PN-ABE-947

REPORT ON THE COST-EFFECTIVENESS OF THE EXPANDED PROGRAM OF IMMUNIZATION IN THE REPUBLIC OF SUDAN

VOLUME V: Summary Report of Surveys in Kordofan, Darfur, Middle and National Capital Regions

February 1990

Resources for Child Health Project

USAID/Khartoum

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PN-ABF-947
ISN 67997

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VOLUME V: SUMMARY REPORT OF SURVEYS IN KORDOFAN, DARFUR, MIDDLE AND NATIONAL CAPITAL REGIONS

April, 1989
Revised February 1990

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Prepared by the Resources for Child Health (REACH) Project. USAID Contract No. DPE-5927-C-00-5068-00.

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ACRONYMS

BCG	Bacillus Calmette-Guerin vaccine against tuberculosis
CDD	Control of Diarrheal Diseases Program
DOO	District Operations Officer
DPT	Diphtheria-Pertussis-Tetanus vaccine
EPI	Expanded Programme of Immunization
FTE	Full-time Equivalent
HAOO	Health Area Operations Officer
NGO	Non-governmental organization
OPV	Oral polio vaccine
PHC	Primary Health Care
POO	Provincial Operations Officer
RDMS	Regional Director of Medical Services
ROO	Regional Operations Officer
TT	Tetanus toxoid vaccine
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

ACKNOWLEDGEMENTS

The team would like to thank Dr. El Tayeb, Director of EPI for his support throughout the study. The valuable assistance of Mr. Adam Babiker, Chief of Operations Section, and his assistant, Rachid should be mentioned as well. The team is grateful to Sybil Amin, Secretary of the EPI; all of the accounting personnel in the Finance and Administration Section of the EPI; Mohammed Hassan and John Pott of the Cold Chain Section; and Sosan Wellesly, Training.

In addition, we are indebted to Ahmed Mussana, UNICEF Health Section for his help in organizing the team and providing administrative support throughout. The UNICEF Health Office personnel also deserve recognition.

A special mention should be made of the technical and computer assistance provided by Benjamin Loevinsohn, without whom the denominator data for the study and our computer problems would not have been resolved. Thanks also goes to Juin and Terry from DTS who spent their free time helping with computer issues.

The study team would like to thank Dr. Anita Mackie, Dr. Haider, and Reggie Hawkins of USAID/Khartoum for their assistance and support. Thanks also to Dr. Curt Sweezy for loaning his personal computer so this report could be completed in the field.

EXECUTIVE SUMMARY

This study of the cost-effectiveness of the Expanded Programme of Immunization (EPI) represents the most extensive data collection and analysis effort undertaken so far in order to provide the EPI, UNICEF and other providers and supporters of the program in Sudan with practical information about how to use EPI resources more efficiently and effectively in the future. The cost-effectiveness study had two primary objectives: 1) to evaluate the costs and outcomes of alternative immunization strategies, through mobile teams and fixed facilities; and 2) to assess the total cost of the program at different levels of the health system.

Individual regional studies were conducted in Kordofan, Darfur, National Capital, and Middle Regions and individual reports were produced for distribution to each region. This document summarizes the findings from these analyses.

The EPI in the Republic of Sudan costs approximately $10 million, including all resources (human, material and financial) used in 1988. The average cost per dose was $1.89 and the cost per fully immunized child (FIC) was $30. Wide variations were found between regions and districts in terms of their total annual operating costs and cost per child, suggesting that there is room for improving the overall efficiency and effectiveness of the EPI at these levels. In addition, the study found that mobile team services were more effective at providing immunizations but, on average, they were at least twice as expensive to operate than health facility strategies. The EPI should examine more closely policies concerning immunizations at health facilities in order to strengthen this strategy. It is not recommended that one strategy be selected over another on economic grounds as they are designed to serve different population groups.

The cost-effectiveness study team made specific recommendations for each region included in the study and these are available in the individual region reports. Several themes emerged from these regional reports which are described below. These conclusions focus on improving the effectiveness of alternative strategies within the Sudan and on reducing the cost of operating the EPI at different levels.

Mobile Teams

1) The mobile team strategy should be evaluated as to how resources could be conserved either by: 1) reducing the number and types of personnel; 2) becoming more stringent about when per diem and staff support is offered to immunization workers; 3) tracking the number of kilometers used for immunization or for other activities; or 4) preserving and extending the useful life of vehicles through proper driving and maintenance.

2) The total cost of the program could be reduced if other health services were provided by mobile team staff, without reducing their level of activity for immunizations.

3) A policy should be developed on the minimum size of villages to be visited by mobile teams as the first step towards improving efficiency in operations. Smaller villages could be added as the program evolves. A team with four vaccinators travelling far distances to immunize few children does not represent a responsible use of scare resources. Heavy consideration should be made to reduce the monthly rounds to rounds every two to three months in order to have a sufficient number of immunizable children to make using a team a cost-effective choice.

Health Facilities

1) Health facility services are being under-utilized and represents an untapped resource for EPI.

2) Duplication of immunization services between fixed facilities and mobile teams in urban areas may be contributing to the high cost of the program. A policy should be developed which discourages use of teams in towns even for vaccine drops. Alternative sources of transportation in urban areas, such as donkeys, taxis, and buses should be used instead.

Financing and Financial Management

1) The EPI in Sudan will be required to rely on continued outside donor assistance in order to fund the cost of the program in the near future.

2) Local funding at district level appears to be an unreliable source of financing for the program.

3) Resources for district and regional operations tend to remain at regional level and could be used more effectively if some petty cash funds were made available at district level.

4) The financial management system for EPI needs to be improved immediately.

General

1) The cost-effectiveness study data show a range in operations and resource use among districts sampled. Within each region, districts should be identified which are using resources in the most effective way and to use these districts as a standard for service delivery within each region.

2) Record-keeping on number of doses administered and supplies and vaccine used need to be strengthened at all levels.

3) Vaccine wastage was found to be high which affects the total cost of the program. Efforts should be made to reduce wastage where possible, given that greater wastage rates are expected at increasing levels of coverage.

4) The cost of the social mobilization program is significantly large to warrant further investigation as to the effectiveness of the strategies being used to generate continued demand for immunization services on the part of the population.

I. INTRODUCTION

This study of the cost-effectiveness of the EPI represents one of the most extensive data collection and analysis efforts undertaken in order to provide the EPI, UNICEF and other providers and supporters of the program in the Republic of Sudan with practical information about how to use EPI resources more efficiently and effectively in the future. The cost-effectiveness study had two primary objectives: 1) to evaluate the costs and outcomes of alternative immunization strategies, through mobile teams and fixed facilities, and 2) to assess the total cost of the program at different levels of the health system.

Regional studies were conducted in Kordofan, Darfur, National Capital and Middle Regions, and separate reports were produced for distribution to each region. This document summarizes the findings from the regional studies. The study methodology is presented here and is included in each of the regional reports as well.

II. METHODOLOGY

A. Data Requirements

The methodology developed for the study was founded on providing the EPI with the most practical and relevant results in order that financial and economic information about the program could be used for better planning and management in the future. The study team developed a series of questionnaires specifically for mobile teams, health facilities, district operations officers and regional operations officers. A sample of each questionnaire in English and Arabic is found in Appendix 3. The questionnaires were designed to collect information on:

1) the number and types of personnel working at a particular level;

2) the number and types of equipment used in the last year for EPI and how much of the equipment was not working at the time of interview;

3) the number of supplies (syringes, needles, Road to Health Cards, cotton and other expendable resources) used for the EPI;

4) the number of kilometers travelled for different immunization activities, such as outreach, publicity, meetings, and replacement of stock;

5) information on the price and quantity of fuel, oil, and other lubricants used in the past year for the program;

6) the number of doses of vaccine administered to children less than one and less than five years of age by antigen;

7) the catchment population; the number of fully immunized children;

8) the number of training courses and the number and type of people trained;

9) the amount of local radio and television time for EPI publicity; and,

10) the size and age of buildings.

B. Questionnaire Development

Questionnaires were pretested in the National Capital Region with the help of the Regional Operations Officer (ROO) and the District Operations Officer (DOO) from Khartoum District. The reference period on the number of doses, supplies, and fuel used was shortened to the previous month (February 1989) because of the inadequacy of record-keeping and problems of recall during the pretest. Because of the shortage of syringes in some areas during the month of February, this reference period may have underestimated the total number of doses administered by the region or district. However, complementary data were collected from central EPI headquarters to make adjustments to annual figures based on the monthly reference period. When possible in the field, a month previous to February was used for reference if February activity was considered abnormally low.

C. Cost Calculations

The methods used for calculation of costs are those developed earlier by Creese, WHO (1976) and revised by REACH (1988) and WHO (1988). These methods have been used in many recent cost-effectiveness studies of the EPI. The study team included experienced researchers familiar with the methods and techniques for cost analysis as well as familiar with EPI operations in the field.

Personnel costs were based on the number of hours worked per week by different categories of immunization and public health care staff. The number of hours worked per week was adjusted by the total working hours per week to estimate the number of full-time equivalents. This estimate was multiplied by the monthly gross salary and benefits, including transport allowance, working allowance, housing and social security.

Per diem costs were based on reported rates received in the field per month by health workers and administrative personnel. Staff support is provided to EPI workers from vaccinators and drivers to accountants, cold chain technicians, and administrative personnel. The type of personnel receiving staff support and UNICEF-financed per diems varied by region, with some regions (Darfur) providing staff support to vaccinators.

Vaccine costs were based on the number of vials of vaccine used calculated from the number of doses provided during the month of February 1989 multiplied by 12 to estimate annual doses per mobile team or facility. This method accounts for wastage of vaccine which represents a real cost to the immunization program.

Unit costs of vaccine per vial were estimated from UNICEF and Ministry of Health (MOH) shipping records for all vaccines received in 1988. The cost per vial by antigen was as follows:

BCG	20 doses/vial	$0.760
DPT	20 doses/vial	$0.732
OPV	20 doses/vial	$0.676
Measles	10 doses/vial	$1.137
Tetanus Toxoid	10 doses/vial	$0.199

Supplies costs were calculated from the number of supplies used during the month of February multiplied by 12 to estimate annual use at a delivery site. The unit prices of each of these items (e.g., syringes and cotton) was multiplied by the total annual quantity used to calculate total supplies cost.

Transportation costs were based on the number of kilometers travelled in the last month (or if available, the last year), the number of kilometers travelled per gallon of fuel, and the price per gallon of fuel. When kilometer data were unavailable, total kilometers were estimated by tracing mobile team routes and distances per round and multiplying by the number of rounds per year which varied from six to 12. In some cases, the district kept records of the number of barrels (44 gallons of fuel are distributed per month to each district) of fuel consumed during the past year and these were used to estimate fuel costs. The cost of engine oil, generator oil and diesel, and other fuels were based on records of total gallons consumed per month and the price per gallon.

The price of fuel varies significantly depending upon which market was used to procure the fuel. The price of fuel also varied tremendously from region to region. In National Capital, the price per gallon of petrol was LS 4.40; whereas the government pumps were charging LS 7.50 in Nyala (South Darfur). Price differences reflect the cost of transporting fuel and oil throughout the country.

Costs of maintenance and operation of vehicles were estimated in one of several ways. When available, exact records of the numbers of repairs and the cost per repair were used. However, in most cases, maintenance costs were based on an average estimate of 29 percent of the annual value of the vehicle (annualized cost of the capital investment). If adequate records of oil use were available, then maintenance costs were reduced to an estimate of 23 percent of the annual value of the vehicle. Maintenance as a percent of annual value was based on an analysis undertaken by the Cold Chain Section of the EPI in 1989, as well as by dividing the total value of the spare parts purchased in 1988 by the total number of vehicles in the EPI fleet in that

year. This figure ranged from 29 to 23 percent of the total annual cost of the vehicle. In comparison, a separate study of vehicle maintenance cost in Niger estimated a figure of 24 percent of the annual value of vehicles, giving credence to the estimates calculated for Sudan.

Because capital investments of vehicles, buildings, and equipment last for periods longer than one year, the total value of capital is not allocated to one year, but spread over the useful life of the equipment. Economists also adjust for the fact that money today is worth more to us than money in the future and therefore, the purchase price of the vehicle or equipment is not spread evenly over its lifetime. This procedure is known as calculating the annualized value of capital investments. For Sudan, a useful life of five years was assumed for vehicles, while a life between five and 10 years was used for large cold chain equipment and fewer years for cold boxes and vaccine carriers. Capital costs of office equipment, generators and air conditioners were calculated assuming a useful life of five years. A sensitivity analysis was performed which tests the effect of changes in these useful life assumptions on cost-effectiveness ratios.

D. Cost-effectiveness Ratios

The total annual cost for a mobile team or facility was divided by the total number of doses administered last year to estimate the cost per dose in U.S. dollars and Sudanese pounds. An exchange rate of 4.45 LS per U.S. dollar was used as an average of the United Nations rate (4.4) and the official exchange rate in 1988 (LS 4.50).

For the mobile teams, the cost per FIC was based on the total cost of mobile teams per district and the number of children immunized against all six vaccine-preventable diseases (polio, tetanus, measles, tuberculosis, diphtheria and pertussis) before their first birthday. If the districts included in the survey contained more than one mobile team but only one was sampled, the total annual cost for 1988 was imputed from a weighted average of sampled teams to total teams.

The target population of children less than one documented on the EPITrack System was used as the denominator in the cost-effectiveness analysis for lack of other population estimates. The coverage survey conducted in April estimated the total number of children less than one year of age fully immunized through different strategies. These numbers were based on a method which allocated children according to the site where children received their last immunization: mobile team, fixed facility, mobile team-supported facilities, no facility, and special project facility (non-government organization -- NGO). In order to calculate the proportion of total full immunization coverage attributable to mobile teams in each region, the following calculations were made: the target population was multiplied by the percent fully immunized less than one year of age calculated from coverage survey data, then multiplied by the proportion of fully immunized coverage attributable to mobile teams (see Table 2).

Because the target population of children less than one year of age served by health facilities was not known for every facility in our sample (few facilities kept sufficient records on the size of their catchment area) the cost per FIC was estimated by reviewing records of individual children at the facility level. Cost-effectiveness ratios for district and regional levels were based on the April coverage survey results. An aggregate figure for the four study regions and northern regions of Sudan was compiled from the regional results.

In the process of collecting data on the quantities and types of resources used for EPI service delivery, a vast set of operational information which could be useful to the EPI staff at headquarters, regional and district level was collected. The cost-effectiveness study team strongly recommends these data be shared with DOOs in order to provide feedback on operational and performance indicators and to improve the distribution of resources at district level.

E. Data Analysis

For each region, data were analyzed on Lotus 1-2-3 spreadsheets. Each cost category (e.g., personnel, vaccine, supplies, and transportation) was analyzed using an individual worksheet, and results were aggregated into summary tables which are found in Section IV.

III. SAMPLING PROCESS

The principle objective of the study was to evaluate the mobile team and health facility strategies in Sudan in terms of their level of performance and efficiency (ability to transform resources into immunization activity). In order to cover the range of experience and performance of the national EPI in Sudan, the cost-effectiveness study focused on four regions which had varying approaches to service delivery and coverage of fully immunized children from 20 to 65 percent before the 1988 coverage survey. National Capital Region was selected on the basis of high coverage rates, high population density and easy access to the population. Darfur Region was included to represent an area which relied on a mobile team strategy for service delivery and because the region has the lowest coverage rates and is the most sparsely populated. Kordofan Region was chosen because it provided an opportunity to examine the cost of providing services through approaches supported by NGOs. Middle Region was also included in the study to represent a high performance area.

REACH conducted a review of cost-effectiveness studies of the EPI which use similar methods for calculating costs and coverage (1989). One of the major conclusions of this review was that not enough attention had been paid to collection of adequate measures of program outcomes. In order to improve upon previous studies, the cost-effectiveness study in Sudan attempted to match the investments and resources used for the delivery of EPI services at different levels of the health system with the analysis of coverage rates. To accomplish this objective, the study team focused on delivery sites as the

unit of analysis and sampled mobile teams and facilities from clusters which had been randomly selected on a population-proportional basis for the April 1988 coverage survey. The coverage survey sampling process was thought to provide an adequate sampling frame. Nevertheless, the actual facilities and mobile teams surveyed depended in large part on logistic capabilities, security status and whether or not a sample cluster was included in the target population of a mobile team or health facility.

Each field team was encouraged to select sites on the following basis:

1) sample half of the districts within a region;

2) sample half of the mobile teams serving within the region; and

3) sample 15 facilities providing immunization services, with a balance between urban and rural.

It was felt that sampling half of the districts and mobile teams would provide enough representation of the range of performance, immunization activity and use of resources possible within the Sudan. A sample of 50 facilities is a large enough sample from which to draw conclusions about significant differences in costs and cost-effectiveness.

Each regional team confronted different circumstances in the field. Final selection of districts, mobile teams and facilities was decided at regional level with the advice of the ROOs. Constraints which were encountered in sampling immunization sites included the following:

1) travel distance and time requirement to reach a cluster and immunization site;

2) security and safety of team members en route;

3) discrepancies between names and spelling of clusters and regional maps;

4) logistic difficulties, such as scheduling use of the EPI vehicle, lack of fuel, flat tires, ferry schedules, and time requirements to obtain travel permits; and,

5) insufficient numbers of urban and rural immunization sites corresponding to clusters.

Table 1 represents the sample for the study by region.

