

REPORT OF THE REVIEW OF THE ACCELERATED CHILD SURVIVAL AND DEVELOPMENT PROGRAMME IN THE UPPER EAST REGION OF GHANA, NOVEMBER 2004



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List of Abbreviations

ACSD	Accelerated Child Survival and Development
AFI	Acute Febrile Illness
AIDS	Acquired Immune Deficiency Syndrome
ALRI	Acute Lower Respiratory Infections
ANC	Antenatal Care
ARI	Acute Respiratory Infections
ARV	Anti Retro Virals
BOD	Burden of Disease
CBA	Community Based Agent
CBD	Community Based Distributor
CBS	Community Based Surveillance
CHOs	Community Health Officers
CHPS	Community Health Planning Systems
C-IMCI	Community Integrated Management of Childhood Illnesses
CRS	Catholic Relief Services
CSM	Cerebro-Spinal Meningitis
DANIDA	Danish International Development Agency
DHMT	District Health Management Team
DHS	Demographic Health Survey
DPT	Diphtheria, pertussis and tetanus vaccination
EPI	Expanded Programme on Immunization
FGM	Female Genital Mutilation
FM	Frequency Modulation
GBC	Ghana Broadcasting Corporation
GDHS	Ghana Demographic and Health Survey
GES	Ghana Education Service
GF	Global Fund
GHS	Ghana Health Service
GLSS	Ghana Living Standard Survey
GOG	Government of Ghana
GRC	Ghana Red Cross
GSS	Ghana Statistical Service
HIV	Human Immunodeficiency Virus
IDA	International Development Agency
IHNS	Integrated Health and Nutrition Survey
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IPT	Intermittent Presumptive Treatment
ITN	Insecticide-treated Bednet
JAPEIGO	Johns Hopkins Program for International Education in Reproductive Health
JICA	Japanese International Cooperative Agency
MI	Micronutrient Initiative

MOFA	Ministry of Food and Agriculture
MOH	Ministry of Health
MNT	Maternal and Neonatal Tetanus
NADMO	National Disaster Management Organization
NGO	Non-governmental organization
NID	National Immunization Day
NPC	National Population Council
NR	Northern Region
ORS	Oral Rehydration Solution
ORT	Oral Rehydration Therapy
RHMT	Regional Health Management Team
RTI	Respiratory Tract Infection
SMI	Safe Motherhood Initiative
SP	Sulphadoxine Pyremethamine
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UER	Upper East Region
UNFPA	United National Food and Population Agency
UNICEF	United Nations Children's Fund
USAID	United States Agency for international Development
UWR	Upper West Region
VAC	Village action Committee
VAP	Village Action Process
VCT	Voluntary Counseling and Testing
WFP	World Food Program
WHO	World Health Organisation
YLL	Years of Life Lost
YN	Community Health Committee
YZ	Community-based volunteer

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Subdistrict Health Teams in UER
Management Team, Upper East Regional Hospital
Staff of Upper East Regional Office
Staff of Ghana Red Cross, UER
Staff of Catholic Relief Services in Tamale
Staff of UNICEF in Tamale
Management, Sanat Minat Guest House
Prosper Asemda, UNICEF Driver

Executive Summary

At the Ministry of Health's Summit in June 2004, the Child Survival trends in Upper East Region caught the attention of staff and partners. It was observed that while trends in other regions of comparable geographical, social and economic indicators were either increasing or had plateaued, those of UER had actually showed a positive decline. One of the programs highlighted as a possible contributing factor was the UNICEF implemented Accelerated Child Survival Development (ACSD) program. A team of public health experts was therefore put together to explore the health interventions in the region with a view of identifying the factors that have contributed to the positive changes. The team was specifically tasked to develop a description of the ACSD package including the priority health interventions, determine the extent to which it contributed to the U5MR reduction, review and document the process and constraints of the implementation of the programme in the region from January 2002 to November 2004. Additionally the team was to document the amount of resources expended, identify and assess the role of all contributing partners to determine the cost implications of the ACSD package. Finally make recommendations regarding successful approaches and present a model for replication in other regions of the country.

The work strategy adopted by the team included document review, data analysis, consultation with key partners/collaborators, field visits and interviews. Several survey reports, publications, regional health reports and UNICEF annual reports were identified and collected for the review. A field trip was planned and undertaken to the region to interview partners, implementers and recipient communities. To accomplish the task within the allotted timeframe, the team was split into two groups during the field trip. Questionnaires were developed for each level of partner or collaborator. Each team covered three districts in the region and two sub-districts in each district. Interviews with key persons at the district and regional level were conducted to determine level of participation and their perceptions of the ACSD program. Members of the communities were also interviewed to determine level of awareness and satisfaction with the implemented program. Documents were reviewed to compare child health indicators in the three northern regions as well as indicators within Upper East Region prior to and during ACSD implementation.

Findings

ACSD as packaged by UNICEF was started in the entire Upper East and some Northern Region Districts specifically to enhance the implementation of Child Survival Development programs through infusion of extra funding. This was achieved by training community based agents, provision of equipment and other tangibles necessary for a synergistic implementation of all the components of the child survival program. The implementation of ACSD progressed in a stepwise manner, starting in January 2002 with the EPI Plus, then ITN promotion during the second half of the 2003. The C-IMCI package began during the second half of 2003 while IPT did not start until mid 2004. At the time of the teams visit, it was noted that the implementation of all the components of

ACSD were well advanced in all the six districts of Upper East Region, however the level of implementation varied in each district.

Observations from interviews revealed that ACSD had a positive impact at various levels on the health systems in the region. At the community level, health workers were more friendly and approachable. The community volunteers felt comfortable with their roles and attributed this to the training they received while the community members were happy to have the volunteers within their communities. There were improved linkage between the communities and health workers at sub district levels. The health care workers believe that there has been an increased attendance at service delivery points and the clinics were seeing less severe cases of illnesses. There was however no proper documentation of these observations and perceptions by the region.

Data gathered during the review of documents reflected some success attributable to ACSD implementation. Although targets were set for ACSD at the inception of the project, some of these targets were not achieved while others were sustained. This can be attributed to the short time period between implementation and the review. However, in certain areas like the prevention and management of malaria, the proportion of children sleeping under ITNs the night before increased from 4.6% in 2002 to 21% in 2003 in the Upper East Region while in the Upper West Region, it increased from 0.8% to 1.9% within the same period, an increase attributable to ACSD. In the management of diarrhoea, the proportion of children correctly managed with ORS increased for 35% in 2002 to 65% in 2003 in Upper East and can be attributable to ACSD. On EPI coverage, with an ACSD added value of improved defaulter tracing, fully immunized children between 12 and 23 months increased from 44% in 2002 to 77% in 2003. On infant feeding, there was a significant increase in the proportion of children (86%) breastfed within an hour of delivery, from 6.9% in 1998 to 86.3% in 2003.

The cost implications of implementing the ACSD program by the GOG and Health Partners was One Million Nine Hundred Fifty Five thousand Seven hundred fifteen US Dollars (\$1,955,715), a per capita cost of \$5.01 for the targeted population.

Conclusion and Recommendations

From the field visits and document reviews, there were significant improvements in certain child survival indicators that can be attributable to the implementation of the ACSD package in Upper East Region. ACSD besides infusing additional resources into the health systems also created the much needed synergy across programs that saw a coordinated approach towards health implementing child survival activities in the region. The extensive support of community based activities by ACSD was the factor that propelled the success so far achieved. Additional resources in terms of human resources, equipment such as bicycles, supplies such as ITNs, ORS and medications for managing fevers and malaria at the community level and most importantly the enabling environment made the difference. To estimate the contribution of ACSD to the decline in U5MR, a modelling tool – Marginal Budgeting Bottle-neck Tool (MBBT) was used. The tool was developed by UNICEF, WHO and World Bank, utilizes three factors – change in coverage of the intervention, the efficacy of the intervention, and the

percentage contribution of the disease condition to mortality. The product of these three factors gives an estimate of an intervention's contribution to U5MR reduction. Indeed it is estimated that ACSD may have contributed close to about 14% reduction in U5MR after 18 months of implementation by raising the coverage levels of key child survival interventions.

Thus, the design of the package and the implementation of programs that enhance the community component of health interventions are bound to make a positive difference in child health indicators. This design should take into account the synergy within programs at the community level brought about by ACSD. Apart from the community, the other main determinant of the program is the availability of funds. Without the attendant funding, all the gains attained would be lost. The gains achieved in the Upper East Region were due to the infusion of funds by UNICEF. There should therefore be dedicated/ear-marked funding to support the replication in other regions. However, replication will have to take cognizance of the exigencies within those regions or districts as well as the cost implications of the added intervention for better results.

Chapter 1

Introduction

At the June 2004 Health Summit, the Ministry of Health and Partners reviewed the performance of the health sector in 2003. Trends in Child Survival indicators and strategies were among the key issues discussed. A major concern that emerged from the discussions was the stagnation or plateauing of some of the key health status indicators for Ghana. From both the 2003 Demographic and Health Survey (DHS) Report for Ghana and the routine service delivery data submitted from the Regions and Districts, some of the indicators used in measuring the health sector performance were found to have plateaued. The situation in the Upper East Region was however different as child health indicators were found to have improved substantially over the past five years. Participants at the Summit were of the opinion that the Accelerated Child Survival and Development Project that UNICEF was supporting in the Region may have probably contributed to lowering infant and under five years child mortality rates in the Region. One of the recommendations made at the close of the Summit and which was captured in the Aide Memoir was to “document lessons and cost effectiveness to provide evidence for possible scaling up of the Accelerated Child Survival and Development Project in the Upper East Region”. In November 2004, a team of six, comprising Health Economists and Public Health experts was therefore put together to review the Child Survival Programme in the Upper East Region with the following Objectives and Terms of Reference (TOR):

1.1 Objective

To appraise the results of the UNICEF Accelerated Child Survival Development programme as implemented from 2002 to present, document the process of implementation, lessons learnt and make recommendations for future replication.

The issues to be addressed during the review were to include, but not limited to:

- A description of the package of interventions,
- Mode of delivery,
- The output,
- Its contribution to the decline in Infant mortality and under five mortality rates, and,
- The additional cost incurred in its delivery.

Specific Tasks were to:

- Describe the package of support including the priority health interventions.
- Determine the extent to which ACSD contributed to the U5MR reduction noted in Upper East region
- Review and document the processes, results and constraints of the implementation of the programme in Upper East region from January 2002 to date.

- Document the amount of resources expended since the beginning of the programme under the following broad headings; human resources, supplies, transport, equipment and service delivery.
- Determine the cost implications of the ACSD package as implemented in Upper East region
- Assess the role of all collaborating partners (Ghana Health Service, UNICEF, Ghana Red Cross, KNUST Community Health Department, other ministries, departments and agencies) in the development of policy, capacity building, financing and implementation of the program, analyze these roles and recommend such strategies that will enhance progress towards achievement of programme objectives.
- Make recommendation regarding the continuation of successful approaches, processes or any changes required to accelerate progress towards the stated programme objectives.
- Present a model for replication in other regions and /or districts.

1.2 Methodology

The methodology utilized for this exercise included:

1.2.1 Document Review/Data Analysis

The team collected and reviewed several documents for the exercise. These documents were those specifically related to ACSD and the overall health systems of the region and they include:

- UNICEF main document on ACSD – including the original proposals,
- Mid-Term Review Document
- Master Plan of Operations (2001-2005)
- MOH/GHS Programme of Work 11
- GHS Regional District plans
- ACSD Survey
- GDHS
- EPI Coverage Survey
- Other relevant documents and reports

Other general documents, survey reports, and annual reports on the regional context as well as the country as a whole were also reviewed. Data from these documents and reports were analyzed and information gathered was used to identify partners and collaborators as well as communities to be visited. The results of the analysis were also used to develop trends and cost of the intervention.

1.2.2 Consultation with Key Partners and Collaborators

Several key partners and collaborators were identified from the document review and meetings were scheduled to interview them. Some of the key partners identified include – Kwame Nkrumah University of Science and Technology (KNUST), Ghana Red Cross,

the Regional and District Health Management Teams, the Subdistrict clinics, NGOs in the region – Table 3 (page 32-33).

1.2.3 Field Visits/Interviews

The team visited the Upper East region to interview partners and to see the communities first hand. To expedite the process and maximize time- resource, the review team was split into two. All 6 districts were visited, with one review team visiting 3 districts. Meetings were held with the District Directors of Health Services and their health teams in each of the districts. Two sub districts from each district were visited and the review team held meetings with each of the sub-district health teams. Some communities were also visited and community members were interviewed.

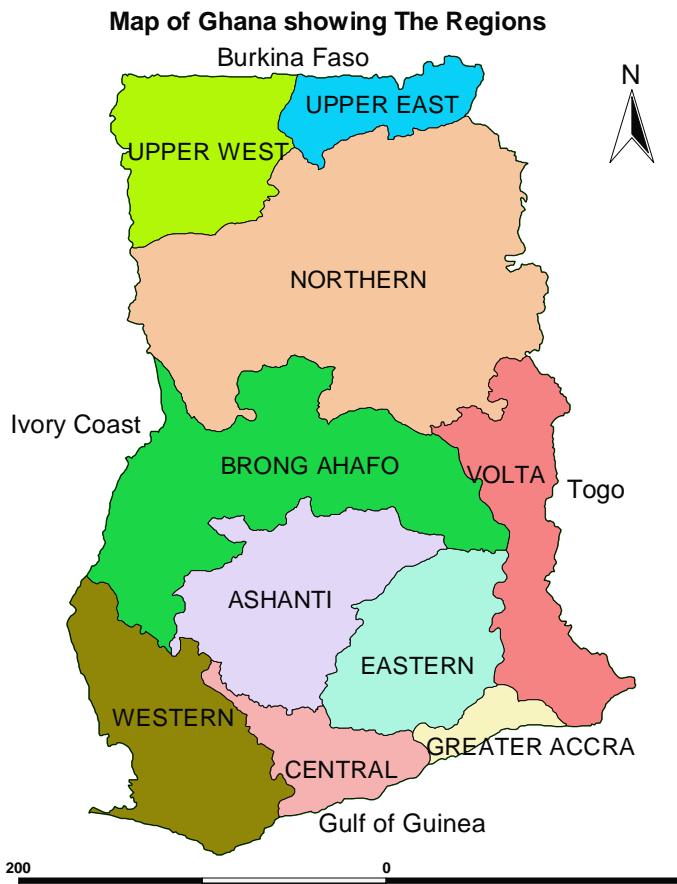
The Regional Health administration was also visited with initial meetings with the Regional Director of Health Services for the Upper East Region. Meetings were also held with the Regional Health Management Team. The review team also visited the Regional Hospital and interviewed the management team. The interviews were tailored to explore the ACSD package as implemented in the region, explore the role of the various partners in the delivery process as well as get the perspectives of the partners on the successes and challenges experienced during implementation, and lessons learned so far.

Chapter 2

2.1 Geographical, Social and Economic Context

Ghana is divided into three Ecological Zones - Savannah, Forest, and Coastal zones. The Savannah zone comprises of the three northern regions and some parts of Brong Ahafo region. The three Northern Regions are Upper West, Upper East and Northern Region. These three regions comprise about 17% of the total population of Ghana. Of the 17%, 9 % live in the Northern Region, 5% in the Upper East and 3% in the Upper West. A greater part of the population in these regions is rural dwelling, with 83% of the Upper East, 72% of Northern and 89% of Upper West live in rural areas.¹

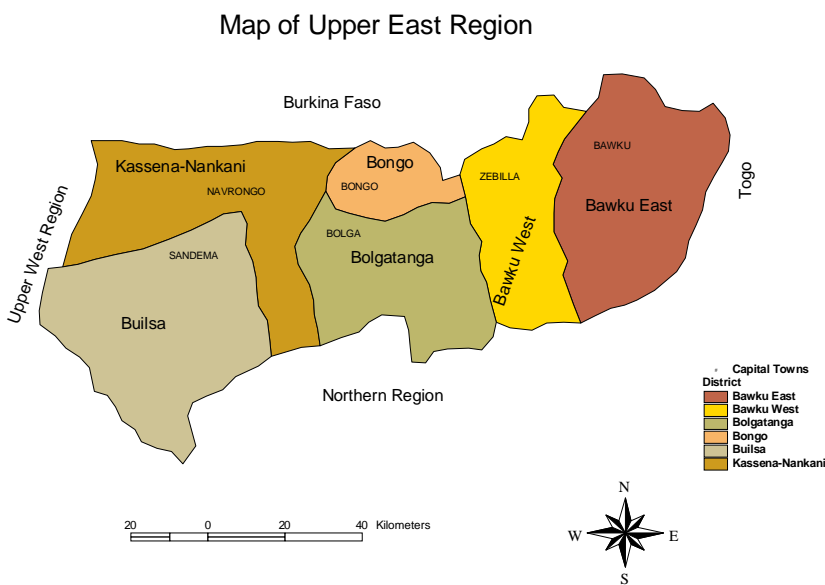
Figure 1 Map of Ghana, Showing the Regions



¹ Ghana Statistical Service. 2002. 2000 Population and Housing Census: Summary Report of Final Results. Accra: Government of Ghana.

