Document of
The World Bank

Report No: ICR00002710

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-43460)

ON A

CREDIT

IN THE AMOUNT OF SDR 16.4 MILLION
(US$ 25.0 MILLION EQUIVALENT)

TO THE

REPUBLIC OF GHANA

FOR A

NUTRITION AND MALARIA CONTROL FOR CHILD SURVIVAL PROJECT

January 27, 2014

Human Development II
AFCW1
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2013)

Currency Unit = New Ghanaian Cedi (GHS)
GHS 1.00 = US$ 0.515
US$ 1.00 = GHS 1.94
US$ 1.49 = SDR 1

FISCAL YEAR January 1 – December 31

ABBREVIATIONS AND ACRONYMS

5YPOW	Five Year Program of Work
AM	Aide Memoire
ANC	Antenatal Care
BMC	Budget Management Centers
CAS	Country Assistance Strategy
CBGP	Community-based growth promotion
CBNFSP	Community-based Nutrition and Food Security Component
CD	Department of Community Development
CHC	Community Health Committees
CHN	Community Health Nurses
CHO	Community Health Officer
CHW/CHN	Community Health Workers and Nurses
CIC	Community Implementation Committee
CMA	Common Management Arrangements
CMU	Country Management Unit
CPS	Country Partnership Strategy
CSPG	Cross-Sectoral Planning Group
DA	District Assembly
DAC	District Advisory Committee
DFID	Department for International Development of the United Kingdom
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DPs	Development Partners
eRegister	Electronic Register System
FM	Financial Management
GES	Ghana Education Service
GHS	Ghana Health Service
GHS-N	Ghana Health Service – Nutrition Department
GHS-NMCP	Ghana Health Service – National Malaria Control Program
GHS-PPME	Ghana Health Service – Policy, Planning, Monitoring and Evaluation Department
GOG	Government of Ghana
HMT	Health Management Team
ICR	Implementation Completion and Results Report
ISR	Implementation Status Report

IDA	International Development Association
IP	Implementation Progress
IRR	Internal Rate of Return
ITN	Insecticide-treated bed nets
LGA	Local Government Authorities
LIL	Learning and Innovation Loan
LLIN	Long Lasting Insecticide-treated Net
LQAS	Low Quality Assurance Sampling
M&E	Monitoring and Evaluation
MICS	Multiple Indicator Cluster Survey
MLGRDE	Ministry of Local Government, Rural Development, and Environment
MOFA	Ministry of Food and Agriculture
MOFEP	Ministry of Finance and Economic Planning
MOH	Ministry of Health
MOH-PPME	Ministry of Health – Policy, Planning, Monitoring and Evaluation Department
MOU	Memorandum of Understanding
MOWAC	Ministry of Women and Children's Affairs
N/A	Not available
NID	National Immunization Day
NMCCSP	Nutrition and Malaria Control for Child Survival Project
NMCP	National Malaria Control Program
NPV	Net Present Value
ORT	Oral Rehydration Therapy
PAD	Project Appraisal Document
PDO	Project Development Outcome
POW	Program of Work
PMI	President's Malaria Initiative (PMI)
PPME	Policy Planning, Monitoring and Evaluation
RAC	Regional Advisory Committees
RCC	Regional Coordination Council
SUN	Scaling Up Nutrition
SWAp	Sector Wide Approach
TC	Technical Committee
TOR	Terms of Reference
TTL	Task Team Leader
UN	United Nations
UNICEF	United Nations Children's Fund
USD	United States Dollar
WB	World Bank
WHO	World Health Organization

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GHANA
Nutrition and Malaria Control for Child Survival Project

CONTENTS

A. Basic Information			
Country:	Ghana	Project Name:	Nutrition and Malaria Control for Child Survival
Project ID:	P105092	L/C/TF Number(s):	IDA-43460
ICR Date:	09/05/2013	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	REPUBLIC OF GHANA
Original Total Commitment:	XDR 16.40M	Disbursed Amount:	XDR 16.40M
Revised Amount:	XDR 16.40M		
Environmental Category: C			
Implementing Agencies: Ministry of Health			
Cofinanciers and Other External Partners:			

