan.

III.B. ACTION PLAN: IMPLEMENTATION OF CHILD SURVIVAL STRATEGY IN THE SUDAN

MANAGEMENT PROBLEMS IDENTIFIED(1)	OUTCOME	APPROACHES	FUNDING SOURCE/TIMING
1. Lack of integration of services.	Functioning interagency working group for child survival.	- Monthly/quarterly meetings initiated at operational levels of EPI, CDD and Nutrition, Central MOH.	MOH - 5/88
		- Establish CS Working Group (CSWG) chaired by MOH to jointly plan, budget, implement, monitor and evaluate CS activities. Initial meeting re UNICEF's 5 year plan will be June 26-28, 1988.	MOH and donors including UNICEF/ and USAID - 6/88
		- Technical Advisor in CS (TACS).	USAID - 8/88
		- Assignment of MOH counterpart to TACS.	MOH - 8/88
		- Get donor commitment to support integration.	CSWG - continuing
		- Expand EPI & CDD policy statements to a CS policy statement and expanded role of EPI Steering Committee to CS Steering Committee.	CSWG - 10/88 MOH - FY 89
		- Assure coordination of A.I.D.-funded CS activities with CS policy elaborated by CSWG, e.g. SCF/CARE/HIID/HKI/ADRA/IARA, etc.	TACS - FY 89
	Training modules adapted to actual practice	- Revise job descriptions to show integration under concepts of CS.	MOH - FY 89
		- Revise training curricula to reflect CS approach for all training schools. (Select one with which to begin.)	PRITECH/ UNICEF - FY 89
	Integrated data system	- Add CDD to EPI data system.	UNICEF - FY 88
	Pilot test integrated supervision	- Assessment of 4 models of integration re "team concept": ADRA in Khartoum; Blue Nile MOH/ Health Project, Central Region; CBFHP in Nile Province; pilot districts in Kordofan)	PRITECH / RHSP - FY89
		- Select 2 pilot areas from above assessment in which to begin implementing CS team concept with training of all health workers and supervisors.	CSWG - FY 89

MANAGEMENT PROBLEMS IDENTIFIED(1)	OUTCOME	APPROACHES	FUNDING SOURCE/TIMING
2. Need long-term comprehendsive planning, especially at regional and district levels.	Three district CS action plans including EPI and CDD.	- Strengthen district & regional planning & budgeting ability in 3 districts in Kordofan: Al Rahad, Dilling and Bara.	RHSP - Continuing
		- Expand regional planning workshops for the review of SERISS results to include review of national CS policy and development of CS plan using EPI, CDD & SERISS data beginning in Kordofan.	SERISS/CDD/EPI/ RHSP/UNICEF - 12/88
		- Evaluate pilot efforts for 1 & 2; compare with WHO pilot effort to identify successes and failures.	RHSP - FY89/90
3. Decentralization requires regional & district personnel to: - be adequately trained in management	Module for management training adapted for Sudan	- Conduct KAP to define the gaps in knowledge and practices.	RHSP - FY88
		- Obtaining from WHO and adapt Arabic management training module for mid-level health workers	
		- Develop long term relationship with the Gezira Faculty of Medicine to provide TA for implementation of No.'s 2 & 3.	RHSP - 5/88
		- Develop applied research activity to test different models of supervision re integration efforts.	CS FELLOW FY89
- have technical means to carry out program and - have financial means to carry out program.		- Short-term technical training - in-country and in other African countries.	RHSP - Continuing
		- LC support for pilot districts after plan & budget prepared. RHSP - FY89	

(1) "REPORT ON REVIEW OF EPI," 19-30 SEPTEMBER 1987.

CDD PROBLEMS IDENTIFIED	OUTCOME	APPROACHES	FUNDING SOURCE/TIMING
1. Supervision needs strengthening: a. technical	Set of supervisory protocols	- From case management guidelines, develop case management supervisory protocols for hospital and clinic sites. - Evaluate effectiveness of sentinel surveillance system.	PRITECH - FY88 TACS - FY89
b. managerial	Supervisory skills curriculum	- Coordinate with EPI and area CS team concept to develop and test simplified, common supervisory tool. - Develop supervisory skills course with Management Development Center. - Evaluation of entire program.	PRITECH - FY88 CDD - FY88 WHO/UNICEF/ USAID/PRITECH-11/88
2. Weak ORS supply chain.	Social marketing of ORS	- Develop local ORS materials production capability. - Develop social marketing program for ORS in conjunction with Population Policy Program Support Project.	PRITECH - FY 88 USAID design 6/88
3. No plan for community mobilization or education campaign.	Three year IEC Plan	- Develop three year information, education and communication (IEC) plan. - Implement pilot IEC project in White Nile Province.	PRITECH - FY 89 UNICEF - FY 88
4. Conflicting messages being presented to mothers by different organizations.	Coordinated IEC Program	- Develop coordinating mechanism with relief agencies to assure that MOH guidelines are being implemented. - Develop cereal based home solution to displace SSS and to provide a backup in those regions where ORS stockouts occur.	CDD - FY88 PRITECH - FY88
5. Dietary Management of Diarrhea component has not been evaluated.	DMD Component implemented through IEC	- Review and strengthen component in coordination with nutrition. - Include Arabic-speaking nutrition educator on evaluation team.	PRITECH - FY88 PRITECH - 11/88

EPI PROBLEMS IDENTIFIED (1)	OUTCOMES	APPROACHES	FUNDING SOURCE/TIMING
1. Commitment to EPI must last many years & must include GOS local, regional and national inputs as well as donors.	Documentation of cost of fully immunized child	- Form GS Working Group - Conduct study of full costs of the EPI, comparing fixed sites and mobile team costs; documenting self-help measures being implemented. - Develop plan for sustainable EPI.	MOH - FY 88 REACH - FY 89 UNICEF - FY 89
2. Tetanus Toxoid coverage of pregnant women is disproportionately low.	Increased TT coverage of pregnant women	- Begin immunization of all married women at any time of contact with the health care system.	EPI - FY 88
3. High drop out rate between first immunization and completed series (42%).	Identification of factors for dropping out	- Conduct study to determine why the drop out rate is so high, comparing the regions with the lowest rate and the highest rate. - Develop IEC plan to decrease dropout rate.	EPI/TACS - FY 89 EPI/UNICEF - FY 89
4. High vaccine wastage rates: from 47% - BCG to 64% - OPV.	Identification of factors for vaccine	- Conduct study to identify causes of vaccine wastage comparing the regions with the lowest rate and the highest rate. - Develop plan for decreasing wastage due to cold chain breakdowns and other factors amenable to change by improved management.	EPI/TACS - FY 89 EPI/UNICEF - FY 89
5. Use of solar refrigerators has not been evaluated.	Document effectiveness of solar re-refrigeration	- Implement standard installation and maintenance procedures. - Evaluate adequacy of solar refrigerators.	EPI/RHSP - FY 88 EPI/UNICEF - FY 89
6. Weak accounting practices.	Proper accounting books	- Assure accounting TA for EPI. - Conduct audit of EPI.	UNICEF - FY 89 MOH - FY 89

(1) "REPORT ON REVIEW OF EPI," 19-30 SEPTEMBER 1987.

HCF PROBLEMS IDENTIFIED	OUTCOMES	APPROACHES	FUNDING SOURCE/TIMING
1. Lack of knowledge of costs of operations.	Documented costs of outpatient services.	- Study of costs of objectives of health centers, dispensaries, dressing stations, primary health care units.	USAID - FY 90
	Documented costs of inpatient services.	- Study of costs of operating hospitals at the various levels in conjunction with hospital rehabilitation funded by LC.	MOH FY 89
		- Evaluation of costs and benefits of hospital rehabilitation.	MOH FY 89
2. Disorganized system of self-help financing.	Identification of major sources of self-help.	- Study of sources and uses of self-help financing, including effects on demand for services with fees.	USAID FY 89
3. Lack of a coordinated HCF approach.	Design and adoption of an integrated HCF Project.	- Evaluation of HCF proposals and activities by WHO, World Bank, UNICEF, and RHSP for potential effects and probability of success.	New CS Project - USAID FY 91
4. Lack of public and private sector coordination.	Recommendations for reform of private sector regulation.	- Survey of size and scope of private sector.	New CS Project - USAID FY 91
		- Study of effects of government controls on private sector viability.	New CS Project - USAID FY 91
5. Lack of planning and coordination in a decentralized MOH.	Recommendations for strengthening the coordination of central and regional levels	- Study of financial and managerial relationships of various levels of the MOH.	New CS Project - USAID FY 91
		- Management study suggesting restructuring of organization.	New CS Project - USAID FY 91
6. Poor planning and budgetting ability at local level.	Development of a planning and budgeting regimen for regional and facility managers.	- Development and distribution of materials detailing the cost effectiveness of current forms of regional MOH service delivery and possibilities for sources of funding.	New CS Project - USAID FY 91

NUTRITION PROBLEMS IDENTIFIED	OUTCOME	APPROACHES	FUNDING SOURCE/TIMING
1. Pervasive malnutrition in children 6-24 months of age due to inadequate supplemental feeding and weaning foods.	Implement weaning foods program through CDD	- Study reasons for poor feeding practices. - Develop national guidelines and manual. - Develop, test and implement phased, region-specific education program across all sectors using wide variety of methodologies, in conjunction with CS team concept. - Evaluate progress. - Complete marketing studies on commercial weaning food and develop activity if they show its feasible.	NESMP - FY88 WHO/NESMP - FY89 NESMP/SGNED/ UNICEF - FY89 NESMP - FY 90 NESMP - FY 88
2. Night blindness, Vit. A deficiency.		- Two projects in progress.	HIID/HKI continuing
3. Continuing drought resulting in displaced persons.		- Mission's existing program. - At-risk monitoring.	PL 480, etc. FEWS, continuing

IV. INTEGRATION AND MANAGEMENT

Sustainability of activities in the Sudan is an overriding concern to USAID/Sudan. Thus, the Mission has specified that its support for CS activities will emphasize the importance of integration of CS activities and of management. The following guidelines have been developed to:

a) Link together different discrete CS activities and enhance their complementarity.

b) Promote the integration of the CDD Program, the EPI and other discrete CS activities into primary health care services.

c) Lead to sustainable health services by exploring areas of possible private sector involvement.

d) Emphasize the development of a management information system.

e) Support management training activities of a wide range of health personnel in order to improve their capacity to: plan, set measurable objectives, implement programs and maximize limited resources.

Key to this approach are the following activities:

1) encouraging the MOH to form a CS Working Group, chaired by the MOH, to jointly plan, budget, implement, monitor and evaluate CS activities and

2) providing for an advisor in child survival to arrive in August 1988 to assist USAID in implementing and coordinating its CS activities with those of the MOH and with other donors.

The CS Working Group, including the major donors such as the British, the Dutch, UNICEF, USAID, and the program directors from the MOH for the CDD and the EPI, would identify a meaningful role for each agency in developing and supporting a national CS strategy within the framework of the Government's PHC Program. It would provide a forum in which to confirm national budgets, identify donor support in a timely fashion to facilitate the development of annual work plans, discuss implementation of the recommendations of the interagency PHC and EPI Evaluations completed in 1987. Such a working group is, in fact, so important that USAID may predicate its FY 1988 assistance to the MOH on the formation of the group. Certainly a forum for the group could be the initial meeting on UNICEF's essential drugs proposal May 31, 1988 and the presentation of UNICEF's new five year plan June 26-28, 1988.

A Technical Advisor for CS obtained through a PASA with the Centers for Disease Control (CDC) will be able to assist the Mission in the coordination of USAID-funded CS activities with those of the MOH and of other donors and will be USAID's representative on the CS Working Group. Because of experience with CDD and EPI plus a background in epidemiology, a TACS will also be able to provide assistance to the MOH in planning, implementing, monitoring and evaluating CS

activities. Special attention should be given to quality control in the fine tuning of these programs and in the applied research activities which have been recommended by the 1987 EPI in-depth evaluation.

The operational level in the central MOH, activities aimed at integration of CDD, EPI and nutrition are being initiated. The terms of reference for an integration committee have been developed. Discussions have resulted in the proposal of some joint activities such as an integrated data system; regional planning workshops to develop plans for integration based on CDD, EPI and SERISS data; joint transportation of supplies and of supervisors.

The Ministry is looking to USAID as a key actor in supporting these initiatives. Through the RHSP, a common data collection form for the CDD, EPI and Nutrition Divisions has been developed and tested. A computer workshop was held for members of the three divisions. In Kordofan, the RHSP and UNICEF are working closely with the regional MOH programs. Through UNICEF, USAID proposes to support the addition of CDD data to the central EPI system and through the RHSP and UNICEF, the data system will be integrated at the regional level in Kordofan.

The SERISS in the Nutrition Department intends to sponsor regional workshops to use the data collected by the project for developing regional plans. CDD and EPI intend to combine efforts with this activity so joint regional action plans are realized. Kordofan has been proposed as the first site because of the preliminary work and the reference manual already developed by the RHSP for district level planning. The latter activity resulted in the development of district action plans for the PHC activities in Bara and Dilling Districts in January 1988. Local currency from the RHSP was provided to support the districts in carrying out their plans. Progress in implementation of these plans will be assessed in July.