The Upper East Region is located in the north-eastern corner of the country between longitude 00 and 1° west and latitude 10° 30"N and 11°N. It is one of the two youngest regions, carved out of the then Upper Region in 1983. It is bordered on the north by Burkina Faso, on the east by the Republic of Togo, on the west by Upper West and on the south by Northern region. It therefore maintains two international boundaries, which has economic, social and health implications.

Figure 2 Map of Upper East Region

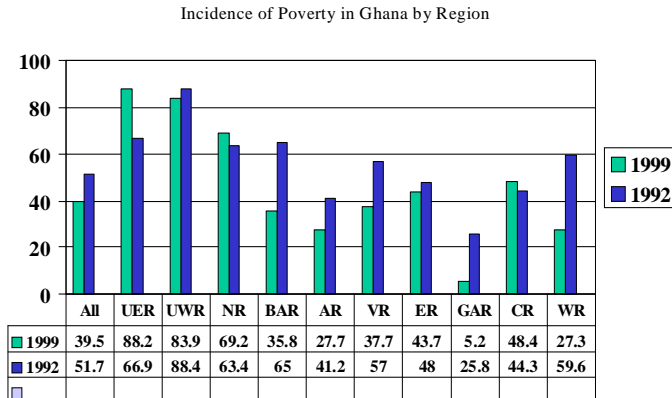


In the three regions there is adequate and good road network between the cities. However access to some of the communities could be challenging. Some communities in mountainous areas pose all year round challenges while some have seasonal challenges, particularly during the rainy season. While the major cities in the region have a good supply of clean and potable water, the rural communities where majority of the population reside do not. National Electricity grid links most of the major towns in the region but the communities are sparsely supplied.

Illiteracy is a major challenge in this part of the country. All three regions of the north have greater than 76% illiteracy level, compared to a little over 45% for the country as a whole. The discrepancy between male and female literacy is most pronounced in these regions.

On the economic front, the three northern regions have worse indicators than the rest of the country. The third and fourth rounds of the Ghana Living Standards Survey (GLSS) showed that poverty in the Upper East Region continued to worsen between 1992 and 1999.

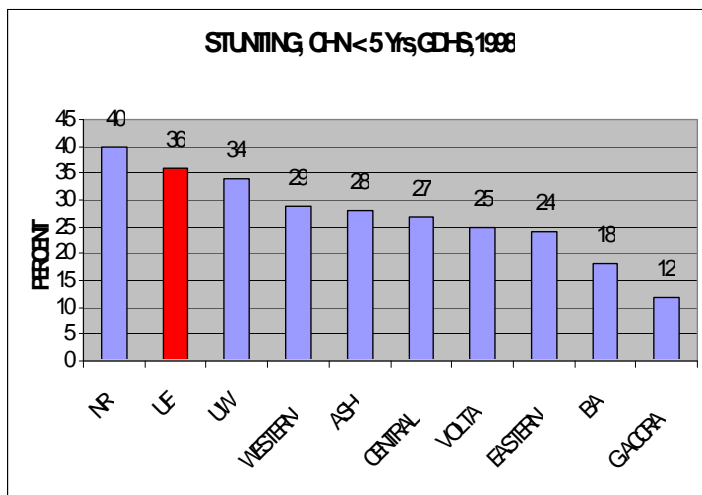
Figure 3 Incidences of Poverty
Poverty trends in Ghana in the nineties by region (GLSS 1999)



Close to 90% of the population of the Region now fall below the poverty line, with the Upper West Region following closely with 84% and the Northern Region with 70%. Poverty gives rise to problems of nutrition. The main nutrition problems in the UER are Protein Energy Malnutrition, Iodine Deficiency Disorders, Iron Deficiency Anemia and Vitamin A Deficiency. The nutrition situation in the region is not very good. According to the 1998 Ghana Demographic and Health Survey (GDHS, 1998), the Nutritional Status of Children under five years are as follows:

- Stunting-36%
- Wasting-8%
- Underweight-34%

Figure 4 Stunting in Children under five



The comparatively lower child mortality indicators in the Upper East Region as compared to the other regions in the country of higher socio-economic status is thus an interesting issue to be explained from this review.

2.2 Health Systems Context

Since the Alma Ata Declaration of 1978, the Ministry of Health in Ghana has over the years put in place various child survival interventions which have resulted in a gradual reduction of infant and under five child mortality rates. The primary health care programme brought with it a rapid expansion of health facilities at the sub-district level, training of health workers at the district and sub-district levels on primary health care and an introduction of community participation in the health care delivery process. This significantly contributed to improve access to health care and to shift focus from a predominantly clinical care service delivery system to a system that incorporates preventive and promotive aspects of health care. The EPI programme was started in 1976 and its coverage rate has been increasing over the years. From the GDHS, the coverage rate for fully immunized children has increased from 47% in 1988 to 55% in 1993, to 62% in 1998 and further up to 69% in 2003. This has considerably reduced morbidity and mortality caused by the vaccine preventable diseases in children. Measles, which used to be the leading cause of under-five child mortality in Ghana can be said to be very much under control. Other child survival interventions such as oral rehydration therapy, vitamin A supplementation, exclusive breastfeeding and use of insecticide treated materials were all introduced between 1980 and 2000. All these health interventions coupled with the overall socio-economic improvement in the country especially in the areas of water supply and education, have resulted in improved health status of the people, especially children. This is evident from the GDHS reports from 1988 to date, which give the IMR and U5MR for the country to be 81/1000 and 154/1000 in 1988, 75/1000 and 133/1000 in 1993, 57% and 108/1000 in 1998, 64/1000 and 111/1000 in 2003 respectively.

The health sector reforms that were started in the early '90s and the Medium Term Health Strategy for Ghana provided impetus and direction for the successful implementation of many priority health interventions, especially during the first five year programme of work (1997 – 2001). Service reports from the districts and regions for this period showed improvements for many of the sector-wide indicators used to monitor the programme of work. The 1998 Demographic and Health Survey Report also came up with data, which was consistent with the trends in health status that the service reports had. However, for the second five-year programme of work (2002 – 2006), both service reports from the regions (2002 – 2004) as well as the 2003 DHS show many health status indicators to have stagnated or plateaued for the country as a whole and for almost all the regions. This raised a lot of concern within the Ministry and its Agencies as well as among Health Partners. It has particularly been difficult to explain why health status indicators have stagnated despite improved funding for health sector activities under the SWAP arrangement. There have been calls from some stakeholders for the adoption of new and innovative strategies for health care delivery, which have been proven to be cost effective.

The only region in which health status indicators, especially child survival indicators, appear to have continued to show considerable improvement is the Upper East Region. In this Region, IMR and U5MR have dropped from 81.5/1000 and 155.3/1000 respectively in 1998, to 33/1000 and 79/1000 in 2003.

The Upper East Region falls within the same ecological zone as the Northern and Upper West Regions and has similar socio-economic conditions as those two Regions. The determinants for health in all three regions are similar and all three have difficulty in attracting and retaining human resource into the regions. These other two regions have much higher infant and under five years child mortality rates. Given the above, the Ministry of Health, at the June 2003 Health Summit made the decision to review the Child Survival interventions and strategies in the Upper East Region to determine the reasons for the improving child survival indicators in the Region. Information on good, innovative and cost effective interventions derived from the review can be taken up at the policy level and be used to guide replication in other regions.

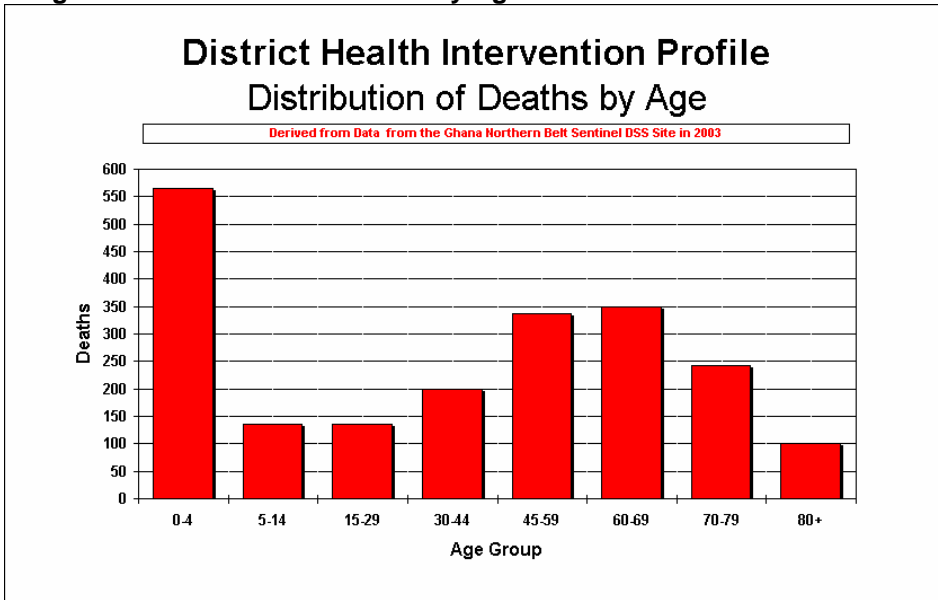
2.3 Burden of Disease Context

In all societies, the poor carry the heaviest burden of disease. The Upper East region is indisputably one of the most deprived in the country, and has one of the worst health status indicators². The region ranks 10th (last) with respect to poverty ranking of the 10 regions in the country with 88.2% of the population living below the poverty line.

Data from the Kassena-Nanakana sentinel sites shows that much of mortality in this area is in the first years of life – see fig 5.

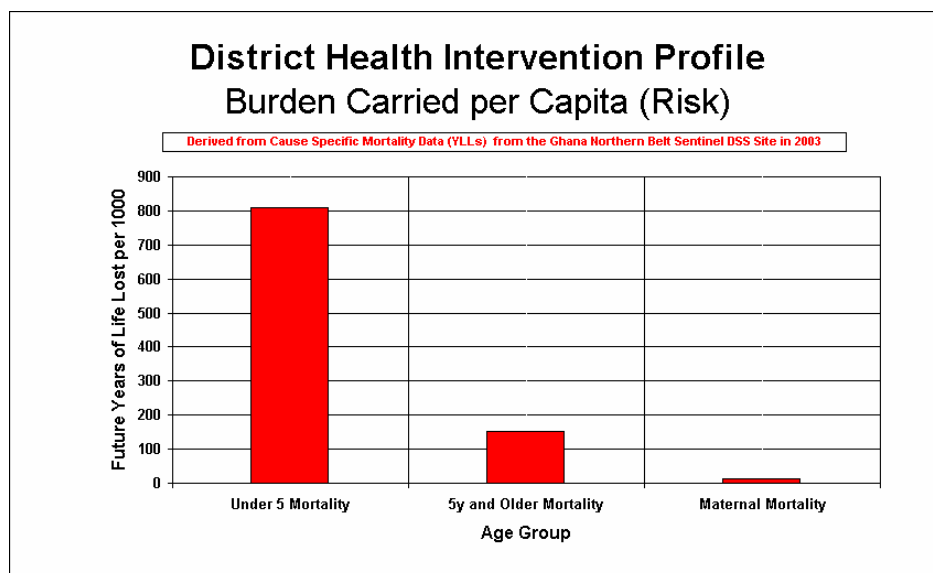
² 2003 Annual Report: GHS-Upper Region

Figure 5: Distribution of Deaths by Age



When adjusted for age, children under-five account for about 44% of the mortality burden in the region – see fig. 6.

Figure 6: Burden Carried per Capita (Risk)



Death in this age group is largely due to preventable childhood diseases. The six main causes of morbidity and mortality among children have not changed over the years. An analysis of OPD data in the UER for the period 1999 – 2001 to determine the main causes of morbidity in children under-five years is shown in Table 1 below. Malaria is still the number one killer among children and acute respiratory infections (ARI), diarrhoea, malnutrition, anaemia, measles and neonatal causes continue to be major health challenges. These health problems account for about 50% of all childhood admissions. High prevalence rates of malnutrition and micronutrient deficiency disorders, namely Vitamin A, Iodine and Iron are equally serious public health problems in the region.

Table 1 Main Causes of Morbidity in Children <5

DISEASE	1999	2000	2001	TOTAL
Malaria	93394	109018	99346	301758
RTI	13390	15662	13345	42397
Diarrhoea	11371	8564	7074	27009
Anaemia	4883	4901	3891	13675
Malnutrition	749	1060	894	2703
Measles	866	809	585	2260
TOTAL	124653	140014	125135	389802
TOTAL ATTENDANCE (Children <5yrs)	183057	200991	190058	574106
Percentage	68.1	69.7	65.8	67.9

The main causes of mortality in children under five years in the UER are shown in Table 2 below. Malaria is the number one killer of children under five years in the UER as in the rest of the country. An average of 225 children under-five years die each year from malaria in hospitals in the UER. Considering the fact that most of the deaths due to

anaemia are also malaria-related, the disease burden due to malaria in children under years in the region is high. The burden of disease attributable to these six disease conditions alone in children under five years is 36%.

Table 2 Main Causes of Mortality in Children <5

DISEASE	1998	1999	2000	2001	TOTAL
Malaria	165	198	291	252	906
Anaemia	193	219	236	199	847
Diarrhoea	67	92	61	52	272
Malnutrition	16	13	26	35	90
RTI	12	16	10	23	61
Measles	6	2	9	3	20
TOTAL	459	540	633	564	2196
ALL HOSP. DEATHS	1391	1389	1752	1549	6081
PERCENTAGE	33.0	38.9	36.1	36.4	36.1

Severe malnutrition as a direct cause of death ranks number 4 as cause of mortality in children under five admitted to hospitals in the Region. Malnutrition has a high hospital case fatality rate of 16. At the Nutrition Rehabilitation Centers, an average of 600 children is admitted each year and they take an average of six weeks to be fully rehabilitated.

2.4 Intervention Addressable Shares of the Burden of Disease

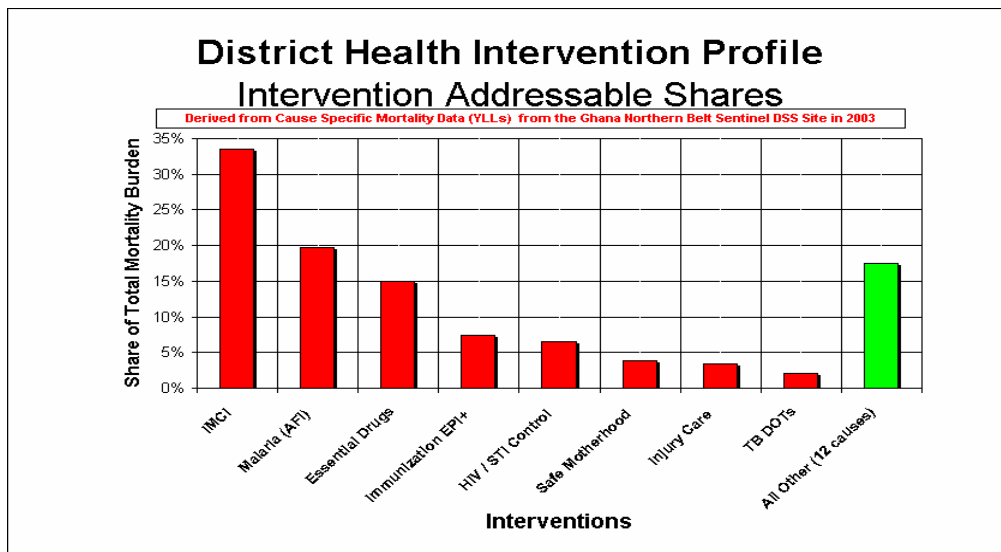
The graph below (figure 7) shows how much of the total burden of childhood disease is addressed by each individual cost-effective essential health intervention strategy currently available at District level.