TABLE 1
CHARACTERISTICS OF THE COST-EFFECTIVENESS STUDY SAMPLE

REGION/ QUESTIONNAIRE	NATIONAL CAPITAL	DARFUR	KORDOFAN	MIDDLE	TOTAL
Regional	1	--	1	1	3
Provincial		2			2
District	3/3	6/12	6/10	6/12	21/37
Mobile Team	2/5	8/15	7/17	7/15	14/52
Static Units	10	--	6	15	21
Mobile Team Supported Units		14	1		15
Clusters	12/12	12/17	9/14	7/22	40/65
Percent Match with Clusters	100	71	64	34	62

Static units are those containing cold chain equipment and personnel providing services. Mobile team supported units are those where the mobile team is responsible for dropping off and picking up vaccine. In Darfur, five out of the 14 facilities visited where actually part of the mobile team activities whereby the mobile team vaccinators where administering the vaccines. The category labelled "clusters" refers to the number of sites visited which corresponded to a cluster versus the total number of sites visited.

As this table shows, the cost-effectiveness study matched coverage survey clusters in 62 percent of the total sample of facilities and mobile teams. Given the short time frame for data collection, time required for interviews and logistical and security considerations, this sampling process met the criteria for data analysis.

IV. RESULTS: MOBILE TEAMS

Table 2 compares the two principal strategies (mobile teams and fixed facilities) evaluated for the cost-effectiveness study of the EPI in the four regions included in the study. The average cost of operating a mobile team in Sudan, based on a sample of 23 teams, was $16,272 (LS 72,410). The lowest average was found in Darfur, at $16,890 or LS 75,160. Middle Region teams averaged $17,738 (LS 78,934). In Kordofan, the average annual cost was $18,020 or LS 80,180. National Capital had the highest average annual cost for mobile teams at $19,377 or LS 86,228.

A. Total Costs and Cost Profiles

The range of annual costs varied by region, with the most expensive mobile team in Darfur ($24,900 per year in El Fasher) being twice that of the least expensive ($12,000 per year in Kutuum). The range in average costs was less in Kordofan, between $22,700 and $12,470 per year. In National Capital, the two mobile teams sampled had nearly the same annual cost of approximately $19,000. In Middle Region, mobile teams costs ranged from $21,000 to $12,000, a 42 percent difference between high and low cost teams.

Several factors contributed to the range in total annual costs and these factors become clear in a comparison of proportions of total cost. Since every mobile team has a vehicle and approximately the same number of cold boxes, there is little variation in the capital costs of operating a mobile strategy. However, there were differences between the regions on the numbers and types of personnel working per team, with a range of six people in National Capital to one in Nyala, Southern Darfur. Because the mobile team members collect per diem and salary for their travels, the number of individuals per team influences the per diem component of cost. In Darfur, per diems represented a higher proportion of total cost than salaries and basic benefits. Another factor influencing the total cost of the mobile teams is the number of kilometers travelled and the harshness of the terrain making vehicle repairs more frequent in some regions versus others.

TABLE 2

COST-EFFECTIVENESS OF ALTERNATIVE STRATEGIES
FOR THE EPI IN SUDAN

REGION	NATIONAL CAPITAL	KORDOFAN	DARFUR	MIDDLE	AVERAGE
MOBILE TEAMS					
Average Cost	$19,000	$18,783	$16,891	$17,738	$18,103
AC/Dose	$1.31	$0.55	$1.44	$1.00	$1
AC/FIC <1	$5.24	$11.22	$14.44	$13.20	$11
Doses/Team/Day	61	156	54	149	105
Doses/Staff/Day	14	52	20	51	34
Days per Round	19	na	20	28	17
Returns to HQ/Round	9	na	6	9	6
Kms/Dose	0.42	0.80	2.8		1.34
FIXED FACILITY					
Average Cost	$4,963	$3,869	$1,195	$8,305	$4,583
AC/Dose	$0.61	$0.99	$0.52	$3.62	$1.44
AC/FIC <1	$35.14	--	--	$28.57	$15.93
Doses/Day	na	21	123	6	37
Doses/Person Hour	na	3.7	24	0.45	7.04

NOTE: These data are based on records of doses given and coverage survey results.

Table 3 illustrates the proportion of total cost for each cost category for an average mobile team in each of the four regions.

TABLE 3
COMPARISON OF COST PROFILES FOR MOBILE TEAMS IN SUDAN
(Based on average costs, in percentages)

COST CATEGORY	DARFUR	KORDOFAN	NATIONAL CAPITAL	MIDDLE
RECURRENT COST				
Personnel				
Salary	16	27	32	22
Per Diem	19	16	27	20
Vaccine	6	12	7	7
Supplies	5	7	4	6
Transport				
Fuel	19	7	<1	4
Oil	1	2		
Vehicle Maint.	6		7	9
TOTAL RECURRENT	73	75	77	69
CAPITAL COST				
Vehicles	25	23	22	29
Equipment	2	2	1	2
Buildings				
TOTAL CAPITAL COST	27	25	23	31
TOTAL	100	100	100	100

Recurrent costs account for between 69 and 77 percent of total cost for the sample of mobile teams. Personnel and per diem costs represent the largest share of recurrent costs (59% to 43%): a finding similar to that found in other cost-effectiveness studies of EPI throughout the world. Among capital costs, cold chain equipment took the largest share. Vaccine and transportation costs played a lesser role in the total cost of operating a mobile team. The percentage for fuel cost varied among the regions, with Darfur's mobile teams relying heavily on transportation costs for operation.

B. Cost per Dose

Table 2 also presents and compares the results for the mobile teams in each region. The average cost per dose for mobile teams also varies by region, with Darfur being $1.44 per dose, National Capital following with $1.31 per dose, Middle Region with $1.00 and Kordofan being the least expensive at $0.55 per dose. In each region there was a wide range of cost per dose as well.

C. Cost per Fully Immunized Child

The average cost per FIC less than one year of age for mobile teams ranged from $5.20 (LS 23) in National Capital, to $11.50 in Kordofan (LS 51), to $13.20 in Middle Region to $18.20 in Darfur (LS 81). From these data, it appears that Kordofan Region has a high activity level measured in terms of the total number of doses, but they are not fully immunizing as many children. Therefore the average cost per FIC is higher in Kordofan than in National Capital, which had a much higher cost per dose.

D. Productivity of the Mobile Teams

Productivity indicators such as doses per mobile team per day and doses per health staff per day also show a wide variation among regions. The mobile teams in Kordofan administer the greatest number of doses per team per day (156) compared with Darfur teams (54 doses per day). These variations may be due to differences in population density among regions rather than differences in productivity of health workers. However, when the number of doses per staff member per day are compared, these differences still remain. Kordofan and Middle Region teams have similar productivity rates (52 and 51 doses per person per day); whereas, the teams in National Capital and Darfur have lower rates (14 and 20 doses per person, respectively).

One would expect that the two most densely populated regions (National Capital and Middle Regions) would have similarly high levels of productivity per worker, while the two more sparsely populated regions would have lower levels of productivity per worker. In fact, the data seem to suggest that productivity is not only a function of availability of eligible population but also of personal motivation of the teams or of health services in general. Productivity of mobile teams should be investigated further to determine why some areas are performing better than others and to see whether these areas could serve as models for other teams in the country.

Table 2 also includes data on the intensity and efficiency of mobile team activities: number of days spent per round, number of returns to headquarters per round and number of kilometers per dose. The number of days per round varies (on average) between 19 and 28, while the number of returns to headquarters ranges from six to nine, resulting in an average of between two and three days away from headquarters for the teams. Considering that mobile teams have the potential to be out of headquarters for a seven-day period (the teams use a seven-day cold box), the number of returns to headquarters appears

to be too frequent, and represents an unnecessary use of resources (fuel). Frequent returns to headquarters may also indicate that the teams are not travelling to the remotest areas possible to immunize children who do not have access to services, but reflect trips taken within a short distance from a town or district office. These routes could coincide with health facility target populations, representing a duplication of efforts between the two strategies.

In some countries, such as Mauritania, mobile teams conduct immunization services in a radius pattern, leaving the headquarters once and returning after seven days to replenish stock. This pattern tends to minimize the distance travelled (round trips between headquarters and sites are reduced) which is a less costly strategy to maintain. Other patterns, such as loops from headquarters to two or three sites before returns, are more costly to operate and reduce the time mobile teams have to interact with the eligible population.

The number of kilometers travelled per dose provides information on the type of population served by the mobile teams (whether densely populated or not). The data range from 0.42 kilometers (National Capital) to 2.8 kilometers (Darfur) per dose, which appears to suggest that teams do not have to travel great distances to immunize a child. Kilometers per dose may also indicate whether the vehicle was used for purposes other than immunization, though it is difficult to draw conclusions from these data. The number of kilometers traveled per team should be examined relative to the distances between sites and headquarters and then compared with the number of doses administered to have a better idea of effective use of vehicles.

E. Classification of Mobile Teams in the Survey

When the total annual cost of the mobile teams are compared with the number of doses administered and the number of children they fully immunized, interesting patterns emerge. The mobile teams can be classified into four cells: 1) high cost and high outcomes; 2) high costs and low outcomes; 3) low costs and high outcomes; and 4) low costs and low outcomes. The second case (low cost/high outcomes) is the most cost-effective in using resources. Although the cost-effectiveness ratio depends upon the magnitude of total costs and total activity, from this matrix, one can see that high cost and low outcome teams would tend to have the highest cost-effectiveness ratios. Each of the regional reports characterized their respective mobile teams according to this framework. Table 4 illustrates the matrix.

TABLE 4
MATRIX FOR EVALUATING MOBILE TEAMS: COSTS AND OUTCOMES

COST		HIGH	LOW
	HIGH	Case 1	Case 2
OUTCOMES		Number of rounds made is low, number of contacts made with target group is low, low number of kilometers per month	Returns to headquarters frequent, kilometers per contact is high, staff per team <3.
	LOW	Case 3	Case 4
		Few returns to headquarters (<4 per months), number of days per round is high, few staff per team, number of contacts with target population is high	Kilometers high per month, number of staff high, days per round high, doses given high but out of target

In conclusion, efforts should be made to reduce the operating costs of mobile teams while increasing their immunization activity. Each individual team should be examined separately and methods developed to achieve lower costs and improved performance. The characteristics of mobile teams in Case 2 resemble the more cost-effective teams found in the survey, and these characteristics could serve as a starting point for strengthening the teams.

V. RESULTS: HEALTH FACILITIES

The cost-effectiveness study evaluated 21 static sites providing immunization services on a routine basis and 15 mobile team-supported facilities which depended upon the teams for delivery of vaccines and supplies. One of the surprising findings during our data collection effort was how difficult it was to locate static sites near coverage survey clusters in rural areas. In Darfur, the team was unable to include a static facility, even in the capital city, as all facilities depended upon mobile teams for delivery of vaccines.

A. Total Cost and Cost Profiles

Table 2 provides cost and outcome information for the health facilities. The average annual cost of providing EPI services through static facilities was about one-fourth the average annual cost of a mobile team ($18,000 versus $4,500). This difference in cost was primarily due to absence of per diem payments and reduced vehicle capital and maintenance costs. However, the annual operating cost for EPI in health facilities in Middle Region was significantly higher than other regions at $8,000. The principal factor contributing to higher costs in Middle Region is the size of the facilities included in the sample (secondary hospitals). Other factors, such as access to equipment and supplies and large volume of services provided (high coverage), would be likely the same for Middle and National Capital Regions.

For National Capital, Middle and Kordofan regions, the average cost per year was over $4,000, with personnel costs representing the largest share (46%, 55% and 46%, respectively). Buildings and vaccine costs were the second (24%) and third (17%) largest components of the total cost for Middle Region. Kordofan and National Capital showed similar trends.

The case of Darfur reflects the annual cost of supporting immunization services at health facilities with a mobile team. As expected, the average annual cost was much lower than for static facilities at approximately $2,000. Again, salaries and vaccines represented the largest share of total cost. Maintenance and operation was larger due to building operation costs for EPI services.

B. Cost per Dose

When the average annual costs are compared with the level of immunization activity provided through these sites, interesting patterns emerge. The average cost per dose in Darfur ($0.52 or LS 2.31) was nearly half that found in Kordofan ($0.99 or LS 4.41). National Capital results lie between those for Darfur and Kordofan at $0.61 or LS 2.71. Middle Region has a very high cost per dose of $3.62, which is primarily the result of high facility costs per annum. Contrary to what would be expected, these results show that the less densely populated areas of Sudan have a lower cost per dose than more urbanized areas. This finding can be explained by the fact that facilities in Darfur and Kordofan have a lower cost per year or that the number of doses administered by the high cost facilities in Middle and National Capital Regions are not outweighed by commensurate increases in immunization activity.

C. Cost per Fully Immunized Child

The cost per FIC was difficult to analyze at facility level because of the problems encountered in determining from facility records the actual numbers of fully immunized children for a one- or several-month period. In National Capital, the cost per FIC less than one year was estimated at $35.14; in Middle Region, the value was $28.57. In Darfur, it cost $21.24 per child

to become fully immunized. These figures are higher than what has been recorded for other countries ($15 per child on average), though the annual costs are not much higher than elsewhere. The factor which determined the magnitude of cost per child rested entirely upon the number of children fully immunized.

D. Performance of the Health Facilities

Performance of health workers in facilities was also evaluated in three of the four regions. The average number of doses administered per day ranged from six in Middle Region to 123 in Darfur. The Darfur results are due largely to an active immunization program in the Southern Province, particularly in urban areas. Within regions, there was significant variation in productivity per health worker from one facility to another. For example, in Kordofan, the number of doses administered by health workers per day ranged from 0.7 to 77.5, illustrating the different levels of performance capabilities for facility strategies (see Volume Two: Kordofan Report for details).

This twenty-fold difference in output per worker per day raises questions about the effectiveness of the facility strategy as it currently functions in Sudan. Data on doses per worker per hour also were calculated, and these data again show large differences among regions, from 24 doses to less than one dose per hour. One can speculate that differences could be due to low activity in the health facility strategy: there is not enough follow-up of children, the facilities are not supplied regularly with vaccine, or there is duplication of services between mobile teams and facilities in urban areas. Differences in productivity need to be investigated further by program managers in order to improve the facility strategy.

VI. RESULTS: DISTRICT LEVEL

A. Total Cost

The cost of operating the EPI at district level was thought to provide and excellent comparison of the distribution of resources throughout the regions of Sudan visited and also how these resources were translated into immunization activity and outcomes for the previous year. Table 5 compares the average results for 15 districts in three regions included in the cost-effectiveness study sample. District level costs include the cost of program administration, supervision, training, maintenance of the district cold store and inventory system. As expected, there was a wide range in the average annual costs at district level, from $72,000 in Kordofan to $221,000 in National Capital Region. In National Capital, the annual EPI cost ranged from $195,000 to nearly $250,000; in Kordofan, the maximum district cost was nearly double that of the minimum cost: from $55,617 to $100,500. Darfur had almost a three-fold difference between districts: the average annual cost for the program ranged from $49,000 to $131,600. The average over all 15 districts was $127,000 per year for the EPI.

TABLE 5

COMPARISON OF DISTRICT COST AND COST-EFFECTIVENESS FOR THE EPI IN SUDAN

REGION	DARFUR	KORDOFAN	NATIONAL CAPITAL	AVERAGE
Average Cost	$87,956	$71,946	$220,910	$126,937
% Personnel Cost	40.0%	42.7%	23.2%	35.3
%Vaccine Cost	3.4%	9.0%	11.3%	7.9
%Transport Cost	19.7%	8.0%	1.5%	9.7
Average Doses Given	41,155	70,486	235,172	115,604
AC/Dose	$2.14	$1.02	$0.94	$1.37
Average Number FIC*	2,873		16,694	
AC/FIC <1 *	$26.46	$18.46	$11.73	$18.88

*These figures are based on coverage survey results for the region, applied to the target population of under-ones in each district. As such, these figures do not represent actual numbers of FIC in each district but assume the regional results reflect district activity. The numerator for average cost per FIC is total child cost which excludes the cost of immunizing mothers with tetanus toxoid.

Factors contributing to the level of cost included the numbers of vehicles per district for EPI, the amount of cold chain equipment, the number of kilometers traveled per vehicle (whether used exclusively for EPI or for other purposes), and the number and type of personnel working on EPI. In general, this study found that districts which coincided with regional capital levels (El Fasher, El Obeid, and Khartoum Districts) had the highest costs, presumably because the distribution of EPI resources is biased toward administrative centers. Once vehicles, fuel, and equipment are distributed from central EPI Headquarters in Khartoum, a greater percentage remains in capital city areas. The other factor related to higher average costs was whether or not a special project (NGO-funded, for example) was being implemented at district level. These projects tended to increase the numbers of vehicles and equipment, thereby raising the average annual cost.

B. Cost per Dose and Cost per Fully Immunized Child

At district level, the average cost per dose ranged from $0.94 to $2.14. This range is due most likely to the level of output in different districts. In some districts, the worsening security situation has prevented delivery of services during some periods of 1988, reducing the total annual output for the year. The average number of doses administered in Darfur districts (41,000) was one sixth than that delivered in National Capital districts.