During the 1980's the MOH developed several examples of team approaches to the delivery of various elements of PHC services. Four of them are the following:

1. the Nutrition Division and ADRA - MCH, CDD, EPI and nutrition services in the PL 480 Title II Program in Khartoum;

2. the Blue Nile Health Project - schistosomiasis, malaria and CDD services in Central Region;

3. Nile Province and the Community Based Family Health Project (CBFHP) trained village midwives to provide oral contraceptives, ORT, nutrition education and EPI mobilization;

4. Kordofan Region and the RHSP - district level integration of CDD, EPI, MCH and water and sanitation.

An assessment of models such as these could provide valuable information on the successes of attempts at integrated services in the Sudan. Based upon the results of the assessment, CDD plans to select two pilot areas in which to test a more comprehensive approach to the integration of CDD, EPI and nutrition education, possibly unified under a theme of child survival. Integrated supervisory mechanisms would be incorporated.

In addition to the above listed activities of the RHSP in planning and integration, a variety of other management issues have been examined. At least two of them deserve documentation for relevancy to other activities. The provision of spare parts only has enabled district supervisors to keep four Toyota trucks running for four years. This may well be a record for the Sudan. A "shunta" system has been established in Al Rahad District whereby a private contractor picks up an empty supply box and reports at a PHC unit, delivers them, via camel, to the district supply facility for replenishment of drugs and vaccines. He then returns the replenished box to the originating unit. He is paid from funds generated by community participation. Such an innovation builds upon private sector capabilities.

The RHSP is also planning to increase the emphasis on management training in Kordofan region. Thus, arrangements will be made to obtain a copy of the WHO Arabic management training module developed for mid-level PHC workers in Yemen. This module emphasizes a CS approach and will be tested and adapted for use in the Sudan. A notable gap in these plans is the absence of a knowledge, attitudes and practice (KAP) survey to document deficiencies that management training could address.

V. SELECTED ACTIVITY AREAS

USAID's Child Survival Strategy emphasizes sustainability, integration and management in relation to ORT, immunization and child spacing. Nutrition activities, outside of on-going PVO programs, will be integrated with these three interventions of ORT, immunizations and child spacing, rather than stand alone as a separate intervention.

Of vital importance to issues of sustainability, management and integration are issues of health financing. This decade has seen a severe deterioration of the Sudanese economy and of MOH resources, as well as a decentralization of the Sudanese government that has divided the responsibility for the MOH between the central ministry and the regions. The result of decentralization has been a decrease in financial support and a curtailment of services making regional ministries dependent on increasing local sources of funding for the health system. Unfortunately, this has not occurred in a consistent or planned manner. Health financing studies need to collect data that can be used to improve the efficiency and equity of resource use in the health care system.

The following sections focus on selected activities in ORT, immunizations, health care financing (HCF) and child spacing. Although nutrition is discussed separately in order to relate it back to the CS Strategy, nutrition activities are to be linked to the CDD, EPI or child spacing programs, as appropriate to the existing health infrastructure.

V.A. CONTROL OF DIARRHEAL DISEASES (CDD)

The progress of this program continues in a steady and impressive manner as indicated in the CS Strategy. By the end of calendar year 1987, 10 of 12 northern provinces had trained 233 trainers who in turn had trained approximately 3,650 health workers in the case management of diarrhea. This number includes 44 percent of the medical assistants in the northern regions, 37 percent of the village midwives and community health workers but only about 7 percent of the nurses. Around 280 health workers for nongovernmental organizations (NGO) have also completed the two week course. In addition to all the paramedic training schools, the National Council for Adult Education adopted the CDD training curriculum. The curriculum is being revised for the third time with the addition of a section on the dietary management of diarrhea. The quarterly newsletter in English and Arabic has a circulation of 5,000.

A review of the three baseline surveys conducted on the treatment, morbidity and mortality of diarrhea (Table 1) reveals a range of diarrhea-specific mortality rate for under 5's from 24.6/1000 in urban Khartoum to 54.5/1000 in South Kordofan. However, the proportion of childhood deaths associated with diarrhea remains in the range of 63 - 73 percent. In the El Obeid District survey covering over 2,500 children, the two week recall revealed that 22 percent of the children had diarrhea during that period. Of these 23 percent were treated with ORS and 48 percent with other fluids. In the 24 hour recall for a subsample of 210 cases of diarrhea, 51 percent were breastfed the same amount or more during diarrhea and 24 percent received the same amount or more food. In this subsample only 19 percent used ORS of which a third prepared it correctly.

Thus, despite the remarkable accomplishment noted above and in the CS strategy, much remains to be done if the following targets are to be met:

- to increase access to ORS by 60 percent in 1990.
- to increase use of ORS by 40 percent in 1990.
- to decrease mortality by 13 percent in 1988.

The CDD program must now expand beyond the case management of diarrhea to community mobilization. In addition, supervision and monitoring will assure that training activities have resulted in the desired behavioral changes on the part of health workers. Realizing this, the Director has been requesting TA from the Technologies for Primary Health Care Project (PRITECH) for two years. A buy-in to PRITECH will fill this gap and will provide for TA to assist CDD in the evaluation, planning, management and supervision of the program. The interagency evaluation of the CDD program, scheduled for November 1988, will be timely to fine tune the program. The scope of work for PRITECH is in Annex A.

The CS Strategy proposed four activities to be completed in 1988:

a) social mobilization activities aimed at pharmacists, physicians, school teachers, village and religious leaders,

Table 1. DIARRHEA TREATMENT MORBIDITY AND MORTALITY SURVEYS AMONG CHILDREN UNDER 5 IN THE SUDAN

	Khartoum North (Sept. 86) Urban (n = 2032)	Rashad District (Dec 86) Rural (n = 2022)	Rashad District (Dec 86) S. Kordofan (n = 2023)	El Obeid District (Oct 87) N. Kordofan (n = 2518)
1. Annual diarrheal incidence (Episodes child/year)	3.4	4.5	4.3	5.6
2. ORS Treatment:				
- Adequate + Inadequate (% of total cases)	22.8	27.7	22.0	23.8
- Adequate Only (% of total cases)	9.8	8.0	5.9	
3. Use of other medicines (% of total cases	60.1	59.1	36.9	
4. For "other medicines" referred to (% of total cases)				
- government health services	34.3	43.6	17.6	
- private medical practitioners	13.0	9.5	1.1	
- pharmacists	10.2	3.6	2.1	
- traditional	0.3	0.0	0.0	
5. Overall mortality per 1000	34.0	36.1	86.1	70.3
6. Diarrhea - associated mortality (per 1000)	24.6	25.2	54.5	44.9
7. Proportion of childhood deaths associated with diarrhea (%)	73	70	63	64

Source: CDD Progress Reports, Ministry of Health

b) linking data collection with other CS activities at regional and central level,

c) applied research to determine knowledge and practice of ORS among health workers and clients, and to develop a supervisory information system and

d) studies on potential cost-recovery mechanisms.

In relation to the activities listed above under a), CDD and UNICEF, with FY 1987 USAID funds, have developed a pilot social mobilization project with the regional MOH staff in Nile Province to test strategies of sensitizing community groups to the importance of ORT. This activity will be implemented using FY 1988 USAID funds through the UNICEF Grant Agreement and the salary of the social mobilization officer on UNICEF staff will be continued a second year. CDD plans to develop a detailed three year information, education and communication (IEC) plan with the TA provided by PRITECH to emphasize a community level campaign and to program IEC activities for heretofore unaddressed audiences.

The implementation of activities listed under b), c) and d) above are scheduled. The linking of the CDD data system to that of EPI is planned for 1988 and will be funded in the UNICEF Grant. A survey of four known activities implementing a team approach to supervision will be conducted and pilot areas will be selected for testing integration of CDD, EPI and nutrition activities. With the assistance of the Management Development Center, funded by CDD's local currency, a supervisory training module will be developed and tested. Through TA provided by PRITECH, studies will be completed for possible local production of ORS and for commercialization of the local production of ORS mixing pitchers. Further details are found in the health financing section.

The long-term interventions (beginning in FY 1989) proposed in the CS strategy related to the following concepts:

a. improved promotion of ORT and distribution of ORS as related to both the public and private sectors,

b. integration of CDD into the PHC system and

c. promotion of dietary management of diarrhea (DMD).

Through TA provided by PRITECH, the CDD Program will be evaluating its progress to date and developing a new three year plan which will include special attention to the promotion of ORT at the community level. Social marketing of ORS will be developed in conjunction with the new population project which will include social marketing of contraceptives.

Regarding integration, CDD is leading an operational level planning group in the MOH which is developing ways to integrate CDD, EPI and nutrition activities. This group should become an integral part of the MOH CS Working Group.

CDD recognizes that DMD is weak and underemphasized. A buy-in to the Nutrition Education and Social Marketing Project will enable the CDD and Nutrition Division of the MOH to conduct the research necessary to develop a detailed action plan and implement an effective DMD component. The scope of work is presented in Annex A.

Annex B presents an analysis which identifies supplemental feeding practices as a major contributor to malnutrition. Since diarrheal disease is often a complicating factor leading to undernutrition, it is logical to approach this problem in the spirit of integration, through the CDD program. Thus, TA will be provided through a buy-in to the Nutrition Education and Social Marketing Project to examine the problem of inadequate supplemental feeding during the weaning process. One aspect of that assistance will be to complete the marketing studies for the commercialization of a sorghum-based weaning food. Further details are provided in the scope of work in Annex A and in the following section on nutrition.

The CDD target for 1988/89 is to raise access to oral rehydration salts (ORS) in the North from 14 to 30 percent and use from 8 to 20 percent. Key to achieving this target is the availability of ORS. Through the UNICEF Grant, USAID proposes to procure 6 million packets and through the RHSP 2 million packets for Kordofan and Darfur . This will provide the annual supply as was done in FY 1987 through the UNICEF Grant. The financing studies mentioned above will complement this procurement in an effort to begin examining sustainability issues. Those dollar funded activities will be supplemented by local currency support in Kordofan from the Rural Health Support Project and in the CDD program at MOH.

V.B. EXPANDED PROGRAM OF IMMUNIZATION (EPI)

The Ministry is attempting to be realistic in establishing its national EPI coverage targets by year: 1987 - 25 percent, 1988 - 55 percent and 1989 - 70 percent of children under age 1, fully immunized for age, and of pregnant women These figures recognize that civil strife in the South interferes with the provision of health services there.

A multi-agency evaluation of the national EPI was completed in September 1987. The main thrust of the observations related to four themes centering around:

1. The need to focus planning and management skills.

2. The need to decentralize EPI activities and administration.

3. The importance of integration of all health services including EPI in the overall framework of PHC.

4. Financial sustainability of the program and national/international responsibilities.

It is within this framework, then, that the plans for assisting EPI have been developed.

The CS Strategy identified three short term activities to begin in FY 1988:

a. establish an interagency coordinating committee,

b. identify programs for selective "buy-ins" to complement the many donor inputs and

c. develop performance based criteria against which to measure the impact of the use of A.I.D. funds.

All three of these items are being implemented through the different activities on which the FY 1988 project will focus. The CS Working Group described in Section IV. will emphasize interagency coordination. A "buy-in" to the REACH (Resources for Child Health) Project will provide TA to assist in determining the full costs of a completely immunized child. Further details of the FY 1988 program are presented below.

Of the long term interventions suggested in the CS Strategy, integration of CS activities has been selected for concentration. The management and integration aspects are covered in Section IV. The following identifies specific activities which focus primarily on strengthening EPI.

Besides a weak management infrastructure, the availability of current data for planning purposes is overwhelmingly scarce. Attempting to get basic budgetary information has highlighted the absence of sound costing data for the MOH, in general. EPI has cost estimates per immunized child from UNICEF, based on donor support for the program. However, the contributions from the regional budgets and from the district level in the urban and rural council budgets are virtually unknown. Consequently, it is impossible to plan for the future of the program or to deal with sustainability issues in the absence of solid cost data. To tackle this gap in information, a buy-in to the REACH Project is proposed to facilitate a study of the costs of delivering immunization services in the Sudan. Further details are found in the scope of work for health care financing studies in Annex A.

Added to a lack of cost information is an accountability issue which was identified by the EPI evaluation in September 1987. The Head of Operations for the EPI program has been waiting for TA in accounting to assist in putting the EPI accounting books in order. Because of MOH reluctance to deal with this issue, no TA has been forthcoming. The evaluation also recommended an audit of the EPI program. The issue of accountability should be pursued and funds will be reserved in the UNICEF Grant for an audit.

The EPI program has developed a new management information system (MIS) in an effort to improve planning and management. This system was funded by USAID through the FY 87 Grant Agreement with the UNICEF. In an effort to build upon this system and to improve communication and integration, USAID proposes to fund through the UNICEF Grant, a 30 month maintenance contract for the MIS. The contract will link the MIS to the regions through a radio network similar to a modem connection via telephone for the transmission of program data . Three and a half months will devoted to adding CDD data to the system. The RHSP data system in Kordofan will be completely integrated with this system.

The EPI target for 1988/89 is to fully immunize 55 percent of children under ge one (550,000) plus an additional 900,000 children ages 12-36 months. The arget also includes immunizing 800,000 women with tetanus toxoid to achieve 55 ercent coverage of pregnant women. USAID is proposing to provide the vaccine, eedles and syringes through the UNICEF Grant to achieve these targets. However, he fine tuning required to achieve these targets must be developed through pplied research looking at three areas: evaluation of solar refrigerators in oordination with the RHSP, a study of the factors contributing to high rates of accine wastage and to high rates of dropout from the first vaccinacion to a fully mmunized status. USAID has encouraged the EPI program to apply for a local urrency account from the Ministry of Finance and Economic Planning to fund tudies like these.