Together these represent a minimum package for such districts and include: Community Integrated Management of Childhood Illnesses (C-IMCI); EPI, Case management and prevention for acute febrile illnesses (AFI) including malaria; Insecticide Treated Nets (ITNs) for prevention of malaria; Intermittent Presumptive Therapy (IPT) for Malaria in Pregnancy, Safe Motherhood Initiative (SMI) which are all components of the ACSD programme.

Since some diseases are addressed by more than one intervention package, these shares add to more than 100%. The category labeled *All Other* (18%) is all remaining disease burden not yet addressable by any of the listed cost-effective essential health interventions (see below).

Figure 7 Intervention Addressable Shares

The high levels of under five mortality combined with the high level of poverty in the



Upper East Region influenced UNICEF’s decision to provide support to the health system of this region. The data from the 1999 GLSS and the above conditions to a large extent influenced the UNICEF Country Strategy in Ghana. In addition to UNICEF providing support at the national level to benefit the entire country, UNICEF also decided to focus on the Northern and Upper East Regions to provide extra support for health development through the Accelerated Child Survival Development program. UNICEF left out the Upper West Region because as at the time the new Country Strategy was being developed DANIDA was supporting the Upper West Region in health development. While it is indeed difficult for health systems to target the poor accurately, it is however possible to target major components of the Burden of Disease (BOD) through the provision of cost effective interventions.

Chapter 3

3.1 The Accelerated Child Survival Development (ACSD) Program

The Accelerated Child Survival and Development (ACSD) is an integrated approach for scaling up delivery of cost-effective interventions for improving child survival and development. The underlying assumption of ACSD is that it is possible to achieve the following health outcomes:

- reduction of mortality from the main childhood illnesses, especially malaria, pneumonia, diarrhea and measles
- reduction of stunting, underweight and micronutrient deficiencies

By

- delivering a package of selected cost-effective interventions that are efficacious against the major childhood killers

- achieving effective coverage of children and pregnant women with this package of interventions
- using operational strategies that address specific obstacles to reaching majority of children and women, especially those in high mortality resource – poor settings.

3.1.1 Content and Packaging of ACSD

Lessons from countries such Mali show that known interventions have been successfully scaled to improve child survival and development and have demonstrated the need to package these known interventions to facilitate effective delivery. These lessons have guided the repackaging of ACSD interventions into three main groups: Integrated Management of Childhood Illness (IMCI) Plus, Antenatal Care (ANC) Plus and Expanded Programme on Immunizations (EPI) Plus.

The aim of this package is to prevent immunisable diseases, Vitamin A deficiency and intestinal parasites: It consists of the following interventions:

- Routine immunization and periodic measles catch-up
- Twice yearly vitamin A supplementation
- Twice yearly de-worming through provision of anti-helminthic drugs.

The aim of IMCI plus is to prevent & care for pneumonia, diarrhea, malaria and malnutrition. The contents of the package are:

- Distribution and promotion of use of insecticide treated bed nets to under 5's
- Promotion of exclusive breastfeeding for six months and timely complementary feeding, hygiene and household consumption of iodized salt
- Improved and integrated management (at the health centre and family levels) of children suffering from pneumonia, malaria, and diarrhoea.

The aim of the ANC plus is to prevent maternal and neonatal tetanus and low birthweight resulting from malaria and severe anemia in pregnancy, as well as mother-to-child transmission of HIV/AIDS through:

- Distribution and promotion of use of insecticide treated bed nets to pregnant women
- Intermittent preventive treatment for malaria in pregnancy
- Tetanus immunisation during pregnancy to prevent maternal & neonatal tetanus
- Supplementation with iron/folic acid supplements during pregnancy and with Vitamin A post-natally; voluntary testing and counseling for HIV/AIDS, and a short course of ARV in HIV+ women to prevent mother-to child-transmission (PMTCT) of HIV.

The ACSD package has been selected based on proven cost-effectiveness of the interventions. The EPI-Plus package is estimated to reduce the burden of childhood disease by 10%, and at an estimated cost/DALY gained of \$12-17, making it one of the most cost-effective packages. Available evidence to date, show that IMCI (including

case management of ARI, diarrhea and malaria, as well as nutrition and hygiene promotion) can reduce the burden of childhood diseases by 14% at an estimated cost/DALY gained of \$ 30-50. The prenatal and delivery care package could reduce the global disease burden by 4% at an estimated cost/DALY gained of \$30-50.

These three intervention packages, together, address most of the priority health and nutrition problems of the poor, and 80% of the causes of U5MR at less than \$ 50 per DALY gained. Further the interventions depend on the adoption of sustained household behaviours including compliance with drug treatments, appropriate feeding and hygiene practices, and systematic use of bed nets and iodized salt.

ACSD package excludes other cost-effective health interventions such as family planning, delivery and neonatal care, treatment of tuberculosis and STD's as well as school health, tobacco and alcohol programs. These interventions are excluded because:

- They address conditions that primarily affect older age groups (adolescents-adults) and thus have less impact on child survival in high U5MR contexts; and
- Together they can avert only about 5% of the global burden of childhood diseases.

Other nutrition interventions such as nutrition rehabilitation, food supplements, food subsidies, school feeding have not been selected due to their significantly lower cost-effectiveness (\$127-534 per DALY gained). Food fortification with iron and vitamin A can be very cost-effective (at \$5- 12 per DALY gained) but is not yet considered feasible on a large scale in poor African districts as only a few countries are at even the initial stages of such an effort.

3.2 ACSD in Upper East Region

ACSD is a strategy for reducing inequalities in health through focusing and targeting efforts at regional level. This approach is broadly consistent with the objectives of the Health Sector Five Year Programme of Work 2002 – 2006 and Ghana Poverty Reduction Strategy 2002 – 2006. In consultation with Director General of Ghana Health Service and his Directors, UNICEF chose the Upper East Region because of the regions relatively high infant and under five mortality rates on one hand and high levels of poverty on the other, for implementation of the programme.

The review team was informed that the thrust of child survival activities in the UER started in 1997, following the outbreak of a major CSM and a yellow fever epidemic. Ghana Red Cross, with financial and technical assistance from American Red Cross trained 50 volunteers per district, initially to provide health education on prevention of CSM and yellow fever. In 1999, the activities of these volunteers were diversified and they were trained to provide community based child survival interventions in the Bolgatanga, Bawku West and Bawku East districts of the UER. In addition to providing education on key health issues, they also provided community based treatment for malaria and diarrhoea but referred cases of ARI.

Another NGO, Rural Health Integrated, started in 1995 with community based distribution of family planning devices. They diversified after the 1997 CSM epidemic to provide health education as well as community based treatment of malaria and diarrhoea in children. The Navrongo Health Research Centre also conducted trials on vitamin A supplementation and the CHPS strategy in the Kasena-Nankana district and have over the years been supplementing vitamin A and promoting ITN use in that district.

The Builsa and Bawku East districts have been focus districts for UNICEF since 1995. In these two districts UNICEF has been implementing an integrated community based development programme. Under this programme, UNICEF was supporting the two districts to promote exclusive breastfeeding, vitamin A supplementation, the consumption of iodated salt, EPI, ITN use and ANC. The promotion of these child survival interventions was taking place in the other districts as well but without support from UNICEF. The World Food Program-supported supplementary feeding programme has thirty feeding centers spread over the entire region. These centers have not only been a source of supplementary feeding for children and mothers since the early '90s but have also served as outlets from which health education on other child survival interventions are given. There are also fifteen nutrition rehabilitation centers spread throughout the Region. The Catholic Church, Presbyterian Church, Catholic Relief Services and World Vision International established these centers.

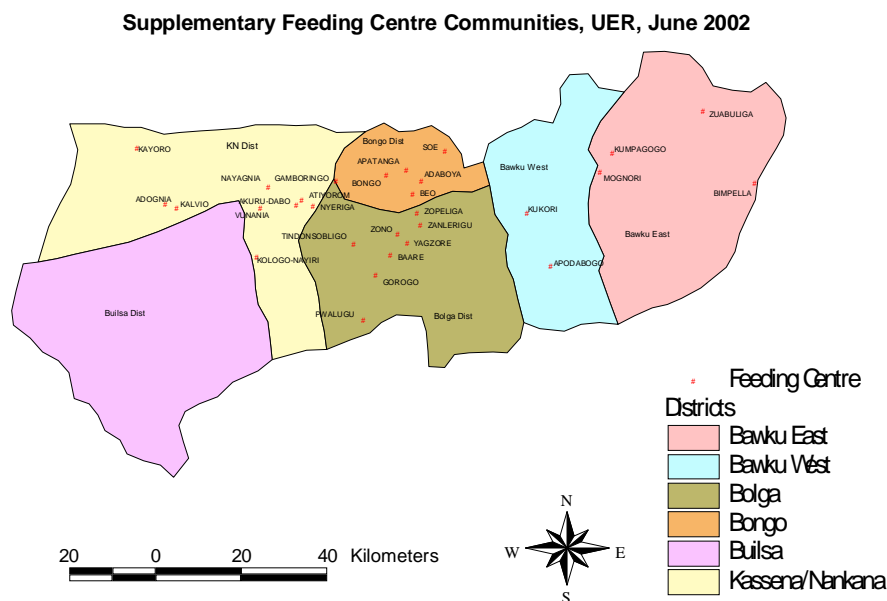


Figure 8: Supplementary Feeding Centers in UER

During the 1990s therefore, several child survival interventions were initiated in the UER by various stakeholders in health, all of who have collaborated with the Ghana Health Service at the regional and district levels. Basically, what UNICEF did in 2002 when they introduced the ACSD concept to the Ministry of Health was to:

1. Bring synergy in the activities at the district level by clearly defining the package of cost effective interventions and the approach to service delivery that would help accelerate the survival and development of children in the UER.
2. Support the development of a curriculum for the training of community based IMCI volunteers and scaled up their training in all districts in the UER.
3. Provide logistics for the scaling up of all ACSD interventions.
4. Support the introduction of new interventions such as IPT, PMTCT, deworming of children under five and postnatal vitamin A supplementation.

In essence, ACSD involved harnessing the collective experiences in the region and elsewhere to scale up the delivery of cost effective child survival interventions. UNICEF only facilitated this process, with the Ghana Health Service in the regions, districts and sub-districts assuming responsibility for implementation. This was successfully accomplished with the support of communities and other stakeholders.

3.2.1 Objectives and Targets of ACSD in Upper East

The Upper East Regional Health Management Team had as its objective for the ACSD project:

To achieve a 15% reduction in under-five mortality in 3 years (from 2002 to 2004), or a 25% reduction in five years (from 2001 – 2005). In addition to reducing mortality, the program also aims at reducing malnutrition, again by 15% in three years and 25% in five years.

The targets that were set for the various ACSD components are as follows:

Targets for EPI plus to be achieved by 2004:

- 80% DPT3 and measles coverage rates in <2 years
- 80% of children <5 years get antihelminthics 2 x per year
- 80% of children get high dose of vitamin A 2x per year

The targets for IMCI-Plus to were to achieve by 2004:

- 50% effective use of bed-nets by pregnant women/children<5yr
- 50% effective case management of malaria and pneumonia in U5's
- 80% oral Rehydration & continued feeding for children with diarrhoea
- 50% of mothers practice exclusive breastfeeding at 4 months and complementary feeding at 6 months and hand-washing before feeding;
- 90% of households consuming iodized salt

The targets for ANC-plus were to achieve by 2004;

- 50% effective use of bed-nets by pregnant women/children<5yr
- 80% receive >3 prenatal visits
- 75% receives effective intermittent malaria treatments in pregnancy
- 80% TT2 coverage during pregnancy,

- 75% of pregnant women take >3 months Iron Supplements
- 80% of pregnant women tested for HIV and 75% of HIV positive women accept and complete a short course ARV preventive treatment.

3.3 Service delivery strategies for the proposed intervention packages

To improve access to the interventions the ACSD was designed to use three complementary service delivery strategies based on how far the beneficiary populations are from health facilities. The first strategy is a facility-based delivery of all interventions to populations living close to a health facility.

The second strategy is the delivery of selected interventions through outreach to populations living far from the health centre but may be reached from the health centre by (motor) bike.

The third strategy is a community-based promotion and support of a package of family health, nutrition and hygiene practices to others who could be reached only via mobile teams or campaigns. In addition to the above service delivery strategies for the three packages three cross-cutting support strategies were utilized. A social mobilization and communication strategy was planned to improve demand and compliance with the service packages as well as family practices for prevention and care. Through community-based micro-planning obstacles to the delivery and effective use of the three essential care packages were identified, corrective actions were selected and their implementation monitored on a regular basis with the involvement of key stakeholders (communities, local health staff, supervisors and managers)

3.4 Delivery of ACSD Interventions

The implementation of all the packages of ACSD is well established in all six districts of Upper East region. The packages were not initiated simultaneously in all the districts. Indeed majority of the interventions had been initiated in one or more districts before ACSD began. Before the implementation of ACSD commenced quite a number of the interventions were already ongoing however the coverage rates were not up to the desired target. The interventions that were already ongoing in all the 6 districts before the advent of ACSD were immunization, Vitamin A distribution, exclusive breast feeding, complementary feeding, use of iodated salts, and Iron and folic acid supplementation for pregnant women. The interventions that were being implemented in the region but were limited to a few districts and communities include ITN promotion and distribution, management of diarrhea and fever by community-based agents. IPT, Deworming of children under five, PMTCT are the new interventions introduced into the region with the advent of ACSD.

ACSD was implemented in a stepwise manner in the region. It started in January 2002 with the EPI plus package, followed by ITN promotion during the second half of 2003. The scale-up of community IMCI began during the second half of 2003. IPT did not start until June 2004. ITN implementation had began in Kasena, Nakena and Builsa districts

in 1996 and Vitamin A supplementation started nation-wide in 1996, The IMCI-plus package started almost simultaneously in all the districts but one year after EPI-plus. The ITN component of the ANC was started in 2003 while IPT did not begin until mid 2004.

3.4.1 Delivery of EPI plus

EPI-plus component was the first that was supported to strengthen systems for tracing children who had defaulted from Immunization services. The need for a strategy for tracing defaulters became apparent following the realization that EPI defaulter rates were high during planning sessions. The original plan was to revitalize the community-based surveillance system and encourage the CBS volunteers to trace children, who were due for vaccination, in their communities using a register. This approach has been adopted and utilized to varying degrees in the 6 districts resulting in a multi-system of defaulter tracing and service delivery. Daily immunization is provided at health centers and by CHO in CHPS zones. CHOs and their Yzs as well as CBS volunteers trace defaulters using registers. After NID a follow-up mop-up vaccination is organized to vaccinate the “Zero dose” children identified by polio vaccinators during the house to house NID. Apart from Vitamin A supplementation another intervention that has ridden on the back of NID is deworming. Children 2 to 5 years old are dewormed during the NID.