The average cost per FIC was calculated based on the target population per district less than one year of age multiplied by the coverage rate (regional) of fully immunized children less than one year of age. The figures ranged from $11.73 (National Capital) to $26.46 (Darfur). Reasons for the differences are most likely related to level of immunization activity rather than cost. In Darfur, the most costly district (El Fasher) also had a low outcome measure making it the least cost-effective district. On the other hand, the second most expensive district (Nyala, the provincial capital) had the highest outcomes of any district and was the most cost-effective in Darfur. For the sample of districts, National Capital had the highest costs but was the most cost-effective because of the large numbers of fully immunized children in those districts.

Comparisons of the total costs and total outcomes among districts should become part of routine performance feedback to district and regional levels. Model districts should be selected and emulated within the region in order to reduce the total annual cost and improve performance.

VII. RESULTS: REGIONAL LEVEL

A regional level analysis was conducted for Darfur, Kordofan and National Capital Regions. Total costs included costs for administering the program from regional level (such as social mobilization costs), maintenance of regional warehouses, supervision and training, and administrative personnel. Data on effectiveness of the regional EPIs were measured through records of the number of doses administered and also were based on results from the April 1989 coverage survey. Table 6 illustrates these results for the four regions included in the cost-effectiveness study.

TABLE 6

RESULTS OF THE COVERAGE SURVEY IN
THE NORTHERN REGIONS OF SUDAN
BREAKDOWN BETWEEN MOBILE AND FIXED STRATEGIES

REGION	DARFUR	KORDOFAN	MIDDLE	NATIONAL CAPITAL	TOTAL
Clusters Fixed	3	4	10	22	39
Children Fixed	21	28	70	154	273
% Fully Immunized	47.6%	53.6%	34.7%	70.7%	
# Fully Immunized	10	15	24	109	158
% FIC with Fixed	4.8%	7.1%	11.6%	51.8%	
Share Fixed	14.0%	16.7%	25.8%	74.0%	
Clusters Mobile	13	22	15	6	56
Children Mobile	91	151	105	42	392
% Fully Immunized	59.3%	45.5%	54.3%	64.3%	
# Fully Immunized	54	70	57	27	208
% FIC with Mobile	25.7%	33.4%	27.2%	12.9%	
Share Fixed	75.5%	77.8%	60.4%	18.4%	
Clusters Drop	4	2	2	2	10
Children Drop	28	14	14	14	70
% Fully Immunized	27.0%	36.0%	93.0%	80.0%	
# Fully Immunized	8	5	13	11	37
% FIC with Drop	3.6%	2.4%	6.2%	5.3%	
Share Fixed	10.6%	5.6%	13.8%	7.6%	
Total share	100.0%	100.0%	100.0%	100.0%	

Drop= mobile team drops vaccine carrier at a health facility.
Data on clusters and percent fully immunized in clusters from the coverage survey.

TABLE 7

COMPARISON OF COST AND COST-EFFECTIVENESS BY REGION IN SUDAN

REGION REGION	DARFUR	KORDOFAN	NATIONAL CAPITAL	AVERAGE
Average Cost ($)	$1,102,702	$910,074	$1,734,934	$1,249,237
Average Cost (LS)	4,907,024	4,049,829	7,720,456	5,559,103
Average Doses Given	528,376	560,448	944,777	677,867
Cost per Dose ($)	$2.09	$1.62	$1.84	$1.85
Cost per Dose (LS)	9.29	7.23	8.17	8.23
Coverage Rate (FIC <1)	23.1%	23.9%	61.0%	
Target Population	152,095	144,139	95,643	
Number FIC <1	35,134	34,449	58,342	
Cost per FIC ($)	$23.23	$23.70	$26.91	$24.61
Cost per FIC (LS)	103.40	105.45	119.76	109.54

A. Total Cost

Table 7 presents and compares data from the three regions analyzed for cost-effectiveness. These regions had approximately the same total annual cost for 1988 of approximately $1 million. National Capital EPI was operated at $1.7 million, Kordofan at $0.9 million and Darfur at over $1 million. Personnel costs accounted for the highest proportion of total cost. This finding is comparable to other cost-effectiveness studies in African countries. Vehicles and vaccine costs were the second highest components of total cost.

B. Sources of Financing

In Darfur, the MOH was responsible for 14 percent of the total cost of the program. EPI funds from UNICEF cash assistance were 47 percent of the total. In Kordofan, the MOH took a larger share of total cost (28%), although UNICEF cash assistance was responsible for nearly half of the total amount. District councils played minor roles in both Darfur and Kordofan (7% and 3%, respectively). In National Capital Region, UNICEF assistance accounted for nearly 80 percent of the total resources used in 1988.

C. Cost per Dose and Cost per Fully Immunized Child

The average cost per FIC (based on the coverage survey results) ranged from $24 to $27, with an average of $25 (LS 110). These results are high relative to those from other African countries, but show a consistency among regions which is surprising given the range in coverage rates. What these data might illustrate is that the high performance areas also have greater access to material and human resources, which tends to increase overall program cost.

VIII. COST OF EPI IN SUDAN

The total cost of the Sudan EPI for 1988 was nearly $10 million (see Table 8). Twenty percent of the total cost was for vaccine; 20 percent was for personnel costs; and nearly 10 percent was for vehicles. The annualized value of UNICEF contributions for equipment and vehicles for the EPI Headquarters was approximately four percent of the total cost ($400,000). This amount, combined with UNICEF assistance to the regional and district level, is nearly half of the total cost of the program. The Ministry of Culture (radio and television broadcasting) accounted for 18 percent of the total cost (see Appendix). The MOH was responsible for 15 percent of the total. UNICEF technical assistance was 8.5 percent. USAID contribution through the Rural Health Support Project was only two percent of total.

TABLE 8

ESTIMATION OF THE NATIONAL COST OF THE EPI IN SUDAN

	MOH Central	MOH Regional	Min of CULTURE	DISTRICT COUNCIL	EPI Headquarters	EPI Regional	UNICEF	USAID RHSP
RECURRENT COST								
Personnel	$1,618	$720,402	$0	$121,446	$56,459	$385,450	$438,689	$127,629
Salary/Benefits	$1,618	$720,402		$23,300	$49,455		$437,839	$127,629
Per Diem					$3,908	$346,480		
Staff Support					$3,096	$38,970	$850	
Overtime				$98,146				
Vaccine						$1,965,470		
Supplies					$44,661	$705,610	$10,900	
Transportation	$191,258	$0	$0	$82,422	$2,399	$56,292	$100,332	$11,025
Fuel	$168,539			$78,114	$2,399	$56,292	$62	$11,025
Oil				$4,308				
Ground transport	$11,393							
Freight	$11,326						$100,270	
Maintenance/Oper.	$86,521	$40,337	$0	$7,994	$0	$160,452	$0	$39,909
Cold Chain								
Vehicles	$20,787			$6,134		$160,452		$3,601
Equipment	$3,483							$23,929
Building	$62,252	$40,337		$1,860				$12,379
Training					$36,456	$72,970	$12,600	$9,659
Social Mobilization			$1,765,392			$2,248	$139,505	
Other recurrent		$174,733			$33,242	$70,360		$718
SUBTOTAL RECURRENT	$279,398	$935,472	$1,765,392	$211,862	$153,217	$3,418,852	$548,680	$172,960
CAPITAL COST								
Equipment					$86,164	$392,068		
Vehicles					$156,834	$697,624		$11,155
Buildings	$168,539	$101,124					$281,358	
Other								
SUBTOTAL CAPITAL	$168,539	$101,124	$0	$0	$242,998	$1,089,692	$281,358	$11,155
TOTAL COST	$447,937	$1,036,595	$1,765,392	$211,862	$396,215	$4,508,544	$830,038	$184,115
PERCENT	4.6%	10.6%	18.0%	2.2%	4.1%	46.1%	8.5%	1.9%

TABLE 8

ESTIMATION OF THE NATIONAL COST OF THE EPI IN SUDAN

	WHO	MSF/ BELGIUM	CARE	SAVE/US	TOTAL	PERCENT
RECURRENT COST						0.0%
Personnel	$74,437		$7,511	$5,882	$1,939,523	19.8%
Salary/Benefits	$45,037				$1,405,280	14.4%
Per Diem	$29,400				$379,788	3.9%
Staff Support					$42,916	0.4%
Overtime					$93,146	
Vaccine					$1,965,470	20.1%
Supplies	$1,360				$762,531	7.8%
Transportation	$0	$0	$0	$6,769	$450,497	4.6%
Fuel				$6,769	$323,200	3.3%
Oil					$4,308	0.0%
Ground transport	$0				$11,393	0.1%
Freight					$111,596	1.1%
Maintenance/Oper.	$0			$2,156	$337,369	3.4%
Cold Chain					$0	0.0%
Vehicles				$2,156	$193,130	2.0%
Equipment					$27,412	0.3%
Building					$116,828	1.2%
Training	$10,866				$142,551	1.5%
Social Mobilization					$1,907,145	19.5%
Other recurrent	$28,827				$287,880	2.9%
SUBTOTAL RECURRENT	$115,490	$0	$7,511	$14,807	$7,792,967	79.7%
CAPITAL COST						
Equipment		$29,198			$507,430	5.2%
Vehicles	$46,549		$3,960	$9,372	$925,494	9.5%
Buildings		$5,822			$556,843	5.7%
Other						0.0%
SUBTOTAL CAPITAL	$46,549	$35,020	$3,960	$9,372	$1,989,767	20.3%
TOTAL COST	$162,039	$35,020	$11,471	$24,179	$9,782,734	100.0%
PERCENT	1.7%	0.4%	0.1%	0.2%	100.0%	

Total Doses 1988	5,189,514
Cost per Dose	$1.89
Target population	986,792
Percent FIC <1	33.3%
Total FIC	328,602
Cost/FIC <1	$29.77

The annual cost per dose in the Sudan in 1988 was $1.89 and the average cost per FIC was nearly $30. This figure is high relative to other study results, but may be explained by the magnitude of material and personnel resources available to the EPI in Sudan which increases the total cost of operating the program. Although coverage rates in the Republic of Sudan are increasing, the high cost per FIC in some regions may be explained by low numbers of fully immunized children.

IX. FINANCIAL MANAGEMENT OF EPI IN SUDAN

The administration and finance section of the EPI in Khartoum should be commended for the thorough and difficult task of managing the UNICEF cash assistance account which totals several million U.S. dollars ($8.7 million in 1988). Nearly 62 percent of these funds are aimed at district level. This level of assistance may overextend the absorptive capacity of the country to translate these resources into effective immunization activity, however.

During the course of the cost-effectiveness study, it became clear that the current system for monitoring cash transfers between UNICEF and the MOH/EPI as well as between central EPI Headquarters and the regional offices is insufficient and needs strengthening as soon as possible. The current system is operated on a check accounting basis which does not allow for proper monitoring of funds and does not provide adequate information to program managers at central and regional levels for financial management of EPI.

The study team recommends that a review or assessment be made of the current system by an experienced accountant. At the very least, a double-entry bookkeeping system should be installed in the program at all levels and those individuals responsible for managing EPI resources trained in accounting methods. The administration and finance section would benefit professionally by additional training in financial management and accounting techniques, as some of these individuals have learned on-the-job and have not received formal training. In addition, the time period allowed for reconciliation of regional level expenses to the central EPI headquarters is too long and should be reduced to monthly reporting of expenses with, at most, a two-three week lag time.

Finally, the evolution of the EPI in Sudan should be towards a more decentralized system: at district level and below. In order for a decentralized system to operate properly, resources (material and financial) must flow to these levels. The study team was unable to find one district which controlled its own petty cash account, as most of the resources allocated to district level operations (80% of the UNICEF cash account budget) remained at regional level. Therefore, control of resources has not been effectively decentralized as yet and steps should be made to strengthen this process in conjunction with improved accounting and financial management systems.

X. CONCLUSIONS AND RECOMMENDATIONS

The cost-effectiveness study team made specific recommendations for each region included in the study and these are available in the individual region reports. Several themes emerged from these regional reports which are described below. These recommendations focus on improving the effectiveness of alternative strategies within the Sudan and on reducing the cost of operating the EPI at different levels.

Mobile Teams

1) The mobile team strategy should be evaluated as to how resources could be conserved, by reducing the number and types of personnel, becoming more stringent about when per diem and staff support is offered to immunization workers, tracking the number of kilometers used for immunization or for other activities, and preserving and extending the useful life of vehicles through proper driving and maintenance.

   In addition, the routing patterns of the teams should be analyzed. There are teams which return to headquarters every other day which represents a waste of resources if vaccine can be preserved with a seven-day cold box.

2) A policy should be developed on the minimum size of villages to be visited by mobile teams, initially, with the view to incorporating as much of the remote population as possible over time. A team with four vaccinators travelling far distances to immunize few children does not represent a responsible use of scare resources. Heavy consideration should be made to reduce the monthly rounds to rounds every two to three months in order to have a sufficient number of immunizable children to make using a team a cost-effective choice.

3) The total cost of the program could be reduced if other health services were provided by mobile team staff without reducing their level of activity for immunizations. Integration of activities would result in a more cost-effective program.

4) Routine information on the numbers of kilometers travelled by mobile teams should be recorded and analyzed to improve efficiency of service delivery.

Health Facilities

1) Health facility services are being under-utilized and represent an untapped resource for EPI. An inventory of all health facilities, their equipment and type of staff should be made at every district in order to see which facilities could offer or extend EPI services at marginal cost to the program now. Strengthening the fixed

facility strategy would require building new facilities, equipping facilities with cold chain and providing additional training and supervision. These activities would represent additional costs to the program.

2) Duplication of immunization services between fixed facilities and mobile teams in urban areas may be contributing to the high cost of the program. A policy should be developed which discourages use of teams in towns even for vaccine drops. Alternative sources of transportation, such as donkeys, taxis and buses, should be used instead.

3) Registration by birth cohort is recommended as a method to follow children through their immunization history, to reduce drop-out rates and to improve the information base available at health facility (and mobile team) levels.

Financing and Financial Management

1) The EPI in Sudan still will be required to rely on outside donor assistance in order to fund the cost of the program within the immediate future.

   The budget for the Ministry of Health in 1988 was LS 57,584,000 which is approximately LS 2.67 or $0.60 per capita for health. Allocations to the health sector have been declining for several years and are not expected to rise in the near future. It is apparent that government resources will not be able to cover the cost of the program (at $30 per FIC), especially those requiring foreign exchange such as vaccines, syringes, vehicles, and equipment. Currently, UNICEF funds are covering the cost of training for EPI.

2) Local funding at district level appears to be an unreliable source of finances for the program. District and Rural Councils raise money through taxation on sugar (usually) for health activities and EPI. This tax is nominal and in some districts is not levied throughout the year because of the additional burden placed on the population. District Council resources, no matter what their size, will not be able to fund the foreign exchange component of the program.

   In Kordofan, there is discussion about having the community take the responsibility of supporting the transportation needs of the community health worker while collecting vaccine at district headquarters or at health facilities. Other possible community contributions could include mobilization of the population for immunization services and registration of birth cohorts at village or community level to decrease the drop-out rate.

3) Resources for district and regional operations tend to remain at regional level and could be used more effectively if some petty cash funds were made available at district level.

4) The financial management system for EPI needs to be improved immediately. EPI Headquarters is accountable to UNICEF for cash advances. However, the weakness in the system lies in how the resources are spent and accounted for at the regional level. The current accounting system is based on checks. A running balance of advances and expenditures is not kept at regional level and a double-entry bookkeeping system does not exist at headquarters.

   The current staff of the Finance and Administration Section may change in the coming few months, making installation of a new system imperative. UNICEF should take the lead in bringing a financial management/accounting consultant to Sudan to devise a system which is easy to follow, flexible, and which allows the central level to track the use of resources better.

General

1) The cost-effectiveness study data show a range in operations and resource use among districts sampled. Within each region, districts should be identified which are using resources in the most effective way. These districts could be used as a standard for service delivery in other regions.

2) Record-keeping on numbers of doses administered and on supplies and vaccine vials used needs to be strengthened at all levels. The team found many inconsistencies in the numbers of doses reported and the number of vials used in several regions. At district level, data on the numbers of kilometers travelled by the mobile teams and the monthly use of vaccine and syringes were not being kept with any regularity. Mobile teams do not record routinely the number of doses administered per round, which would be a valuable management indicator.

3) Vaccine wastage was found to be high, which could affect the total cost of the program. In Darfur, wastage was over 50 percent for most antigens and approached 80 percent in some districts for TT. Efforts should be made to reduce wastage where possible, given that greater wastage rates are expected at increasing levels of coverage. The EPI could explore using smaller dose vials (from 20 to 10, for example) to reduce wastage.

4) The full cost of the social mobilization component of the national immunization program is sufficiently large ($1.8 million) to warrant additional investigations into the effectiveness of the strategies being developed to generate continued demand for immunization services on the part of the population.

APPENDIXES

APPENDIX 1: ITINERARY

APPENDIX 2: BACKGROUND TABLES

APPENDIX 3: ENGLISH AND ARABIC QUESTIONNAIRES

APPENDIX 4: REGIONAL SUMMARY TABLES

APPENDIX 1

ITINERARY

The itinerary for the cost-effectiveness study was as follows:

October 15-31, 1988: Initial study planning visit

March 3, 1989: Arrival of team leader, initial development of questionnaires, planning of study and hiring of Sudanese researchers;

March 6, 1989: Arrival of other consultants

March 7-10, 1989: Development of questionnaires; pre-testing in National Capital Region; translation of questionnaires; preparations for field trips; hiring of Sudanese researchers;

March 10-20, 1989: Field team in Darfur Region;

March 11-20, 1989: Field team in Middle Region;

March 11-21, 1989: Field team in Kordofan Region;

March 12-20, 1989: Field team collects data in National Capital Region;

March 21-28, 1989: Data entry into computers; development of analysis framework; data collection at EPI headquarters and from other donor organizations in Khartoum;

March 29-April 10, 1989: Data analysis, data collection in Khartoum;

April 10, 1989: Presentation to the EPI and the joint Management Review Team;

April 10-11, 1989: Report writing and departure.