B. Key Dates				
Process	**Date**	**Process**	**Original Date**	**Revised / Actual Date(s)**
Concept Review:	02/28/2007	Effectiveness:	09/07/2007	09/07/2007
Appraisal:	04/25/2007	Restructuring(s):		06/23/2010
Approval:	07/03/2007	Mid-term Review:		12/07/2009
		Closing:	03/31/2012	03/31/2013

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	**Ratings**	**Borrower**	**Ratings**
Quality at Entry:	Moderately Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Moderately Satisfactory	**Overall Borrower Performance:**	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	**Indicators**	**QAG Assessments (if any)**	**Rating**
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Satisfactory		

D. Sector and Theme Codes		
	Original	**Actual**
Sector Code (as % of total Bank financing)		
Central government administration	10	10
Health	75	75
Sub-national government administration	15	15
Theme Code (as % of total Bank financing)		
Child health	29	29
Health system performance	14	14
Malaria	28	28
Nutrition and food security	29	29

E. Bank Staff		
Positions	**At ICR**	**At Approval**
Vice President:	Makhtar Diop	Obiageli Katryn Ezekwesili
Country Director:	Yusupha B. Crookes	Mats Karlsson
Sector Manager:	Trina S. Haque	Eva Jarawan
Project Team Leader:	Evelyn Awittor	Evelyn Awittor/Yi-Kyoung Lee
ICR Team Leader:	Evelyn Awittor	
ICR Primary Author:	Janneke Hartvig Blomberg	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The Project Development Objective (PDO) is to improve utilization of selected community-based health and nutrition services for children under the age of two and pregnant women in the selected districts.

Revised Project Development Objectives (as approved by original approving authority)
Although the PDO remained the same during restructuring, all PDO indicator targets were revised based on updated information about baseline levels. In addition the intermediate outcome indicators were revised, in that some were added, others dropped or their targets revised, in accordance with the actual implementation status, modified implementation arrangements and to reflect changes in the prioritization of activities. (See Annex 2 for more details)

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Proportion of infants under six months of age who are exclusively breastfed in the past 24 hours			
Value quantitative or Qualitative)	72.9% (DHS 2008 5 target region average)	69%	80%	84.5%
Date achieved	07/01/2008	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Original baseline: 54% (MICS 2006) Original target exceeded (122%); Revised target exceeded (106%) (based on program data for 5 regions weighted according to number of communities)			
Indicator 2 :	Proportion of infants between six and nine months of age who receive semi-solid/solid foods in addition to breast milk in the past 24 hours			
Value quantitative or Qualitative)	67.3% (DHS 2008 5 target region average)	73%	74%	93.5%
Date achieved	07/01/2008	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Original baseline: 58% (MICS 2006) Original target exceeded (128%); Revised target exceeded (126%) (based on program data for 5 regions weighted according to number of communities			
Indicator 3 :	Proportion of children under two years of age with diarrhea who receive oral re-hydration therapy			
Value quantitative or Qualitative)	51.0% (DHS 2008 5 target region average)	78%	59%	73.3%
Date achieved	07/01/2003	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Original baseline: 63% (DHS 2003) Original target nearly met (94%); Revised target exceeded (124%) (based on data for 5 regions weighted according to number of communities)			
Indicator 4 :	Proportion of pregnant women and children under five years who sleep under LLINs the night preceding the survey is carried out			
Value quantitative or Qualitative)	PW:18.6% U5: 23.6% (DHS 2008 5 target	PW:60% U5:40%	PW:25% U5:30%	PW:42.0% U5:44.6%