3.4.2 Delivery of ITNs

ITN distribution was started at different times in different districts, with some districts initiating ITN projects before ACSD. Systems have been established in all districts for the promotion and distribution of ITNs. Multiple strategies (outlets) have been established for distribution of ACSD in all districts. The first outlet is the use of volunteers who receive commission for selling the nets. The second outlet is the health centers, where health staff sell the nets to the target group. The third outlet is outreach points; where volunteer sales agents join nurses on their outreach session to treat and sell nets while the nurse perform their technical duties. A fourth strategy/outlet which is emerging is the sale and retreatment of nets by community-based agents trained to manage fever and diarrhoea within their communities. CBA/IMCI volunteers, mainly women, are being considered for training in bed net distribution and re-treatment. Bednets are distributed through the district office to community volunteers but treatment is at community level. All the nurses and community volunteers handling nets have been trained. Some subdistricts have changed the distribution outlet for bednets from health centre to outreach distribution by CHOs. The nets are given to children under five through a chit (voucher) system and recorded on the weighing card. Nets are also distributed at the ANC by midwives; however the volunteers carry out impregnation.

The first mass house to house net re-treatment was done in May 2003 and again in May 2004, as part of the child health week to provide free re-treatment. At the moment volunteers are going to the communities to retreat nets that were not treated during the child health week. Ed nets are retreated at a cost ₦2,000. The volunteer is given half of the proceeds while the other half is sent to the DHMT where it is logged in an account

opened for bednets managed by the District Coordinating Director. A treated Bednet is sold at ₦5000. Adults have the option of buying treated nets at a high price of ₦23,000 per net. At the time of the sale of a net in the community, the customer is advised to bring the net for retreatment every 6 months. Retreatment of nets in the health centre is promoted. Volunteers do the treatment at facility level and at communities during outreach. Retreatment of nets is however still a challenge. The problem is the insecticide- nets come with a limited quantity of insecticide but chemicals for re-treatment are not added.

3.4.3 ANC –plus

IPT is a comprehensive package of services offered to pregnant women attending Antenatal Clinics. It includes the provision of Vitamin A supplements, Iron and folic acid supplements, antihelminths and Intermittent Preventive Treatment of malaria in pregnant women using sulphadoxine pyremethamine. IPT was started in the region in June 2004. Two districts, Bongo and Bawku East were supported by Global Fund to initiate IPT in May. In June 2004 IPT was extended into the remaining 4 districts as part of ACSD.

3.4.4 IMCI plus

IMCI is probably the most promising intervention which has a great potential of impacting child mortality. Before the commencement of ACSD different partners were carrying out this intervention in the region in various forms, however on a limited scale. For example the Ghana Red cross has Red Cross Mothers Clubs working in a few communities in Bolga and Bawku East. UNICEF, WFP, CRS and, LINKAGES have been supporting some communities in community growth promotion and use of ORT. During the scale up of Community IMCI ACSD pulled experiences from these pilot schemes and presented a common approach to all districts. Community IMCI implementation was introduced in all districts in 2003 however majority of the community-based agents started service delivery in 2004. The C-IMCI model being used in the region employs the voluntary services of a trained community-based agent, who are mostly women, to visit households and do the following; give health messages to mothers, treat fever with pre-packed chloroquine, give ORS for diarrhoea and refer children with ARI. The DHMTs give the volunteers bicycles and a kit-box containing pre-packed Kinaquine junior and infant, ORS sachets and hand washing items. Education materials (flip chart for diarrhea management) are provided as well.

3.4.5 ACSD and CHPS

Community-based Health Planning and Services (CHPS) is a service delivery model designed to bridge the access gap between health centers and communities that are hard to reach. With the CHPS approach a multi-purpose nurse (CHO) with both clinical and public health skills is deployed in a CHPS zone to provide services to communities within a certain radius. CHOs plan and provide services in these areas. According to health authorities the GHS has established about 26 CHPS centres. A large number of these centres (17 CHPS sites) are in Kasena Nankana districts, where the concept was piloted by the Navrongo Health Research Centre. According to CHOs and other sub-districts staff that were interviewed CHOs provided many of the services included in the

ACSD package of interventions. Thus CHPS may be seen as one of the service delivery strategies for the ACSD interventions.

Chapter 4

4.1 Effects of ACSD on the Health System

The ACSD Project was introduced into the Northern, Upper East and Upper West Regions of Ghana only in 2002 and the GDHS was conducted the following year, 2003. Admittedly, this is too short a period of implementation to attribute whatever impact made in the Upper East Region to the introduction of the ACSD. The review team found from our interviews in the Region that various community based child survival interventions were already introduced into the Region between 1998 and 2002. Ghana Red Cross and UNICEF supported these activities. The ACSD Project introduced by UNICEF in 2002 came to clearly define the package of services, improve on the training content and scaling up of training on the community based IMCI and also improve on overall logistic support for the community based IMCI.

The following six main interventions stand out in the implementation of the ACSD:

1. Massive mobilization of community volunteers to support service delivery.

A key component of the implementation of ACSD is the massive mobilization of community volunteers to provide services in the communities. The target is to have at least two volunteers from each community. There are five kinds of volunteers operating concurrently in the districts. These are:

1. Community-based distributors;
2. ITN sales agents
3. Community-based Agents (C-IMCI volunteers). IMCI volunteers are trained change agents in the communities. The IMCI volunteers are the most recent set of volunteers who are selected broadly from mothers' groups and supposed to conduct home visits and treat diarrhoea and fever while referring ARI cases. They are supposed to be supervised by the Red Cross
4. Community change agents in BCC in CWT
5. CRS volunteers responsible for growth promotion;
6. Community-based agents;
7. Mothers' support groups promoting exclusive breastfeeding; and
8. Weighing teams – same as growth promotion volunteers

The idea of volunteerism is evolving in the region. The Navrongo Health Research Unit started implementing the YZ (volunteers) and YN (health committee) concept as part of research into community health and family planning services. Lessons from that research have informed the evolution of community-based services in the region. In 1997 the UNICEF started supporting bednets distribution in Village Action Process (VAP) communities using weighing teams to sell and treat nets at the community level. Concurrently the Catholic Relief Services also trained volunteers for growth promotion

in the communities. Mothers' support groups were formed to promote breastfeeding and immunization.

4.1.1 Community -IMCI Volunteers

The recent development under the program has introduced a new cadre of volunteers into the system known as the CBA (C-IMCI volunteers). The C-IMCI volunteers are selected by the sub-district health teams in consultation with the communities. The C-IMCI volunteers are also community-based agents. However, lessons from volunteering in the region have reinforced the preference of female volunteers over male volunteers.

They are trained by the district, regional, as well as KNUST Community Health Department of the School of Medical Sciences facilitators to do the following: recognize, treat and refer malaria, diarrhoea cases, to recognize and refer ARI cases, promote immunization and use of iodated salt, provide health education on personal and environmental hygiene and mobilize the community for deworming, NIDs and immunization and other community-based programs. The target is to have at least 2 trained IMCI volunteers per community.

Each volunteer is provided with a bicycle to facilitate their activities. They are also provided with a tool kit/box containing Kinaquine infant and junior, ORS, towels, cups and spoon. The operations of the IMCI volunteers are organized in such a way that it generates income for the volunteers. For example each volunteer earns ₦100 on each sachet of ORS sold. The combination of training, community recognition, bicycles and earnings from the sale of drugs are supposed to keep the volunteer motivated and committed to the task.

Nevertheless, it has not been possible so far to provide all volunteers with bicycles after training. In a number of districts two volunteers are assigned one bicycle. The last batch of trained volunteers was not provided with their kit boxes. Sub-districts could therefore not introduce volunteers to their communities because UNICEF has not released funds for this activity.

The effects of community volunteers on the workload and case mix in health institutions is probably too soon to assess because training of community-based volunteers was still going on at the time of this evaluation. Nevertheless in sub-districts where community volunteers have been operating for some time there are anecdotal reports of reducing workload that could not be validated using the OPD reports.

The key challenge for the region will be to sustain this high numbers of volunteers. This is likely to be even more difficult without dedicated funds such as the funds from UNICEF. The contribution of C-IMCI will require further study both in terms of how volunteerism is sustained over time and also its effects on the health system and disease profile.

Lessons from Navrongo that should guide the future action are that when volunteers realize they are useful and "can solve some problems" they stray and do things that

they have not been trained to do. The apparatus for supervision in these circumstances is extremely important. So far this component of the program seems to have been ignored. The communities have not been mobilized to supervise the C-IMCI volunteers and neither is the formal health structured to supervise them. There is no evidence of volunteers straying into other areas as yet. However, given the weakness in supervision this is likely to happen unless supervision is strengthened.

4.1.2 Community-Based ITN Agent

UNICEF has been experimenting with bed net agents in the VAC communities since 1997. These agents distribute and treat bednets in communities where they reside. They interact with the health system for their nets and insecticides. Specifically, UNICEF procures nets and distributes them through the regional health administration to the district health administration and to the health center level. The community agents then collect the nets from the health center and sells at a subsidized price to the community.

This strategy has been implemented throughout the region incrementally and systematically. The distribution channel is still the same. The community based agents collect these nets and sells them at a subsidized price of ¢5,000 per net to a pregnant woman and for use by a child less than 5 years. The CBD records this sale in the antenatal cards for the pregnant woman and child health record of the child. The cost of bednets to the general population is ¢23,000. The community-based agents are also responsible for retreating nets at a cost of ¢2,000 per net. The cost of the first treatment of the net is included in the ¢5,000. Under this arrangement CBDs retained a commission of ¢1,000 per net sold and net retreated. This income accrues to CBDs.

The community-based operation is designed to sustain the objectives of the ITN distribution, minimize risk of loss to the system and keep the CBDs motivated. The CBD collects only 10 nets at a time from the sub-district to ensure that loss to the system is minimized in situations where CBDs are unable to account for nets collected. Experience so far has shown that CBDs will generally account for the fund.

Initial programs distributed nets to only pregnant women and children under 5 years of age. It became obvious in the course of implementation that this approach could not be sustained as the knowledge of benefits and demand for ITNs increased in the population. People originally not in the target group therefore began to request to be sold nets. A decision was therefore taken to sell nets to those not in the target groups.

In order not to undermine the primary objectives of the ITN program however an 80/20 rule is applied in the sale of nets to the community. Under this rule eight out of the 10nets, 8 are sold to the target groups at a subsidized price of ¢5,000 while 2 of the nets are sold to the general public at the less subsidized price of ¢23,000. This approach allows for targeting of the vulnerable groups with subsidized nets.

The distribution of ITNs in the region began using a voucher system. Under this system the target groups were given vouchers to be used to procure nets. This system was

found to be too cumbersome and difficult to implement and monitor. The region therefore replaced it with direct sale of subsidized and unsubsidized nets to the population using the 20/80 rule and recording the sale of subsidized nets to the target populations in their health cards.

In May 2004 a national child health week was organized. During this week bednets were retreated free of charge. This approach increased the proportion of ITNs that had been retreated. It also eroded the potential income of CBDs from retreatment of nets. As the health system migrates increasingly towards the use of long lasting nets it is likely that the income of CBDs from net retreatment would be completely eroded. This may have implications for the community-based distribution of ITNs and may require a rethinking of new ways of sustaining the gains made so far in the region.

4.2 Investments in Training and Capacity Building

The second intervention is investments in training and capacity building. A coordinated and sustained program of training and capacity building was required to re-skill and retool community-based distributors. UNICEF collaborated with KNUST, Ghana Red Cross and Ghana Health Service to develop a training program for CBAs. A cascading program involving training of trainers at the regional, district and sub-district level and ending with training of CBAs at the sub-district level was being implementing during the time of the evaluation. KNUST has developed training manuals and curriculum that could be used by other regions interested in replicating ACSD. The pool of facilitators in the Upper East Region can also be drawn upon to facilitate other regional programs.

4.3 Reliable Supply System

The ACSD program benefited from improved predictability of inputs. UNICEF ensured a constant supply of bednets in the system. Each bednet was supplied with KO tab for treatment. What was not routinely available was the insecticide for re-treatment. Treatment kits for community-based IMCI agents were also in short supply. What was clear was that the region had become dependent on UNICEF supply systems.

4.4 Dedicated Funds

ACSD implementation seems to depend almost entirely on funds from UNICEF. It begs the question of whether ACSD can be funded within the district budget or whether earmarked funds are required to start up implementation. What stands out clearly is that funds should be available to support the procurement of inputs and also for capacity building. There are to date no experiences on the use of the budget on scaling up these interventions. For that reason it is important for us to be cautious on funding for the scale up of ACSD in other regions. The funding of implementation of the immunization program involving the central level procurement of procurement of vaccines inputs and district level funding of operations may provide us with some ideas on how we can scale up as we learn to finance scaling up of interventions using decentralized budget.

4.5 Strict Monitoring and Reporting Mechanism

ACSD implementation is actively monitored. Specific tools and formats have been developed to capture activities and services at the community level. Reports are submitted by community volunteers and get aggregated through the system from sub-district to district and then to region. The reports are however not integrated into the national reporting systems, thus creating a parallel system for reporting which in turn increases in workload at the sub-district levels. Opportunities for integrating the ACSD report system into the routine information system however exists. The parallel reporting system is not a unique problem with ACSD. It is a reflection of the slow pace of integrating community-based services such as CHPS into the national health information system.

4.6 Access

In most districts there is evidence that C-IMCI this is leading to increase in access to services. The education in the communities by the C-IMCI volunteers and their presence in the communities are leading to increased demand for services, especially for drugs such as ORS. Some health centers have reported seeing less minor cases as treatment of these are being done in the communities by the volunteers. As mentioned above communities are being engaged more actively in health related activities and service delivery and this has led to increased community participation. The training that has been provided for the health workers and the community volunteers is resulting in increased capacity for service delivery at these levels.

4.7 Financing

Accelerated Child Survival and Development Program funds are dedicated to specific activities and targeted to specific groups. This has made it possible for activities to be carried out with few interruptions. Supervision and monitoring is done very stringently by the donor and that makes the implementers accountable for results. Activity and financial reports are also requested regularly. This way of doing business comes with very high transaction costs for the implementer. Even though the district budget provides flexibility for use of resources districts are reluctant to use their funds for these activities which are considered by some district staff as donor programs. In some districts while these activities are integrated into district plans and budgets ACSD activities are not funded from these budgets. The challenge now is to ensure the required amounts are released and on timely basis.

4.8 Capacity

Training has been provided for all levels to implement ACSD activities. This has increased the technical capabilities for service delivery. In addition, inputs are provided for the delivery of specific interventions and activities. Input supply seems to be fairly regular and there is no evidence that activities have been halted or cancelled due to the non-availability of funds or inputs.

4.9 Programme management

The ACSD program is managed by the DHMT but with very regular interaction with the funding agency. The funding and reporting mechanism has resulted in increased accountability for both resources and results but this situation does not reflect in general programme management in the district. As mentioned earlier the level of integration of planning, budgeting, implementation, monitoring and evaluation of ACSD vary from district to district. Most managers at both the district and sub-district levels consider these activities as UNICEF driven and refer to it as UNICEF program. There is the need to reorient managers to understand that partners are just providing support to them for the implementation of their own programs and activities

All districts in the region have hard-to-reach areas and it becomes impossible to deliver services to them during the rainy season. In order to reach these areas the DHMTs and sub-districts team rely extensively on micro-planning. This results in continuous service delivery.

4.10 Partnerships

There are numerous partners that are collaborating and performing various roles in the health sector in the region. The table below provides an overview of the various institutions and their roles.