APPENDIX 2

BACKGROUND TABLES

TABLE 2.1

COST OF THE SOCIAL MOBILIZATION COMPONENT OF THE EPI

ITEM	PRODCT. COST LS	PROD. COST US $	FREQ. PER DAY	TOTAL PER YEAR	UNIT	COST LS	COST US $	%
WRITTEN MATERIALS								
Cartoons	3,600	$809	5	1,825	450	821,250	$184,551	
Slogan	600	$135	3	1,095	225	246,375	$55,365	
Articles	11,200	$2,517		280	900	252,000	$56,629	
Subtotal	15,400	$3,461				1,319,625	$296,545	16.0
RADIO BROADCASTS								
Drama	3,975	$893	3,180	3,180	130	413,400	$92,899	
Interview	6,300	$1,416	1,800	1,800	130	234,000	$52,584	
Songs	1,800	$404	60	21,900	130	2,847,000	$639,775	
Slogans	800	$180	3	1,095	130	142,350	$31,989	
Subtotal	12,875	$2,893				3,636,750	$817,247	44.1
TELEVISION BROADCASTS								
Songs	350	$79	60	60	220	13,200	$2,966	
Slogans	3,400	$764	34	12,410	220	2,730,200	$613,528	
Interview	2,660	$598	380	380	220	83,600	$18,787	
Drama	2,500	$562	10	200	220	44,000	$9,888	
Subtotal	8,910	$2,002				2,871,000	$645,169	34.8
OTHER PUBLICITY								
Leaflets	182,000	$40,899						
Posters	2,000	$449			1	6,000	$1,348	
T-Shirts	10,000	$2,247						
Billboards						357,000	$80,225	
Football Cups						1,800	$404	
Open-Air Celebration						14,500	$3,258	
Bus Advertisement				60	125	7,500	$1,685	
Mobile Theatre						40,000	$8,989	
SUBTOTAL		$43,596				426,800	$95,910	
TOTAL	37,185	$51,952				8,254,175	$1,854,871	100.0

TABLE 2.2

TRAINING COSTS PER PERSON

REGION	EXPENDITURE	NUMBER TRAINED	COST/ PERSON LS	COST/ PERSON US $
DARFUR	71,955	1,072	67	$15
KORDOFAN	72,218	1,065	68	$15
MIDDLE	38,619	578	67	$15
NATIONAL CAPITAL	25,264	503	50	$11
AVERAGE	52,014	805	63	$14
EPI BUDGET	732,259	10,004	73	$16

Kordofan estimates based on 1988 allocation for training and numbers of participants in six districts adjustedfor 10 districts. Other regional estimates based on weighted average of the number of participants at district level plus the number of participants at regional level.

TABLE 2.3

EQUIPMENT, VEHICLES AND SUPPLIES PRICES

Central Headquarters Equipment L	Best Estimate	Years UseLife	Annualized Cost for r=25%	PWF
	@IF(H7>0,H	25		3.984888
1 Toyota Hilux Double cab	$11,604.00	5	$4,314.91	2.689280
1.1 Toyota Hilux Single cab	$10,649.00	5	$3,959.80	2.689280
2 Land Cruiser Pickup Diesel	$12,601.50	5	$4,685.83	2.689280
2.1 Land Cruiser Saloon	$15,000.00	5	$5,577.70	2.689280
2.2 Land Cruiser	$18,000.00	5	$6,693.24	2.689280
3 Motorcycle 70cc	$951.00	4	$402.69	2.361600
3.1 Motorcycle 80cc	$1,000.00	4	$423.44	2.361600
3.2 Motorcycle Three-Wheeler	$1,244.56	4	$527.00	2.361600
3.3 Motorcycle 125 cc	$1,100.00	4	$465.79	2.361600
4 Bicycles	$203.67	2	$141.44	1.440000
5 Panda car	$6,728.11	5	$2,501.83	2.689280
6 Air conditioner	$600.00	5	$223.11	2.689280
7 Solar refrigerator BP	$4,000.00	10	$1,120.29	3.570503
7.1 Solar refrigerator (Italy)	$5,136.00	10	$1,438.45	3.570503
8 RCW42 EK	$920.00	10	$257.67	3.570503
9 TFW 791	$700.00	10	$196.05	3.570503
10 TCW 1151	$1,295.00	5	$481.54	2.689280
10.1 Admiral refrigerator	$1,011.24	10	$283.22	3.570503
10.2 ColdAir refrigerator	$788.52	10	$220.28	3.570503
10.3 Electrolux refrigerator	$1,115.00	10	$312.28	3.570503
10.4 Philips Tropical fridge	$600.00	5	$223.11	2.689280
10.5 Sibir refrigerator S2325	$900.00	5	$334.66	2.689280
10.6 Step-in Refrigerator +3Deg	$4,000.00	15	$1,036.47	3.859263
10.7 Walk-in Refrigerator +4Deg	$8,245.80	15	$2,136.63	3.859263
12 Admiral freezer	$1,573.03	10	$440.56	3.570503
12.1 Electrolux Chest freezer	$420.00	10	$117.63	3.570503
12.2 Vestfrost HF5201 T Freezer	$182.00	10	$50.97	3.570503
12.3 ?Chest freezer (Sussex)	$600.00	10	$168.04	3.570503
12.5 Ice-pack Freezer Asko Oy	$1,616.92	10	$452.85	3.570503
12.5 Walk-in Freezer -20 Deg	$9,469.47	10	$2,652.14	3.570503
13 Vaccine Carrier 1.7 lts	$14.60	3	$7.48	1.952000
14 Vaccine carrier 3504/38	$12.00	3	$6.15	1.952000
15 Vaccine Carrier 0.3 lts	$9.00	2	$6.25	1.440000
16 Ice packs for Model II	$0.40	3	$0.20	1.952000
16.1 Ice packs w/vial holes	$0.38	3	$0.19	1.952000
16.2 Thermos ice-packs (box)	$77.00	3	$39.45	1.952000
17 Dial Thermometer (probe)	$62.85	10	$17.60	3.570503
17.1 Recording Thermometer	$723.68	10	$202.68	3.570503
17.2 Digital thermometer	$218.09	10	$61.08	3.570503
18 Round Thermometer w/hook	$1.00	5	$0.37	2.689280
19 Cold Box 20 litres	$340.00	8	$102.14	3.328911
20 Cold Box 8.5 ltr Model 2	$96.50	5	$35.88	2.689280
21 RCW 25 (911 1501.01)	$299.00	8	$89.82	3.328911
21.1 Coleman Cold Box (E4/06)**	$72.00	2	$50.00	1.440000
22 Generator 4.5KVA	$1,300.00	5	$483.40	2.689280
22.1 Generator 15 KVA	$7,000.00	5	$2,602.93	2.689280
22.2 Generator 12.5 KVA	$3,400.00	5	$1,264.26	2.689280
22.3 Generator portable 0.5 KVA	$900.00	5	$334.66	2.689280
22.4 Generator, portable	$900.00	5	$334.66	2.689280
22.5 Generator 40 KVA	$7,043.00	5	$2,618.92	2.689280
22.5 Generator 4.5 KVA	$1,300.00	5	$483.40	2.689280
22.6 Generator 60 KVA	$7,043.00	5	$2,618.92	2.689280
23 Voltage Regulator(brown)	$264.00	5	$98.17	2.689280
23.1 Voltage Regulator(orange)	$264.00	2	$183.33	1.440000

TABLE 2.3 (cont.)

EQUIPMENT, VEHICLES AND SUPPLIES PRICES

23.2	Voltage Regulator (red)	$264.00	5	$98.17	2.689280
23.3	Voltage Regulator	$264.00	5	$98.17	2.689280
23.4	Transformer (Step-down) for	$750.00	5	$278.89	2.689280
24	Alarm system	$0.00	10		3.570503
25	Public Address (Mobile)	$146.00	5	$54.29	2.689280
25.1	Public Address (Fixed) TOA	$446.00	5	$165.84	2.689280
26	Megaphone -	$50.00	5	$18.59	2.689280
27	Tape recorder/Cassette	$47.00	2	$32.64	1.440000
28	Weighing scale	$200.00	10	$56.01	3.570503
29	Slide projector Hanimex	$117.30	2	$81.46	1.440000
30	Chair, metal frame	$40.45	5	$15.04	2.689280
31	Chair, wooden	$33.71	8	$10.13	3.328911
32	Table, wooden	$70.00	10	$19.61	3.570503
32.1	Small table/stool	$15.73	10	$4.41	3.570503
33	Desk with drawers, metal	$247.19	10	$69.23	3.570503
34	Shelves (4 stacked layers)	$107.87	10	$30.21	3.570503
35	Filing cabinet, 4-drawer	$178.00	5	$66.19	2.689280
36	Cupboard	$247.19	5	$91.92	2.689280
37	Duplicator Gestetner 4130	$683.00	5	$253.97	2.689280
38	Typewriter Arabic	$450.00	10	$126.03	3.570503
39	Typewriter English	$320.00	10	$89.62	3.570503
40	Oxyacetylene Gun & Hose	$250.00	5	$92.96	2.689280
41	Tank for Oxygen/Acetyline	$0.00	10	$0.00	3.570503
42	Regulator for tank	$0.00	10	$0.00	3.570503
43	Freon tank	$0.00	10	$0.00	3.570503
44	1 cc disposable syringe	$0.05			
45	2 cc disposable syringe	$0.03			
46	Vaccine monitor card	$2.73			
47	Registration book	$3.51			
48	Road to Health Cards	$0.05			
49	Cotton (packets)	$0.25			
50	Freezewatch indicator	$0.90			
51	Vaccine packing tape	$2.20			
52	Strip thermometer (E6/11)	$1.00			
53	Ice Pack Indicator (E5/13)	$0.18			
54	Cassettes	$1.40			
55	Dry cell batteries	$0.51			
56	Dry cell batteries	$0.82			

APPENDIX 3

ENGLISH AND ARABIC QUESTIONNAIRES

Draft 5 MOH/REACH Cost-Effectiveness Study of the EPI

All of these questions refer to the mobile team which covers:

1	Form number	1 [ ]
2	Region	2 [ ]
3	District	3 [ ]
4	Cluster number	4 [ ]
	Name of cluster	
	Name of Respondent_____	
5	Title of respondent	5 [
5.1	District Medical Director	
5.2	District Operations Officer	
5.3	Medical Director	
5.4	Medical Officer	
5.5	Specialists	
5.6	Medical Assistant	
5.7	Health Visitor	
5.8	Vaccinators	
5.9	Community Health Worker	
5.10	Supervisors	
5.11	Certified Nurse	
6	How many villages or settlements are visited during each round?	6 [ ]

7 A How many of each of these kinds of buildings does this mobile team use to provide EPI services?

7 B How many of these buildings routinely provide EPI services without the support of this mobile team? [INSERT TALLY AND TOTAL ON EACH LINE]

	7A TALLY	7A TOTAL	7B TALLY	7B TOTAL
7.1 Health Center		7.1 [ ]		7.1 [ ]
7.2 Dispensary		7.2 [ ]		7.2 [ ]
7.3 Dressing Station		7.3 [ ]		7.3 [ ]
7.4 Primary Health Care Units		7.4 [ ]		7.4 [ ]
7.5 Secondary Hospital		7.5 [ ]		7.5 [ ]
7.6 Houses		7.6 [ ]		7.6
7.7 Schools		7.7 [ ]		7.7
7.8 Mosques		7.8 [ ]		7.8
7.9 Youth Centers, Clubs		7.9 [ ]		7.9
7.10 Other_____		7.10 [ ]		7.10 [ ]
7.11 Other_____		7.11 [ ]		7.11 [ ]

8 How many rounds does this team make each year?

8 A Scheduled Rounds 8 A [ ]

8 B Actual Rounds 8 B [ ]

9 How many days per round? 9 [ ]

10 How many trips are made to headquarters during a round? 10 [ ]

11 A What is the normal composition of this mobile team?

11.1 Vaccinator	11.1 [ ]
11.2 Supervisor [grade]_____	11.2 [ ]
11.3 Driver	11.3 [ ]
11.4 Other _____	11.4 [ ]
11.5 Other _____	11.5 [ ]

12 Who are the team's primary contacts for each village? [INSERT TALLY AND TOTAL ON EACH LINE]

COMMUNITY CONTACTS

	TALLY	TOTAL
12.1 Certified Nurse		12.1 [ ]
12.1 Community Health Worker		12.1 [ ]
12.2 Village Midwife		12.2 [ ]
12.3 Sheik, Mullah, Leader		12.3 [ ]
12.4 Other _____		12.4 [ ]
12.5 Other _____		12.5 [ ]

13 A How much equipment for EPI does the mobile team currently have?

13 B Are any out of order?

13 C If yes, how many? EPI?

	A NUMBER	B NUMBER OPERATING	C PERCENT EPI
13.1 Hilux Truck	13.1 [ ]	[ ]	[ ]
13.2 Land Cruiser	13.2 [ ]	[ ]	[ ]
13.3 Other vehicle	13.3 [ ]	[ ]	[ ]
13.4 Vaccine Carrier 1.7 ltr	13.4 [ ]	[ ]	[ ]
13.5 Vaccine carrier 3504/38	13.5 [ ]	[ ]	[ ]
13.6 Vaccine carrier 0.3ltr	13.6 [ ]	[ ]	[ ]
13.7 Cold box - RCW25	13.7 [ ]	[ ]	[ ]
13.8 Cold Box 20 ltrs	13.8 [ ]	[ ]	[ ]
13.9 Cold Box 8.5 ltrs	13.9 [ ]	[ ]	[ ]

	A NUMBER	B NUMBER OPERATING	C PERCENT EPI
13.10 Ice Packs	13.10 [ ]	[ ]	[ ]
13.11 Round Thermometers	13.11 [ ]	[ ]	[ ]
13.12 Ice Pack Indicator	13.12 [ ]	[ ]	[ ]
13.13 Public Address Set	13.13 [ ]	[ ]	[ ]
13.14 Megaphone	13.14 [ ]	[ ]	[ ]
13.15 Tape Recorder	13.15 [ ]	[ ]	[ ]
13.16 Registration Books	13.16 [ ]	[ ]	[ ]

14 A How much of each of the following supply items does the mobile team currently have?

14 B What percent of use is for EPI?

	14 A NUMBER	14 B PERCENT EPI
14.1 Disp syringe w/ needles 1cc	14.1 [ ]	[ ]
14.2 Disp syringe w/ needles 2.5 cc	14.2 [ ]	[ ]
14.3 BCG Needles	14.3 [ ]	[ ]
14.4 Vax. Monitor Card	14.4 [ ]	[ ]
14.5 Road to Health Cards	14.5 [ ]	[ ]
14.6 Cotton [packets]	14.6 [ ]	[ ]
14.7 Saline [bottles]	14.7 [ ]	[ ]
14.8 Other	14.8 [ ]	[ ]
14.9 Other	14.9 [ ]	[ ]

15 What is the distance travelled per round in kilometers?

15.1 Estimated 15.1 [ ]

OR OR

15.2 Logged 15.2 [ ]

16 What was the total distance travelled last year?

16.1 Estimated [ ]

OR

16.2 Logged [ ]

17 A For February, 1989, what was the supply of vaccine to this mobile team?

17 B How many doses were given?
[RECORD A ,B & C FROM STOCK BOOK]
[RECORD D & E FROM MONTHLY SUMMARY]

	DOSES / VIAL	A FEB. 1 OPENING BALANCE DOSES	B FEB.: DOSES STOCK REC'D	C MAR. 1 DOSES ON HAND	D TOTAL DOSES GIVEN <1	E TOTAL DOSES GIVEN 1+
17.1 BCG	[10]	17.1 [ ]	[ ]	[ ]	[ ]	[ ]
17.2 DPT	[20]	17.2 [ ]	[ ]	[ ]	[ ]	[ ]
17.3 (DPT1)		17.3 [ ]	[ ]	[ ]	[ ]	[ ]
17.4 (DPT2)		17.4 [ ]	[ ]	[ ]	[ ]	[ ]
17.5 (DPT3)		17.5 [ ]	[ ]	[ ]	[ ]	[ ]
17.6 (Booster)		17.6 [ ]	[ ]	[ ]	[ ]	[ ]
17.7 OPV	[20]	17.7 [ ]	[ ]	[ ]	[ ]	[ ]
17.8 (OPV1)		17.8 [ ]	[ ]	[ ]	[ ]	[ ]
17.9 (OPV2)		17.9 [ ]	[ ]	[ ]	[ ]	[ ]
17.10 (OPV3)		17.10 [ ]	[ ]	[ ]	[ ]	[ ]
17.11 (Booster)		17.11 [ ]	[ ]	[ ]	[ ]	[ ]
17.12 Measles	[10]	17.12 [ ]	[ ]	[ ]	[ ]	[ ]
ADULT WOMEN						
17.13 TT	[20]	17.13 [ ]	[ ]	[ ]	[ ]	[ ]
17.14 (TT1)		17.14 [ ]	[ ]	[ ]	[ ]	[ ]
17.15 (TT2)		17.15 [ ]	[ ]	[ ]	[ ]	[ ]