	region average)			
Date achieved	07/01/2008	03/31/2012	03/31/2013	09/01/2011
Comments (incl. % achievement)	Original baseline: PW: 46% (NMCP 2006), U5: 22% (MICS 2006) Original targets substantially achieved (86.6%); revised targets exceeded (157%) (based on MICS (2011) 5 region weighted average)			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Proportion (%) of planned supervision and support activities by District Health Management Teams (DHMTs) in the intervention areas having been conducted			
Value (quantitative or Qualitative)	0%	75%	75%	100%
Date achieved	09/07/2007	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Original target exceeded (133%) (based on program data for 5 regions weighted according to number of communities)			
Indicator 2 :	Proportion (%) of communities in target areas with a functional community health committee			
Value (quantitative or Qualitative)	No data available	N/A	50%	23.1%
Date achieved	09/07/2007	09/07/2007	03/31/2013	03/31/2013
Comments (incl. % achievement)	Target not fully achieved (46%) (based on program data for 5 regions weighted according to number of communities)			
Indicator 3 :	Number (#) of health personnel receiving training.			
Value (quantitative or Qualitative)	0	N/A	500	3853
Date achieved	06/23/2010	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Target significantly exceeded (701%). Source is MoH data. The scale up of project implementation increased during the second half of project leading to the need for more trained health officials.			
Indicator 4 :	Development of the National Nutrition Policy			
Value (quantitative or Qualitative)	Not available	Policy available		Policy available
Date achieved	06/23/2010	03/31/2012		03/31/2013
Comments (incl. % achievement)	Original target achieved			

Indicator 5 :	Proportion (%) of mothers of children under two years of age who had at least 4 pregnancy care visits during their most recent pregnancy			
Value (quantitative or Qualitative)	70.8% (DHS 2008 target region average)	79%	78%	81.7%
Date achieved	07/01/2008	03/31/2012	03/31/2013	09/01/2011
Comments (incl. % achievement)	Original baseline: 69% (DHS 2003) Original target exceeded (103%); Revised target exceeded (105%) (based on MICS (2011) 5 region weighted average)			
Indicator 6 :	Proportion (%) of children 6-59 months of age who have received at least one vitamin A supplement in the last six months			
Value (quantitative or Qualitative)	58.3% (DHS 2008 target region average)	80%	70%	51.6%
Date achieved	07/01/2008	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Original baseline: 78% (DHS 2003) Original target not achieved (65%); Revised target not achieved (74%) (based on program data for 5 regions weighted according to number of communities)			
Indicator 7 :	Proportion (%) of new mothers who receive high-dosage vitamin A supplements within 8 weeks of delivery			
Value (quantitative or Qualitative)	60.3% (DHS 2008 target region average)	53%	69%	74.9%
Date achieved	07/01/2008	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Original baseline: 43% (DHS 2003) Original target exceeded (141%); Revised target exceeded (109%) (based on program data for 5 regions weighted according to number of communities)			
Indicator 8 :	Proportion (%) of households with children under five having at least one LLIN (revised)			
Value (quantitative or Qualitative)	46.2% (DHS 2008 target region average)	80%	51%	57.6%
Date achieved	07/01/2008	03/31/2012	03/31/2013	09/01/2011
Comments (incl. % achievement)	Original baseline: Not available Original target not met (72%) Revised target exceeded (113%) (based on MICS (2011) 5 region weighted average) NOTE: indicator measures proportion of all households as proxy for proportion of households with children under 5			
Indicator 9 :	Number (#) of LLIN purchased and/or distributed			
Value (quantitative or Qualitative)	0	N/A	1.55 million	1.55 million
Date achieved	09/07/2007	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Target achieved (100%)			
Indicator 10 :	Direct project beneficiaries			

Value (quantitative or Qualitative)	0	300,000 children (0-2 years of age) 65,000 pregnant women	N/A	309,531 children (0-2 years of age) 81,667 pregnant women
Date achieved	09/07/2007	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Targets for children and pregnant women substantially exceeded (107%)			
Indicator 11 :	Proportion of female beneficiaries			
Value (quantitative or Qualitative)	0%	50%	N/A	61%
Date achieved	09/07/2007	03/31/2012	03/31/2013	03/31/2013
Comments (incl. % achievement)	Target substantially exceeded (122%)			