Table 3 Roles of Partners

N o.	Partner	Specific Activities Carried out
1	MOH	Financing, policy direction, regulation, ensuring standards
2.	GHS	Service delivery, coordination
3.	GBC/FM	Announcements, radio discussions, free airtime for Anthrax, safe Motherhood and Blood Donation Education
4	RCC	Presided over the following functions: <ul style="list-style-type: none"> - Regional launches of National and International Days - Performance Review meetings - Regional Health Committee - Epidemic committees/campaigns in Polio (NID), Measles (MSIAs)
5	DAs	Support to DHMTs in HIV/AIDS campaigns Support trainees in Community Health Nursing and Health Assistants
6	GES	Support in mass treatment of measles, worms and iodated salt testing.
7	MOFA/IDA	Support in training and working of community health volunteers in

		water related diseases e.g. Schistosomiasis. Onchocerciasis and guinea worm
8	Dept. of Co-operative	Campaign in community health financing in Builsa district
	NADMO	Sponsored radio programme on Anthrax outbreak in Kasena Nankana
9	Action Aid	Co-sponsored world AIDS day launching
10	Ghana Red Cross	Health personnel supervise child survival project in districts and sub-districts Some achievements in the project within 2 years Knowledge about immunization schedules – increased 12.2% to 39.1% Fully vaccination increased from 39.0% to 54.6% Exclusive breast-feeding rose from 21.9% to 56.1% Timely initiation of complementary feeding 27.9% to 64.7% Sponsored volunteers in measles SIA Members of community health taskforce Put 300 volunteers at the services of the service
11	CRS	Supply of food to feeding centres Campaign in HIV/AIDS
12	NPC	Safe motherhood campaign HIV/AIDS campaign
13	Anglican Church	Handed over Binaba Health Centre to the Anglican Church. GHS supplies personnel to run the services for
14	Presby Church	3 Sub-districts (Garu, Widana and Tongo) taken over by the Church
15	Catholic Church	Zorko and Kongo Health Centres are being run by the church, Wiaga, Sirigu
16	RHI	FGM, Safe motherhood campaigns
17	DANIDA	Supply of vehicles Support in community health financing activities in the region TB campaign
18	UNICEF	Supply of vehicles Child survival activities (IMCI) Support to AIDS Peer Education programme Full time programme officer to Upper East Region
19	UNFPA	Supply of vehicles Child survival activities (IMCI) Support to AIDS Peer Education programme Full time programme officer to Upper East Region
20	Prime II	Capacity building of workers in safe motherhood
21	Engender health	Capacity building Supply of equipment to facilities
22	Linkages	Capacity building of workers in nutrition BCC (exclusive and complementary feeding of children) Support with health education materials
23	Reg. Health	Successful launched 10/4/02

	Community	Advisory body to RDHS
24	Stand Chart	Provision of clinic at Gambibgo
25	World Vision International	Capacity building of staff, school health activities sponsored Breast feeding week
26	JAPEIGO	Capacity building of staff in safe motherhood
27	JICA	Capacity building of staff in computer, training logbooks
28	WHO	Capacity building in disease surveillance, Vit A supplementation and Mass Measles vaccination, ITN distribution
29	WFP	Provision of Food

The table shows that some partners provide funding while others assist with implementation of interventions and activities. There is little evidence however of the partnership working. This can be seen in the absence of a system of coordination of partners. No regular meetings are called by the DHMT which should normally be doing so. Partnerships seem to work only during implementation of specific activities. The different partners have their own systems of working with their specific partners. Once a while some meetings are held to ensure there is no duplication of activities.

4.11 Information Management System for ACSD

Since inception ACSD activities have been integrated into the region's regular child survival program. However information management related to the activities has remained outside the regions information management system. There are also issues with the quality and timeliness of data. Investments are required to make these datasets uniform and reliable. The biggest challenge would be how to merge C-IMCI information on utilization with OPD data.

Chapter 5

5.1 Has ACSD made a difference in Upper East Region?

To address this question, we did a review of trends in health status and service outputs as well as changes in the health system that may be attributed to ACSD. The team attempted to address four main questions:

- Has there been improvement in key health status indicators for children?
- Has there been improvement in health service outputs related to child survival and development in the Upper East Region and has ACSD targets for these outputs been achieved?
- Could ACSD have contributed to these improvements?
- Could the health system have achieved these changes without infusion of external support?

In order to answer the first question we compared changes in key health status indicators over time (1998, 2002 and 2003)³ in the Upper East region. The second question was addressed by examining trends in health service output indicators and also comparing current (i.e., 2003) levels with ACSD targets that were set in January 2002. To answer the third and fourth questions we compared achievements in Upper East region with achievements in the Upper West region, with Upper West region acting as the control region. The change in the levels of these indicators for 2002 and 2003 were compared for the two regions using the analytical framework below (figure 5).

The Upper West region was deliberately selected because it is fairly identical to the Upper East region in terms of their regional characteristic except the levels of implementation of ACSD. All districts in the Upper East Region are implementing ACSD while no district in the Upper West is implementing ACSD. The regions therefore provide an opportunity to compare what ACSD may have contributed marginally compared to what the health system is capable of delivering without external support.

³ Data from three surveys (DHS 1998, Kintampo Integrated Health and Nutrition Survey for the 3 northern regions and DHS 2003) were used for the trend analysis. There were no large scale surveys of comparable quality in 1999, 2000 and 2001.

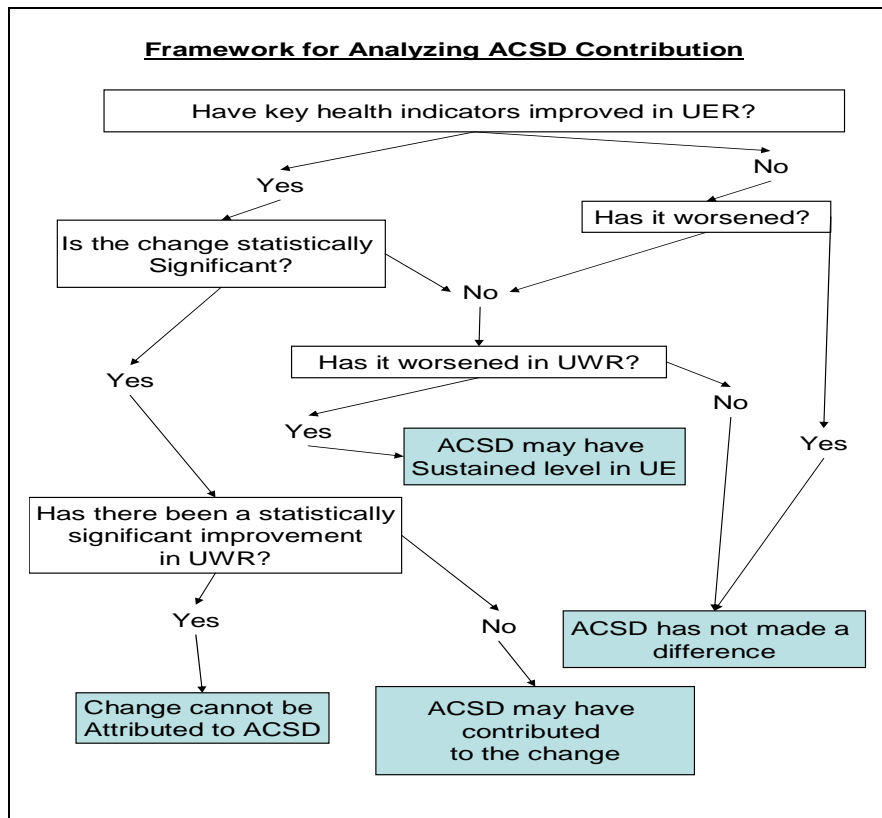


Figure 9: Framework for Analyzing ACSD Contribution

5.2 Trends in Child and Infant Mortality Rates

The Ghana Demographic and Health Survey (GDHS) reported marked reduction in the Under Five Mortality Rates (U5MR) and Infant Mortality Rate (IMR) in the Upper East region between the two five year periods of the survey- 1994-1998 and 1999-2003.

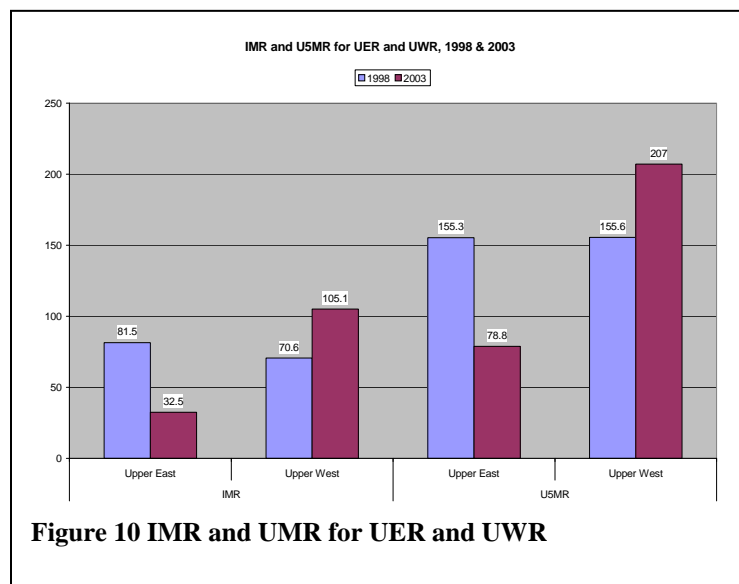


Figure 10 IMR and UMR for UER and UWR

U5MR dropped by almost 50% from 155 per 1000 in 1998 to 77.8 per 1000 live births; IMR also dropped by over 50% from 81.5 in 1998 to 32.5 in 2003. The drops in U5MR and IMR are both statistically significant with p-

values of 0.000 and 0.000 respectively⁴.

Even though the U5MR of Upper West Region was approximately the same as that of the Upper East region in 1998, it increased by over 30% to 208 per 1000; IMR also increased by almost 50% from 70.6 in 1998 to 105.1 in 2003. These increases were statistically significant with p-values of 0.015 and 0.036 respectively.

Consequently, ACSD may have contributed to the improvements in IMR and U5MR in the Upper East region. Indeed it is estimated that ACSD may have contributed close to about 14% reduction in U5MR after 18 months of implementation by raising the coverage levels of key child survival interventions.⁵ The rest of the analysis therefore attempts to examine the evidence for this conclusion by unpacking the key interventions of ACSD that may have contributed to this change.

5.3 ACSD targets for key health service outputs and trends over time

Three groups of health service output targets were set for ACSD at the inception of the project in 2002 to be achieved by December 2004. The first group of service output targets is to achieve at least 80% coverage for EPI, ORT, Vitamin A, Deworming and Tetanus Toxoid vaccination. The second set was to achieve at least 50% coverage for effective management of malaria and pneumonia, exclusive breastfeeding, complementary feeding and the use of ITN. Comparisons of current coverage levels as at July 2003 of these interventions with the set targets reveal a mixed performance (figure 7).

⁴ The percentage drop in U5MR and IMR could be as low as 9% and 15% respectively when the confidence intervals of the observed values are taken into consideration.

⁵ The 14% projection was estimated using the Marginal Budgeting for Bottlenecks tool, developed by staff of UNICEF, WHO and World Bank.

Figure 11 Comparison of ACSD health service output coverage targets with current (2003) levels - UER

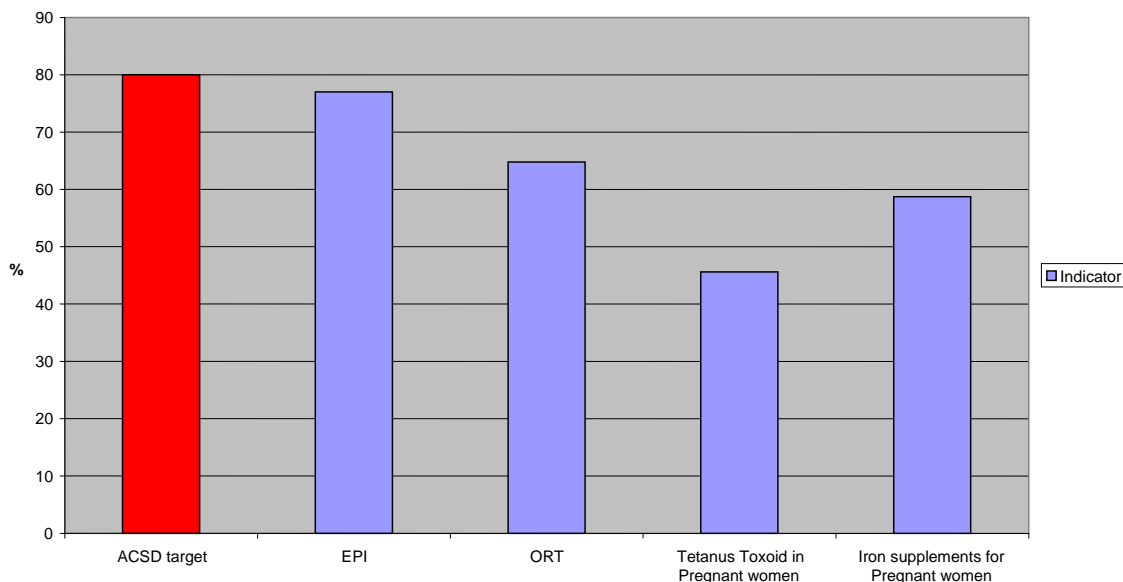
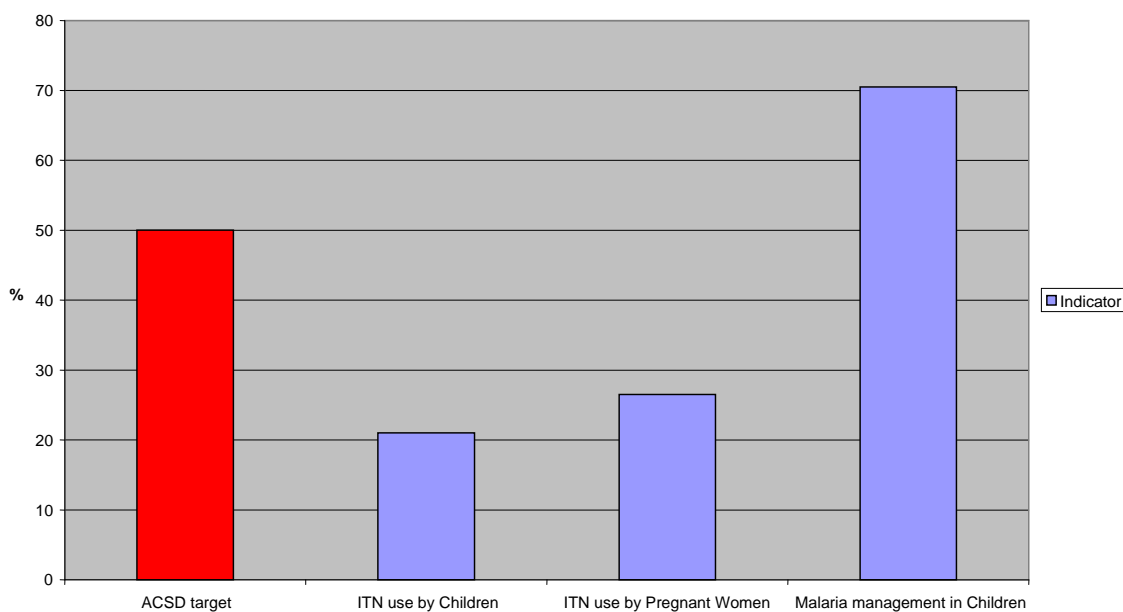


Figure 12 Comparison of Health Service Output Target with 2003 Coverage level in UER



5.4 Interventions Targeted at Children

Malaria, diarrhea and ARI together contribute about 65% mortality in children. The prevention and management of these diseases can therefore reduce IMR and U5MR levels.

5.4.1 Prevention and Management of Malaria

Malaria is estimated to contribute about 26% of under-five mortality. Insecticide treated nets (ITN) has been proven to be one of the effective tools for preventing malaria in children. The proportion of children sleeping under ITNs the night before the survey increased from 4.6% in 2002 to 21% in 2003 in the Upper East Region. This change is statistically significant with a p-value of 0.000. ITN use in the Upper West Region increased marginally from 0.8% in 2002 to 1.9% in 2003. This change is not statistically significant with a p-value of 0.25. We therefore conclude that ACSD has contributed to increase in ITNs use in children in the Upper East region. The increase in ITN use appears to have translated into a reduction in malaria prevalence. In the Upper East region, prevalence of malaria in children fell from 33.6 to 21.3 between 1998 and 2003. The decrease in Upper East was significant with a p-value of 0.01. The malaria prevalence in the Upper West Region remained at 30%. We therefore conclude that ACSD may have contributed to the reduction in the prevalence of malaria in children.

We also examined changes in the management of malaria in children. We would have preferred to use proportion of children with fever treated within 24 hours. However, this indicator was reported for the first time in 2003 GDHS. We therefore used the “treatment with antimalarials” for which information is available in both the 1998 and 2003 GDHSs.