18 How many children less than one year of age were fully immunized in February by the mobile team?
[RECORD FROM REGSTRTION BOOK.] 18 [ ]

19 What is the number of births per year in the area served by this mobile team? 19 [ ]

QUESTIONS TO BE ANSWERED BY A MOBILE TEAM MEMBER

	Name of Respondent: _____	
20	Title of respondent	CODE FROM Q. 5 21 [ ]
21	During 1989, did you pay any out of pocket expense?	YES 21 [ ] NO [ ]
22	IF YES, what was bought?	22 [ ]
23	How much did you spend?	23 [ ]
24	How much has been reimbursed?	24 [ ]
25	What percent of your time on the last round did you spend on each of the following activities?	
25.1	Preparation before departure	25.1 [ ]
25.2	Traveling	25.2 [ ]
25.3	Announcing services	25.3 [ ]
25.4	Immunization sessions	25.4 [ ]
25.5	Other_____	25.5 [ ]
25.6	Other_____	25.6 [ ]

HEALTH FACILITY QUESTIONNAIRE - PAGE 1 Form No.:

Draft 6

MOH/REACH Cost-effectiveness Study of the EPI
Health Facility Questionnaire

Km from HQ to site? _____

1	Form Number	[ ]
2	Region	[ ] 1=Khartoum 2=Central 3=Kordofan 4=Darfur
3.1	District	[ ]
	Cluster number	[ ]
3.2	Name of cluster	[ ]
3.3	Urban or Rural Site	[ ] 1=Urban 2=Rural
4	Type of health facility:	[ ]
4.1	Health Center	
4.2	Dispensary	
4.3	Dressing Station	
4.4	Primary Health Care Unit	
4.5	Secondary Hospital	
4.6	Other _____	
5	Name of respondent Title of respondent (use categories 1-16 #7)	_____ _____ [ ]
6	What type of immunization site is this?	
6.1	Static	[ ]
6.2	Mobile supported	[ ]
6.3	Outreach	[ ]

		7 A Full Time on EPI Dist	7 A Full Time on EPI HQ	7 B Part Time on EPI Dist	7 B Part Time on EPI HQ	7 C Total of Part-Timers' hours/week
7 A	What type and how many personnel are working full-time in EPI in this facility?					
7 B	How many are working part-time on the EPI?					
7 C	How many hours do the part-time people work per week on EPI?					
7.1	Medical Officer	[ ]		[ ]		[ ]
7.2	Medical Assistant	[ ]		[ ]		[ ]
7.3	Health Visitor	[ ]		[ ]		[ ]
7.4	Vaccinators	[ ]		[ ]		[ ]
7.5	Community Health Worker	[ ]		[ ]		[ ]
7.6	Supervisors	[ ]		[ ]		[ ]
7.7	Certified Nurse	[ ]		[ ]		[ ]
7.8	Statistician	[ ]		[ ]		[ ]
7.9	Midwife	[ ]		[ ]		[ ]
7.10	Supply Officer	[ ]		[ ]		[ ]
7.11	Driver	[ ]		[ ]		[ ]
7.12	Transport Officer	[ ]		[ ]		[ ]
7.13	Accountant	[ ]		[ ]		[ ]
7.14	Cold Chain Technician	[ ]		[ ]		[ ]
7.15	Typist/Recordkeeper	[ ]		[ ]		[ ]
7.16	Other _____	[ ]		[ ]		[ ]

8 A What days is the facility normally open each week? [ ]

8 B What are the days and the hours for EPI in the week?

1=Saturday 5=Wednesday
2=Sunday 6=Thursday
3=Monday 7=Friday
4=Tuesday

EPI Schedule

Days	Hours/ Day	Total Hours
[1 2 3 4 5 6 7]	[ ]	[ ]

		9 A Number	9 B Number Out of Order	9 C % for EPI
9 A	How much equipment for EPI does the facility currently have?			
9 B	Are any out of order? How many?			
9 C	What percentage of their use is for others?			
9.1	Toyota Hilux _____	[ ]	[ ]	[ ]
9.2	Land Cruiser _____	[ ]	[ ]	[ ]
9.3	Motorcycle _____	[ ]	[ ]	[ ]
9.4	Bicycle _____	[ ]	[ ]	[ ]
9.5	Other vehicle _____	[ ]	[ ]	[ ]
9.6	Air conditioner _____	[ ]	[ ]	[ ]
9.7	Solar refrigerator _____	[ ]	[ ]	[ ]
9.8	RCW42 EK _____	[ ]	[ ]	[ ]
9.9	TFW 791 _____	[ ]	[ ]	[ ]
9.10	TCW1151 (ice lined) _____	[ ]	[ ]	[ ]
9.11	Other refrigerator _____	[ ]	[ ]	[ ]
9.12	Other freezer _____	[ ]	[ ]	[ ]
9.13	Vax Carrier 1.7 ltrs _____	[ ]	[ ]	
9.14	Vax Carrier 3504/38 _____	[ ]	[ ]	
9.15	Vax Carrier 0.3 ltrs _____	[ ]	[ ]	
9.16	Ice Packs _____	[ ]	[ ]	
9.17	Dial Thermometer _____	[ ]	[ ]	
9.18	Round Thermometer _____	[ ]	[ ]	
9.19	Cold Box 20 litres _____	[ ]	[ ]	
9.20	Cold Box 8.5 litres _____	[ ]	[ ]	
9.21	RCW25 _____	[ ]	[ ]	

		9 A Number	9 B Number Out of Order	9 C % for EPI
9.22	Generator _____	[ ]	[ ]	[ ]
9.23	Voltage Regulator _____	[ ]	[ ]	[ ]
9.24	Ice Pack Indicator _____	[ ]	[ ]	
9.25	Public Address _____	[ ]	[ ]	[ ]
9.26	Megaphone _____	[ ]	[ ]	[ ]
9.27	Other _____	[ ]	[ ]	[ ]

		10 A Stock On Hand Feb 1	10 B Supply Received During Feb	10 C Stock On Hand March 1	10 D % for EPI
10 A	What stock of EPI supplies did the facility have at the beginning of February?				
10 B	What supplies were received during the month?				
10 C	What stock was left on March 1?				
10 D	Are the supplies being used by anyone else? What proportion?				
10.1	Disp.syringe w/ needles: 1cc	[ ]	[ ]	[ ]	[ ]
10.2	Disp.syringe w/ need.: 2.5cc	[ ]	[ ]	[ ]	[ ]
10.3	BCG Needles _____	[ ]	[ ]	[ ]	[ ]
10.4	Vax monitor card _____	[ ]	[ ]	[ ]	[ ]
10.5	Registration books _____	[ ]	[ ]	[ ]	[ ]
10.6	Road to Health (imm.) cards _	[ ]	[ ]	[ ]	[ ]
10.7	Cotton (pack) _____	[ ]	[ ]	[ ]	[ ]
10.8	Freeze watch _____	[ ]	[ ]	[ ]	[ ]
10.9	Saline _____	[ ]	[ ]	[ ]	[ ]
10.10	Other _____	[ ]	[ ]	[ ]	[ ]
10.11	Other _____	[ ]	[ ]	[ ]	[ ]

HEALTH FACILITY QUESTIONNAIRE - PAGE 5 Form No.:

11 A	In February 1989, how many trips were made by EPI staff for the following immunization activities?	1=Facility vehicle 5=bicycle 2=taxi 6=foot 3=bus 7=animal power 4=motorcycle 8=other_____
11 B	How many km/trip?	
11 C	What means of transport was used?	
11 D	In February 1988, did EPI staff pay any out-of-pocket costs (whether or not reimbursed) for this travel? How much?	

		11 A No. of Trips	11 B km/ trip	11 C Means	11 D O.O.P. Costs
11.1	Replace vaccines/supplies __	[ ]	[ ]	[ ]	[ ] LS
11.2	Maint. equip/vehcls _____	[ ]	[ ]	[ ]	[ ] LS
11.3	Mobilization/outreach _____	[ ]	[ ]	[ ]	[ ] LS
11.4	Supervision/Meetings _____	[ ]	[ ]	[ ]	[ ] LS
11.5	Training _____	[ ]	[ ]	[ ]	[ ] LS
11.6	Other _____	[ ]	[ ]	[ ]	[ ] LS
11.9	Total	[ ]			[ ] LS

12 A	What is the total size of the facility?	[ ] sq m
12 B	What is the size of the immunization room(s)?	[ ] sq m
12 C	How much did it cost to construct the facility? (yr)	Amount [ ] LS Year [ ]
12 D	Who paid for the construction of the facility, and how much did each pay?	
	1. Ministry of Health	[ ] LS
	2. District Council	[ ] LS
	3. NGO	[ ] LS
	4. Community/village	[ ] LS
	5. Other	[ ] LS

	We would like to ask some questions about vaccine supply and doses given.	Doses/vial	Feb 1 Opening Balance Doses	Feb Doses Stock Received	March 1 Doses On Hand	Total Doses Given <1	Total Doses Given 1-5
13.1	BCG	10	[ ]	[ ]	[ ]	[ ]	[ ]
13.2	DPT	20	[ ]	[ ]	[ ]	[ ]	[ ]
13.3	(DPT1)					[ ]	[ ]
13.4	(DPT2)					[ ]	[ ]
13.5	(DPT3)					[ ]	[ ]
13.6	(Booster)					[ ]	[ ]
13.7	OPV	20	[ ]	[ ]	[ ]	[ ]	[ ]
13.8	(OPV1)					[ ]	[ ]
13.9	(OPV2)					[ ]	[ ]
13.10	(OPV3)					[ ]	[ ]
13.11	(Booster)					[ ]	[ ]
13.12	Measles	10	[ ]	[ ]	[ ]	[ ]	[ ]
						Adult Women	
13.13	TT	20	[ ]	[ ]	[ ]	[ ]	
13.14	(TT1)					[ ]	
13.15	(TT2)					[ ]	

14	How many children less than 1 yr year old became fully immunized in February, 1989? (Counted from the Registration Book)	[ ]
15	What is the population served by the facility?	[ ]
16	How many total visits were there last year (1988) to the health facility for all services?	[ ]

17 A	Are there additional resources donated by District Councils, NGO's, local organizations or individuals for the EPI?	Yes [ ]	No [ ]
		IF NO, GO TO END	
17 B	What kinds of resources?		
17 C	How much?		
17 D	How often?		

17 A: Organ/Indiv	17 B Type of Resource	17 C Amount	17 D Frequency
1. [ ]	[ ]	[ ]	[ ]
2. [ ]	[ ]	[ ]	[ ]
3. [ ]	[ ]	[ ]	[ ]
4. [ ]	[ ]	[ ]	[ ]

END OF FACILITY QUESTIONNAIRE

DISTRICT QUESTIONNAIRE - PAGE 1 Region [ ] District [ ]

Draft 6

MOH/REACH Cost-Effectiveness Study of the EPI

1	Form number	[ ]	
2	District Name _____	[ ]	
3	Region Name _____	[ ]	1=Khartoum 2=Central 3=Kordofan 4=Darfur
	Name of respondent _____		
4	Title of respondent _____	[ ]	[ ] [ ]

		A Full Time on EPI Dist HQ	B Part Time, on EPI Dist HQ	C Total of Part Timers' Hours/Week
5 A	How many staff are working full time on EPI at District Headquarters?			
B	How many staff work on EPI part time at District HQ?			
C	How many hours (total) do the part-time staff work on EPI per week?			
5.1	District Medical Director	[ ]	[ ]	[ ]
5.2	District Operations Officer	[ ]	[ ]	[ ]
5.3	Medical Director	[ ]	[ ]	[ ]
5.4	Medical Officer	[ ]	[ ]	[ ]
5.5	Specialists	[ ]	[ ]	[ ]
5.6	Medical Assistant	[ ]	[ ]	[ ]
5.7	Health Visitor	[ ]	[ ]	[ ]
5.8	Vaccinators	[ ]	[ ]	[ ]
5.9	Community Health Worker	[ ]	[ ]	[ ]
5.10	Supervisors	[ ]	[ ]	[ ]
5.11	Certified Nurse	[ ]	[ ]	[ ]

DISTRICT QUESTIONNAIRE - PAGE 2 Region [ ] District [ ]

		A Full Time on EPI Dist HQ	B Part Time, on EPI Dist HQ	C Total of Part Timers' Hours/Week
5.12	Statistician	[ ]	[ ]	[ ]
5.13	Midwife	[ ]	[ ]	[ ]
5.14	Supply Officer	[ ]	[ ]	[ ]
5.15	Driver	[ ]	[ ]	[ ]
5.16	Transport Officer	[ ]	[ ]	[ ]
5.17	Accountant	[ ]	[ ]	[ ]
5.18	Cold Chain Technician	[ ]	[ ]	[ ]
5.19	Typist/Recordkeeper	[ ]	[ ]	[ ]
5.20	Other _____	[ ]	[ ]	[ ]
5.21	Other _____	[ ]	[ ]	[ ]
5 D	How many hours is a full-time work week?	5 D [ ]		
6	How much equipment do you have for EPI at District HQ?	Number	Number out of order	% for EPI
6.1	Toyota Hilux (Diesel/Petrol)	[ ]	[ ]	[ ]
6.2	Land Cruiser (Diesel/Petrol)	[ ]	[ ]	[ ]
6.3	Motor cycles _____	[ ]	[ ]	[ ]
6.4	Bicycles _____	[ ]	[ ]	[ ]
6.5	Other vehicle _____	[ ]	[ ]	[ ]
6.6	Air conditioner _____	[ ]	[ ]	[ ]

DISTRICT QUESTIONNAIRE - PAGE 3 Region [ ] District [ ]

		Number	Number out of order	% for EPI
6.7	Solar refrigerator _____	[ ]	[ ]	[ ]
6.8	RCW42 EK _____	[ ]	[ ]	[ ]
6.9	TFW 791 _____	[ ]	[ ]	[ ]
6.10	TCW1151 (Ice lined) _____	[ ]	[ ]	[ ]
6.11	Other refrigerator _____	[ ]	[ ]	[ ]
6.12	Other freezer _____	[ ]	[ ]	[ ]
6.13	Vax Carrier 1.7 ltrs _____	[ ]	[ ]	
6.14	Vax Carrier 3504/38 _____	[ ]	[ ]	
6.15	Vax Carrier 0.3 ltrs _____	[ ]	[ ]	
6.16	Ice Packs _____	[ ]	[ ]	
6.17	Dial Thermometer _____	[ ]	[ ]	
6.18	Round Thermometer _____	[ ]	[ ]	
6.19	Cold Box 20 litres _____	[ ]	[ ]	
6.20	Cold Box 8.5 litres _____	[ ]	[ ]	
6.21	RCW25 _____	[ ]	[ ]	
6.22	Generator _____	[ ]	[ ]	[ ]
6.23	Voltage Regulator _____	[ ]	[ ]	[ ]
6.24	Ice Pack Indicator _____	[ ]	[ ]	
6.25	Public Address _____	[ ]	[ ]	[ ]
6.26	Megaphone _____	[ ]	[ ]	[ ]
6.27	Other _____	[ ]	[ ]	[ ]
6.28	Other _____	[ ]	[ ]	[ ]

DISTRICT QUESTIONNAIRE - PAGE 4 Region [ ] District [ ]

		A	B	C	D
7 A	What stock of EPI supplies did the District have at the beginning of February?				
7 B	What supplies were received during February?				
7 C	What stock was left on March 1?				
7 D	Are the supplies being used by anyone else? What proportion?	Opening Balance 1st Feb.	Stock recv'd in Feb	Stock on hand 1 March	% for EPI
7.1	Disp.syringe with needle 1 cc	[ ]	[ ]	[ ]	[ ]
7.2	Disp.syringe w/ needle 2.5 cc	[ ]	[ ]	[ ]	[ ]
7.3	BCG needles _____	[ ]	[ ]	[ ]	[ ]
7.4	Vax monitor card _____	[ ]	[ ]	[ ]	[ ]
7.5	Registration books _____	[ ]	[ ]	[ ]	[ ]
7.6	Road to health cards _____	[ ]	[ ]	[ ]	[ ]
7.7	Cotton _____(packets)	[ ]	[ ]	[ ]	[ ]
7.8	Freezewatch indicators _____	[ ]	[ ]	[ ]	[ ]
7.9	Saline solution _____	[ ]	[ ]	[ ]	[ ]
7.10	Other _____	[ ]	[ ]	[ ]	[ ]
7.11	Other _____	[ ]	[ ]	[ ]	[ ]
7.12	Other _____	[ ]	[ ]	[ ]	[ ]

8	How many health facilities of the following types are there in this district?	Number
8.1	Health Center	[ ]
8.2	Primary HC Unit	[ ]
8.3	Dressing Station	[ ]
8.4	Dispensary	[ ]
8.5	Secondary Hospital	[ ]
8.6	Other hospital	[ ]
8.7	Other	[ ]
9	How many mobile teams operate in the district?	[ ]
10	How many kilometers did the mobile teams travel last year (1988)?	[ ] Kilometers
11 A	What is price/gallon of each type of fuel that you use?	
11 B	How many gallons were bought in 1988?	11 A Price per Gallon / 11 B Gallons bought in 1988
11.1	Diesel	[ ] LS [ ]
11.2	Petrol	[ ] LS [ ]
11.3	Kerosene	[ ] LS [ ]
11.4	Oil	[ ] LS [ ]
11.5	Other	[ ] LS [ ]
12	How many kilometers can be travelled per gallon of:-	
12.1	Diesel	[ ] km/gallon
12.2	Petrol	[ ] km/gallon