UNICEF is the agency through which many donors are channeling funds as shown n Appendix V. in the CS Strategy. Despite the many promises of assistance, the PI remains underfunded. An additional problem has been a delay, until recently, n the release of the Italian funds making planning very difficult for the overall lonor commitments to the MOH.

In addition to the variety of donors channeling funds through UNICEF, there ire about 16 technical assistants at MOH, provided by different donors. Not all of them are technically experienced nor are they willing to work in the geographic areas for which they were requested by MOH. These problems could be approached through the CS Working Group where improved donor coordination will facilitate planning.

V.C. HEALTH CARE FINANCING IN THE SUDAN

INTRODUCTION

The Ministry of Health has suffered a remarkable decline in available resources in recent years. Health spending has been a shrinking portion of a shrinking government budget, moving from 10 percent of the 1970 budget to 0.6 percent of the 1987 budget. This occurred during a period in which per capita Gross National Product has fallen by 27 percent. In addition, the Sudan adopted a policy of decentralization in 1980 that made regional levels of the MOH somewhat autonomous. The regional ministries are dependent upon the regional governments and the central Ministry of Finance and Economic Planning for their budgets. This dependence on the regional governments has considerably reduced the authority of the central ministry over the activities of the regional ministries.

With the severe reductions in budget, the central MOH was compelled to cut back on services and to make difficult choices about spending . The central development budget virtually disappeared and responsibility for maintenance, acquisitions and most goods and services was shifted to the regional ministries. The central ministry budget was reduced essentially to professional salaries and the operations of the Central Medical Stores and of the vertical programs, such as EPI and CDD which are funded primarily by external sources. Regional governments,

meanwhile, are severely strained by these added responsibilities and have, thus, left the regional ministries to develop funding sources wherever they can.

The result has been the development of a large number of "self-help" mechanisms. Some of these, such as the visitor tax in hospitals, are part of national policy. Most, however, have developed in an ad hoc fashion. The result has been an array of fees, taxes and financing schemes with widespread geographical variation. Indeed, in the Central Region, individual facilities have been allowed to develop any sort of self-help charges felt appropriate. In other regions, authorities have maintained stronger control over self-help setting down guidelines. For example, in Kordofan, legally formed and publicized local health committees are allowed to collect funds for activities determined by the rural council.

Given the budgeting constraints within the MOH, management and planning for resource use is minimal. Health care financing will be focus on a number of areas discussed below. The types and extent of self-help financing activities, is an important development with valuable lessons and great potential as are prospects for privatization. Areas for concern are the public drug delivery system, including subsidized community pharmacies, and the effects of decentralization. Areas that should be considered in the development of health care financing activities in the Sudan are opportunities to improve information flow in the system and structural changes to encourage more efficient use of resources.

MOH BUDGETING AND PLANNING

MOH budgets are divided into Chapter 1: Salaries, Chapter 2: Non-salary Recurrent Costs, and Chapter 3: Development and Equipment Acquisition. The central ministry and each of the nine regions have these three budgets. Most MOH spending shows up in regional budgets, as can be seen in the following tables. Because of curtailed activity from the war in the South, MOH budget estimates are availably only for the northern six regions.

Table 2. Central Ministry 1985-86 Budget in Sudanese Pounds (LS)

Chapter 1:	LS	29,758,845
Chapter 2:		12,252,800
Chapter 3:		11,959,000

The total of the regional budgets for Chapter 2 exceeds considerably the(central ministry amount for Chapter 2 as Table 3 shows.

Table 3. Regional Ministries 1986-87, Chapter 2 Budgets

Northern Region	LS	7,109,690
Central Region		7,570,608
Darfur Region		3,517,002
Kordofan Region		3,822,150
Eastern Region		4,263,274
National Capital Commission		2,913,085

In addition, because the central ministry only pays professional staff, the Chapter 1 budgets for salaries in the regions far exceed that of the central ministry. The Central Region's Chapter 1 Budget, for example, is LS 24,000,000.

An important point to note is that salaries are by far the largest expenditure at all levels of the ministry. This expenditure is the result of a large number of employees, rather than high salaries. This imbalance of spending is the result of decisions to reduce maintenance and supply spending while preserving the large work force at low salaries. As a result, the MOH faces a steady loss of trained personnel to the private sector and to the Gulf.

These decisions about budget shortfalls have led regional ministries to attempt to generate enough funding through self-help mechanisms to partially cover supplies, maintenance and construction requirements. These self-help ventures are discussed below.

SIZE AND TYPE OF SELF HELP ACTIVITIES

Local revenue generation through self-help activities is not new to the MOH, with some endeavors dating back to the early 80's. These endeavors have taken three basic forms: local taxes devoted to the health system, fees collected by the health system and the operation of community pharmacies. Many of these mechanisms began as experiments in the Central Region, but several are now in widespread use across the Sudan. Among the most widely used are visitor fees at hospitals, community pharmacies and special taxes. Particularly agricultural taxes are used to support MOH in most regions. Originally these self-help mechanisms were controlled at the regional level, but the Central Region has now given the local health areas a free hand in generating local revenues. The primary regulation imposed is that local councils must get regional MOH approval for any project of over LS 5,000 because of implications for staffing and drug supplies which would be the expected share of the regional government for the self--help project.

Lewis and Bekele (1986) documented a series of seven self-help experiments in the Central Region. During a period from 1983-84, these experiments were estimated to generate about LS 1.2 million per year. A recent field trip to the Central Region indicates not only that all seven endeavors are continuing, but that their absolute income generating ability has grown considerably. In several cases, fees have doubled, and new fees and health taxes have been added. A brief description of current self-help projects and the magnitude of income follows though no adjustment has been made here for inflation.

In the Central Region, taxes dedicated to health activities include a tax on cinemas, football (soccer), sugar, theaters and a bridge toll and bus fare surcharges. Recently a tax on cotton has been implemented. Originally, these funds were remitted to the central government, but a new system now in effect allows each district to retain these taxes for local use. The Director General (DG) of Health Services for the Central Region estimates that these sources provide approximately LS 200,000 per month. These funds are used for various activities, including maternal and child health care (MCH) and other local programs. They also apparently are used for capital expenditures, as the DG stated that the proceeds were used to construct a new hospital in the Central Region.

Visitor fees to hospitals have been expanded to most, if not all, hospitals in the Central Region. The fee has been raised to LS 0.50 from its original LS 0.25. Collections at Wad Medani General Hospital are estimated at LS 90-100,000 per month and at most rural hospitals at about LS 2,000 to 3,000 per month. These funds are used for maintaining and repairing the hospital, purchasing small equipment and expanding the supply of drugs for inpatients. The DG asserts that without this visitor fee "curative health services would have collapsed" in the Central Region.

The concept of fees has recently been expanded to Central Region health clinics where a small fee is charged for MCH visits. This fee is estimated to generate LS 70-100 per month in each health center. The reason for such a charge is to fund various materials needed for nutrition education activities in the absence of a budget for supplies. No apparent consideration has been given to the size of the fee, whether it deters any women from attending the clinic nor whether MCH visits should have a higher cost than other types of visits. One health clinic visited charged 15-25 percent of cost for drugs but did not charge for MCH visits.

Clinic revenues are also boosted by the operation of fee-for-service evening clinics. Medical officers are allowed to operate clinics in public facilities after 2 p.m. Charges are LS 2.00 per visit. Income is split evenly between the doctor and the clinic. The health center share is an average of LS 300-400 per month per health center. Several reasons were given by Central Region officials for the popularity of these semi-private evening clinics. The hours are more convenient than those of the public services in the health centers. During the regular public hours, clients are more likely to be seen by a medical assistant or nurse, than by a doctor as in the evening clinic. In addition, there is a perception that payment results in better care. Thus, private physicians in Wad Medani charge LS 30-40 per visit. It is unknown what effect the evening clinics have on private practices.

The importance of self help in the MOH system is increasing. The DG for the Health Services in Gezira Province estimates that 30-40% of his Chapter 2 budget comes from local sources. Little thought, however, has been given to the manner in which this funding is generated. As the health care system's public funding has deteriorated, planning has been eliminated, rather than strengthened. Health areas and facilities have been allowed to engage in any income generating activities deemed appropriate by the local authority resulting in a wide variety of different fees and charges.

There also is evidence that donations play an important part for maintenance and construction in many parts of the country. The DG of Gezira Province stated that persons sometimes voluntarily pay for services or sometimes donate labor to the MOH. In Kordofan, local donations were used to construct a new hospital. With the deteriorating economy it is not clear, however, whether donations can be sustained at their current levels.

Two major points about current self-help activities are important. Firstly, the system as currently constituted bears little relationship to cost recovery. Revenue is generated by the most convenient means while taking pains to preserve access to "free" health care. Some hospital charges and paying wards are related

to costs but, in general, cost recovery is not a consideration. In fact, no one is willing to discuss cost recovery, only cost sharing and self-help.

Secondly, little consideration and virtually no analysis has been conducted on the effects of these self-help mechanisms. Since there is no determination of ability to pay, some fees may affect access to services, inhibiting the poorest from seeking care. In addition, private sector activities may be affected by heavily subsidized activities that directly compete with private sources, such as evening clinics or community pharmacies which are discussed below.

DRUG DISTRIBUTION AND COMMUNITY PHARMACIES

Drug availability and distribution in Sudan is a major problem that has been made much worse in recent years by the lack of foreign exchange. The CMS budget has been reduced sharply in recent years. Most drugs now come from international donors or through a barter agreement with Egypt. CMS carries about 50 items, from the WHO essential drug list in quantities that are estimated to be about one third of needed amounts. PHC kits supplied by UNICEF are distributed through CMS.

Stocks in CMS, therefore, consist of whatever is available to the MOH. Stocks also appear to be distributed independent of demand. A Dutch pharmacist providing technical assistance CMS felt the system was operating primarily on an "emergency basis" as a "system of shortage." It is not possible to exercise any type of inventory control, nor to maintain any sort of stock position. Nor have the needs of MOH facilities been assessed, either individually or collectively. If a facility is close enough to Khartoum and has some influence, a vehicle can be sent directly to CMS to obtain additional supplies beyond that allocated based on the size of the facility.

In several regions of the Sudan, community pharmacies have become very popular and are operated under a variety of rules despite regulations promulgated by CMS. In Kordofan and Darfur Regions, community pharmacies are limited to dispensing prescription drugs during set hours of operation and efforts are made to coexist with private pharmacies. The community pharmacies have a price advantage, but private outlets can offer a wider variety of goods, longer hours, greater flexibility and faster service. Drugs in the community pharmacies obtained from CMS are marked up 50% plus transportation costs. Because of higher costs, drugs obtained privately are marked up only 10% plus transportation costs. This apparently allows community pharmacies to sell at 20-30% below private pharmacies and to show a profit on the books. However, the salary of the pharmacist is paid by the government and is not reflected in the books, thereby eliminating a major expense.

A contrasting and somewhat troublesome aspect is the operation of the community pharmacies in the Central Region. In this region the community pharmacies are in direct competition with private pharmacies, offering all items sold privately. The DG of the Central Region stated that, as a result, the community pharmacies had driven some private pharmacies out of business. In the Central Region, the markup is 10-20 percent on CMS drugs and 10 percent on privately obtained drugs. Even with this markup, Central Region community

pharmacies are able to average a 40 percent growth in their capitalization each year. As in the Western regions, pharmacist salaries are not included in the cost of operations.

It seems clear that the availability of drugs through the community pharmacies is being subsidized by the MOH. This may be an acceptable method of increasing the availability of pharmaceuticals and recovering costs of the drugs, but it is important to recognize some potential problems of this activity.

Firstly, community pharmacies should operate in tandem with the private drug delivery system. Selling subsidized drugs is not an activity with which the private sector can compete and unless carefully protected, private pharmacies can be driven out of business. This would have the effect of reducing the general availability of drugs since the private distribution system is estimated to reach 80 percent of the population.

Secondly, some public sector activities with respect to the community pharmacies indicate either a lack of understanding of their use, or an improper response to their advantages. In particular, in the Central Region, community pharmacies sometimes sell drugs to hospitals, even though hospitals officially have a higher priority at CMS. Apparently the reason this can occur is because the pharmacies have a cash flow that allows them to pay for transportation to CMS to acquire a larger supply of drugs whereas hospitals have no budget for transportation. It is doubtful that the MOH in general gains anything by this tactic. Indeed, it is likely to hinder the operation of MOH hospitals.

PRIVATE SECTOR AND PUBLIC SECTOR COORDINATION

Most appraisals are of a healthy and growing private sector supply of medical services in Sudan. One estimate is that 75% of all health care spending in Sudan is in the private sector. Many attribute this demand to the widespread perception that the public sector is not able to provide high quality care. There are a number of possible opportunities for coordination of private and public sector activities that merit further exploration. Several of these relate directly to child survival activities and could relieve some of the economic pressure on the public sector.

One of the most appropriate private sector interventions could be for delivery of materials for the CDD program. Two possibilities include production of aluminum pitchers used for mixing ORS and possible production of ORS packets. It is important to mix ORS in the right strength in one liter of water. To standardize this process for the country, the CDD program has promoted the local production of a very popular one liter aluminum pitcher which has been produced at a cost of LS 7.50. It would be important to confirm the cost of the private production of these pitchers and to determine the potential market demand in order to judge whether private production, unsupported by donor purchases, would be feasible. In Annex A is the scope of work for such a study to be performed with technical assistance (TA) from the Technologies for Primary Health Care Project (PRITECH).