In Upper East region the proportion of children with fever treated with antimalarials fell from 78.3% in 1998 to 39% in 2002 and rose again to 70.5% in 2003. The increase observed between 2002 and 2003 is statistically significant. In Upper West Region, management of children with fever using antimalarials increased from 34% to 66.5% between 2002 and 2003. This increase is statistically significant with a p-value of 0.018. This suggests that the health system is capable of increasing access to treatment without necessarily implementing ACSD.

5.4.2 Management of Diarrhea

Diarrhea is estimated to contribute about 18% of mortality in children under-five years. . The proportion of children correctly managed with ORS or dehydration fluid in the Upper East Region decreased from 62% in 1998 to 35% in 2002 and then increased to 65% in 2003. It however stagnated at about 36% in Upper West region during the five year period. The increase in the proportion of children correctly managed in Upper East Region observed between 2002 and 2003 is statistically significant with a p-value of 0.00003 suggesting that ACSD has contributed to the correct management of diarrhea.

5.4.3 Management of ARI

ARI is estimated to contribute about 18.3% of under-five mortality. The proportion of children with ARI treated in health institutions could not be assessed because the GDHS could not recruit enough children in the regions to allow an assessment. The prevalence of ARI decreased by about 50% between 1998 and 2003 in both the Upper East and Upper West regions. It is not clear what may have accounted for this given that no specific interventions have been implemented to reduce ARI prevalence.

5.4.4 Expanded Programme on Immunization

Coverage of EPI has been improving steadily in the country from 47% in 1998 to 69% in 2003. Differences in EPI coverage exist within and between regions. The added value of ACSD on EPI was to improve defaulter tracing and social mobilization. In Upper East the coverage of fully immunized children aged 12 and 23 months decreased from 66% in 1998 to 44% in 2002 and then increased to 77% in 2003. Measles also followed a similar trend decreasing from 75% in 1998 to 61% in 2002 and then rose to 91.2% in 2003. These increases between 2002 and 2003 were statistically significant for both indicators; p values were 0.00007 and 0.00001 respectively. For Upper West region measles coverage and the proportion of children fully immunized followed a similar trend but the difference between 2002 and 2003 coverage levels for both indicators were not statistically significant; p-values of 0.27 and 0.13 respectively. We there conclude that although the health system can sustain current levels of immunization, the additional support from ACSD may have pushed the coverage levels higher.

5.4.5 Infant Feeding

Breastfeeding improves nutritional status and reduces morbidity and mortality of children. MOH recommends that babies are put to the breast within one hour of delivery and are exclusively breastfed for the first 6 months. Complementary feeding is introduced after 6 months. Breastfeeding is to continue until the child is about two years old.

Table 4 Infant Feeding

Region	One hour after delivery		Exclusive Breastfeeding (Mean Duration months)		Full Breastfeeding (Mean Age months)	
	1998	2003	1998	2003	1998 ⁶	2003 ⁷
Upper East	6.9	86.3	0.6	1.4	5.6	8.3
Upper West	19.1	17.9	0.6	5.1	4.7	7

Early initiation of breastfeeding seems to have benefited from the ACSD programme in the Upper East Region. Between 1998 and 2003 the proportion of children breastfed within an hour of delivery increased substantially from 6.9% to 86.3%. The mean duration of exclusive breastfeeding also increased from 0.6 months to 1.7 month in 2003. The duration for predominant breastfeeding is also 8.3 months. The proportion of children breastfed within one hour of delivery is low; it dropped slightly in Upper West region from 19.1% in 1998 to 17.9% in 2003. Though the average duration of exclusive breastfeeding in both Upper East and Upper West was 0.6 months in 1998 that of the Upper West region increased substantially to 5.1 month while that of Upper East region increased marginally to 1.4 months in spite of ACSD. Complementary feeding could not be assessed because there was no regional data in the DHS reports.

⁶ 1998 reported full breastfeeding which is either exclusively breastfeeding or plain water only.

⁷ 2003 GDHS reported predominant breastfeeding which is either exclusively breastfed, or received milk and plain water, water based liquids and/or juice only.

5.4.6 Malnutrition Levels

Malnutrition is known to be an underlying cause of under-five mortality. We therefore examined the difference in malnutrition rates between the Upper East and Upper West regions in order to determine the contribution of ACSD to malnutrition levels. Stunting in Upper East Region dropped from 35.9 to 31.7, wasting increased from 8.2 to 12.9 and underweight dropped from 34 to 32.4. In the Upper West region stunting increased slightly from 34.6 to 34% over the five year period, wasting increased from 7.1 to 11% and underweight reduced from 28.4 to 25.9. The changes in levels of malnutrition in the Upper East Regions are not statistically significant over the five year period. Further, the levels of malnutrition in the Upper East region compared to that in the Upper West region are not different. Together, these suggest that ACSD may not have had an impact on levels of malnutrition in the Upper East region.

5.4.7 Anemia in Children

Anemia in children arises mainly from inadequate treated repeated bouts of malaria, intestinal worms and inadequate dietary intake of iron. Anemia contributes to under-five mortality and infant mortality rates. The prevalence of anemia among children 6 – 59 months in the Upper East region is 79.1%. This is comparable to prevalence in the Upper West region (78.3%) and Northern region (82.5%). Prevalence of severe anemia is highest in the Upper East region. (See table below). Trends in anemia prevalence could not be assessed because previous GDHS did not include assessment of anemia in children.

Table 5 Anaemia in Children

	Upper East		Upper West	
	Prevalence	%	Prevalence	%
Anemia	79.1	100	78.3	100
Mild	22.2	28.1	23.9	30.5
Moderate	49.4	62.5	52	66.4
Severe	7.5	9.5	2.5	3.2

5.5 Interventions Targeted at Mothers but for improving Child Survival

5.5.1 Safe-motherhood as a strategy for improving child survival

Safe motherhood initiatives are known to directly influence perinatal mortality and lay the basis for child survival and development. The 1998 GDHS did not report on perinatal mortality in Upper West Region and the sample size for Upper East for the same year was small. For that reason it is not possible to compare trends even though the 2003 GDHS reported perinatal mortality rates for both regions. We therefore limited our analysis to changes in neonatal mortality rates for which data on trends is available. We also reviewed the coverage of safe-motherhood interventions aimed at contributing to reduction in neonatal mortality rates.

5.5.2 Neonatal Mortality Rates

In 1998 both Upper East and Upper West regions had almost the same neonatal mortality rates of 25.5 and 28.4 respectively. However by 2003, neonatal mortality rate

dropped marginally to 21.8 in the Upper East while that of Upper West region almost trebled to 61.6 per 1000 live births. The rationale for the massive increase in neonatal mortality in the Upper West region needs further investigation outside of the scope of the current review. This review however attempted to explain the marginal reduction in neonatal mortality that could be directly linked to safe-motherhood interventions.

5.5.3 Antenatal Care

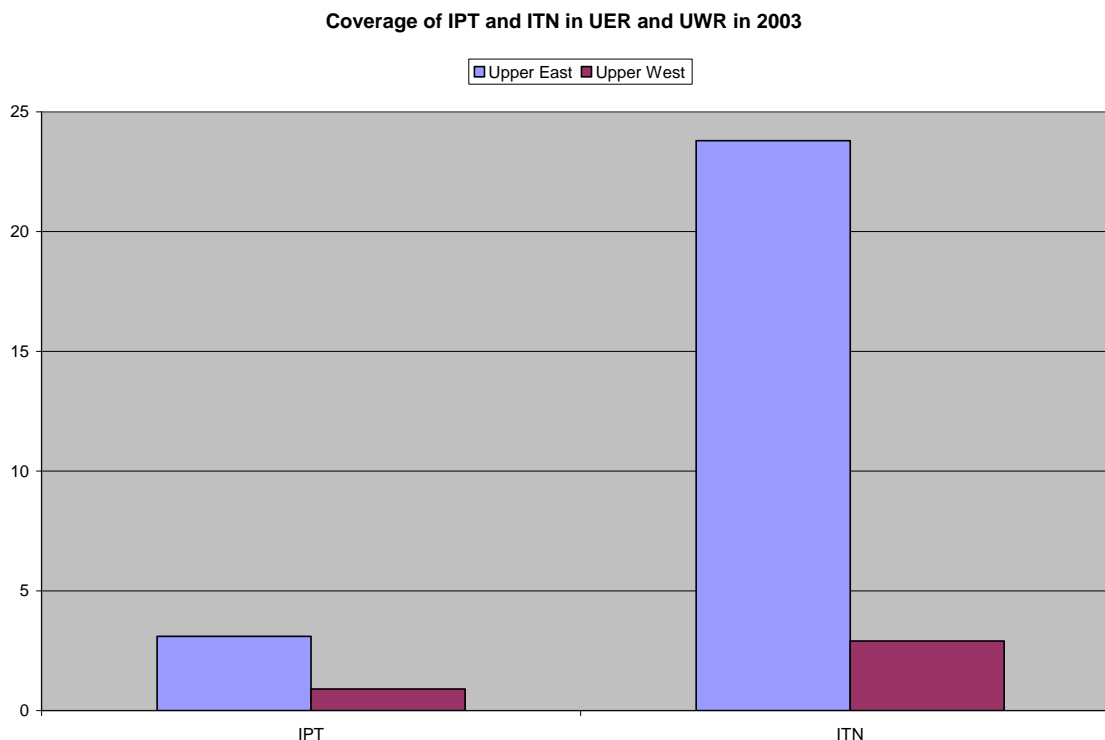
Coverage of ANC is already good. 2003 GDHS reports very high levels of ANC coverage in the country. Over 80% of women received ANC from either a doctor or nurse. About 69% of pregnant women attended ANC at least four times. GDHS did not disaggregate the frequency of ANC visit by region and therefore it is difficult to comment on regional performance in this area. The challenge is to improve content and quality of ANC. ANC plus aims to fill this gap by promoting IPT, ITNs, improving maternal nutrition and haematinics.

5.5.4 Prevention of Malaria in Pregnancy

In 2002, MOH adopted IPT as one of two strategies for the prevention of malaria in pregnancy. The other intervention included in the Roll Back Malaria Strategy was the use of ITNs by pregnant women. The promotion of these interventions has been included in the ANC plus component of the ACSD. In 2003 when the GDHS was conducted the coverage of IPT in Upper East was 3.1%. This is almost thrice that of Upper West Region (0.9%). Even though coverage of IPT is still far below the Abuja target of 60%, its faster uptake in the Upper East compared to the Upper West Region might have been facilitated by promotion under ACSD programme. Since the implementation of IPT did not commence until June 2003 we also examined trends in the use of anti-malarial drugs during pregnancy. The proportion of pregnant women who took any antimalarial drug for prevention during their pregnancy increased in both Upper East and Upper West regions. In Upper East the percentage that used antimalarials increased from 20% to 58.7% while that of Upper West region rose from 10% to 21%. The increase in Upper East region is statistically significant with a p-value of 0.000 while that of Upper West is not. These therefore support the earlier assertion that ACSD may have facilitated the use of antimalarial drug during pregnancy.

The proportion of pregnant women sleeping under ITNs the night before the 2003 GDHS survey was 23.8% in Upper East Region compared to 2.9% in Upper West Region. Compared to the 2002 baseline survey the increase in Upper East Region from 1.1% to 23.8% is statistically significant while no real increase was observed in Upper West Region. We therefore conclude that the promotion of ITNs as part of the ACSD programme may have contributed to the increase the Upper East region.

Figure 13: Coverage of IPT and ITN



5.5.5 Tetanus Toxoid Coverage

Neonatal tetanus is estimated to contribute 7% of neonatal mortality. The strategy for reducing neonatal tetanus is to administer tetanus toxoid to pregnant mothers. Five doses given at specific periods give a lifetime protection of mother to child tetanus. However for full protection of mother and baby during the antenatal period, two doses of tetanus toxoid should be administered to pregnant women. The coverage for all the three northern regions was comparable – Upper East 45.6%, Northern 47.7%, and Upper West 50%. For Upper East region, 2003 coverage was worse than the 1998 coverage which was 66.7% implying that this component of the programme did not benefit from the ACSD programme. It is also unlikely to have contributed to the marked reduction in under-five neonatal, infant and under five mortality rates.

5.5.6 Vitamin A Coverage

Vitamin A is an essential micro-nutrient for normal functioning of the growth and development of the child. It is known to reduce all cause mortality in children by about 25%. Vitamin A is therefore administered to the mothers during the postnatal period and through the breast milk to the child. Vitamin A is also administered during NIDs. The proportion of children between 6 and 59 months that received Vitamin A months before

the survey was over 78% for all the northern regions implying that the health system is capable of delivering Vitamin A in the regions.

5.5.7 Iodization of Salt

Ghana has a programme for iodizing salt whose objective is to reduce iodine deficiency disorders. Iodine deficiency leads to increased abortion rates, mental and physical retardation, cretinism, and high neonatal mortality. Although Ghana has a law on iodizing salt, both iodated and un-iodated salt are available on the market. Only 5.8% of households have iodated salts quantities (15+ ppm) of iodine in domestic salt. This level is similar to the level in the Northern Region but less than a quarter of the Upper West region level of 28.1%. It seems salt iodation has not benefited from the ACSD programme.

From discussions above, it can be discerned that ACSD has positively impacted several of the programs it was packaged to address. The strategy for implementation entailed infusion of funds and other material to achieve results so far obtained. In scaling up ACSD to other regions, what will it take in terms of funds and efforts, to achieve the kind of results seen on a national scale? This is what the next chapter tries to address.

Chapter 6

6.1 Costing Implications of ACSD

6.1.1 Purpose

One of the objectives of this study was to estimate the cost of implementing the ACSD programme in the Upper East Region. More specifically to:

- To estimate the total resources spent on the ACSD intervention between 2001 and 2003.
- To estimate the incremental costs (additional investment needs) for the implementation of ACSD.

It is hoped that the evidence provided by the assessment will aid the MOH, Health partners and donors by having cost data to make informed decisions on their priorities and resource allocations for purposes of replicating the ACSD intervention in other regions.

Finally the study will also provide the cost of implementing each of the interventions under the ACSD package. This will make it possible to identify the major areas, which contribute substantially to the cost of ACSD in Upper East Region as well as those that are under-funded.

6.1.2 Conceptual Framework

Since the general framework for costing the ACSD programme in the Upper East Region is from the perspective of the Ministry of Health and its Partners, this analysis does not estimate cost incurred by the users. For this reason Financial Costs of the programme which were estimated represent actual expenditure on goods and services, rather than the Economic Costs⁸.

This analysis was carried as a cost estimation using existing data. More refined work on costs would need to be done in the future using primary data.

6.1.3 Method of Analysis

Actual Costing Methodology was used based on activity-based costing (ABC) with allocation of costs to activities. This method uses actual expenditure data⁹ which is preferred to budget data, since in many cases budgeted amounts do not correspond to that which is actually spent. However, where data on actual expenditure was lacking, budget line items were used to estimate cost.

Where information was available all pertinent costs were counted. These costs included capital costs of vehicles and equipment, direct costs to the programme and indirect costs such as monitoring and evaluation costs, operational costs, social mobilization costs.

6.1.4 Data Collection

To estimate the cost of implementing various interventions under the ACSD package all the 6 Districts in the UER were covered. Site visits and interviews were conducted at National, Regional, District and Sub-district levels. In all, 9 health institutions were visited across the region. In addition, In-depth interviews were conducted with key informants from UNICEF, WHO, GRC, CRS partners, and other collaborators (KNUST). Annual reports and other documents on expenditure and sources of funds were reviewed. The list of the health facilities visited is provided in the Annex VII.

In each of the facilities visited, the administrator, the nursing officer as well as principal staff (Doctors, midwives, nurses, laboratory technicians, etc.) in charge of the various relevant departments were interviewed, guided by a questionnaire. The data gathered from each of the facilities covered information on the following:

- Sources of funding for ACSD
- Stock of major equipment used for ACSD available at the institution.
- Health care provided according to each ACSD intervention provided by the facility.
- Number and category of staff
- Current treatment protocol under each of the interventions with specific interest in type and quantity of drugs administered and other supplies used for each of the interventions.