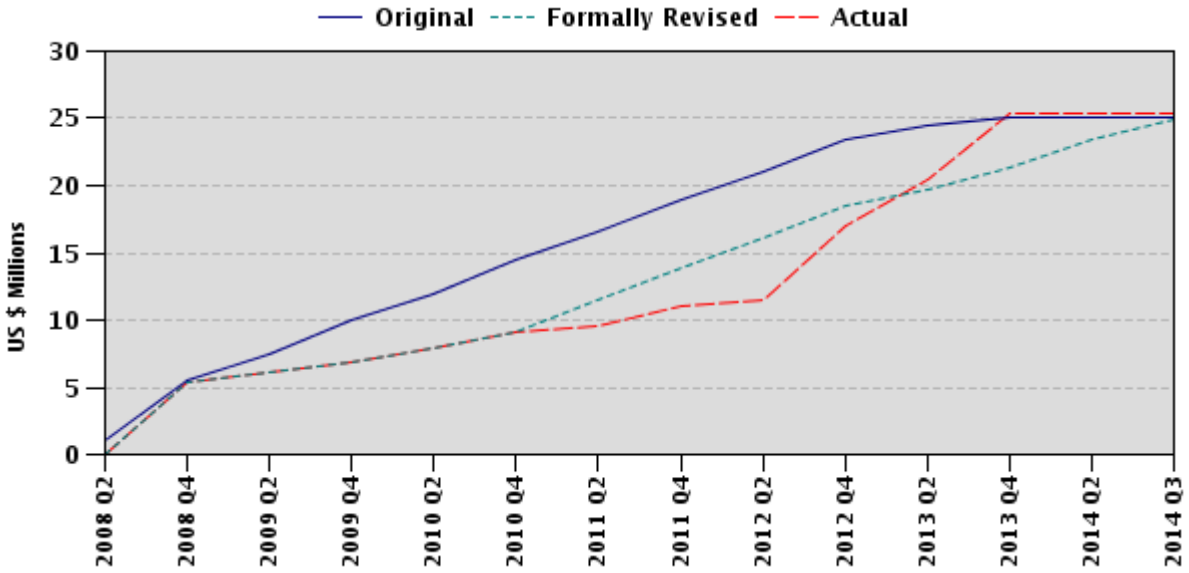
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	10/02/2007	Satisfactory	Satisfactory	0.00
2	03/31/2008	Satisfactory	Satisfactory	4.89
3	06/01/2008	Satisfactory	Moderately Satisfactory	4.98
4	10/30/2008	Satisfactory	Moderately Satisfactory	6.10
5	12/30/2008	Satisfactory	Moderately Satisfactory	6.10
6	02/04/2009	Satisfactory	Moderately Satisfactory	6.64
7	06/24/2009	Moderately Satisfactory	Moderately Unsatisfactory	6.91
8	11/23/2009	Moderately Unsatisfactory	Moderately Unsatisfactory	7.92
9	02/09/2010	Moderately Unsatisfactory	Unsatisfactory	7.92
10	08/29/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	9.16
11	12/28/2010	Moderately Unsatisfactory	Moderately Unsatisfactory	9.60
12	04/19/2011	Moderately Satisfactory	Moderately Satisfactory	11.00
13	12/12/2011	Moderately Satisfactory	Moderately Satisfactory	11.50
14	04/18/2012	Satisfactory	Moderately Satisfactory	12.85
15	12/17/2012	Satisfactory	Satisfactory	20.43