Local production of ORS has been discussed for some time, but a number of obstacles will require analysis before production is determined to be feasible. Two large firms in Sudan, Anipharma and Sigma Tau, produce a number of pharmaceuticals locally, but do so apparently for tariff reasons. There is a very high duty on imported drugs, but no duty on imported materials for drug production. The team leader of a Dutch team working with CMS has stated that this is the only reason for local production. He explained that all ingredients, including packaging, are imported and that local manufacture offers virtually no savings. The one possibility is when local ingredients can be used, such as local sugar in pediatric syrups. The major issue for the local production of ORS is to determine what grade of materials must be used. If standardized pharmaceutical grade materials are required, then local production may not be feasible. Before funds are committed to assist in the production of ORS, a study should be done on the cost/benefits to establish a national standard and on the potential for commercial retail sales (social marketing) of ORS. The scope of work for such a study to be done with PRITECH assistance, is in Annex A.

In other areas, consideration should be given to making use of the extensive private drug delivery system of existing private pharmacies. One possibility is to allow CMS to sell some set of essential drugs to private pharmacies to be resold at a fixed price. Such a system could guarantee widespread distribution of low cost essential drugs at whatever subsidy the government chose to make. The problem of very high transportation costs in the Sudan would have to be resolved in the pricing policy, but could be addressed in a number of ways. For example, the government could deliver the drugs to a number of area warehouses, could allow a transportation markup or could sell the drugs at varying prices based on estimated transportation costs. An evaluation of the feasibility of using private pharmacies would have to consider potential private participation, cost of the program to the government, degree to which access is improved and the potential demand among the Sudanese people. Some of these questions will be considered in the development of social marketing of oral contraceptives and ORS in the context of the design of the Population Policy and Program Support Project in June 1988.

One additional topic for study is the possibility of fostering insurance or other third-party payments for medical care. There is some evidence of growing interest in such a system, including health care coverage by several of the largest employers in Sudan. This is an area in which the World Bank expressed interest during a recent site visit to the Sudan.

PROBLEMS AND PROSPECTS FOR DECENTRALIZATION

The decentralization of the MOH begun in 1980 has shifted the locus of responsibility away from the central ministry to the regions. This process occurred at the same time that resources going to the MOH have been drastically reduced. The result has been uneven reductions in expenditures, reliance at the central level on a number of vertical programs and general confusion in the flow of information and the locus of authority. The central ministry is not aware of the budgets for the regional ministries, for example, and the central MOH Director General of Planning has stated that there is "confusion over limits of accountability." This situation has created problems in several areas, including drug delivery, use and limits of self-help and allocation of resources.

The drug delivery system, particularly the operation of CMS, is a case in which it is unclear where authority and responsibility lie. Although the central ministry has responsibility for the operation of CMS, the regions in the past have had the responsibility to distribute drugs, An attempt to correct this situation is a new policy whereby CMS is responsible for delivery of drugs to the district level. It remains to be seen whether this change will result in an improved public sector distribution system.

Inadequacies in the budgeting and planning process also have resulted in misallocations of resources. The heavy concentration of the budget on salaries and the lack of investment in the MOH physical facilities is a very short term approach to operations. It is unclear where decisions are made about allocations between different chapters of the budget, but the result has been labor intensive operations in failing physical surroundings. This has led, on the local level, to reliance on self-help to compensate for the lack of maintenance and supplies in the official budget. A major difficulty with this system is that funds are spent where they are available, rather than where they are most needed or would have the greatest effect. This means that spending is unplanned and bears little relevance to costs of operations. The result is that when self-help funding is generated, the system of fees bears no relationship to the cost of programs; when self-help is not generated, services are curtailed without regard to their relative usefulness. Thus the current system of financing produces a flow of health services in which neither relative costs or relative benefits are taken into account.

In addition, allocation of labor is further distorted by the donor support of various vertical programs. Programs which are able to pay incentives on top of the low salaries are able to retain the best personnel in the system. To the extent that this represents a process of determining national goals, this practice may be acceptable, but to the extent that it represents that ability of some strong individuals to win financing for their programs, it represents a further distortion of the use of resources.

Recent efforts have been made to integrate the EPI program into the decentralized structure of the health system. This effort may help facilitate long range planning and better budgeting. Regional ministries have been told that responsibility for the program eventually will be transferred to the regions and each region is to include EPI in its budget request and each district is to develop an EPI action plan. Though personnel are the responsibility of the regions, EPI staff still respond more to directives from the central ministry than to those of the regions. Evaluation and monitoring of this process will provide important information on future integration of MOH child survival programs at the periphery where the services must ultimately be rendered.

What is needed is a clear understanding of the reasons and the consequences for any health care financing decisions being made. With so few resources in the system, incentives for efficient operation are absolutely vital. It is not likely that the MOH will develop good management practices in the short run, nor is it particularly desirable or possible to reverse the trend toward decentralization that has been occurring for several years. Local financing decisions, however, must be made on the basis of appropriate information. Further, it is clear that a major portion of financing must come from outside the local area and that drugs will continue to be purchased and distributed through the CMS. Thus, a system of management of financial resources in the public health sector must be structured so that informed local decisions are being made, about the allocation of resources.

INFORMATION AND STRUCTURAL NEEDS

For operation of such a system of management of scarce resources, important information must be generated and imparted to local decision makers. In addition, the system of responsibility for costs and expenditures must be adjusted to reflect reality. This entails two distinct parts to health financing work in the Sudan. The first is a series of studies of resource use in the system. The second is a set of financing reforms that will facilitate more efficient use of available resources.

Among the information needs of the system are data both on cost of operations and on generation of funds for the system. A cost study should be undertaken to understand the operating characteristics of system facilities, including hospitals, clinics, health centers, etc. as well as the various vertical programs of the MOH. The relationship of the inputs to the output of each program or facility will help to determine current inefficiencies and will provide local authorities with information to guide decisions about cutting.

In addition, there should be a survey and evaluation of the variety of self-help mechanisms operating within the system. Such a study would document the types and magnitudes of funds raised, determine any possible effects on access to health care and document the types of expenditures financed by self help.

The second aspect of health financing work will be to develop suggestions for structural change in the system which will compel managers to use the data. This will involve some reform in responsibility for spending and a program to provide managers with sufficient information to make proper decisions. With information on the true cost of operations and appropriate authority to exercise control over local budgets, local managers can more efficiently use the limited resources they have available. It will be important to train managers to correctly use this budgeting authority and this should be an important component of management training programs such as that at the Gezira University Faculty of Medicine.

The program outlined above is intended to be a method of rationalizing the flow of resources within the system. Currently, there are a number of activities in progress or being proposed. The Rural Health Support Project has developed a resource manual and has engaged in the development of local managerial expertise through district level planning workshops to develop six month action plans for the PHC activities in the district. As a result of the first two workshops, two other rural councils outside the pilot areas have likewise developed action plans. Health financing training could be strengthened in this approach. WHO has suggested a model of community organization and control similar to a system being used in Thailand. This system has been described by WHO officials as a "bottom up" method of planning and is being implemented in several pilot areas. UNICEF unveiled in May 1988 a new essential drug program as part of its next five year program. Coordination of research with the Bank could facilitate development of significant health care financing reform in Sudan.

Evaluation of these activities will be important and should proceed on the basis of several criteria. Firstly, it must be recognized that under the current financial conditions, a large portion of the system must continue to be financed by foreign donors. Secondly, the current organization of the MOH does not allow for extensive central planning. Thirdly, local decision makers must be aware of the consequences of their decisions and must have the authority and responsibility to implement them.

V.D. NUTRITION

The Child Survival Strategy for the Sudan (p. 27) identifies three areas of concentration within the nutrition sector:

1) Planning and Monitoring,

2) Weaning Food Interventions and

3) Other Nutrition Interventions.

All three areas stress intersectoral coordination. The first two follow from the experience of SERISS.

Within the first area of concentration, Planning and Monitoring, three activities are suggested for implementation in the first year:

a) creation of a National Food and Nutrition Council,
b) focus SERISS on regional decision making and
c) growth monitoring in sentinel sites.

In subsequent years, the Strategy calls for maintaining and extending the activities begun in the first year, including supporting the council, developing regional surveys and plans and providing technical assistance. In general, the primary focus would be to develop a system that could identify and respond to localized emergency problems.

The second area of concentration, Weaning Food Interventions, proposes support for the development of a weaning food by the Food Research Centre for distribution through commercial channels. This activity would be based on research already accomplished by the Food Research Center and on a feasibility study performed by USAID technical assistance team.

The third area of concentration, Other Nutrition Interventions, calls for continuation during the first year of on-going activities, i.e. continuing support for UNICEF and distributing Vitamin A to prevent blindness. The Strategy suggests an additional activity in subsequent years, namely supporting integration with CDD and other CS interventions through coordinated planning and training. In a more general way, the Strategy also mentions strengthening the Nutrition Division of MOH, incorporating nutrition activities into PHC units and health centers and stressing growth monitoring, breastfeeding promotion, malnutrition management and nutrition education.

Following its review of the CS Strategy, USAID/Khartoum selected four activities as important follow-up projects to the SERISS project:

- establish the National Food and Nutrition Council,
- support ad hoc nutritional surveys by regional authorities,
- establish growth monitoring in sentinel sites and
- develop regional plans of action.

In order to develop a more focused implementation plan and timetable for these activities, additional factors have been considered. These include the results of further analysis of the SERISS data, GOS nutrition priorities, and the overall strategy of integrating the MOH programs of CDD, EPI and Nutrition under a child survival theme within the MOH primary health care system.

PLANNING AND MONITORING

Planning, monitoring and supervision lie at the heart of the successful integration of CDD, EPI and nutrition. Therefore, these activities in the nutrition sector should be integrated with CDD and EPI.

The integration plan calls for the creation of a Ministry CS Working Group to establish policy and to coordinate activities among the child survival programs, including nutrition, during the first year. The working group will act in lieu of the National Food and Nutrition Council originally suggested in the Strategy, until such time as it is appropriate to consider establishing a separate council.

Workshops will be held in all regions to review SERISS results as well as other relevant data from CDD and EPI. The purpose is to establish regional priorities and action plans for practical regional strategies to address the priority problems in child survival. These workshops may lead to small studies at the regional and district level in order to assist regional decision makers in designing local strategies. These workshops will be carried out initially in Kordofan Region. Other regional workshops will be implemented in a phased manner.

Growth monitoring holds the potential to improve monitoring and targeting of programs and to improve case management and mother education. Its purpose in sentinel sites is to improve targeting of emergency aid and other programs to those most in need. However, due to the significant problems involved in implementing a sentinel sites program in a country such as the Sudan as well as the problems involved in establishing a successful growth monitoring activity, there is not at this time a consensus among project managers that this activity should proceed. For example, some of the practical problems in the Sudan which mitigate against this effort include Sudan's geographic expanse and diversity, its lack of infrastructure, its lack of birth records or other means of reliable age determination and its scarcity of resources. Therefore, this activity will not be included as a priority activity in the implementation of the CS Strategy.

Results from SERISS and other nutritional studies indicate that inadequate supplemental feeding during the weaning period (from approximately 6 to 24 months) is the most important cause of infant malnutrition. (See Annex B for summary of studies leading to this conclusion.) In light of this finding and GOS priorities, the weaning food activity will be expanded to include both a program to increase the use of home-based weaning foods and the development of a commercial weaning food.

In order to design a national education campaign to increase the use of home-based weaning foods, a study of weaning habits will be undertaken with technical assistance from the Nutrition Education and Social Marketing Project (NESMP). An education program will be designed and implemented. (See Annex A for

Scope of Work). The studies of weaning practices and social marketing approaches will be carried out in the first year, a plan designed and pilot projects initiated in the second year and implementation begun in the third year.

The USDA has assisted the Food Research Center in developing a sorghum based weaning food. Acceptability and feasibility studies for commercialization of this product are in progress. With assistance from NESMP in cooperation with USDA, these studies will be completed. Should commercial production prove feasible, the FY 1989 project should include additional funds for the USAID/Sudan PASA with USDA to assist in the preparation of performance specifications and evaluation criteria for the selection of a local firm if this is an appropriate implementation avenue. (See Annex A for Scope of Work for the market study).

OTHER NUTRITION INTERVENTIONS

As long as USAID continues to support the MOH through UNICEF'S Child Survival Development Program, nutrition activities will be implemented through the primary activities of CDD and EPI. Nutrition education will also be a component with CDD and EPI in the private sector population project.

The Vitamin A projects have already begun and will conduct applied research on the impact of Vitamin A distribution. Helen Keller International (HKI) will carry out the work in Darfur, while the Harvard Institute for International Development (HIID) will work in Khartoum and Gezira.

Integration of nutrition activities has been initiated already in the CDD program. Nutrition education about the dietary management of diarrhea (DMD), implemented by the Nutrition Division, accompanies case management activities in several of the ORT demonstration centers. In addition, the CDD training curriculum has just been revised to include a module on DMD. With the assistance of PRITECH, the DMD component will be evaluated and strengthened. (See Annex A for the Scope of work for technical assistance from PRITECH.)