⁸ Economic costs include the additional estimated value of goods and services for which there is no financial transactions of when the price of the good does not reflect the cost of using it productively elsewhere

⁹ see Annex

Quantities of drugs, equipment and supplies were obtained from the Regional Health Directorate, District directors as well as the regional store and supplies office. Where information was not available on logistics and for purposes of verification, regional collaborators were also consulted (Red Cross, CRS and UNICEF offices in Bolgatanga and Tamale).

6.1.5 Data Limitation

A key limitation was the time available for the costing assessment. Expenditure data was also found to be inadequate. As a result the scope was limited and not all cost components were estimated on full costs basis.

6.1.6 Capital costs

The capital cost of buildings, maintenance costs as well as cost of MOH vehicles was excluded from this analysis. This is because Health facilities and MOH/GHS vehicles are used for multiple purposes. As such, due to unavailability of data and time constraint, we were unable to allocate the proportions of these Capital costs to the ACSD programme.

It is also assumed that in order to replicate the ACSD programme in other regions, existing health facilities and health workers will be used for implementation therefore regions will only need the additional incremental costs over and above these capital costs.

6.1.7 Staff salary

It was again not possible to allocate staff time to the ACSD programme due to lack of adequate data and time. Therefore salaries and extra duty allowances of Government workers were also excluded from this analysis.

6.1.8 Other data issues

Limited data on the contribution of non-MOH personnel for ACSD activities such as private sector contributions, did not allow them to be included in the analysis. Similarly, contributions from District Assemblies were not included.

Discrepancies in data collected at various levels and from different sources were observed. On verification, data on quantities of items given by donors was different from data given by recipients.

To address this issue, further work and exploration will need to be done in the future.

6.2 Cost Estimation

To get the estimated cost of ACSD programme, the major cost components were organized into Direct Costs, Indirect Costs and Capital costs. The total cost under each component was estimated based on the data available from which the average cost per person was computed.

6.2.1 Direct Cost

The direct costs estimated are the costs directly associated with the provision of various interventions under the ACSD package by the GOG and Health partners. Proportions of

the Exemptions Fund to children and pregnant women were used to estimate GOG's allocation. This includes cost of drugs and services.

Major cost inputs under direct cost component include:

- GOG exemption fund
- Allowances for support personnel
- ITNs
- Vit A
- Dewormers
- ORS
- SP
- Kinaquine
- Consumable supplies
- Allowances for support personnel

6.2.2 Indirect Cost

This cost included all recurrent costs that were not directly attributed to one specific intervention. Major cost items included Social Mobilization, Monitoring and Evaluation, Training and Operational costs.

6.2.3 Capital Cost

Capital costs for vehicles and equipment were estimated based on their replacement cost. Only vehicles used for ACSD programme donated by UNICEF were costed. Annual operating costs of these capital items were computed by depreciating each type of item over its estimated useful years of life. The useful life of capital items is estimated by the MOH's Department of Capital Investment and equipment office. The discount rate used was 3%.

6.2.4 Donated Inputs

Even though the cost of donated inputs¹⁰ such as drugs, equipment, and food items have no direct cost to the MOH they were included in the cost estimation. So that the full value of all resources involved could be estimated.

6.3 Estimated Costs of ACSD programme for period 2001-2003

6.3.1 Total Estimated Cost by Inputs (2001-2003)

The table below shows the Total Estimated Cost of the ACSD programme in the Upper East Region for the period 2001-2003. The Total Cost of the programme was ₵ 17,601,434,268 (\$1,955,715).

Table 6 Total Estimated Cost by Inputs

¹⁰ Food items from WFP, logistics from Global Fund

ITEM	COST (Cedis)	COST(US \$)	% of Total Cost
Personnel	1,677,159,000	186,351	9.53
Drug Costs/ITNs	11,437,375,543	1,270,820	64.98
GOG	468,518,642	52,058	2.66
Donated items	467,225,000	51,914	2.65
Monitoring and evaluation	666,171,000	74,019	3.78
Training &Operational costs	1,935,854,314	215,095	11.00
Social mobilization	370,899,000	41,211	2.11
Recurrent Subtotal	17,023,202,499	1,891,467	96.71
Capital Subtotal	578,231,769	64,248	3.29
TOTAL COST	17,601,434,268	1,955,715	100.00

The biggest share of the costs is recurrent (96%), as capital costing¹¹ of health facilities used for the ACSD interventions was excluded from the analysis. The GOG contribution through the exemptions fund for the period accounted for about 3% of total cost. It should however be noted, the actual GOG contribution is much higher. This would include the salaries of health workers and capital costs of health facilities utilized in the implementation of ACSD interventions. In addition other health resources and activities are devoted to under- five care in the districts.

Annualized capital costs of vehicles and equipment of donated items was 12% of the total budget.

Direct costs of the ACSD programme account for 77% of total cost. In order of expenditure, the items rank as follows: Drugs, Insecticide Treated Nets, Personnel and GOG exemptions fund.

Indirect costs in order of size of expenditures the rankings are: Training, Operational Cost, Monitoring, Evaluation, and Social Mobilization. These indirect costs account for 23% of the total budget.

Taking the targeted population of women in fertile age and children under five the **average per capita cost** of the programme derived was ₵45,540 (\$5.06). If one were to estimate the per capita cost for the regional population it would be \$2.06.

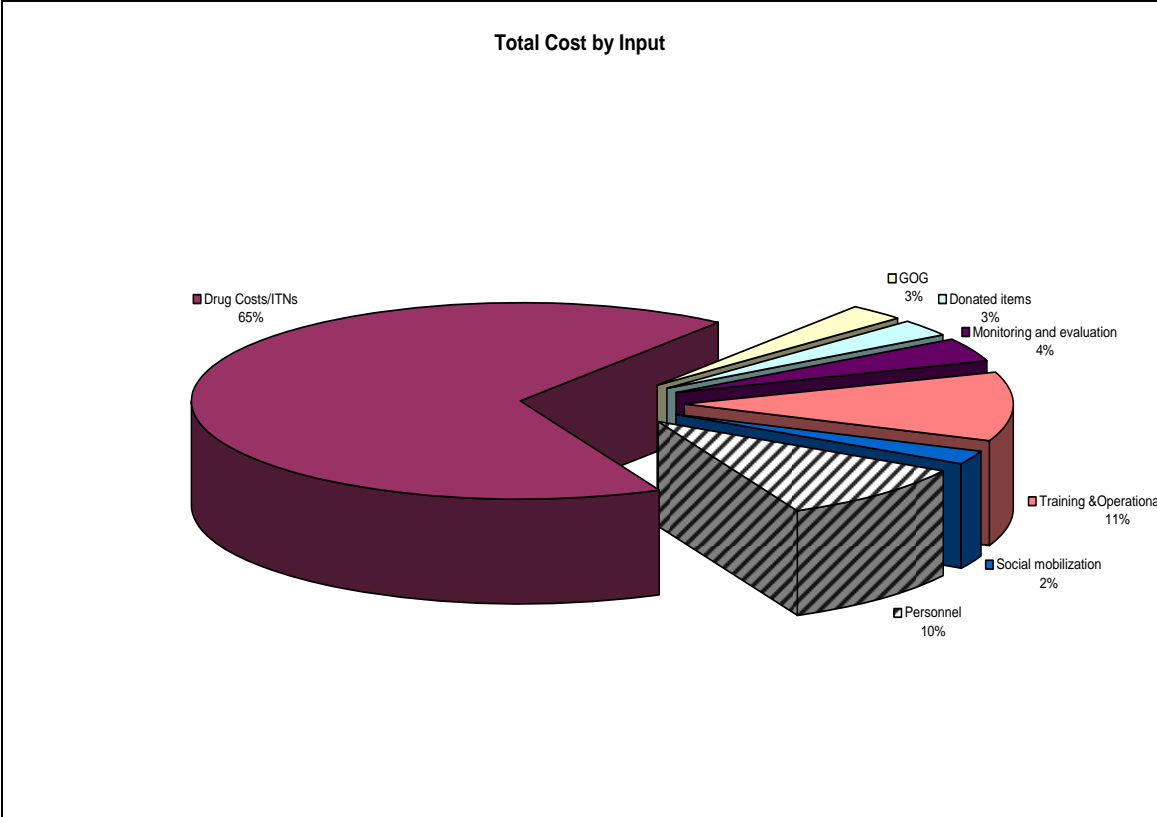
6.3.2 Total Cost by Inputs

The table below shows Total cost by Inputs. The largest share of 65% is represented by Drugs¹², ITNs and their re-treatment. Other sizeable shares of the Total Cost are Allowance for support staff (10%), Training and Operational Costs(11%) see fig. 14 Total Cost by Inputs.

¹¹ Based on the assumption that in order to replicate the ACSD programme in other regions, existing health facilities and health workers will be used for implementation therefore regions will only need the additional incremental costs over and above these capital costs.

¹² For List of Drugs see Appendix

Figure 14 Total Cost by Input



Indirect Costs such as Social mobilization and Monitoring and Evaluation account for 4% of Total Costs.

6.3.3 Direct Costs of Inputs by Intervention

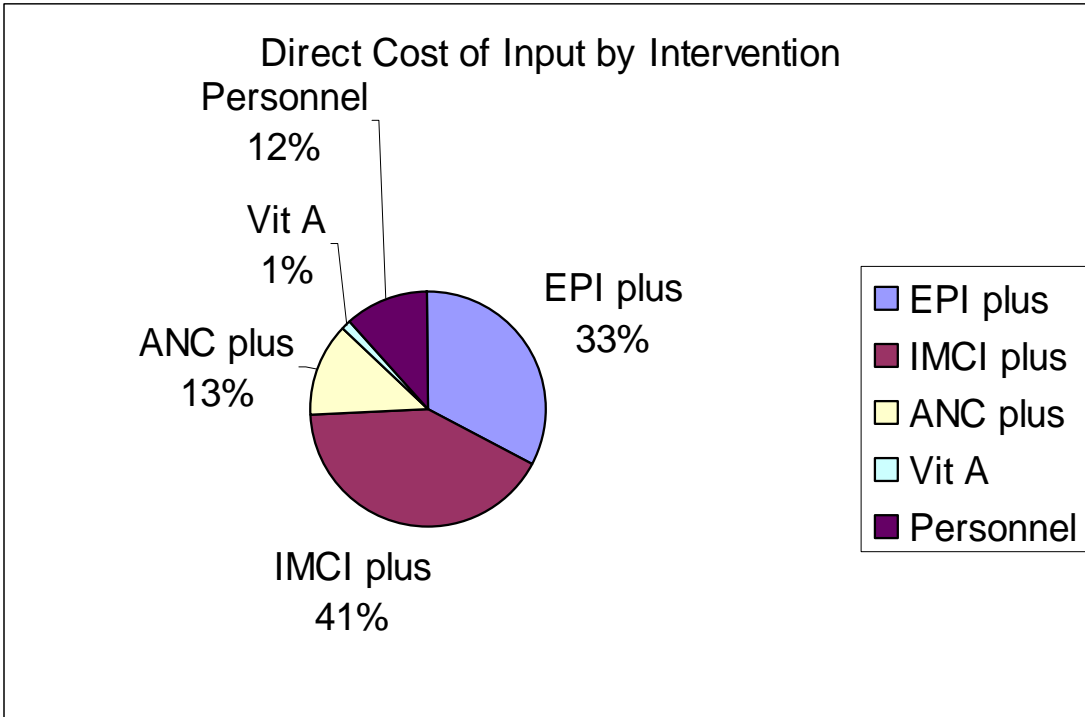
To be able to ascertain which component of the ACSD programme consumed the largest resources, the direct costs of inputs attributed to each of the following ACSD interventions were computed;

- EPI plus
- IMCI plus
- ANC plus

From the Fig. 15 below, the largest costs of the programme are shared between IMCI Plus (41%) and EPI Plus (33%). Selected ANC interventions represent only 13% of direct costs. This is not surprising as the biggest gains in health in the UE region as a result of ACSD accrue to children.

Inputs such as Allowances for support staff (12%) and Vitamin A (1%) supplementation should also have been allocated to each of the interventions. Due to lack of adequate data this could not be done, however reallocation of these costs to each intervention would not make a big difference.

Figure 15 Direct Cost of inputs by Intervention



6.4 Cost Implications of ACSD

From our analysis it is estimated that the total resources spent on implementing the ACSD programme both by GOG and Health partners was **¢17,601,434,268 (\$1,955,715)** in the given period. This is equivalent to an average cost of **¢45,540 (\$5.01)** per person

The incremental cost of implementation would be the total cost of implementation minus the GOG Exemption fund contribution which is slightly lower¹³ and amounts to **¢17,132,915,626 (\$1,903,652)**

This is the total amount of resources spent over and above the GOG contributions to achieve the gains in health in the targeted population. It should be noted that this represents what has been spent on the current (partial) level of coverage of ACSD

For purposes of replication to other regions, regions would need to spend on average an additional \$5.01 per person over and above standard GOG expenditures on child and maternal health. It should however be noted these figures are underestimates as not all donor contributions¹⁴ were captured in this analysis.

¹³ AS the only GOG cost included was the exemption fund.

¹⁴ Contributions of Ghana Red Cross, District assemblies are collaborators of ACSD were not captured.

Chapter 7

7.1 Lessons Learned

In the process of the review, several lessons were learned and are categorized below.

7.1.1 Community level

The team observed well established community structures and practices which were already actively promoting child health in the Upper East Region. Individual sub districts visited showed very encouraging success in terms of community involvement and outcome of the community's activities. These community interventions have reached population groups that are typically beyond the reach of formal health care systems. Moreover, such interventions have additional benefits, such as raising the demand for and utilization of facility based services.

Capacity and empowerment for health action has been built into the community. The capacity of women has been built and they are now doing things they hitherto thought they could not do. This brings the ingenuity of the community to take action and has led to increased awareness in the community about childhood illnesses and caring for the child at home. It can be said that the strategic and operational relationship of ACSD with other child health programmes in the community is the synergy that is missing in other programs.

7.1.2 District level

At district level, it was noted that the responsibility for implementation of ACSD rests with the district teams. While this was a good strategy for mainstreaming and sustainability, it has its challenges which are reflected in the section below. The strategy to implement ACSD within the framework of the DHMT ensured common planning with other Child Health activities and better coordination and monitoring of activities. The district health team has been very active in procuring and distributing bed nets at subsidized prices.

The UNICEF process is however dependent to a large extent on voluntary work. This raises questions of how to sustain the willingness of the volunteers in the long term. Overall supervision of ACSD activities at the district is generally weak mainly because of lack of technical skills and logistics.

7.1.3 Regional level

ACSD planning and implementation involved senior staff at the regional level, which facilitated its implementation. The processes of introduction of ACSD that the team saw required heavy inputs of time, human resources and money. While this is a good way of starting off, it will be difficult to replicate on a large scale. There is no budget line for ACSD and as such, government funds are channeled to ACSD activities through existing child health programs and through the budget for the minimum package of

activities. The major source of funds for implementation for the given period was from external donors, mainly UNICEF.

7.2 Constraints

Several constraining factors were highlighted during the field trip. One of the first was the initial difficulty in integrating ACSD into routine district activities. Staff saw it as UNICEF funded and implemented program and treated it separately and this led to conflicts in assignments and monitoring. The lack of human resources to compliment the level of effort needed to implement the program was also a factor.

Major delays in disbursement of funds and delivery of supplies, especially for those trained in ACSD activities was yet another challenge. For example last year the CBAs training was scheduled for June however funds were disbursed 6 months later. The supplies delivered were insufficient for the numbers trained which was greatly demotivating. The possible reason for such delays could be the poor lines of communication between Partners, UNICEF, KNUST and GHS.