Region [ ] District [ ]

13	We would like to ask some questions about vaccine supply and doses given in the last month (February 1989).	A Opening Balance 1st Feb	B Stock received in Feb	C Stock On Hand 1 March	D Doses <1	E Doses 1-5
13.1	BCG	[ ]	[ ]	[ ]	[ ]	[ ]
13.2	DPT	[ ]	[ ]	[ ]	[ ]	[ ]
13.3	(DPT1)				[ ]	[ ]
13.4	(DPT2)				[ ]	[ ]
13.5	(DPT3)				[ ]	[ ]
13.6	(Booster)				[ ]	[ ]
13.7	OPV	[ ]	[ ]	[ ]	[ ]	[ ]
13.8	(OPV1)				[ ]	[ ]
13.9	(OPV2)				[ ]	[ ]
13.10	(OPV3)				[ ]	[ ]
13.11	(Booster)				[ ]	[ ]
13.12	Measles	[ ]	[ ]	[ ]	[ ]	[ ]
					Adult women	
13.13	TT	[ ]	[ ]	[ ]	[ ]	[ ]
13.14	(TT1)				[ ]	[ ]
13.15	(TT2)				[ ]	[ ]

14.1	What is the total size of the District HQ building?	[ ] SQUARE METRES
14.2	How much space is used for EPI?	[ ] SQUARE METRES
15	When was the District HQ built?	[ ] YEAR
16.1	Does the District prepare an annual cash budget? 1=YES 2=NO IF NO, GO TO Q.17	A YES [ ] / B NO [ ]
16.2	IF YES: Are the funds managed at the District?	[ ] [ ]
16.3	What is the total EPI allocation received by this District per month and per year?	Per month [ ] / Per year [ ]
16.4	What is the February 1989 budget and/or expenditure for this District's EPI?	LS Budget Allocation / LS Expenditures
	1 Salaries and benefits	[ ] [ ]
	2 Travel allowances	[ ] [ ]
	3 Transportation:	
	3.1 Fuel	[ ] [ ]
	3.2 Maintenance and repairs	[ ] [ ]
	4 Building operation	
	4.1 Maintenance	[ ] [ ]
	4.2 Electricity, water	[ ] [ ]
	4.3 Rent	[ ] [ ]
	5 Material/supplies	[ ] [ ]
	6 Equipment maintenance	[ ] [ ]
	7 Other _____	[ ] [ ]
	8 Other _____	[ ] [ ]
	9 Other _____	[ ] [ ]

17 A Are there additional resources donated by district councils, NGOs, local organizations or individuals for the EPI?

17 B What kinds of resources?

17 C How much?

17 D How often?

17 A: Organ/Indiv	B Type of Resource	C Amount	D Frequency
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]
[ ]	[ ]	[ ]	[ ]

18 Was any EPI training held in this district during the last year (1988)?

1=YES 2=NO

A YES	B NO
[ ]	[ ]

IF NO, GO TO END OF Q'AIRE

19 How many training sessions were held last year?

[ ]

Region [ ] District [ ]

		A	B
20 A	Who was trained?		
20 B	How long was the session attended by that type of staff?	Number	Training days per person per session
20.1	District Medical Director	[ ]	[ ]
20.2	District Operations Officer	[ ]	[ ]
20.3	Medical Director	[ ]	[ ]
20.4	Medical Officer	[ ]	[ ]
20.5	Specialists	[ ]	[ ]
20.6	Medical Assistant	[ ]	[ ]
20.7	Health Visitor	[ ]	[ ]
20.8	Vaccinators	[ ]	[ ]
20.9	Community Health Worker	[ ]	[ ]
20.10	Supervisors	[ ]	[ ]
20.11	Certified Nurse	[ ]	[ ]
20.12	Statistician	[ ]	[ ]
20.13	Midwife	[ ]	[ ]
20.14	Supply Officer	[ ]	[ ]
20.15	Driver	[ ]	[ ]
20.16	Transport Officer	[ ]	[ ]
20.17	Accountant	[ ]	[ ]
20.18	Cold Chain Technician	[ ]	[ ]
20.19	Typist/Recordkeeper	[ ]	[ ]
20.20	Other _____	[ ]	[ ]
20.2	Other _____	[ ]	[ ]

END OF DISTRICT QUESTIONNAIRE

Draft 6

MOH/REACH Cost-Effectiveness Study of the EPI

Form number [ ]

2 Region Name _____ [ ] 1=Khartoum 2=Central 3=Kordofan 4=Darfur

Name of respondent _____

3 Title of respondent _____ [ ] [ ] [ ]

			A Full Time on EPI Reg. HQ	B Part Time, on EPI Reg. HQ	C Total of Part Timers' Hours/Week
4	A	How many staff are working full time on EPI at Regional Headquarters?			
	B	How many staff work on EPI part time at Regional HQ?			
	C	How many hours (total) do the part-time staff work on EPI per week?			
4.1		Regional Director of Med.Serv	[ ]	[ ]	[ ]
4.2		Regional Medical Director	[ ]	[ ]	[ ]
4.3		Regional Operations Officer	[ ]	[ ]	[ ]
4.4		Medical Director	[ ]	[ ]	[ ]
4.5		Medical Officer	[ ]	[ ]	[ ]
4.6		Specialists	[ ]	[ ]	[ ]
4.7		Medical Assistant	[ ]	[ ]	[ ]
4.8		Health Vi[illegible]	[ ]	[ ]	[ ]
4.9		Vaccinato[illegible]	[ ]	[ ]	[ ]
4.10		Community Health Worker	[ ]	[ ]	[ ]
4.11		Supervisors	[ ]	[ ]	[ ]
4.12		Certified Nurse	[ ]	[ ]	[ ]
4.13		Statistician	[ ]	[ ]	[ ]
4.14		Midwife	[ ]	[ ]	[ ]

		A Full Time on EPI Reg. HQ	B Part Time, on EPI Reg. HQ	C Total of Part Timers' Hours/Week
4.15	Supply Officer	[ ]	[ ]	[ ]
4.16	Driver	[ ]	[ ]	[ ]
4.17	Transport Officer	[ ]	[ ]	[ ]
4.18	Accountant	[ ]	[ ]	[ ]
4.19	Cold Chain Technician	[ ]	[ ]	[ ]
4.20	Typist/Recordkeeper	[ ]	[ ]	[ ]
4.21	Other _____	[ ]	[ ]	[ ]
4.22	Other _____			

5. How many hours is a full-time work week? [ ] HOURS

6. What is the average monthly salary and benefits for each type of staff?

	* INCLUDE HOUSING, INSURANCE, SOCIAL SECURITY, MEDICAL/ HEALTH INSURANCE	Gross Govt. Salary & Allowances*	UNICEF Staff Support	Other Benefits
6.1	Regional Director of Med.Serv	[ ]	[ ]	[ ]
6.2	Regional Medical Director	[ ]	[ ]	[ ]
6.3	Regional Operations Officer	[ ]	[ ]	[ ]
6.4	District [illegible]al Director	[ ]	[ ]	[ ]
6.5	District [illegible]tions Officer	[ ]	[ ]	[ ]
6.6	Medical Director	[ ]	[ ]	[ ]
6.7	Medical Officer	[ ]	[ ]	[ ]
6.8	Specialists	[ ]	[ ]	[ ]
6.9	Medical Assistant	[ ]	[ ]	[ ]
6.10	Health Visitor	[ ]	[ ]	[ ]

	* INCLUDE HOUSING, INSURANCE, SOCIAL SECURITY, MEDICAL/ HEALTH INSURANCE	Gross Govt. Salary & Allowances*	UNICEF Staff Support	Other Benefits
6.11	Vaccinators	[ ]	[ ]	[ ]
6.12	Community Health Worker	[ ]	[ ]	[ ]
6.13	Supervisors	[ ]	[ ]	[ ]
6.14	Certified Nurse	[ ]	[ ]	[ ]
6.15	Statistician	[ ]	[ ]	[ ]
6.16	Midwife	[ ]	[ ]	[ ]
6.17	Supply Officer	[ ]	[ ]	[ ]
6.18	Driver	[ ]	[ ]	[ ]
6.19	Transport Officer	[ ]	[ ]	[ ]
6.20	Accountant	[ ]	[ ]	[ ]
6.21	Cold Chain Technician	[ ]	[ ]	[ ]
6.22	Typist/Recordkeeper	[ ]	[ ]	[ ]
6.23	Other _____	[ ]	[ ]	[ ]

7	How much equipment do you have for EPI at Regional HQ?	Number	Number out of order	% for EPI
7.1	Toyota Hilux _____	[ ]	[ ]	[ ]
7.2	Land Cruiser _____	[ ]	[ ]	[ ]
7.3	Motor cycles _____	[ ]	[ ]	[ ]
7.4	Bicycles _____	[ ]	[ ]	[ ]
7.5	Other vehicle _____	[ ]	[ ]	[ ]
7.6	Air conditioner _____	[ ]	[ ]	[ ]
7.7	Solar refrigerator _____	[ ]	[ ]	[ ]
7.8	RCW42 EK _____	[ ]	[ ]	[ ]
7.9	TFW 791 _____	[ ]	[ ]	[ ]
7.10	TCW1151 (Ice liner)_____	[ ]	[ ]	[ ]
7.11	Other refrigerator _____	[ ]	[ ]	[ ]
7.12	Other freezer _____	[ ]	[ ]	[ ]
7.13	Vax Carrier 1.7 ltrs _____	[ ]	[ ]	
7.14	Vax Carrier 3504/38 _____	[ ]	[ ]	
7.15	Vax Carrier 0.3 ltrs _____	[ ]	[ ]	
7.16	Ice Packs _____	[ ]	[ ]	
7.17	Dial Thermometer _____	[ ]	[ ]	
7.18	Round Thermometer _____	[ ]	[ ]	
7.19	Cold Box 20 litres _____	[ ]	[ ]	
7.20	Cold Box [illegible] litres _____	[ ]	[ ]	
7.21	RCW 25 _____	[ ]	[ ]	
7.22	Generator _____	[ ]	[ ]	[ ]
7.23	Voltage Regulator _____	[ ]	[ ]	[ ]
7.24	Ice Pack Indicator _____	[ ]	[ ]	
7.25	Public Address _____	[ ]	[ ]	[ ]
7.26	Megaphone _____	[ ]	[ ]	[ ]
7.27	Other _____	[ ]	[ ]	[ ]

3 A What stock of EPI supplies did the Region have at the beginning of February?

What supplies were received during February?

What stock was left on March 1st?

Are the supplies being used by anyone else? What percentage?

		A Opening Balance 1st Feb.	B Stock Recv'd in Feb	C Stock on hand 1 March	D % for EPI
3.1	Disp.syringe with needle 1 cc	[ ]	[ ]	[ ]	[ ]
3.2	Disp.syringe w/ needle 2.5 cc	[ ]	[ ]	[ ]	[ ]
3.3	BCG needles _____	[ ]	[ ]	[ ]	[ ]
3.4	Vax monitor card _____	[ ]	[ ]	[ ]	[ ]
3.5	Registration books _____	[ ]	[ ]	[ ]	[ ]
3.6	Road to health cards _____	[ ]	[ ]	[ ]	[ ]
3.7	Cotton _____(packets)	[ ]	[ ]	[ ]	[ ]
3.8	Freezewatch indicators _____	[ ]	[ ]	[ ]	[ ]
3.9	Saline solution _____	[ ]	[ ]	[ ]	[ ]
3.10	Other _____	[ ]	[ ]	[ ]	[ ]
3.11	Other _____	[ ]	[ ]	[ ]	[ ]

7 How many health facilities of the following types are there in this Region?

		Number
7.1	Health Center	[ ]
7.2	Primary HC Unit	[ ]
7.3	Dressing Station	[ ]
7.4	Dispensary	[ ]
7.5	Secondary Hospital	[ ]
7.6	Other hospital	[ ]
7.7	Other	[ ]

10	How many mobile teams operate in this Region?	[ ]
11	How many kilometers did the mobile teams travel last year (1988)?	[ ] Kilometers
12	How many gallons of the following were bought in 1988?	Gallons
12.1	Diesel	[ ]
12.2	Petrol	[ ]
12.3	Kerosene	[ ]
12.4	Oil	[ ]
12.5	Other	[ ]

		A Opening Balance 1st Feb Doses	B Stock received in Feb Doses	C Stock On Hand 1 March Doses	D Doses Given 1	Doses Given 1-5
13	We would like to ask some questions about vaccine supply and doses given in the last month (February 1989).					
14.1	BCG	[ ]	[ ]	[ ]	[ ]	[ ]
14.2	DPT	[ ]	[ ]	[ ]	[ ]	[ ]
14.3	(DPT1)				[ ]	[ ]
14.4	(DPT2)				[ ]	[ ]
14.5	(DPT3)				[ ]	[ ]
14.6	(Booster)				[ ]	[ ]
14.7	OPV	[ ]	[ ]	[ ]	[ ]	[ ]
14.8	(OPV1 [redacted]				[ ]	[ ]
14.9	(OPV [redacted]				[ ]	[ ]
14.10	(OPV [redacted]				[ ]	[ ]
14.11	(Booster)				[ ]	[ ]
14.12	Measles	[ ]	[ ]	[ ]	[ ]	[ ]
					Adult women	
14.13	TT	[ ]	[ ]	[ ]	[ ]	[ ]
14.14	(TT1)				[ ]	[ ]
14.15	(TT2)				[ ]	[ ]

15.1	What is the total size of the Regional HQ building?	[ ] SQUARE METRES
15.2	How much space is used for EPI?	[ ] SQUARE METRES
15.3	When was the Regional HQ built?	[ ] YEAR
16.1	Does the Region prepare an annual cash budget? 1=YES 2=NO IF NO, GO TO Q.18	A YES [ ] B NO [ ]
16.2	IF YES: Are the funds managed at the Region?	[ ] [ ]
17	What is the total EPI allocation received by this Region per month and per year?	Per month [ ] Per year [ ]
18	What is the February 1989 budget and/or expenditure for the Region's EPI?	LS Budget Allocation / LS Expenditures
	1 Salaries and benefits	[ ] [ ]
	2 Travel allowances	[ ] [ ]
	3 Transportation:	
	3.1 Fuel	[ ] [ ]
	3.2 Maintenance and repairs	[ ] [ ]
	4 Building operation	
	4.1 Maintenance	[ ] [ ]
	4.2 El[illegible]ity, water	[ ] [ ]
	4.3 R[illegible]	[ ] [ ]
	5 Material/supplies	[ ] [ ]
	6 Equipment maintenance	[ ] [ ]
	7 Other _____	[ ] [ ]
	8 Other _____	[ ] [ ]
	9 Other _____	[ ] [ ]

19.1	Are there additional resources donated by Regional Councils, NGOs, local organizations or individuals for the EPI?	A YES [ ]	B NO [ ]
19.2	What kinds of resources? 1=YES 2=NO		
19.3	How often?		
19.4	How much?		
20	Was any Regional EPI training held in the last year?	A YES [ ]	B NO [ ]
	IF NO, GO TO Q.23		
21	How many training sessions were held last year?	[ ]	
22	Who was trained? How long was the session attended by that person?	A Number	B Training days per person per session
22.1	Regional Director of Med.Serv	[ ]	[ ]
22.2	Regional Medical Director	[ ]	[ ]
22.3	Regional Operations Officer	[ ]	[ ]
22.4	Medical Director	[ ]	[ ]
22.5	Medical Officer	[ ]	[ ]
22.6	Specialist	[ ]	[ ]
22.7	Medical Assistant	[ ]	[ ]
22.8	Health Visitor	[ ]	[ ]
22.9	Vaccinators	[ ]	[ ]
22.10	Community Health Worker	[ ]	[ ]
22.11	Supervisors	[ ]	[ ]
22.12	Certified Nurse	[ ]	[ ]
22.13	Statistician	[ ]	[ ]

		A Number	B Training days per person per session
22.14	Midwife	[ ]	[ ]
22.15	Supply Officer	[ ]	[ ]
22.16	Driver	[ ]	[ ]
22.17	Transport Officer	[ ]	[ ]
22.18	Accountant	[ ]	[ ]
22.19	Cold Chain Technician	[ ]	[ ]
22.20	Typist/Recordkeeper	[ ]	[ ]
22.21	Other _____	[ ]	[ ]
22.22	Other _____	[ ]	[ ]

		YES	NO
23	Are there regional radio or television broadcasts for the EPI? 1=YES 2=NO IF NEITHER, GO TO END		
	RADIO	[ ]	[ ]
	T V	[ ]	[ ]

		RADIO	TV
24.1	How many different programmes are broadcast per month?	[ ]	[ ]
24.2	How long does each programme last? CODE TOTAL IN MINUTES	[ ]	[ ]
24.3	How frequently is each programme broadcast per month	[ ]	[ ]
25	How much did the region spend on social mobilization in 1988?	[ ] LS	

وزارة الصحـــــــه

دراسة التكلفه الفعليه لبرنامج تحصين الاطفال الموسع

ورقة استبيان للمؤسسه الصحيه

---

١ اورنيك رقم ( )