V.E. CHILD SPACING

The Sudan population estimated at 25 million has one of the higher growth rates in the world. The average Sudanese woman has seven live births during her reproductive years. Recently, the GOS estimated that the population is increasing at a rate of at least 3.1 percent per year resulting in a doubling time of 22 years.

Recognizing the implications of such rapid growth, a draft population policy was developed as a result of the Third National Conference on Population held in Khartoum in October 1987. It has identified the following objectives:

- the provision of family planning services and information to all Sudanese couples and

- the expansion of programs to improve infant and child care, promote child survival and ensure safe motherhood in the public and private sectors.

The Mission's CS Strategy outlined three short-term interventions to take place in FY 1988 as follow-up to the conference:

a) population policy support,
b) research, data collection and analysis and
c) private sector family planning service delivery.

Implementation of the suggested activities is progressing well. USAID is supporting the National Population Committee (NPC) with local currency to promote the continuing population policy development activities. USAID has also authorized a budget transfer for a buy-in to the centrally funded Options Project to provide technical assistance to the NPC. The Department of Statistics, Ministry of Finance and Economic Planning, has just signed an agreement with Westinghouse to conduct a demographic and health survey beginning the first quarter of FY 1989. USAID has received a proposal from Columbia University to assist in the developing of initial family planning services in selected factories in Khartoum.

In addition to these actions, USAID has continuing involvement with five centrally funded population activities (including a national commodities distribution project) and five more are under development. The Sudan Fertility Control Association (a local PVO) also receives local currency support for the provision of family planning services in Khartoum. Through these activities USAID provides approximately half of all donor-provided contraceptives for the Sudan.

In the long-term USAID plans to develop the Population Policy Program Support Project (PPPSP). The initial stage of design will be completed in the fourth quarter of FY 1988 and the project will be authorized in FY 1989. The project will emphasize:

- continuing policy dialogue and development,

- expansion of family planning services in the private sector beginning first in the health services provided by factories,

- social marketing of contraceptives through commercial outlets which are estimated to reach approximately 80 percent of the population and from which 60-75 percent of contraceptive users purchase their supplies,

- program support in management, logistics, IEC, and technical training to the private sector activities.

There appears to be a trend once again in the Mission toward expanded use of centrally funded population intermediaries (the high of approximately 20 activities in 1984). With this type of expansion comes increasing demands on Mission management albeit for the purpose of supporting Mission initiatives until a bilateral population project has been fully implemented. With the history of difficulties filling positions in the Health/Population/Nutrition Office, USAID must design this project with specified phase-out plans for these interim activities. Serious consideration must be given to providing project management support through a full-time project-funded coordinator. The Nigeria Family Health Initiatives II project 698-0462.20 provides an example of this approach.

In addition, a TA team of a certified nurse mid-wife and a logistics officer would be key to providing the assistance that will be needed in establishing and monitoring family planning services in a variety of different private organizations. Consideration should be given to including a Sudanese as a consultant to the design activities, someone who is respected by the many factions that exist in the NPC and among the OB-Gyn's active in family planning. Drawing on the experience of the Hag Yousif Clinic will be crucial, as will the experiences from Kenya and Senegal in their private sector family planning projects.

In the Sudan, it has been estimated that spacing of births 24 or more months apart could decrease infant mortality (IM) by 20 percent. The already well established tendency of purchasing contraceptives in the private sector suggest that social marketing of ORS could be introduced with that of contraceptives without detracting from the sale of contraceptives. Given the potential impact of child spacing on the IM rate, the addition of ORS (approximately 10 percent of the project) would significantly contribute to the child survival impact of the project. For example, based on the performance of the CDD program to date, an 80 percent access to ORS through the private sector might be the boost needed to achieve the target of 40 percent use. This could decrease childhood mortality by 25 percent (from Table 1, 64 percent of deaths associated with diarrhea multiplied by 40 percent ORS use rate).

The CDD program in the MOH will be the exploring further the feasibility of local production of ORS with the TA from PRITECH. Ghana provides an example of local production stimulated through the A.I.D.'s commodity import program. In Ghana the ORS was then linked with the social marketing of contraceptives. This example might well provide some "lessons learned" for the Sudan.

To further enhance the CS impact of this project, CDD and EPI should be included as components of the private sector child spacing services, for approximately 10 percent of the project. These components should be added in a phased manner approximately one year after full implementation of family planning services by a factory or another provider.

The life of project funding planned for the PPPSP is $6.0 million. With the changes suggested in this Implementation Plan, the LOP would increase to $10.0 million of which $6.0 million would be for population and $4.0 million, for child survival.

VI. OUTLINE OF BUDGET

For FY 1988:

I. a) Operating year budget (OYB) transfer to Africa CS Initiative-Combatting Childhood Communicable Diseases (ACSI-CCCD) Project No. 698-0421 for buy-in to PASA for Technical Advisor in CS (TACS) (TACS ETA - 8/88) — US$ 500,000

b) OYB transfer to ACSI-CCCD Project 698-0421 for buy-in to PRITECH for TA to CDD program re ORS production in private sector, evaluation of management and district level planning capability, and of adequacy of dietary management of diarrhea. — US$ 175,000

c) OYB transfer to ACSI-CCCD project for buy-in to Nutrition, Education and Social Marketing Project for evaluation of nutrition education programs, development of program to promote weaning foods, complete marketing study for commercial production of weaning foods in coordination with CDD. — US$ 150,000

d. OYB transfer to ACSI-CCCD for buy-in to study of all the costs of EPI program and assessment of effectiveness of self-help measures being promoted. — US$ 175,000

I. Sub-total OYB transfer — US$ 1,000,000

II. UNICEF Grant Agreement

a) Support for MOH CS Working Group. — Support in local currency (LC)

b) Under auspices of CDD, develop applied research activity to test 2 different models of integrated supervision in Khartoum and Central Region where EPI coverage for under 1's already exceeds 50 percent, building on the team concept developed by ADRA (Khartoum) and that developed by the Blue Nile Health Project. — Support in LC

c) ORS, 6 million packets to raise access from 14 percent to 30 percent and use from 8 percent to 20 percent. — US$ 456,000

d) 30 month radio network maintenance contract to facilitate communication with regions and to complement data system provided in FY87. Of this contract 3.5 months is to add CDD to EPI data system. — US$ 113,000

II. UNICEF Grant Agreement, continued.

e) Social Mobilization: Continue support of social mobilization officer for CDD and of CDD pilot project with MOH in White Nile Province. Promote workshop on techniques of assessing the effectiveness of mass media efforts for CDD and EPI, illustrating pilot activities with MOH, Ministries of Education and Information and NGO's.	US$ 311,000
f) Vaccines, needles and syringes to fully immunize 550,000 children under age 1 and raise the coverage of fully immunized children in the North from 30 percent to 55 percent of under 1's; to fully immunize an additional 900,000 children 12-36 months of age; to immunize 800,000 women with tetanus toxoid (TT).	US$ 1,970,000
g) Evaluation of solar refrigerators purchased in FY87 in coordination with Rural Health Support Project. RHSP to obtain consultant from PATH.	Support in LC
h) Provide accounting technical assistance to EPI.	Support in LC
i) Provide by contract, services for an audit of MOH's EPI, (recommended by EPI evaluation of 9/87).	US$ 150,000
j) Dropout and vaccine wastage studies (recommended by EPI evaluation).	Support in LC.
II. Subtotal UNICEF Grant Agreement	US$ 3,000,000
III. Grand Total Child Survival - FY 1988	US$ 4,000,000

FOR FY 1989:

a)	Develop a CS PID for FY 1990 obligation and continue UNICEF Grant.	US$ 1,000,000
b)	Reserve for OYB transfers for buy-ins for Child Survival, e.g. NESMP, PRICOR, WHO, USDA, Child Survival Fellow to monitor applied research activities.	US$ 1,000,000
c)	Health Care Financing buy-in to REACH or follow-on project for study on costs of outpatient facilities.	US$ 500,000
d)	Initial obligation of Population Policy & Program Support Project (PPPSP)	US$ 2,000,000
e)	20 percent CS funds can be justifiably added, based on the fertility patterns of high risk women; approximately 10 percent could be added for the social marketing of ORS and another 10 percent could be added for the addition of CS interventions (EPI, CDD) to the private sector Child Spacing activities.	US$ 1,500,000
Grand Total Child Survival - FY 1989		US$ 4,000,000
Grand Total Population - FY 1989		US$ 2,000,000

FOR FY 1990:

a)	Obligate Child Survival Project which concentrates on management & health care financing with continuing support to an integrated district level approach to EPI, CDD and Nutrition and which includes grant to UNICEF.	US$ 1,500,000
b)	MCH activities (including child spacing) in the public sector could be addressed through the CS Project since the Rural Health Support Project completion date is 8/90.	US$ 1,000,000
c)	Second year obligation for PPPSP:	
	Population	US$ 2,000,000
	CS	US$ 1,500,000
	Grand Total Child Survival	US$ 4,000,000
	Grand Total Population	US$ 2,000,000

FOR FY 1991:

a)	Second year obligation for CS Project and grant to UNICEF.	US$ 2,000,000
b)	Third year obligation for PPPSP:	
	Population	US$2,000,000
	Child Survival	US$1,000,000
	Grand Total Child Survival	US$ 4,000,000
	Grand Total Population	US$ 2,000,000

A N N E X A

Scopes of Work

Department of State

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ORIGIN AID-00

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INFO AAAF-03 AFEA-03 AFDP-06 SEOP-01 FPA-02 AFPD-04 SERP-01
AFTR-05 SEPW-01 AMAD-01 PDPR-01 PPPB-02 GC-01 GCAF-01
GCCM-02 STH-03 STPO-01 SAST-01 POP-04 HNS-09 PVC-02
STFA-01 OMB-02 RELO-01 /061 A0

INFO LOG-00 AF-00 IO-10 /019 R

DRAFTED BY: AID/ST/H:JTERRY.JT:5925U
APPROVED BY: AID/ST/H:AVANDUSEN
AID/AFR/TR/HPN:MAMICKA (DRAFT) AID/AFR/EA:JWEBER (PHONE)
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UNCLAS STATE 018943

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E.O. 12356: N/A
TAGS:
SUBJECT: PROPOSED TECHNICAL ADVISOR FOR CHILD SURVIVAL (TACS)

REFS: A. STATE 308463 B KHARTO 06624 C. STATE 188259

1. FOLLOWING SCOPE OF WORK HAS BEEN DEVELOPED BASED ON MISSION'S DRAFT CS STRATEGY AND SOW DRAFTED BY VIC BARBIERO IN KHARTOUM. RECRUITMENT CAN BEGIN AS SOON AS (A) MISSION CORRECTS, COMPLETES AND APPROVES SCOPE OF WORK, AND (B) SOURCE OF FUNDING HAS BEEN IDENTIFIED

2. AFR/TR/HPN SUGGESTS THAT SOME OF FUNDS APPROVED FOR UNICEF CS GRANT BE USED TO BUY IN TO PASA HC DPE-5951-A-00-7015 TO FUND POSITION.

3. PROPOSED SCOPE OF WORK FOLLOWS

POSITION: TECHNICAL ADVISOR FOR CHILD SURVIVAL
- ACTIVITIES

LOCATION: USAID/KHARTOUM
- TECHNICAL ADVISOR WOULD REPORT TO HEALTH,
- POPULATION AND NUTRITION OFFICER, USAID

DURATION OF ASSIGNMENT: 2 YEARS

DUTIES AND RESPONSIBILITIES:

SUMMARY:

ASSIST USAID/KHARTOUM AND THE MOH WITH THE STRATEGIC PLANNING, DEVELOPMENT, MANAGEMENT AND EVALUATION OF CHILD SURVIVAL ACTIVITIES WITHIN THE OVERALL USAID PROGRAM.

SPECIFIC DUTIES AND RESPONSIBILITIES:

- ASSIST USAID STAFF AND GOS MOH OFFICIALS IN
- IDENTIFYING, PLANNING, DEVELOPING, MONITORING AND
- EVALUATING CHILD SURVIVAL ACTIVITIES WHICH MEET THE
- PRIORITY REQUIREMENTS OF BOTH USAID AND THE GOS.

- PROVIDE TECHNICAL BACKSTOPPING AND MANAGEMENT OF THE
- CHILD SURVIVAL PORTFOLIO WITHIN THE OVERALL USAID

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- HPN PROGRAM.

- OVERSEE THE USE OF USAID FUNDS PROVIDED TO OTHER
- AGENCIES FOR CHILD SURVIVAL ACTIVITIES

- PROVIDE THE NECESSARY LINKAGE BETWEEN THE AID-FUNDED
- PROJECTS WHICH HAVE CHILD SURVIVAL COMPONENTS.
- COORDINATE USAID CHILD SURVIVAL INITIATIVES WITH
- THOSE OF OTHER DONORS AND PVOS WORKING IN CHILD
- SURVIVAL.

- IDENTIFY TECHNICAL ASSISTANCE REQUIREMENTS IN CHILD
- SURVIVAL AREAS; IDENTIFY POSSIBLE RESOURCES; PROVIDE
- SUPERVISION AND COORDINATION OF SHORT-TERM
- CONSULTANTS IN CHILD SURVIVAL; ENSURE FOLLOW-UP TO
- TECHNICAL ASSISTANCE PROVIDED WITHIN THE OVERALL
- CHILD SURVIVAL PORTFOLIO OF ACTIVITIES.