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
06/23/2010	N	MU	U	9.07	Restructuring was necessitated by three factors: (i) sub-optimal implementation progress; (ii) weak ownership of the project; (iii) sub-optimal management capacity. Key changes made during restructuring were: (i) limited modification of scope (activities); (ii) modification of the project indicators; (iii) adjustment of institutional and implementation arrangements including flow of funds; and (iv) extension of closing date from March 31, 2012 to March 31, 2013.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. **Country context**. At the time of preparation Ghana had sustained economic growth at almost 6%, combined with progress in reducing income poverty, a decline in the poverty headcount by 7 percentage points since 1997, as well as improved food security measures. However despite this, socio-economic and regional disparities remained. This was seen in the strong urban-rural differential in poverty indicators and substantially higher severity and depth of poverty in three northern regions, which were also victim of the 2007 floods, and parts of the rural coastal zones. Insufficient investment in human and social development, indicated by the gap between Ghana's Human Development Index (HDI) rank (138 in 2003) and its gradually increasing GDP per capita rank (121 in the same year), resulted in the stagnation of health and nutritional outcomes, such as infant and under five mortality rates, despite a continual expansion of health service delivery. The Government of Ghana (GOG) had identified decentralization as essential to achieve better service delivery, but had still only made limited progress, due to challenges such as local capacity issues and the high complexity of managing such decentralized services, as well as the poor state of transport, especially rural roads, and communications infrastructure.

2. **Nutritional situation.** Undernutrition in children under five in Ghana was unacceptably high at the time of appraisal with 22% stunted, 18% underweight and more than three quarters of children suffering from anemia. The prevalence of stunting was significantly higher among children from rural areas, from poorer households, and whose mothers were less educated. Regional variation was also considerable with children from the Northern Region being almost three times more likely to be stunted than those from the Greater Accra region.

3. **Relationship between child mortality, malaria and undernutrition.** Malaria remains the most common cause of childhood deaths in Ghana (26%), of which undernutrition contribute to about half of these deaths. There is a significant, negative symbiosis between malaria and nutritional status. Undernutrition in children under 5 is highly prevalent in areas where there is a high malaria burden. Micronutrient deficiencies maybe contribute to a significant portion of such morbidity/mortality. Conversely, malaria negatively affects the nutritional status of children as well as pregnant and lactating women. Malaria infection has been associated with anemia, underweight and stunting, especially among children under two, and therefore, in order to break the vicious cycle, preventative actions for both undernutrition and malaria were needed to reduce the persistent high levels of infant and young child mortality.

4. **Malaria control efforts.** The National Malaria Control Strategy (2008-15) in Ghana, albeit still in draft at appraisal, recognized insecticide treated net (ITN) utilization as one of the most effective measures for preventing malaria. Despite efforts of ITN distribution in 2003 and the first large scale long-lasting insecticide treated nets (LLINs) distribution in late 2006, coverage remained low and hence poor availability and

utilization of LLINs was identified as a key bottleneck in the fight against malaria and associated child mortality in Ghana.

5. **Institutional arrangements of the Health Sector.** In Ghana the responsibilities for the health sector, resulting from a purchaser-provider split enacted in 1996 and implemented in 2002, are divided with Ministry of Health (MOH) responsible for the oversight and control of policy formulation and monitoring and evaluation of progress in achieving targets, and the Ghana Health Service (GHS) responsible for the delivery of services through its operations at four levels: national, regional, district and sub-district. The National Health Insurance Authority (NHIA), established under the National Health Insurance Act in 2003, is responsible for the implementation of the national health insurance policy which ensures access to basic healthcare services to all residents.

6. At lower government levels, the District Assembly (DA) is the primary provider of public services, including primary and community-based health care. Whereas the District Health Management Teams (DHMT) are responsible for organizing and managing the local provision of health services including the preparations of annual plans and budgets according to guidelines and budgetary ceilings with fiduciary management by Budget Management Centers (BMC), the principal forum for planning, coordination and review of action is through the DA Social Services sub- Committees. The DMHTs are represented in the DA committees to coordinate and provide technical support and advice on health issues in the District. The Regional Health Management Teams (RHMT) plays an intermediary role between the central GHS and the DHMTs, providing technical support, supervision, and referral services.