Another challenge was the lack of supplies for the newly trained community based volunteers. Some of those trained are yet to receive their bicycles, kit boxes, Wellington boots and drugs to commence their community work. The districts also noted that budgets submitted to UNICEF were drastically cut with teams having to sacrifice their daily allowances for the smooth implementation of the program. At the sub-district level, there was also little support from the district, for example it was very difficult obtaining additional fuel for motorbikes to carry out ACSD activities besides the routine activities budgeted for at the DHMT level. Supervision of ACSD activities was found to be weak in districts visited and needs to be strengthened.

Meeting the demand created by UNICEF for ITNs in the initial stages, through their campaigns was also one of the challenges reported. On the day of launching in Bawku East 800 women came for bed nets but only 300 were supplied. UNICEF's frequency of replenishment of supplies was low in other areas as well.

Finally communication between the health workers, the community based agents the chief and the Assemblyman representing the community posed challenges due to distance and misunderstandings. This has led to rescheduling of training activities because information did not reach the intended parties on time, or was misinterpreted.

Chapter 8

8.1 CONCLUSIONS

Child Survival intervention programs in Ghana have over the years been implemented under known cost effective strategies and program areas such as EPI, IMCI,

Nutrition/Infant feeding etc. The ACSD approach selected some of these interventions, repackaged them for ease of delivery, utilizing multiple channels for greater effectiveness and impact. The reason for ACSD repackaging was that the burden of disease analysis indicated that the main causes of childhood mortality were Malaria, Malnutrition, Anaemia, Diarrhoeas, RTI and Measles. The selection of interventions was based on three parameters – Disease Burden, Cost Effectiveness and magnitude of impact on child mortality. These interventions include EPI-Plus, IMCI-Plus, and ANC-Plus. These three interventions together address most of the priority health and nutrition problems of the poor, and 80% of the causes of under-five mortality at less than \$50 per DALY gained.

To estimate the contribution of ACSD to the decline in U5MR, a modelling tool – Marginal Budgeting Bottle-neck Tool (MBBT) was used. Indeed it is estimated that ACSD may have contributed close to about 14% reduction in U5MR after 18 months of implementation by raising the coverage levels of key child survival interventions.

8.1.1 Prevention and Management of Malaria

The proportion of children sleeping under ITNs the night before the survey increased from 4.6% in 2002 to 21% in 2003. The increase in ITN use appears to have translated into a reduction in malaria prevalence, falling from 33.6% in 1998 to 21.3% in 2003. The proportion children with fever treated with antimalaria which fell from 78.3% in 1998 to 39% in 2002 and rose again to 70.5% in 2003. We therefore conclude that the ACSD may have contributed to sustaining this high level. It is worth noting that even in the Upper West Region, management of fever in children with antimalarials increased from 34% to 66.5% within the period. This suggests that the health system can provide effective coverage for some interventions such as this while others require additional push and support. In addition, the proportion of pregnant women who took any antimalarial drugs for prevention during pregnancy increased from 20% in 1998 to 58.7% in 2003. The proportion of pregnant women sleeping under ITN the night before the 2003 GDHS survey was 23% increasing from 1.1% in 2002

8.1.2 Management of Diarrhoea

The proportion of children with diarrhoea correctly managed with ORS or dehydration fluid in Upper East region which decreased for 62% in 1998 to 35% in 2002 increased again to 65% in 2003

8.1.3 Expanded Program on Immunization

There was a decrease in EPI coverage from 66% in 1998 to 44% in 2002. But ACSDs added value was to improve defaulter tracing and social mobilization. This strategy increased the coverage of fully immunized children between 12 and 23 months from 44% in 2002 to 77% in 2003.

8.1.4 Infant feeding

On infant feeding, the major contribution of ACSD was the early initiation of breast feeding of children within an hour of delivery which increased substantially from 6.9% in 1998 to 86.3% in 2003.

There was no significant change in other indicators that can be attributable to ACSD. This could be due to the short ACSD implementation period.

8.1.5 Processes

Several factors can be said to have aided ACSD achieve such results within the short period of implementation. The major factor is the direct infusion of funds programmed directly for ACSD. The second was the extensive Community Mobilization component which included the creation of systems for service delivery at that level. The utilization of Community Based Volunteers, women's groups and other community based structures ensured that the community was adequately mobilized and further empowered to participate in the process.

The investment in training and capacity building ensured that there was adequate, albeit low-level manpower available to implement the program. This was particularly obvious at the community level where series of training produced several categories of community based volunteers. This was supported by a supply chain that ensured the continuous supply of drugs and other items necessary for sustaining the program.

8.2 RECOMMENDATIONS

ACSD was able to achieve the level of success attained due to the factors addressed above. To sustain this level momentum within the region as well as scaling up to the rest of the country, several aspects have to be built upon and are recommended herewith.

8.2.1 Funding

The main determinant of the program is the availability of funds. Without the attendant funding, all the gains attained will be lost. The gains achieved in the Upper East Region were due to the infusion of funds mostly by UNICEF. There should therefore be dedicated/ear-marked funding to support the implementation.

8.2.2 Implementation

Ideally, ACSD should be planned and implemented as a complete strategy within the framework of the existing child health system in the country. It should take advantage of whatever facilities and services are available and should strengthen what exists. The skills and capacity required at each level of the system should be worked out in relation to the others, and the underlying infrastructural needs of all levels should be considered together. GHS should continue to work with agencies and organizations to widen the coverage of ACSD. Capacity to use existing resources and supervision should be strengthened. The existing C-IMCI component should be expanded in the short term and used as the vehicle for implementing ACSD while CHPS can be seen as the long-term strategy.

8.2.3 Procurement

Explore ways to utilize existing national procurement systems to obtain additional equipment, at cheaper rates or find other alternatives.

8.2.4 Strengthening Partnerships

GOG should explore ways of strengthening partnerships among different levels, from donor to implementing partners. They should all be involved in the planning, budgeting and disbursement system to better harness the uniqueness of the individual partners in the implementation of ACSD.

Finally, ACSD review meetings should be instituted in all districts implementing ACSD to sustain interest. It should be seen as a forum for sharing experiences and learning lessons while the government should ensure documentation of best practices for national fora.

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Annex

I. Questions to guide interviews - District Level

1. How was ACSD introduced and how was ACSD planned for? What type of actions are planned and implemented at different levels (community, district, national, as appropriate)?
2. How are the components of ACSD delivered?
 - a. Are you distributing ITNs? When did you start? How are ITNs distributed? Who is distributing? How often? How is re-treatment carried out? What is the cost to patients and the health system? How is it financed? How is it monitored?
 - b. Are you implementing EPI plus? When was it started? What are the components of EPI plus? What stage of implementation are you? How are EPI plus delivered? Who is delivering? How often? What is the cost to patients and health system? How is it financed? How is it monitored?
 - c. Are you implementing ANC plus? When was started? What are the components of IMCI plus? What stage of implementation are you? How are ANC plus delivered? Who is delivering? How often? What is the cost to patients and the sector? How is it financed? How is it monitored?
 - d. Are you implementing IMCI plus? When was it started? What are the components of IMCI plus? What stage of implementation are you? How are IMCI plus delivered? Who is delivering? How often? What is the cost to patients and the sector? How is it financed? How is it monitored?
 - e. Are you implementing CHPS? When was it started? What stage of implementation are you? How are CHPS plus delivered? Who is involved in implementation?
3. Where are you with each of the components? (Coverage)
4. What are the channels through which the target group has access to the interventions offered by your ACSD programme?
 - a. Public
 - b. Private (formal or informal)
 - c. Community
5. How does ACSD fit into the district plan and programmes? Please describe
6. Are there strategies for reaching hard to reach communities? Do you do micro-planning?
7. Who are your major partners involved in health and ACSD? What are their roles? operational and funding?

8. What has been the experience and mechanisms of collaboration and coordination of public, NGO and private sector partners at different levels in relation to the ACSD programme?
9. What are the major sources of funding? Government? External support? Other?
10. What have been the achievements of your ASCD programme in relation to objectives? What proportion of the population has access to the interventions? What proportion of the poorer and “unreached” sections of the population has access?
11. What have been the major constraints to achievement of objectives, including access and utilization?
12. What has been your role in:
 - a. development of ACSD strategies and plans
 - b. development of ACSD materials and tools for planning, implementation and monitoring
 - c. implementation of ACSD activities
 - d. funding for ACSD?
13. Has ACSD presented any problems to the district?
14. What do you think is the “added value” of ACSD?
15. What do you think is needed to make ACSD more effective?
16. What skills are required to effectively implement ACSD?
17. What has worked? Why things worked? What was done differently?
18. How has the community been involved in implementing ACSD?
19. How are women involved in the implementing ACSD?
20. How has programme built demand for services?

Questionnaire on Flows of Financing

1. How is ACSD funded?
2. How much is allocated to each component? Proportions

3. Do all district funds flow through the region? Please describe fund flows and proportions
4. What are the problems encountered in the flow of funds?
5. What fund transfer systems work particularly well?
6. What improvements can be made?
7. Who decides on the use of funds at the district level?
8. Have any ACSD activities been delayed or cancelled because the funds in the plan did not arrive, only partially arrived, or arrived late?
9. Which ACSD activities have been affected?
10. What are the other impacts of the flow of financing on ACSD activities?
11. How could the situation be improved?

Flow of other inputs

1. What other inputs have you received to support ACSD implementation?
2. Who do you receive them from?
3. How do they arrive at the district?
4. How are they distributed and accounted for?
5. What improvements can be made?

II. Questions to guide interviews-Regional Level

1. HOW was ACSD introduced and how was ACSD planned? What type of actions are planned and implemented at different levels (community, district, national, as appropriate)?
2. What are the aims and objectives of your ACSD programme?
3. How do the activities of your programmes relate to ACSD plans/activities? How are they coordinated with related ACSD activities? Consider:

- a. skills development/training
 - b. delivery of care for common illnesses
 - c. preventive actions
 - d. counselling
 - e. health service strengthening
 - f. supervision
 - g. referral care
 - h. community health activities.
4. What are the channels through which the target group has access to the interventions offered by your ACSD programme?
 - a. Public
 - b. Private (formal or informal)
 - c. Communities
 5. What has been the experience and mechanisms of collaboration and coordination of public, NGO and private sector partners at different levels in relation to the programme/intervention?
 6. Who are your major partners - operational and funding?
 7. What are the major sources of funding? Government? External support? Other?
 8. What have been the achievements of your ACSD programme in relation to objectives? What proportion of the population has access to the interventions?
 9. What have been the major constraints to achievement of objectives?
 10. What has been your role in:
 - a. development of ACSD strategies and plans
 - b. development of ACSD materials and tools for planning, implementation and monitoring
 - c. implementation of ACSD activities
 - d. funding for ACSD?
 11. What do you think is the “added value” of ACSD?
 12. What do you think is needed to make ACSD more effective?

Questionnaire on Flows of Financing

Background information

1. What is the budget for ACSD?
2. Do all district funds flow through the region?
3. What are the problems encountered in the flow of funds?
4. What improvements can be made?
5. Who decides on the use of funds at the regional level?
6. Who decides on the use of funds at the district level?

III. Health Facility Questionnaire

1. Buildings (List Rooms, size and Activities)
2. Transport (what is available at this facility? How many of each? What they are used for, fuel and maintenance)?
3. Staff (how many staff of each category are in this facility)
4. Drugs (How many received each month, additional drugs for eg TB)
5. Drug utilization
6. Medical supplies
7. Monthly returns (outpatient contacts, ANC visits, Inpatient days)
8. Who provides services (eg. clinical officer, med assistant)
9. How many members of your staff were sent for training for reference year(ACSD)
10. Time allocation (health facility schedule, working hours)
11. What activities take place on each day and who participates in them
(eg ANC, Family planning, children's clinic)
12. Outreach (how often you do out reach, who does this)

IV. Questions to guide interviews-National Level

1. How was ACSD introduced and how are activities planned at and implemented at different levels(community, district, national, as appropriate)

2. Who are your major partners - operational and funding?
3. What are the major sources of funding? Government? External support? Other?
4. What have been the achievements of ACSD programme in relation to objectives?
5. What has been the experience and mechanisms of collaboration and coordination of public, NGO and private sector partners at different levels in relation to the ACSD programme?
6. What have been the major constraints to achievement of objectives?
7. What has been your role in:
 - a. development of ACSD strategies and plans
 - b. development of ACSD materials and tools for planning, implementation and monitoring
 - c. implementation of ACSD activities
 - d. funding for ACSD?
8. What do you think is the “added value” of ACSD?
9. What do you think is needed to make ACSD more effective?

V. Questions to guide interviews-Partners

1. What are the priorities of your agency in the area of child health?
2. How does your agency support child health? Direct funding for programmes, pooled funding (SWAPs?), other?
3. What interventions does your organization carry out in relation to ACSD?
4. What are the aims and objectives of your programme/intervention?
5. How do the activities of your programme/intervention relate to ACSD plans/activities, globally and at different levels in countries? How are they coordinated with related ACSD activities? Consider:
 - a. skills development/training
 - b. delivery of care for common illnesses
 - c. preventive actions
 - d. counseling
 - e. health service strengthening

- f. supervision
 - g. referral care
 - h. community health activities.
6. What are the channels through which the target group has access to the interventions offered by your programme/intervention?
 - a. Public
 - b. Private (formal or informal)
 - c. Community
7. Who are your major partners - operational and funding?
8. What have been the achievements of your programme/intervention in relation to objectives
9. What have been the major constraints to achievement of objectives, including access and utilization?
10. What has been the role of your programme in:
 - development of ACSD strategies and plans
 - development of ACSD materials and tools for planning, implementation and monitoring
 - implementation of ACSD activities
 - funding for ACSD?
11. Past, present and projected funding levels?
12. What are the major constraints to expansion of child health activities?
13. What are the expectations of ACSD in relation to your priorities? Are they being fulfilled?
14. What are your present plans for support to child health and ACSD?

VI. Upper East Region Assessment

Comparison of change over time: Upper East Region (ACSD Programme region) vrs Upper West Region (No ACSD programme)

Indicator	Upper West Region			Upper East Region		
	DHS 1998	IHN 2002	DHS 2003	DHS 1998	IHN 2002	DHS 2003
Infant mortality	70.6	48.4	105	81.5	40.8	32.5
Child mortality	91.5	52.8	115	80.3	22.5	47.8
Under five mortality	155.6	101.2	208	155.3	63.3	77.8
Stunting	34.6		34	35.9		31.7
% children who slept under ITN previous night		0.8	1.9		4.6	21
% children with fever antimalaria treated with antimalarial	34.1	37.3	66.5	66.5	39.3	70.5
% children 12-23 months fully vaccinated	68	48.2	60.3	60.3	44.3	77
Measles Immunization	77.9	70.4	79.5	75.3	61.1	91.2
% children with diarrhoea who received either ORS or Recommended home fluid	38	34.9	35.8	61.8	34.7	64.8
% children with ARI who were taken to a health facility	30.8	32.7	50.8	53.2	52.7	64.8
% of children breastfed within an hour of delivery	19.1		17.9	6.9		86.3
Mean duration of exclusive breastfeeding	No data	No data	No data	No data	No data	No data
% women who slept under ITN previous night	No data	1.1	1.9	No data	1.1	15.1
% pregnant women who took any antimalarial drug for prevention during their last pregnancy		10.3	20.5		20	58.7
Tetanus toxoid coverage	44.8	50.9	50	66.7	55.6	45.6
% pregnant women who received iron tablets during antenatal care	58.1	75.8	20.5	76.5	81.2	58.7
% children 6-59 months who received Vitamin A supplements		51.9	84.8		74	85.5
% of women who received Vitamin A supplements during postnatal period		36.4	47.7		71.6	72.9

VII. Health facilities visited

Table 7 Health Facilities Visited

Type of facility	Name of Facility	Location	Status
Regional Hospital	Bolgatanga Regional Hospital	Bolgatanga	Public
District hospital	Zebilla hospital	Zebilla	Public
	Navrongo Memorial Hospital	Navrongo	Public
Community Health Centers	Sumbrungu Health Centre	Sumbrungu	Public Mission
	Kongo Health Centre	Nanagodi	Public
	Nanagodi Health center	Sirigu Bongo	Public
	Sirigu Clinic	Kandiga	Public
	Namo Bongo Health center		
	Kandiga Health center		