- ESTABLISH A CHILD SURVIVAL DATA BASE AND PROVIDE
- PERIODIC REPORTS ON CHILD SURVIVAL STATUS AND ON THE
- PROGRESS OF CHILD SURVIVAL ACTIVITIES AND
- ACCOMPLISHMENTS.

- DEVELOP PRODUCTIVE WORKING RELATIONSHIPS WITH
- SUDANESE COUNTERPARTS TO ENSURE THE SHARING OF
- EFFORTS AND RESPONSIBILITIES IN THE AREA OF CHILD
- SURVIVAL.

SPECIFICALLY WITH REGARD TO THE UNICEF PROJECT:

- ASSUME PRIMARY RESPONSIBILITY FOR BACKSTOPPING AND
- MONITORING THE UNICEF GRANT;

- ENSURE NECESSARY FOLLOW-UP TO ANY TECHNICAL
- ASSISTANCE PROVIDED TO UNICEF BY USAID;

- MONITOR USAID INPUTS IN TERMS OF BOTH PROGRESS AND
- PROCESS INDICATORS;

- REVISE AS NECESSARY THE UNICEF/USAID GRANT AGREEMENT
- BASED ON ABOVE RESULTS. COORDINATE THE DEVELOPMENT
- OF THE DOCUMENTS NEEDED FOR THE PROPOSED FIVE-YEAR
- PROJECT ADD-ON.

QUALIFICATIONS:

- A MINIMUM OF TWO-TO-THREE YEARS OF TECHNICAL AND/OR
- MANAGEMENT EXPERIENCE IN HEALTH CARE DELIVERY,

- A MINIMUM OF TWO-TO-THREE YEARS EXPERIENCE OVERSEAS,
- PREFERABLY IN AID-FUNDED DEVELOPMENT PROJECTS
- FAMILIARITY WITH AID PROJECT DESIGN, MANAGEMENT AND
- EVALUATION WOULD BE VERY HELPFUL.

- TECHNICAL SKILLS IN A PUBLIC HEALTH FIELD RELEVANT
- TO CHILD SURVIVAL PRIORITIES, I.E. IMMUNIZATIONS,
- ORT, NUTRITION, OR BIRTH SPACING/FAMILY PLANNING.

- PROFESSIONAL, MASTERS-LEVEL DEGREE IN A PUBLIC
- HEALTH FIELD, PREFERABLY WITH A FOCUS RELEVANT TO
- CHILD SURVIVAL, E.G. EPIDEMIOLOGY, HEALTH PLANNING
- OR HEALTH CARE ADMINISTRATION.

OTHER REQUIREMENTS:

A SECURITY CLEARANCE AT THE ( ) LEVEL WILL BE REQUIRED.

END SOW.

4. NOTE: AS PER REF A, TACS MAY ASSUME

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RESPONSIBILITIES USUALLY ASSOCIATED WITH DIRECT HIRE POSITIONS WITH THE APPROVAL OF THE MISSION DIRECTOR SINCE PROPOSED SOW INVOLVES SUCH AUTHORITIES, DIRECTOR APPROVAL WILL BE REQUIRED.

IT IS POLICY OF TACS PROGRAM THAT NET EFFECT SHOULD NOT BE TO REDUCE ON POSITIONS IN HEALTH. BY REQUESTING TACS, IT IS ASSUMED THAT MISSION CONCURS WITH THIS UNDERSTANDING. SHULTZ

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Department of State

INCOMING TELEGRAM

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ACTION AID-00

ACTION OFFICE STHE-03
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POP-04 HHS-09 PVC-02 ES-01 STFA-01 OMB-02 REL-01
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R 110907Z MAR 88
FM AMEMBASSY KHARTOUM
TO SECSTATE WASHDC 6743

UNCLAS KHARTOUM 02885

AIDAC

FOR AFR/TR/HPN AND ST/H

E.O. 12356: N/A
SUBJECT: SUDAN - CHILD SURVIVAL; PROPOSED TECHNICAL ADVISOR FOR CHILD SURVIVAL

REF: (A) STATE 018943, (B) STATE 304641,
(C) KHARTOUM 06624 (D) STATE 180259

1. USAID/SUDAN CONCURS IN THE SOW FOR A TECHNICAL ADVISOR FOR CHILD SURVIVAL (TACS) OUTLINED IN REFTEL A, AS WELL AS PROPOSED SOURCE OF FUNDING, CHILD SURVIVAL FUNDS.

2. PER REFTEL A PARA 4, WHETHER THE TACS ASSUMES RESPONSIBILITIES USUALLY ASSOCIATED WITH DIRECT HIRE POSITIONS WOULD BE SUBJECT TO DETERMINATION AT THE TIME THE CANDIDATE IS IDENTIFIED AND CONTRACT/AGREEMENT NEGOTIATED. USAID ASSUMES THAT THIS WOULD BE DETERMINED BY MISSION NEED, AS WELL AS THE QUALIFICATIONS/EXPERIENCE OF THE POTENTIAL CANDIDATE.

3. A SECURITY CLEARANCE AT THE CONFIDENTIAL LEVEL IS REQUIRED.

4. MISSION GREATLY APPRECIATES AID W ASSISTANCE AND SUGGESTS THAT IDENTIFICATION OF POTENTIAL CANDIDATES PROCEED IMMEDIATELY, WITH JULY 1988 AS A TARGET DATE FOR PLACEMENT IN USAID/SUDAN. ANDERSON

ANNUAL BUDGET IN 000's
FOR TECHNICAL ADVISOR IN CHILD SURVIVAL, USAID/SUDAN

U.S. Dollar Costs in PASA	Year One	Year Two
Salary (estimated)	50.0	53.0
Differential 25%	12.5	14.0
COLA 30%	7.5	8.1
Transfer Allowance	.7	-0-
Transfer Costs		
5 airline tickets	16.0	16.0
UAB @ 800 lbs.	3.6	3.8
NHE @ 7,200 lbs	14.5	14.0
POV	3.5	3.5
Consumable	5.0	-0-
R&R		
5 airline tickets	11.6	13.0
International Travel		
Est. 2 Int'l/year	8.0	8.5
In-country Travel (Charter)	8.0	8.5
Residential Security		
Radio	3.0	-0-
Residential upgrade	25.0	-0-
Furniture/Equipment	100.0	-0-
Contingency	51.0	52.7
Sub-Total	$314.6	$185.4

Indicative Sudanese Pound Costs to be Committed in USAID Trust Fund:		
Local Travel within Sudan	LS 7.0	LS 10.0
Housing		
Rent	96.0	100.0
Utilities	24.0	24.0
Security Guards	33.6	34.0
Other Direct costs	6.3	10.0
Program Support	42.3	57.8
Subtotal in LS	LS209.2	LS226.8
Subtotal in U.S. $ @ LS 4.45/$	$ 47.0	$ 53.0

SCOPE OF WORK

CONTROL OF DIARRHEAL DISEASES (CDD)

A. General

Provide technical assistance (TA) to the CDD Program of the Sudan Ministry of Health (MOH) to evaluate progress to date, to improve planning management and supervision of the national program and to develop a more in-depth approach to dietary management of diarrhea.

The CDD program is working with the MOH programs of EPI and Nutrition to achieve an integrated approach to child survival. In fact, the Nutrition program has developed and implemented the dietary management of diarrhea component. The work plans of all three programs should be coordinated.

B. Sub-Projects

1. Improved Planning, Management, Supervision and Evaluation of the CDD Program

The objective of this sub-project is to improve the planning, management and supervision of the CDD program and to add a community-based approach which will enable the program to achieve the targets of 60% access to ORS and 40% use by 1990.

a. The contractor is requested to assist in the first evaluation of CDD scheduled for November 1988 possibly with the provision of an Arabic-speaking nutritionist skilled in the dietary management of diarrhea and possibly in the local production of and social marketing of oral rehydration salts (ORS).

b. Based on the results of the evaluation, the contractor will provide TA to help develop a three year plan, including a detailed overall budget and an information, education and communication (IEC) plan. All work will be coordinated with the MOH Child Survival Working Group. A detailed work plan will be developed.

The contractor will provide technical assistance to the CDD Division of MOH on issues of sustainability of the CDD program. The TA will include designing programs that will increase mothers' demands for ORS and their understanding and use of both ORS and measures which prevent diarrhea. In addition, the contractor will propose methods for measuring progress with respect to sustainability. Included in the TA may be areas such as social marketing, professional training programs, private sector initiatives or others, as may be defined in the work plan.

The contractor will provide technical assistance to the MOH in carrying out the plan noted above, with emphasis in areas of curriculum development, operational research studies and monitoring/evaluation.

c. Contractor will determine the feasibility for private sector production of materials for the CDD program. This will include a study of the cost of production of ORS mixing pitcher developed by the MOH and the potential market demand. Cost and benefits of local production of ORS packets will be determined as will the identification of quality of materials requirements and the influence of import restrictions on production feasibility.

2. Dietary Management of Diarrhea (DMD)

The principal short-term strategy of the Sudan Diarrheal Disease Control Program is improved case management, including both rehydration with ORS and proper feeding during and after diarrhea. Detailed plans and substantial progress has been made in oral rehydration, but planning and progress in improved feeding is less. The general purpose of this sub-project will be to assist the CDD program of the MOH in reviewing current information and achievements relative to improved feeding during and after diarrhea, assist in developing detailed plans of operation (including studies to fill in needed knowledge) and to provide technical assistance during implementation of those plans.

a. The consultant will review studies and information relevant to feeding practices during and after diarrhea in the Sudan and will review efforts and progress by the MOH, especially the CDD Division, to improve DMD. The review will include, but not be limited to training materials and activities, hospital practices, SERISS results, and experiences of regional programs such as Rural Health Support Project (RHSP), Blue Nile Health Project, Community Based Family Health Project (CBFHP), the Joint Nutrition Support Programme (JNSP) in the Red Sea Province and the School Gardening Nutrition Education Program in the Ministry of Education. The consultant will produce a report summarizing this review.

b. Based on the results of step (a) above, and on discussions with the CDD, EPI and Nutrition Divisions of MOH, the contractor will prepare a draft work plan for the duration of the sub-project. The draft will be reviewed by USAID/Khartoum and MOH counterparts and modified as appropriate.

c. The contractor will assist in the preparation of a detailed operational plan for the MOH to improve feeding behavior during and after diarrhea specifically in relation to the CDD Program. Preparation of the plan may require small mini-studies which should be spelled out in the work plan developed in (b) above and may include agencies other than MOH.

SCOPE OF WORK

WEANING FOODS IN THE SUDAN

A. General:

Provide technical assistance (TA) in nutrition education and social mobilization to the Sudan Child Survival programs in EPI, CDD and Nutrition within the MOH. These three programs in the MOH are working to achieve an integrated approach to child survival, a direction strongly supported by USAID. The contractor's efforts under this scope of work should support this integration. In particular, the development of work plans for the various sub-projects described here should be coordinated not only with each other, but also with the child survival operational plans for EPI, CDD and Nutrition.

B. Sub-Projects:

1. Supplemental Feeding of Infants and Younger Children

The objective of this sub-project is to reduce malnutrition, morbidity and mortality of children aged 4 months to 36 months of age by improving feeding behavior during this period. Existing evidence indicates that although breastfeeding is nearly universal in Sudan, the introduction of supplemental foods is too little, too late and is probably a major cause of the substantial malnutrition found in Sudanese children. (The term "supplemental foods" refers here to household foods given to infants and younger children to supplement mother's milk).

a. The contractor will review and analyze existing data that relates nutritional status to age in order to identify sub-groups (e.g., by geographical location, parental characteristics, etc.) where nutritional problems are the most severe, and for which inadequate supplemental feeding may be a problem. The SERISS data in particular should be reviewed in some depth. The contractor will prepare a report summarizing this review.

b. The contractor will review and analyze relevant literature and studies on feeding behavior in Sudan for the purpose of identifying possible feeding practices which may contribute to inadequate feeding behavior and malnutrition of children 4-36 months of age. The summary prepared by INCS ("Maternal and Infant Nutrition Reviews: Sudan, a Guide to the Literature", RC Israel et al., INCS Publication, EDS Inc, Newton, MA June 1984) and the references therein will be included in this analysis. The contractor will prepare a report summarizing this analysis.

c. Based on the work in steps (a) and (b) above, and on discussions with staff in the EPI, CDD and Nutrition Programs, the contractor will prepare a draft work plan for the duration of the sub-project. The draft work plan will be reviewed by USAID/Khartoum and the MOH counterpart, with suggested changes discussed with the contractor and included as appropriate.

d. The contractor will assist in carrying out field studies to identify inappropriate feeding practices and the reasons behind such practices. The purpose of these studies will be to design messages for mothers and others that can improve these practices. It is not necessary that these field studies be lengthy or elaborate, and may involve such techniques as focus groups and field observations. It is likely that this task will require visits to various locations in Sudan, but possibly in a phased approach in order to achieve efficiencies. Work will be coordinated with the Ministry of Education School Gardening Nutrition Division and with the Food Research Center at Shambat Institute. The details of this task will be spelled out in the work plan developed in (c) above.

e. The contractor will assist in the design and field testing of messages aimed at correcting improper feeding behavior. Such messages may include appropriate recipes, and will be concise, clear and practical (for example, avoiding recommendations that cannot realistically be done by poor mothers). In order to keep messages relevant and limited in number, they will be prioritized by region or group. This activity will be based on the studies in (e) above and within the framework of the work plan.

f. The contractor will assist in a study to identify and analyze (in terms of relative costs and effectiveness) various approaches for modifying inappropriate mother behavior (for example, various channels for sending messages). The study should be phased, according to the work plan.

g. Based on the results of tasks d-f above, the contractor will assist in developing a plan for improving supplemental feeding of infants and children with initial implementation phases linked to EPI, CDD and nutrition integration sites at district levels. As with other study and planning tasks, this activity should be phased so that parts of the plan may be developed, tested and revised before other parts. Special attention will be given to the design of the monitoring and evaluation section of the plan, due to the difficulties of implementing a practical monitoring and evaluation procedure for nutritional status in Sudan.