7. **Policy and program environment.** Beginning in the 1990s a number of cooperating partners, including the United Kingdom, Denmark, the Netherlands, and the European Commission joined with IDA in a sector-wide approach (SWAp) which included: (i) pooling resources in a common health account managed by the MOH parallel to GOG budget resources, and (ii) using Common Management Arrangements for planning, budgeting, institutional arrangements, procedures for procurement, financial management, and M&E. The project supported priority areas in the MOH program of work. Other partners also contributed to the project including UN agencies (UNICEF, WHO, WFP) as well as the Micronutrient Initiative. In recognition of the significant impact of the nutritional situation on development and economic growth GOG, through the Ministry of Health (MOH) and the Ghana Health Service (GHS), spearheaded the launch of 'Imagine Ghana Free of Malnutrition'. This multi-sectoral strategy addressed malnutrition as a developmental problem in the context of the Ghana Poverty Reduction Strategy and the second Five Year Program of Work (5YPOW II) of MOH. The National Malaria Control Strategy (2008-15) identified improved coverage of INT as a strategic goal, and the importance of both nutrition and malaria was underscored in both the 2006 National Health Policy, the 2007 POW and the draft 5YPOW III (2007- 2011).

8. **Rationale for World Bank involvement.** The World Bank had provided a Learning and Innovation Loan (LIL) to the GOG for a Community-based Poverty Reduction Project consisting of 3 components including a Community Based Nutrition

and Food Security Component (CBNFSC). The CBNFSC identified innovative ways to improve the nutritional status of children in the beneficiary communities through an integrated community-based approach for basic health and nutrition service delivery. This approach included the use of community volunteers, community committees and growth promotion platforms, efforts which were sustained by the communities even after closing of the project.

9. When the time limited IDA 14 Supplementary Funding for Africa became available in early 2007, this presented a unique opportunity for the World Bank to provide earmarked support to the nutrition and malaria related priority areas in 5YPOW III. This further enabled the World Bank to continue its support of the SWAp while capitalizing on the experience and lessons learned from CBFSNC and thereby ensuring an increased focus on the delivery of key nutrition and health services in agreement with the Human Development and Service Delivery pillar of the Country Assistance Strategy (CAS).

1.2 Original Project Development Objectives (PDO) and Key Indicators (*as approved*)

10. The Project Development Objective (PDO) is "to improve utilization of selected community-based health and nutrition services for children under the age of two and pregnant women in the selected districts" (Source: Financial Agreement).

11. Progress toward attainment of PDO was measured by the following PDO indicators:

(i) Proportion of infants under six months in the intervention areas exclusively breastfed in the past 24 hours;
(ii) Proportion of infants 6-9 months in the intervention areas receiving semi-solid and/or solid foods in addition to breast milk in the past 24 hours;
(iii) Proportion of children under 2 years in the intervention areas with diarrhea who received oral rehydration therapy; and
(iv) Proportion of pregnant women and children under 5 years in the intervention areas who slept under a LLIN the night preceding the survey.

1.3 Revised PDO and Key Indicators

12. During restructuring it was determined that the 2008 Demographic and Health Survey (DHS) for Ghana better reflected the actual baseline of the project. Subsequently, while the PDO remained the same, all PDO indicator targets were revised accordingly. This, in particular, affected PDO3 and 4 given that initial estimates of baseline values were based on old data (DHS 2003) or data not representing the entire population (NMCP 2006). For Component 1 (% of communities in the target area with functioning community health committees) there had not been a baseline original target value, with information subsequently developed to provide a cumulative target value. For Component 2 (enhanced care of pregnant women, lactating mothers, and improved micronutrient intake in target group), the original baseline target was modified as a result of the project restructuring. For Component 3 (reduced burden of and damage due to

malaria infection), there was no baseline available at the origination of the project, but one was developed as part of the project restructuring.