٢ الاقليم ١) الخرطوم ٢) الاوسط ٣) كردفان ٤) دار فور

٣ رقم العينه ( )

٤ اسم العينه (----------)

٤ـ ١ مركز صحي

٤ـ ٢ شفخانـــــه

٤-٣ نقطة غيار

٤ـ٤ وحده صحيه اوليه

٤ـ٥ مستشفـــي

٤ ـ٦ اخري ----------

اسم الشخص الذي يدلي بالمعلومات ----------

٥ وظيفة الشخص الذي يدلي بالمعلومات ----------

انظر القائمه من ١ ـ الي ١٦
تحت الرقم (٧)

٦ ما هو نوع مركز التطعيم بالمؤسسه الصحيـــــــــــــه

٦ ـ١ مركز ثابت ( )

٦ ٢ مركز فرعي ( )

٦ـ ٣ تيم متحرك ( )

٧ـأ ما هي الفئات وعدد الاشخاص المتفرغين للعمل بالتحصين بالمؤسسه الصحيـــه

٧- ب كم عدد الذين يعملون جزئيا لبرنامج التحصين بالمؤسسه الصحيه

٧-ج كم عدد الساعات الاسبوعيه التى

	٧-أ عدد الاشخاص المتفرغين للتحصين	٧-ب الذين يعملون جزئياللتحصين	٧- ج عدد الساعات التي يعلمها هؤلاء جزئيا في الاسبوع
الطبيب	( )	( )	( )
المساعد الطبي	( )	( )	( )

		عدد اشخاص المتفرغين للتحصين	الذين يعملون جزئيا للتحصين	عدد الساعات التي يعملها هؤلاء جزئيا في الاسبوع
٧-٤	المطعم	( )	( )	( )
٧-٥	المعاون الصحي	( )	( )	( )
٧-٦	المراقب	( )	( )	( )
٧-٧	الممرض بشهاده	( )	( )	( )
٧-٨	فني الاحصاء	( )	( )	( )
٧-٩	القابله	( )	( )	( )
٧-١٠	ضابط الامداد	( )	( )	( )
٧-١١	السائق	( )	( )	( )
٧-١٢	ضابط الترحيلات	( )	( )	( )
٧-١٣	المحاسب	( )	( )	( )
٧-١٤	فني التبريد	( )	( )	( )
٧-١٥	الكاتب	( )	( )	( )
٧-١٦	غيرهم	( )	( )	( )

٨- أ كم عدد الايام التي تعملها المؤسسه الصحيه خلال الاسبوع

١) السبت ٢) الاحد ٣) اثنين ٤) الثلاثاء ٥) الاربعاء ٦) الخميس ٧) الجمعه

٨-ب كم عدد الساعات التي تعملها الموسسه خلال الاسبوع

٨ - ج كم عدد الايام والساعات المخصصه لبرنامج التحصين في المؤسسه خلال الاسبوع

	٨-أ	٨ - ب	٨ -ج
ايام عادية	١-٢-٣-٤-٥-٦-٧	( )	( )
جدول التطعيم	١-٢-٣-٤-٥-٦-٧	( )	( )

٩-أ كم عدد معدات التحصين الموجوده بالمؤسسه الصحيه حاليا

٩- أ ٩- ب ٩- ج

٩-ب كم من هذه المعدات غير صالح للعمل او معطل

٩- ج ما هي نسبة استعمالها لغير

	الغرض	العدد	معطل صالح	او غير للعمل	النسبة المئوية للتحصين	
٩-١	عربه تايوتا هايلكس	( )	( )	( )	( )	
٩-٢	لاندكروزر	( )	( )	( )	( )	
٩-٣	موتر سايكل	( )	( )	( )	( )	
٩-٤	عجلات	( )	( )	( )	( )	
٩-٥	مواصلات اخري	( )	( )	( )	( )	
٩-٦	مكيف هواء	( )	( )	( )	( )	
٩-٧	ثلاجة طاقه شمسيه	( )	( )	( )	( )	
٩-٨	ثلاجة ماركة RCW 42 EIC	( )	( )	( )	( )	
٩-٩	ثلاجه ماركة TFW 791	( )	( )	( )	( )	
٩-١٠	ثلاجه ماركة TCW 1151	( )	( )	( )	( )	
٩-١١	ثلاجات اخري	( )	( )	( )	( )	
٩-١٢	مجمدات اخري	( )	( )	( )	( )	
٩-١٣	حامل امصال سعة ١٫٧ لتر	( )	( )	( )	( )	
٩-١٤	حامل امصال ٣٨/٣٥٠٤	( )	( )	( )	( )	
٩-١٥	حامل امصال سعة ١٫٣ لتر	( )	( )	( )		
٩-١٦	علب ثلج	( )	( )	( )		
٩-١٧	ميزان حراره داءري	( )	( )	( )		
٩-١٨	صندوق تبريد ماركة	( )	( )	( )		
٩-١٩	صندوق تبريد سعه ٨٫٥ لتر	( )	( )	( )		
٩-٢٠	صندوق تبريد سعة ٢٠ لتر	( )	( )	( )		
٩-٢١	مولد كهرباء	( )	( )	( )	( )	
٩-٢٢	منظم كهرباء	( )	( )	( )	( )	
٩-٢٣	موشر ثلج	( )	( )	( )		
٩-٢٤	مكبر صوت مايكرفون	( )	( )	( )	( )	
٩-٢٥	جهاز مخاطبه	( )	( )	( )	( )	
٩-٢٦	اخري	( )	( )	( )	( )	

١٠-أ ما هو موقف الاجهزة والمعدات الخاصه بالتحصين والموجوده الان بالمؤسسه الصحيه في بداية فبراير

١٠-ب ما هى الامدادات التي استلمت خلال شهر فبراير ١٩٨٩

١٠-ج ما هو موقف المخزون من الاجهزه في بداية شهر مارس ٨٩

	١٠- أ	١٠-ب	١٠-ج	١٠- د

١٠- د هل تستعمل الاجهزه والمعدات الخاصه بالتحصين لاي غرض آخر وما هي نسبته

	مخزون فى بداية فبراير ١٩٨٩	مستلم خلال فبراير٨٩	متبقى في اول مارس ٨٩	النسبه المئويه للتحصين
١٠-١ حقن سل جاهزه ١ سى سي	( )	( )	( )	( )
١٠-٢ حقن جاهزه مقاس ٢ سي سي	( )	( )	( )	( )
١٠-٣ ابر بي سي جي	( )	( )	( )	( )
١٠-٤ مراقب سلسلة التبريد	( )	( )	( )	( )
١٠-٥ دفاتر تسجيل	( )	( )	( )	( )
١٠-٦ كروت تطعيم الطريق الي الصحه	( )	( )	( )	( )
١٠-٧ قطن طبي				
١٠-٨ حبوب اسبيرين				
١٠-٩ منبه تجميد				
١٠-١٠ ماء مقطر				
١٠-١١ اخري				
١٠-١٢ اخري	( )	( )	( )	( )

١١-أ ما هي المسافه التى يقطعها العاملون بالتحصين خلال الشهر لتاديـــة النشاطات المذكوره فيما بعد

١) عربة التحصين الو المركز ٢) تاكســـي ٣) البص ٤) الارجل ٥) بالـــدواب ٦) اخـــري

١١-ب كم من الزمن ياخذ هذا العمل

١١- ج ما هي وسيلة المواصلات ١١-أ ١١-ب ١١-ج ١١- د

١١- د هل يقوم العاملون بدفع اي نفقات لهذه الزيارات فـــى مالهم سواء كان ذلك مستردا او غير مسترد وكم يبلغ في جملته

		عدد الرحلات	كيلومترات خلال الرحله	جملة ساعات االرحله	مبالغ مدفوعه
١١-١	توصيل لقا حات ومعدات	( )	( )	( )	( )
١١-٢	صيانة الالات والعربات	( )	( )	( )	( )
١١-٣	زيارات للتوعيه الجماهيرية	( )	( )	( )	( )
١١-٤	اشراف ومراقبة واجتماعات	( )	( )	( )	( )
١١-٥	زيارات تدريب	( )	( )	( )	( )
١١-٦	اخـــري	( )	( )	( )	( )
١١-٧	المجمـــــوع	( )	( )	( )	( )

١٢-أ ما هي المساحه الكليه للموسسه ( ) متر مربـــه

١٢-ب ما هي المساحه المستقله منها ( ) متر مربع

١٢-ج كم تبلغ تكلفة المباني المباني وما هو الزمن الذي استغرقته في التشييد ( ) المبلغ بالجنيه ( ) المده الزمنيه بالسنه

١٢-د/ هل قامت هذه المباني بالجهد الشعبى كليا كان او جزئيـــا ( ) جهد شعبى

١٣	نورد هنا بعض الاسئله موقف اللقاحات	بداية فبراير ٨٩	مستلم خلال فبراير ٨٩	متبقي اول مارس ٨٩	تطعيم اقل من عام	تطعيم من ١-٥ سنوات
١٣-١	مصل بي سي جي	( )	( )	( )	( )	( )
١٣-٢	المصل الثلاثـــي	( )	( )	( )	( )	( )
١٣-٣	مصل الثلاثي جرعه اولي				( )	( )
١٣-٤	مصل الثلاثي جرعه ثانيه				( )	( )
١٣-٥	مصل الثلاثي جرعه ثالثه				( )	( )
١٣-٦	جرعة منشطـــــــــه				( )	( )
١٣-٧	مصل شلل الاطفـــال	( )	( )	( )	( )	( )
١٣-٨	شلل الاطفال جرعه اولي				( )	( )
١٣-٩	شلل الاطفال جرعه ثانيه				( )	( )
١٣-١٠	شلل الاطفال جرعه ثالثه				( )	( )
١٣-١١	شلل الاطفال منشطـه				( )	( )
١٣-١٢	مصـــــل الحصبـــه	( )	( )	( )	( )	( )
١٣-١٣	مصل تتنس الحوامل	( )	( )	( )	( )	( )
١٣-١٤	مصل تتنس جرعه اولي				( )	( )
١٣-١٥	مصل تتنس جرعه ثانيه				( )	( )

١٤	كم عدد الجرعات التى اعطيت شهريا خلال سنة ١٩٨٨	اقل من عـام	اكثر من عام	تى تى حوامل
١٤-١	يناير ١٩٨٨	( )	( )	( )
١٤-٢	فبـــــراير	( )	( )	( )
١٤-٣	مـــــارس	( )	( )	( )
١٤-٤	ابريـــــل	( )	( )	( )
١٤-٥	مايـــــو	( )	( )	( )
١٤-٦	يونيـــــو	( )	( )	( )
١٤-٧	يوليـــو	( )	( )	( )
١٤-٨	اغسطـس	( )	( )	( )
١٤-٩	سبتمبر	( ).	( )	( )

	اقل من عام	اكثر من عام	تي تى حوامل
١٤-١٠ اكتوبـــــر	( )	( )	( )
١٤-١١ نوفمبـــــر	( )	( )	( )
١٤-١٢ ديسمـــبر	( )	( )	( )

١٥ كم عدد الاطفال اقل من عام تم تطعيمهم تطعيما كاملا خلال شهر فبراير ٩٨٩ (تحسب في دفتر التسجيل) ( )

١٦ كم تبلغ تعداد السكان الذين تخدمهم هذه الموسسه الصحيـــه ( )

١٧ كم عدد الزيارات التي سجلت للمؤسسه الصحيه لبرنامـــــج التحصيـــــــــــن

١٨ هل توجد اعتمادات او خدمات اخري تقدمها جهات او افراد لبرنامـــــج التحصين .

١٨-ب ما هي هذهالاعتمادُات او الخدمات

١٨-ج كم تبلغ هذه الاعتمادات او الخدمات ١٨-ب ١٨-ج ١٨-د

١٨-د كم من الزمن ستستمر هـــــذه الخدمات او الاعتماداتت .

١٨- أ منظمات او افراد	نوع الخدمات	الكميه	مدي استمراريتها
( )	( )	( )	( )
( )	( )	( )	( )
( )	( )	( )	( )

PRELIMINARY VERSION

وزارة الصحـــــــــــه

دراسة التكلفه الفعليـه لبرنـامج تحصين الاطفال الموسع

ة(اســـتبيان عن مجلس المنطقـــــــــــه)ة

(١) اورنيك رقـــــــــم ( )

(٢) اسم المجلـــــــــس ( )

(٣) الاقليـــــــــــم ( )

(٤) اسم الشخص الذي يدلي بالمعلومات ( )

(٥) وظيفة الشخص الذي يدلي بالمعلومات ( ) ( ) ( ) ( )

٥-أ كم عدد العاملين المتفرغين كلية لبرنـامج التحصين الموسـع برئاسة مجلس المنطقـــه.

٥-ب كم عدد العاملين الذين يعملون ببرنـامج التحصين جزئيا برئاسة المنطقـــــــــه.

٥-ج كم عدد الساعات التي يستغلها العامل ام الموظف جزئيا بالبرنـامج في الاسبوع

	أ	ب	ج
	كامل التفرغ بالتحصين برئاسة المنطقه	عمل جزئي بالتحصين برئاسة المنطقه	جملة الساعات الجزئيه في الاسبـــوع
٥-١ مفتش طبي المنطقه	( )	( )	( )
٥-٢ ضابط عمليات المنطقه	( )	( )	( )
٥-٣ المدير الطبي	( )	( )	( )
٥-٤ الطبيب	( )	( )	( )
٥-٥ الاخصائيين	( )	( )	( )
٥-٦ المساعد الطبي	( )	( )	( )
٥-٧ الزائرة الصحيه	( )	( )	( )
٥-٨ المطعميـــن	( )	( )	( )
٥-٩ المعاون الصحي	( )	( )	( )
٥-١٠ المراقبين	( )	( )	( )
٥-١١ الممرضين بشهادة	( )	( )	( )
٥-١٢ فنـ الاحصـاء	( )	( )	( )

		كامل التفرغ بالتحصين برئاسة المنطقه	عمل جزئي بالتحصين برئاسة المنطقه	جملة الساعات الجزئيه في الاسبوع
٥-١٣	القابلـــه	( )	( )	( )
٥-١٤	ضابط الامدادات	( )	( )	( )
٥-١٥	الســـائق	( )	( )	( )
٥-١٦	ضابط الترحيلات	( )	( )	( )
٥-١٧	المحاســـب	( )	( )	( )
٥-١٨	فني الاحصاء	( )	( )	( )
٥-١٩	الكاتـــب	( )	( )	( )
٥-٢٠	غيرهـــــم	( )	( )	( )
٥-٢١	غيرهـــــم	( )	( )	( )

(٦) المعدات الخاصه بالتحصين والموجوده برئاسة المنطقه وكم عددهـــــا .

		العـــدد	غير عامل او تالـــف	النسبة المئويـــه التحصيـــن
٦-١	عربة تايوتا هايلكس	( )	( )	( )
٦-٢	لاندكـــروزر	( )	( )	( )
٦-٣	موتر سايكـــل	( )	( )	( )
٦-٤	عجـــــلات	( )	( )	( )
٦-٥	وسائل مواصلاتة اخري	( )	( )	( )
٦-٦	مكيـــف هـــواء	( )	( )	( )
٦-٧	ثلاجات طاقه شمسيه	( )	( )	( )
٦-٨	ثلاجه ماركة RCW 42 EK	( )	( )	( )
٦-٩	ثلاجة ماركة TFW 791	( )	( )	( )
٦-١٠	ثلاجة ماركة TCW 1151	( )	( )	( )
٦-١١	ثلاجات اخري	( )	( )	( )
٦-١٢	مجمدات اخري	( )	( )	( )
٦-١٣	حامل امصال ١٫٧ لتر	( )	( )	( )

	العدد	غير عامل او تالف	النسبة المئويه التحصين
٦-١٤	حامل امصال ٣٨/٣٥٠٤	( )	( )
١٦-١٥	حامل امصال ٣ لتر	( )	( )
٦ -١٧	علب ثلج	( )	( )
٦ -١٨	صندوق تبريد ماركة	( )	( )
٦ -١٩	صندوق تبريد سعة ٣ لتر	( )	( )
٦ -٢٠	صندوق تبريد سعة ٥ر٨ لتر	( )	( )
٦-٢١	مولد كهرباء	( )	( )
٦-٢٢	منظم كهرباء	( )	( )
٦-٢٣	موشر ثلج	( )	( )
٦-٢٤	جهاز مايكرفون مكبر صوت	( )	( )
٦-٢٥	جهاز مخاطبه	( )	( )
٦-٢٦	اخري	( )	( )
٦-٢٧	اخري	( )	( )

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٧ ماهو موقف المخزون من الاجهزه الخاصه بالتحصين برئاسة المنطقه حاليا

		مخزون بداية شهر فبراير	مستلم خلال شهر فبراير	المخزوناول شهر مارس
٨-١	حقن جاهزه بسنتها خاصه بالسل بي سي جي ا س سي	( )	( )	( )
٨-٢	حقن جاهزه بالسنن ٢ سي سي	( )	( )	( )