2. Market Analysis and Testing of a Commercial Weaning Food

As a result of development work by the Food Research Centre at Shambat Institute, with technical assistance through a USDA PASA with USAID/Sudan, a locally-produced commercial weaning food has been proposed. An April, 1988 report by a USAID technical assistance team made major advances in defining the production and marketing feasibility of the food. (Feasibility of Production and Marketing of Indigenous Nutrition Foods by the Private Sector in Sudan: A Trip Report, J.M. Harper, G.R. Jensen, R.J. Redenius, J.P. Nichols, USAID/Khartoum and A.I.D./W:ST/Nut, March 15 - April 3, 1988). The purpose of the work defined below is to provide technical assistance to the Food Research Centre, in cooperation with USDA, the MOH and the Ministry of Commerce, in market analysis, market testing, development of marketing strategies.

a. The contractor will prepare a work plan and budget with the Food Research Centre, in cooperation with USDA, for carrying out the tasks described below. The work plan will be reviewed and approved by the CDD Division of MOH and by USAID/Khartoum.

b. The contractor will assist in designing, implementing and interpreting a field test of the acceptability of the product defined in the 1988 Harper Trip Report (Op. Cit.). The product can be produced at and purchased from Colorado State University with raw materials from Sudan. The field test should focus on urban populations. The field tests may include expert laboratory panels, centrally administered consumer panels, and in-house product placement. The contractor will prepare a report of the results of this test with recommendations.

c. The contractor will assist in designing, implementing and interpreting market analysis studies aimed at answering the following questions: what are good names for the product? Is the 500 gram package suggested by the Harper report the best size? What is the best package design in terms of material, shape, color, etc? How are mothers most likely to use the product? What sales channels are likely to be the most successful? Will the price proposed in the Harper report (4.5 - 5.5 LS per 500g) be acceptable to the market? This may be done in coordination with the acceptability tests (paragraph b above), and through separate studies. It will draw on results of weaning food studies (section B-1 above).

d. The contractor will assist in the preparation of a preliminary marketing plan for the product that includes advertising, phasing (e.g. should the Khartoum market be penetrated first?), required downstream inventories to minimize stockouts, distribution channels and special promotions. Retail store testing may be required.

SCOPE OF WORK

HEALTH CARE FINANCING IN THE SUDAN

GENERAL TASKS

The current health care financing activity will consist of two parts. The first set of tasks will be to generate a set studies which determine the cost of operations within the MOH, the use of resources, prospects for and the effects of local self financing endeavors. The second set of tasks will develop materials for training local managers in the efficient use of available resources, and recommendations for structural change in the MOH to facilitate more efficient operations.

Contractors will be responsible for determining and evaluating current health care financing activities in the Ministry of Health (MOH), including cost of operations, sources of funding and generation of local revenues. Information will be compiled in a form usable for MOH officials for budgeting and planning activities. Contractors will also evaluate alternative models of health care financing and make recommendations for opportunities for coordination of health care financing activities among foreign donors.

DEVELOPMENT OF COST, SELF HELP AND PRIVATE SECTOR ACTIVITIES

SPECIFIC TASKS

1. Cost Studies.

A. Contractor will determine the cost of operations within the MOH hospitals and health clinics. The study will determine and use the cost of labor, pharmaceuticals, materials, transport, equipment and buildings in the delivery of health services in the MOH, including hospital admissions, clinic visits, immunizations, health education, and primary health care. The study will determine if MOH resources are being used in an optimal manner and make recommendations on possible changes in staffing patterns, drug and material expenditures, vehicle investment and use, and rehabilitation of MOH facilities.

B. Cost and benefits of hospital rehabilitation program will be evaluated. Importance of rehabilitation to current operating cost of hospitals will be considered. Evaluation will consider importance of policy reforms in MOH maintenance budgets to long terms effects and benefits of potential rehabilitation. Long term importance of self help funding will be considered.

2. Self Financing.

Contractor will survey and evaluate on the extent and variety of self financing mechanisms in operation in Sudan. This will include admittance fees at MOH facilities, any charges for services or for drugs, any taxes collected for operation of MOH facilities, and the extent of donations collected by the MOH. Community pharmacies will be evaluated for their potential as a self financing mechanism. Self financing activities will be evaluated for their

actual and potential revenue generation capacities, effects on demand for health services, relevance to costs of services, and the ability of the community to support the current volume of donations.

3. Private Health Resources.

Contractor will determine the extent of the private health sector in Sudan. This will include both medical personnel and drug delivery systems. Contractor will assess the potential for growth in the private sector, including employee health coverage by large employers. Contractor will evaluate possible obstructions to the growth of private sector health services, including government licensing and regulations, restrictions on the use of foreign exchange, and activities of the MOH, including fee schedules and the operation of community pharmacies.

FACILITATING FINANCIAL MANAGEMENT AND PLANNING

SPECIFIC TASKS (Items 4,5 & 6 could form basis of a health financing project.)

4. Evaluation of Budgeting and Planning.

A. Contractor will assess the location of authority and responsibility for budgeting and planning within the levels of the MOH, and in the Ministry of Finance and Planning. Included will be an evaluation of the relationship among central, regional, provincial, local, and facility level officials and the effects of decentralization in the MOH. The study will identify areas where the source of funding and decisions about use of resources are made at different levels of the MOH. Evaluation of the implications of this system will be made for the use of health resources.

B. A detailed management study will be made of the effects of the decentralized organization of the MOH. Recommendations will be made on methods of restructuring the organization to facilitate more efficient use of resources. Included in the study will be recommendations on more appropriate allocations of costs and on efficient methods of integrating central ministry vertical programs into the regional organization.

5. Development of budgeting and planning materials. Contractor will develop material useful for improving the budgeting and planning capacity of MOH officials. Included will be results of the cost and self financing studies, prepared in a manner that will allow officials improved decisionmaking about use of resources.

6. Evaluation of alternative models. Contractor will evaluate alternative health care financing models for their applicability to the Sudan. Included in the evaluation will be proposals by the WHO, World Bank, and UNICEF. Possible extensions of the health care financing component of the RHSP will also be considered. Approaches will be evaluated for: applicability to a decentralized system in which internal resources must be supplemented by foreign donors, opportunities for improved planning and efficient allocation of resources, ability to distribute health resources equitably across geographic areas, capacity to utilize the vertical programs in the central ministry, and their compatibility with local self financing activities.

SCOPE OF WORK
OPERATING COSTS OF THE EXPANDED PROGRAM OF IMMUNIZATIONS IN THE SUDAN

In a recent evaluation of the Expanded Program of Immunizations (EPI) in the Sudan, several areas were identified for improvement. They include the need to focus on planning and management skills and to emphasize financial sustainability. In addition to a weak management infrastructure, the availability of current data for planning purposes is overwhelmingly scarce. Attempts to obtain basic budgetary information has highlighted the general absence of sound costing data for the Ministry of Health. For the EPI, Unicef has developed estimates of the cost per fully immunized child based on donor support, but this figure does not include MOH contributions at the central or regional level.

A study of the full costs of the EPI program in the Sudan is proposed. The contractor will use a standard methodological framework for cost analysis of EPI programs. Compatibility will be achieved with the WHO EPI Costing Guidelines.

The contractor will develop estimates of the cost per immunized child, the degree of coverage, and the rate of dropout before full immunization for the EPI program at its current and proposed levels of operation.

To stimulate more community involvement, the urban and rural councils at the district level have been urged to add an EPI line item to their budgets this year. There currently is no way to capture this information, nor to determine what effect this change will make to program sustainability. The contractor will evaluate both the cost and coverage implications of this change from a centralized, vertical EPI program to a fully integrated program in which EPI is a function of regional and local activities. As such, the EPI contribution of the cost of operations at the regional and local level must be considered, including indirect costs such as storage and administration.

Analysis will make use of any national data that is available, but it is expected that detailed studies of several local EPI programs will be necessary. The contractor will evaluate both urban and rural programs, as well as programs using both fixed sites and mobile teams. At least one evaluation will be made of a site in Western Sudan with high transportation costs and long distances from Khartoum.

The contractor will consider the cost and coverage implications of several alternative strategies for conducting EPI programs. Possible strategies will include:

1. Immunizations given on demand.
2. Immunizations given at periodic intervals, including

immunization days or national campaigns.
3. Immunizations using mobile units.

Evaluation of each immunization delivery method will consider the costs of each of the following categories.

Personnel costs. This will include the costs of salaries, other benefits for workers, and incentive payments. A determination should be made of the effectiveness of incentive payments to increasing coverage. Personnel costs must include administrative personnel, workers in central medical stores, and non-MOH personnel providing services to the EPI program. The role of local urban and rural councils, as well as community health workers, will be evaluated.

Delivery costs. This includes the costs of the cold chain, operation of vehicles, and per diem travel costs. Effectiveness of recently acquired solar powered cold chain equipment will be evaluated.

Supplies. Source and reason for wastage of vaccines will be determined. Included will be the cost impacts of alternative types of packaging, to determine whether more expensive single dose units would be more cost effective.

Information system. The cost and effectiveness of the current EPI information system will be considered. Opportunities for combination with other aspects of a health information system will be investigated. Costs and benefits of different methods of data gathering will be reviewed.

Capital costs. The contribution of capital investment into the cost of immunization programs will be evaluated for various strategies. This includes stationary facilities and vehicles for delivery and for mobile campaigns.

The contractor will evaluate alternative strategies for sustainability of the EPI program. The degree to which each delivery method will minimize dependence on foreign donors, or on imported materials will be determined. The ability of a community level EPI program to draw upon resoures not available to a national program will be considered in determining sustainability. Thus long run cost effectiveness must be considered a function of sustainability.

Design of small scale studies will be required to test the relative costs and benefits of alternative methods of EPI Contractor will provide recommendations for the design of small scale pilot projects which will determine the marginal contributions of alternative delivery systems. In addition, contractor will provide evaluation of optimal combinations of delivery strategies.

A N N E X B

Comparison of Three Nutrition Surveys in Sudan

COMPARISON OF THREE NUTRITION SURVEYS IN SUDAN

Barton R. Burkhalter
May 5, 1988

The purpose of this paper is to summarize and compare the preliminary results of the SERISS project with two other previous, smaller nutrition surveys (a 1983 survey of Nile villages North of Khartoum (2), and a 1984 survey of three districts in Northern Kordofan (3)). The three surveys are not strictly comparable due to different methodologies and sampling frames. Nevertheless, the comparison reveals trends that are important for programming child survival activities in Sudan.

The surveys sample different populations and use different definitions of nutritional status. Figure 1 presents the differences in the groups of children sampled. Figure 2 shows differences in the methodology and the definition of nutritional status.

The SERISS methodology apparently benefited from weaknesses noted in earlier nutrition surveys in Sudan. The SERISS report (1) notes that several earlier surveys differed with respect to age group sampled, method of defining age, indicator of nutritional status, reference population, definition of limits of different degrees of malnutrition and time of year, all of which contributed to an inconsistent and confusing picture. One of SERISS's objectives was to clarify this situation and establish a methodology which can be used as a basis for future measurements.

SERISS has accomplished this objective in that the methodology is well conceived and apparently well executed. For example a method for measuring age was defined and shortcomings in this effort were noted. SERISS can reasonably claim to have established both baseline data and a methodology for making comparable future measurements.

All three surveys found a substantial amount of undernutrition, as shown in Figure 2. The absolute figures however, are not comparable because of the different methodologies used. Nevertheless, patterns within the surveys can be usefully compared.

NUTRITIONAL STATUS IN RELATION TO AGE

SERISS found very little malnutrition up to approximately six months of age, then a precipitous decline in nutritional status was observed as the ages of the children increased. The data is clustered in 6-month intervals, i.e., around 6 months of age, around 12 months, around 18 months, etc. Children in the 6-month old cluster were "just below the norm in terms of weight-for-height but children aged 9 to 15 months (the 12-month old cluster) were noticably thinner. The situation among the 15 to 21 month age group was the worst of all ... The same downward trend was observed in height-for-age measurements although the turning point was not until children were 33 to 39 months old." (Reference 1-b, page 5).

The Nile Villages survey (2) had similar findings: "... nutritional well-being (as measured by weight-for-age) for both boys and girls begins to

FIGURE 1

METHODOLOGIC DATA ABOUT THREE SUDAN NUTRITION SURVEYS

	SURVEY NAME	YEAR COMPLETED	LOCATION	AGE RANGE (3) (IN MONTHS)	SAMPLE SIZE	TYPE OF LIVING
1.	SERISS	1986-87 (1)	All 6 Northern Regions	0-60	79,595	Rural Nomadic Urban
2.	Nile Villages	1983	60 Nile Villages North of Khartoum	0-36	Approx. 870	Rural
3.	Northern Kordofan	1984 1984	3 districts in Northern Kordofan (2)	0-60	912	Rural settled. Some Nomads

Notes: (1) Four separate surveys throughout year (June 86-July 87).