Table 1: PDO indicator baseline and targets before and after restructuring

Project Development Outcome Indicators	Action taken	Baseline (Original)	Baseline (Restructuring)	Original Target Value (Cumulative)	Revised Target Value (Cumulative)
Project Development Objective: To improve utilization of selected community-based health and nutrition services for children under the age of two and pregnant women in selected districts.					
Proportion of infants under six months of age who are exclusively breastfed in the past 24 hours (PDO1)	Revised target	54%[1]	72.9%[4]	69%	80%
Proportion of infants between six and nine months of age who receive semi-solid/solid foods in addition to breast milk in the past 24 hours (PDO2)	Revised target	58%[1]	67.3%[4]	73%	74%
Proportion of children under two years of age with diarrhea who receive oral re-hydration therapy (PDO3)	Revised target	63%[2]	51.0%[4]	78%	59%
Proportion of pregnant women and children under five years of age who sleep under LLINs the night preceding the survey is carried out (PDO4)	Revised target	Preg women: 46%[3] Children <5y: 22%[1]	Preg women: 18.6%[4] Children <5y: 23.6%[4]	Preg women: 60% Children <5y: 40%	Preg women: 25% Children <5y: 30%

Source: [1] MICS 2006 (national averages); [2] DHS 2003 (national averages); [3] NMCP 2006; [4] DHS2008 (target region average)

1.4 Main Beneficiaries

13. The project targeted pregnant women and children less than two years of age in all districts in the Northern, Upper West, Upper East, Volta and Central Regions and in one area each (district or sub-metro) in Western Region, Accra and Kumasi. The aim was to reach a minimum of 65,000 pregnant women and 300,000 children under two. The project also targeted children aged two to five years through the support for selected child survival interventions such as vitamin A supplementation, deworming and LLINs, while the general population, initially expected to benefit through support for salt iodation and food fortification, benefitted from LLINs based on a change in the bed net distribution policy in late 2009 from targeted to universal distribution.

1.5 Original Components (*as approved*)

14. The PAD listed three components and their specific objectives, all of which were fully integrated into the 5YPOW III and in agreement with the human development and service delivery pillar of the Country Assistance Strategy (CAS).

Table 2: Original program components and specific objectives

Components	Specific Objectives
Component 1: Institutional strengthening for coordination, implementation and outcomes	(i) to develop effective inter-sectoral coordination, ownership and accountability for nutrition towards the establishment of a coherent national program; (ii) to strengthen the Ministry of Health and Ghana Health Services to effectively coordinate implementation of the community based health and nutrition program

(US$2.22 million)	supported by the project
Component 2: Community health and nutrition service delivery (US$12.98 million)	(i) to scale up community based health and nutrition services for children under two and pregnant women based on a community-level package of Essential Nutrition Actions
Component 3: Malaria prevention (US$9.80 million)	(i) to increase utilization of long lasting insecticide treated nets in order to reduce malaria related morbidity and mortality among children under five and pregnant women

1.6 Revised Components

N/A

1.7 Other significant changes

15. **Modification of scope and funding allocations.** During restructuring the scope of the project was slightly modified to improve the effectiveness and sustainability of the investment. Changes primarily included the expansion of monitoring and evaluation of community based services at the expense of activities supported by other DPs or considered to be less central for the attainment of the DPO (see table 3). Based on these changes, funding allocations changed slightly, with increased allocation for Component 1 from US$2.2 to US$4 million.