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		مخزون بداية شهر فبراير	مستلم خلال شهر فبراير	المخزون اول شهر مارس		
٨-٣	سنن بي سي جي	( )	( )	( )	( )	
٨-٤	مراقب سلسلة التبريد	( )	( )	( )	( )	
٨-٥	دفاتر تسجيـــل	( )	( )	( )	( )	
٨-٦	كروت الطريق الى الصحـــــه	( )	( )	( )	( )	
٨-٧	قطـن طبي	( )	( )	( )	( )	
٨-٨	حبوب اسبيرين	( )	( )	( )	( )	
٨-٩	منبه تجميـد	( )	( )	( )	( )	
٨-١٠	ماء مقطر (ملح محلول)	( )	( )	( )	( )	
٨-١١	اخري	( )	( )	( )	( )	
٨-١٢	اخري	( )	( )	( )	( )	

٩ كم عدد المؤسسات الصحيه الاتيه

	بالمنطقـــه	العدد
٩-١	مركزصحـــي	( )
٩-٢	وحده صحيه اوليه	( )
٩-٣	نقطة غيـــار	( )
٩-٤	شفخانـــه	( )
٩-٥	مستشفـــي	( )
٩-٦	مستشفيات اخري	( )

١٠ كم عدد الاتيام المتحركـه ( )

١١ كم عدد الكيلومترات التي قطعتها الاتيام المتحركه خلال عام٨٨( ) كيلو متر

٨٩

	تورد هنا بيان الإشارة عن اللقاءات وجرعاتها خلال الشهر المنصرم فبراير ١٩٨٩	خمس وعشرين يناير شهر فبراير ٨٩	سبتمبر قبل شهر فبراير	حتى اول شهر مارس	تطعيم اقل من ٢٥	تطعيم اقل من ٥	تطعيم اقل من ٥
١	حصل بي بي جي						
٢	حصل ثلاث						
٣	ثلاث جرعة اولى						
٤	" " ثانية						
٥	" " ثالثة						
٦	" " مستكمل						
٧	شلل اطفال						
٨	" " جرعة اول						
٩	" " " ثانية						
١٠	" " " ثالثة						
	" " " مستكمل						
١١							
١٢	حصل الحصبة						
١٣	حصل الثنائي للحوامل						
١٤	" " جرعة اول						
	" " " ثانية						

		أ	ب	ج
١	كم عدد الحريات الكلية التي الحقيت خلال عام ١٩٨٨ لكل شهر على حده للاطفال أقل من عام وأكثر من عام وأثناء الحوائل	أقل من عام	أكثر من عام	حوامل
١-١	يناير ١٩٨٨م	[ ]	[ ]	[ ]
٢-١	فبراير			
٣-١	مارس			
٤-١	ابريل			
٥-١	مايو			
٦-١	يونيو			
٧-١	يوليو			
٨-١	اغسطس			
٩-١	سبتمبر			
١٠-١	أكتوبر			
١١-١	نوفمبر			
١٢-١	ديسمبر ١٩٨٨م	[ ]	[ ]	[ ]

١-٢	كم تبلغ ~~مساحة~~ مساحة المباني الخاصة ~~بالمنطقة~~ برنامج المنطقة	[ ]	[ ]	متر مربع
٢-٢	كم تبلغ المساحة التي يشغلها برنامج الخصوصية برنامج المنطقة	[ ]	[ ]	
٣-٢	متى تم بناء مباني برنامج المنطقة	[ ]	[ ]	

١-١	هل توجد جدولة صيانة تقوم بها من قبل المشغل ان كانت الاجابة بلا يرجى ترك الاسئلة اللاحقة والتوجه للسؤال رقم ١٨	١- نعم	٢- لا
١-٢	ان كانت الاجابة بنعم هل يتم التصرف فيها عن طريق مجلس المشغل.		
٢-	ما هي مخصصات برنامج الصيانة التي استلمها مجلس المشغل أو التي صرفها خلال الشهر الواحد والسنة الواحدة	خلال شهر واحد	خلال سنة واحدة
١-٤	ما هي الميزانية المصدقة ومصروفات برنامج الصيانة على مستوى المجلس.	مخصصات الميزانية	مصروفات الميزانية
٣	١- مطاحن وتوابعها		
	٢- مبان سكنية		
	٢- مصاعد		
	٢-١- وحدات		
	٢-٢- صيانة		
	٤- المباني		
	٤-١ صيانة المباني		
	٤-٢ كهرباء ومياه		
	٤-٣ ايجارات		
	٥- امدادات ومعدات		
	٦- صيانة المعدات		
	٧- مقر ما هو		

		نعم	لا
١-	هل تؤيد المهارات الضاغطة أو غير ضاغطة يتم نقلها من منظمات او افراد لبرنامج شخصية	[ ]	[ ]
٢-	ما هو نوع هذه الاشارات او المهارات		
٣-	ما هي استمرارية هذه الحركات		
٤-	كم عدد مرات هذه الحركات		
-	هل عقدت جلسات تدريبية ~~خلال~~ ضاغطة بالشخصية خلال العام المنصرم .	١ [ ]	٢ [ ]
	اذا كانت الاجابة بلا يرجى ~~التوضيح~~ تفضل بالتبيان		
٥-	كم عدد الدورات التدريبية التي عقدت خلال العام المنصرم		
٦-	من هم الجهة التي تتولى تدريبكم (ضعي البيانات بالاسم و الفئة		

	أ	ب	ج
	الفئة	عدد الايام التي درس	النسبة المئوية للحقيقة
١-	[ ]	[ ]	[ ]
٢-			
٣-			
٤-			
٥-			
٦-			
٧-			
٨-			
٩-	[ ]	[ ]	[ ]

ب - كم من الشهر قضاه
الشخص بالدورة التدريبية

~~2. اذا تضمنت~~

2 - اذا تضمنت الفترة
التدريبية نشاطات
غير الشخصية كم كانت
النسبة المتبقية
للتقييم .

MT

PRELIMINARY VERSION

[illegible]

[illegible]

[illegible] ( )

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] ( )

[illegible] كم عدد المباني من هذه التي يستوعبها الفريق لتقديم خدمات التطعيم ( )

ب - كم من هذه المباني تقدم خدمات التطعيم بصفة مستمرة دون مساعدة الفريق المتجول ( )

نوع هذه المباني :

ا - مركز صحي ( )

٢ - [illegible] ( )

٣ - [illegible] ( )

٤ - وحدة الرعاية الصحية الاولية ( )

٥ - مستشفى ( )

٦ - منازل الاخصائيين ( )

٧ - مدارس ( )

٨ - مساجد ( )

٩ - مراكز شباب وانديه ( )

١٠ - مبانى اخرى ( )

١١ - مبانى اخرى ( )

١٢ - كم عدد الجولات التى يقوم بها هذا الفريق فى العام ( )

ا - حسب الجدول الزمنى الموضوع ( )

٢ - العدد الحقيقى الذى قام به ( )

١٣ - كم عدد القرى او التجمعات الكلية التى يزورها الفريق فى كل جولة ( )

١٤ - كم عدد الايام التى يقضيها فى كل جولة ( )

١٥ - كم عدد المرات التى يزور فيها الرئاسة اثناء كل جولة ( )

٩) ما هو تكوين الفريق عادة
١- فني تطعيم
٢- مشرف "وظائفه"
٣- مساعد عربة
٤- الخريجين
٥- الخريجين
١٠) كم يتم اتصال الفريق لاول مرة بالقرية عن طريق
١- مشرف بشهادة
٢- معاون صحي
٣- رابطة القرية
٤- الشيخ ، الامام ، احد البارزين في القرية
٥- الخريجين
١١) أكم عدد معدات التحصين الموجودة حاليا بالفريق
ب كم منها صالحة للعمل حاليا

جـ هي النسبة المئوية لاستعمالها للتحصين	العدد	صالحة			
١- عربة تايوتا هايلكس	( )	( )			
٢- لاندكروزر	( )	( )	( )		
٣- موتور سايكل	( )	( )			
عجلات	( )	( )	( )	( )	
مواصلات اخرى "النوع"	( )	( )	( )	( )	
٤- صندوق تحصين ١٫٧ لتر	( )	( )	( )	( )	
٥- حامل امصال ٣٨/ ٣٥٠٠	( )	( )	( )	( )	
٦- حامل امصال ٠٫٣ لتر	( )	( )	( )	( )	
٧- صندوق تبريد	( )	( )	( )	( )	
٨- صندوق تبريد ٢٠ لتر	( )	( )	( )	( )	
٩- صندوق تبريد ٥٫٥ لتر	( )	( )	( )	( )	
١٠- كيلو ثلج	( )	( )	( )	( )	
١١- ميزان حرارة دائرى	( )	( )	( )	( )	
١٢- مؤشر ثلج	( )	( )	( )	( )	
١٣- مبر صوت لمخاطبة الجمهور	( )	( )	( )	( )	
١٤- مكبر صوت كبير	( )	( )	( )	( )	

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

١ـ [illegible]

٢ـ [illegible]

٣ـ [illegible]

٤ـ [illegible]

٥ـ [illegible] "[illegible]"

٦ـ كروت تحصين

٧ـ ملح طعام "زجاجة"

٨ـ [illegible]

ـ [illegible]

١٤) ما هي المساحة التي يتاجرها أو الحيازة الواحدة كم

١ـ المقدرة

٢ـ التي تملكت بالفعل

١٥) ما هي المساحة الكلية التي قمت بها الفرد

العام الماضي

١ـ المقدرة

٢ـ التي تملكها بالفعل

١٦) أ كم كانت كمية الطعام لهذا الفرد [illegible] شهر جوان

ب كم عدد الدرعات التي اعطيت حقن "من دفتر التسجيل"

	المجموع	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
١ـ بسى سى جى														
٢ـ مصل ثلاثي														
ـ مصل ثلاثي ـ ١														
مصل ثلاثي ـ ٢														
مصل ثلاثي ـ ٣														

[illegible]

- تنظيم [illegible] تقنون الحيوانات
- [illegible] تقنون [illegible] — ١
- [illegible] تقنون [illegible] — ٢

٧) كم عدد الاطفال الذين احضرهم [illegible] تم تطعيمهم تطعيما كاملا [illegible]

٨) كم عدد الاطفال الذين [illegible] الخدمة التي يقدمها [illegible]

[illegible] تجارب ووالدة احد ابناء الاسرة [illegible]

١) اسم الـ [illegible] :
٢) وظيفتـــــه :
٣) في السنة الماضية هل دفعت اي مبلغ [illegible] من [illegible] التحصين : نعم لا
٤) اذا كانت الاجابة نعم ففي اي [illegible] دفعت هذا المبلغ ( )
٥) كم دفعت لهذا الغرض ( )
٦) كم استرد لك من هذا المبلغ ( )
٧) كم النسبة المئوية من وقتك تقريبا [illegible] الآتية في [illegible] في الانشطة الآتيــة :

١— التحضير قبل المغادرة للعمل ( )
٢— ومن الرحلة لموقع العمل ( )
٣— الاعلان عن العمل للجمهور ( )
٤— عمل التطعيم الفعلى ( )
٥— اخــرى ( )
٦— اخــرى ( )

APPENDIX 4

REGIONAL SUMMARY TABLES

TABLE 4.1
TOTAL COST OF THE EPI AT REGIONAL LEVEL IN DARFUR

CATEGORY	MOH	DISTRICT COUNCIL	EPI UNICEF	USAID RHSP	MSF BELGIUM	TOTAL	PERCENT
RECURRENT COST							
Personnel	$121,053	$49,073	$59,156	$34,702		$547,969	49.7%
Salary, Benefits	$121,053			$34,702		$439,740	39.9%
Per Diem			$46,682			$46,682	4.2%
Staff Support			$12,474			$12,474	1.1%
Overtime		$49,073				$49,073	4.5%
Vaccine			$65,923			$65,923	6.0%
Supplies			$41,828			$41,828	3.8%
Transportation	$40,143	$10,500	$15,621	$736		$67,059	6.1%
Fuel	$33,906	$10,500	$15,621	$736		$60,722	5.5%
Oil	$6,237					$6,237	0.6%
Maintenance/Oper.	$1,213	$3,067	$36,204	$14,442		$54,927	5.0%
Cold Chain						$0	0.0%
Vehicles		$3,067	$36,204	$2,062		$41,334	3.7%
Buildings	$1,213			$12,379		$13,593	1.2%
Training			$15,170	$1,501		$17,670	1.6%
Social Mobilization						$0	0.0%
Other Funds		$12,199	$12,396	$718		$25,312	2.3%
SUBTOTAL RECURRENT	$172,409	$74,839	$247,238	$52,156		$546,642	49.6%
CAPITAL COST							
Equipment			$51,563		$29,199	$80,761	7.3%
Vehicles			$157,410	$4,462		$161,872	14.7%
Buildings	$33,459				$5,822	$39,281	3.6%
Other							0.0%
SUBTOTAL CAPITAL	$33,459	$0	$209,073	$4,462	$35,020	$282,014	25.6%
TOTAL COST	$205,868	$74,839	$456,371	$56,620	$35,020	$1,102,702	100.0%
PERCENT	18.7%	6.8%	41.4%	5.1%	3.2%	100.0%	

Total doses	528,376
Cost per dose	$2.09
Percent TT	9.8%
Total Child Cost	$395,094
Target population	152,095
Number FIC (23.1%)	35,134
Cost per FIC	$28.32

TABLE 4.2

TOTAL COST OF THE EPI AT REGIONAL LEVEL IN KORDOFAN
(in US$)

CATEGORY	MOH	MIN. OF CULTURE	DISTRICT COUNCIL	EPI/ UNICEF	USAID RHSP	WHO	NGO SCF/US *	NGO CARE	TOTAL	PERCENT
RECURRENT COST										
1. Personnel										
- Salary/Benefits	205,210		11,650		92,927	0	5,882	7,511	323,180	47.6%
- Per Diem				107,367					107,367	35.5%
- Staff Support				2,899					2,899	11.8%
2. Vaccine				55,880					55,880	0.3%
3. Supplies				39,797					39,797	6.1%
4. Transportation										4.4%
- Fuel	9,922		15,153		10,229		6,774		42 078	5.3%
- Oil	5,111		1,224						6,335	4.6%
5. Maintenance/ Operations										0.7%
- Cold Chain	225				23,929				23,929	2.6%
- Vehicles				24,154	1,539		2,156	911	225	0.0%
6. Training				14,546	8,158				28,760	3.2%
7. Social Mobilization		6,431		1,573					22,704	2.5%
8. Revolving Fund				11,599					3,004	0.9%
									11,599	1.3%
SUBTOTAL RECURRENT	220,468	6,431	28,027	257,815	136,782	0	14,812	8,422	672,757	73.9%
CAPITAL COST										
1. Vehicles				105,017	6,693		9,372	3,960	125,042	13.7%
2. Equipment			264	86,605					86,869	9.5%
3. Buildings	25,406								25,406	2.8%
4. Other									0	0.0%
SUBTOTAL CAPITAL	25,406	0	264	191,622	6,693	0	9,372	3,960	237,317	26.1%
TOTAL COST	245,874	6,431	28,292	449,437	143,475	0	24,184	12,382	910,074	100.0%
PERCENTAGE	27.0%	0.7%	3.1%	49.4%	15.8%	0.0%	2.7%	1.4%	100.0%	

TOTAL DOSES	560,448
COST PER DOSE	1.62
PERCENT TT DOSES	10.3%
TOTAL CHILD COST	816,337
TARGET POPULATION	144,139
COVERAGE (NO. FIC)	34,449
COST/FIC	23.70

* Save the Children Fund/USA

TABLE 4.3

TOTAL COST OF THE EPI AT THE REGIONAL LEVEL
IN NATIONAL CAPITAL REGION

Category	MOH	City Commission	EPI/ UNICEF	GOAL	AIRA	Total	Percent
RECURRENT COST							
Personnel	$23,938		$23,303			$47,241	0.0
Salary/Benefits	$23,938					$23,938	
Per Diem			$19,191			$19,191	
Staff Support			$4,112			$4,112	
Vaccine			$860,932			$860,932	0.5
Supplies			$271,180			$271,180	0.2
Transportation		$5,723	$30,382			$36,105	0.0
Fuel		$5,723	$3,143			$8,866	
Oil			$27,239			$27,239	
Maintenance/Oper.		$930	$19,702			$20,633	0.0
Cold Chain							
Vehicles			$19,702			$19,702	
Building		$930				$930	
Training			$5,769			$5,769	0.0
Social Mobilization							
Other	$11,236		$11,185			$22,421	0.0
SUBTOTAL RECURRENT	$35,174	$6,653	$1,222,454	$0	$0	$1,264,281	0.7
CAPITAL COST							
Equipment			$49,202			$49,202	0.0
Vehicles			$85,662			$85,662	0.0
Buildings	$334,549			$1,015	$226	$335,790	0.2
Other							
SUBTOTAL CAPITAL	$334,549	$0	$134,863	$1,015	$226	$470,653	0.3
TOTAL COST	$369,723	$6,653	$1,357,317	$1,015	$226	$1,734,934	1.0
PERCENT	0.2	0.0	0.8	0.0	0.0	1.0	
TOTAL COST						$1,734,934	
PERCENT TT DOSES a/						9.5%	
TOTAL CHILD COST						$1,570,115	
TOTAL DOSES b						994,777	
COST PER DOSE						$1.84	
TARGET POPULATION						95,643	
COVERAGE (NO. FIC)						58,342	
% FIC < 1 YEAR						61.0%	
COST/FIC -- US $						$26.91	
COST/FIC -- LS						120	

a/ From computerized EPI reporting system, recorded in EPI Third Quarter Report for 1988.
b/ Total doses delivered estimated from total reported doses January-September 1988 from computerized EPI reporting system. Includes TT and doses administered to children over one year of age.

END