(2) The 3 districts included Sodari, Bara, En Nahud

(3) SERISS used birth certificates and local calendars to determine age. Neither of the documents reviewed for the other two surveys reported how age was determined.

FIGURE 2

NUTRITIONAL STATUS DATA FROM THREE SUDAN NUTRITION SURVEYS

	SURVEY NAME	INDICATORS OF NUTRITIONAL STATUS	REFERENCE POPULATION	METRIC FOR CLASSIFICATION	DEFINITION OF MODERATE AND SEVERE UNDER NUTRITION	PERCENT FOUND TO BE MODERATE OR SEVERE UNDER-NUTRITION
1.	SERISS	1. Weight-for-Height	NCHS (1)	Z-Score (2)	-2.0	14.1%
		2. Height-for-Age	NCHS	Z-Score	-2.0	32.1%
2.	Nile Village	1. Weight-for-Age (4)	NCHS (1)	Percentile of Median	Less than 75%	23.2%
		2. Weight-for-Height	NCHS	Percentile of Median	Below 80%	- -
		3. Height-for-Age (4)	NCHS	Percentile of Median	Less than 90%	15.7%
3.	Northern Kordofan	1. Weight-for-Height	WHO	Percentile of Median	Less than 80%	12.9%
		2. Arm Circumference	WHO	cm.	13.5 cm. or less	45.7% (5)
		3. Night Blindness	WHO			5.2%

Notes:

(1) NCHS: National Center for Health Statistics (U.S.)

(2) Z-Score: Distance from reference population median in reference pop. standard deviations

(3) SERISS was careful about documenting and analyzing the methods used to measure age.

(4) The Nile Villages document did not report the method used to determine age.

(5) The document concluded that the arm circumference method had not produced valid results.

deteriorate most rapidly between 6 and 12 months of age, continues to decline between 12 and 18 months, and from 18 to 36 months levels off between 78% and 80% of the standard weight-for-age values". (Reference 2, page 9)

FEEDING PRACTICES

SERISS (1) reports that "children were breastfed up to 21 months but those under 15 months were less likely to receive supplementary food. Weaning, however, began at 9 months and by the age of 21 months children were completely weaned and generally receiving three meals a day." (Ref 1-b, Page 2)

This contrasts with the Northern Kordofan survey (3) which found many children receiving less than three meals a day, as shown in the following table:

Number of Meals/Day	1984	1983 (Recent)
4	3	10
3	321	558
2	180	111
1	271	13
0	7	0

Source: Ref. 3, Table 4.

This data shows the effect of the famine which was greater in 1984 than 1983, does not differentiate by age of child, and includes children 0-5 years.

The Nile Village survey (2) found that 44% of the children surveyed did not receive any supplemental food until after six months of age, as shown in the following table:

Percent of Children Receiving Supplemental Food				
Up to 4 Months Of Age	Up To 5 Months Of Age	UP To 6 Months Of Age	Up to 7 Months Of Age	Up to 8 Months Of Age
8%	37%	56%	74%	90%

Source: Ref 2, Table 9.

A 1981 WHO study (reported in Harper, Ref 4) found significant differences among various population groups with respect to breastfeeding and to the age of introduction of supplemental feeding, with only about 42% beginning supplemental feeding by the sixth month (Figure 3). That same study found that milk and juices are often given before 6 months, but rarely food (Figure 4). Harper (4) says that "conversations with nutrition and medical personnel indicated that the concept of a cereal type of 'weaning' or baby food is not present to any significant extent in Sudan, except to upper income mothers."

Figure 3 A

BREASTFEEDING PRACTICES
% STILL BREASTFED

Age (mo.)	Khartoum Urban	Rural	High/Medium Income	Low Income
0-5	96.7	97.8	92.9	97.7
6-11	85.2	96.1	73.2	92.5
12-17	49.7	78.5	37.7	65.1
18-23	19.1	42.7	8.6	26.1
24+	3.9	5.4	3.0	4.9

Source: Ref 4, Table 5.6

Figure 3 B

Age of Introduction of Supplementary Feeding
% by Age (Month)

Khartoum Urban	54.6	82.1	87.4
Khartoum Rural	38.0	71.5	77.3
Other Rural	27.4	73.6	78.4
High Income	64.4	83.9	85.9
Medium Income	45.2	82.5	88.4
Low Income	41.1	76.4	81.8
Male	41.9	77.4	82.2
Female	42.7	77.0	82.7

Source: Ref 4, Table 5.7

Figure 4

TYPE OF SUPPLEMENTARY FOOD (%)

	Age of Children (Month)			
Food	0-2	3-5	6-8	9-11
Milk	17.5	42.4	70.0	75.5
Juices	21.4	44.1	63.5	72.1
Cereals	4.0	9.7	20.7	34.3
Pulses	2.6	7.6	16.7	26.2
Roots	1.7	2.9	7.3	13.3
Tubers	1.7	4.0	6.8	15.5
Eggs	3.8	8.3	23.7	37.8
Meat	3.8	4.8	14.6	31.8
Poultry	0.9	2.1	5.8	11.6
Fish	0.3	2.6	5.8	8.2

Source: Ref 4, Table 5.8

None of the surveys has presented a clear picture of feeding practices by age of the child. Each suggests certain aspects of a more complex picture. It appears that breastfeeding is nearly universal and exclusive in the first few months, that it is continued for a year or more in most cases. Supplemental feeding starts late in many cases (but not all) and it may be inadequate when it does start.

EFFECT OF FEEDING PRACTICES

The WHO recommended feeding practice is to breastfeed exclusively for the first 4 to 6 months of life. Then introduce supplemental feeding (but no bottle feeding) and continue mixed feeding (breast and solid) for approximately two years. The Nile Villages survey (2) seems to support the WHO position: "with the exception of children supplemented with milk at less than 3 months of age or with solid food at less than 4 months, the proportion of children with moderate and severe malnutrition increase with increasing age at supplementation". (Ref 2, page 11). In other words, the risk of malnutrition increases as mothers wait longer to begin supplemental feeding.

Unfortunately the SERISS data has not yet been fully analysed with respect to this issue. But preliminary correlations indicate a "large and highly significant" association between feeding method and nutritional status, even after correcting for other variables. Indicates that "breastfed children are more vulnerable to undernutrition in the long term, which is probably a reflection of inadequate feeding practices". (Ref 1-b, page 6)

OTHER RELATIONSHIPS

The three surveys found various other interesting relationships. For example, SERISS (1) found girls to be slightly better off than boys in both weight-for-height and height-for-age, whereas the Nile Villages survey (2) did not find that sex was related to weight-for-age.

As expected, morbidity and malnutrition correlate. SERISS (1) found highly significant relationships between low weight-for-height and diarrhea, vomiting, acute respiratory diseases, fever, measles and night blindness. The Nile village survey (2) found that "beyond the age of 6 months, children who have not had diarrhea achieve an increasingly high percentage of the standard than those children who have had diarrhea." (Reference 2, page 25)

SERISS (1) found urban children to have better nutritional status than rural or nomadic children, while the Northern Kordofan survey (3) found nomadic and refugee children slightly better off than settled rural children.

A variety of other factors also correlated with nutritional status. The Nile Village survey (2) found that after correcting for the effect of other variables, the following additional variables were significantly correlated with nutritional status: ownership of a television set, source of drinking water (well better than river), and use of child care center. The Northern Kordofan survey (3) found a district effect, with the order of nutritional status (best to worst) being Sodari, Bara and En Nahud. SERISS (1) looked at a large number of variables in relationship to nutritional status and, after controlling for other effects, found significant differences in nutritional status due to the following variables: councils, provinces, number of children in household, method of determining age, twin status, mother's age, literacy of parents, education and occupation of mother, household size (large households better), primary type of cereal consumed (wheat better than sorghum or millet), price paid for grain, reception of food aid (correlates positively with better status), and seasonality.

SURVEY RECOMMENDATIONS

The Nile Village survey (2) does not make any recommendations. The Northern Kordofan survey (3) made the following recommendations:

1. Seek food relief immediately to continue for at least 13 months.

2. Provide vitamin A supplementation, and treatment for night blindness.

3. Devise a clear, regular food distribution schedule, but not to every village.

4. Periodic, randomized nutrition surveys using weight-for-height should be done.

5. Give urgent attention to refugees around cities.

6. Monitor food prices as a way of estimating food supplies.

SERISS presents an extensive discussion of its conclusions distributed in the various sections of the report. Some of these conclusions appear to be emphasized as recommendations, namely:

1. Develop programs that address the problem of late and inadequate introduction of supplemental foods (Ref 1b).

2. Develop programs in nutrition education to encourage the use of traditional weaning foods and improved dietary and hygiene habits, directed both at mothers and health workers (Ref 1b).

3. Give priority to nutrition and health education programs aimed at young, uneducated, illiterate and poor mothers. Make message clear, concise, and simple (1c).

4. Consider various mediums for education programs, such as visual materials, women's groups and other community activities, school teachers. (Ref 1c).

5. Intersectoral collaboration is essential (Ref 1c).

6. Make collaboration between the primary health care components a priority. (Ref 1d).

7. Make mothers understand that undernutrition is not a disease, and that sick children should be coerced to eat and drink if necessary. (Ref 1d).

8. Encourage birth registration. (Ref 1b).

9. Encourage growth monitoring, using weight-for-height until birth registration is more universal and reliable. (Ref 1b)

10. Maintain surveillance activities until growth monitoring is well established on a weight-for-age basis. (Ref 1b)

11. Interpret nutrition data with caution since there is often a relation between acute and chronic malnutrition. (Ref 1c)

12. Give attention to food pricing policies so food is available at prices people can afford (Ref 1b)

13. Target food aid only to the neediest at the time it is needed. (Ref 1c).

14. Consider interventions other than food aid, e.g. pricing policy. (1c).

CONCLUSION

It is apparent that, in addition to food shortages, the primary immediate problem is inadequate supplemental feeding during weaning. The reasons for this are not clear. Is it only lack of food? Is it unawareness of proper weaning practices on the part of the mother? Or are there deeper barriers at work? The answer to these questions should provide the basis for a successful program to solve a priority problem of inadequate weaning practices.

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A N N E X C

List of People Interviewed

LIST OF PEOPLE INTERVIEWED

GEZIRA UNIVERSITY:
Dr. Ibrahim Mohd. A/Rahim, Dean Faculty of Medicine

MINISTRY OF FINANCE AND ECONOMIC PLANNING:
Dr. Abdel Aziz Abdel Rahim, Deputy Under Secretary for MOH Affairs

MINISTRY OF HEALTH (MOH):
Dr. Abdul Hameed El Sayed, Director General PHC
Dr. Kheiry Abdul Rahman, Director Statistics and Research
Mr. Mustafa Mohd. Ali, Statistical Inspector
Dr. Magda M.A. Ali, Director CDD
Dr. Hilary. Deputy Director CDD
Ms. Sylvia Anderson, Surveillance CDD
Mr. Adam Babaker, Chief Operations EPI
Ms. Alawiya El Amin, Deputy Director, Nutrition Division

MOH - CENTRAL REGION:
Dr. Fareed Mahmoud Khalifa, Director General, Health Services
Dr. Hashim Hussein, Director General, Health Services, Gezira Province
Dr. El Hadi Mohd Ahmed, Senior Pharmacist
Dr. Gafar Mohd Salih, Director General, Wad Medani Hospital
Dr. Awad Mohd Ahmed, Director General, OB-GYN Wad Medani Hospital

MOH - RURAL HEALTH SUPPORT PROJECT:
Mr. Jim Toliver, Chief of Party
Dr. French, Consultant
Mr. Taha, Training Officer
Mr. Wadia, Comptroller

PVO's:
Mr. Glenn Mitchell, ADRA, Khartoum
Mr. Edward Rasor, Director, Save the Children

UNICEF:
Mr. Cole Dodge, Country Representative
Ms. Jane Campbell, Deputy Director
Dr. M.F. Mburu, Director Health Division
Mr. Anis Salim, Director Social Mobilization
Mr. Roberto Laurenti, EPI Officer

USAID:
Mr. John Koehring, Director
Mr. Frederick Gilbert, Deputy Director
Mr. Sid Chernenkoff, Chief Economic Policy & Program (EPP) Office
Mr. Blaine Jensen, Program Officer
Mr. Markarios, Economist, EPP
Mr. Edward Birgells, Chief Project Office
Mr. Eugene Rauch, Projects Officer
Dr. Anita Mackie, Health Officer
Ms. Paula Bryan, Population Officer
Dr. Ali Biely, Health Advisor
Dr. Loel Callahan, PSC Health
Ms. Tsedal Bahta, RHSP-South, Project Officer
Mrs. Linda Martin, Controller
Mr. John Martin, Management Officer

WHO
Dr. Jamil Khan, Country Representative

WORLD BANK:
Mr. Ibrahim Jamil Kahn, Country Representative

OTHERS:
Mr. Bernard Bakker, Team Leader, Dutch Project, Central Medical Stores
Ms. Penny Nestel, Nutrition Consultant, HIIID Vit. A Project
Mr. Eric Rodenburg, FEWS Project/Washington
Mr. Patrick Thomas, FEWS Project/washington
Dr. Nahid Toubia, Private Physician, Khartoum

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