Table 3: Modification of scope and activities during restructuring

Activities	Change	Rational for change
Component 1		
Establishment of inter-ministerial coordination committee	Dropped	Beyond the control of MOH and not essential for PDO achievement
Development of school health and nutrition curriculum	Dropped	Activity is not central to PDO achievement
Development and testing of small scale food fortification	Dropped	Supported by others, diverting attention from core activities
Support for salt iodization law enforcement	Dropped	Supported by others
Support for the M&E capacity building for community health and nutrition strategies	Expanded	Will also include the M&E for district-level sub-projects (moved from Component 2)
Building implementation capacity for community-based services	Added	To streamline and coordinate multiple capacity building activities
Component 2		
Building capacity to plan, manage and supervise community- based services	Moved	Integrated into M&E capacity building under Component 1
Scaling up plan to implement community-based health and nutrition services	Revised	Scale up slowed down to control the quality of community based interventions
Component 3		
Improving the M&E of the national malaria program	Revised	To increase responsibility towards PDO and intermediate outcome indicators
Insecticide resistance monitoring	Dropped	Supported by others
Strategic partnership and harmonization	Added	To improve LLIN planning, distribution & safeguards management

16. **Adjustment of institutional and disbursement arrangements.** In order to improve ownership and accountability of the project, coordination and day-to-day management responsibilities of the project were taken over by GHS. The oversight of the activities continued to be provided by the Technical Committee (TC), however now under the guidance of the Director General of the GHS and with membership limited to technical staff. The GHS Department of Policy, Planning, Monitoring and Evaluation (GHS-PPME) became the secretariat of the TC while the director of GHS-PPME became

the day to day manager. The flow of funds was revised in line with the changes in the institutional arrangements. These changes further allowed GHS to designate project funds as earmarked funds and thus ease the tracking of expenditures at district level for more effective reporting.

17. **Implementation schedule and extension of closing date**. The implementation schedule was changed several times. First after the 2007 floods, in which implementation of affected regions were prioritized, and later during restructuring, in order to allow for catch up of delays before further scale up in the other regions was pursued. Further, in February 2008 the GOG changed the second-level administrative sub-divisions which resulted in the creation of 32 new districts nationally including 12 additional districts in the project regions. Although these changes were merely administrative and did not affect the total target population of this project, restructuring did provide the opportunity to include these administrative changes into the implementation schedule. Finally, in order to provide sufficient time for "catching up" the project was extended by one year, hence the new closing dates of March 31, 2013.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

18. **Large existing base of knowledge**. Global consensus based on a strong evidence base emphasizes the importance of delivering a comprehensive package of direct nutrition interventions, called Essential Nutrition Actions, rather than tackling individual aspects of the conceptual framework for nutrition in isolation. Therefore the project focused on improving the utilization of community-based health and nutrition service provision of such proven cost-effective interventions to prevent malnutrition and malaria. Specific evidence was also available from Ghana and from comparable country settings, including the experience and lessons learned from the CBNFSC, together with best practices in community nutrition. Although more detailed analysis of the barriers to accessing such services and/or impacting the behavioral outcomes of receiving such services could have been useful, it was assessed by both the team and by senior management that the evidence base available was sufficient for undertaking the investment.

19. **Readiness to implement.** To a large extent the systems, methodology and materials which had been developed for the CBNFSC were utilized to ensure readiness to implement including the use of regional and district committees to coordinate, provide clearance, technical assistance and review performance. The approach taken was for project start-up to begin slowly with additional time for the project to mature in the first year as reflected in the initial implementation plan however the potential need for additional GHS Nutrition Department (GHS-N) staffing to implement the project was not addressed at the outset.

20. **Implementation arrangements**. Based on broad consensus it was decided for the project to utilize and strengthen the existing institutional arrangements for health in Ghana at all levels. This meant that the overall oversight at national level would fall

under MOH-PPME leadership, who at the time also happened to be the strongest senior level champions of nutrition in the GOG, with day-to-day support from a multisectoral Technical Committee (TC), while GHS was overall responsible for service delivery, in accordance with the existing CMS and MOU for the sector.

21. Below the national level, the existing Regional and District Advisory Committees (RAC, DAC) including the Social Services sub-Committees, would be utilized while existing Community Heath Committees (CHC) or the newly formed Community Implementation Committees (CIC) would be responsible for the implementation at community level.

2.2 Implementation

22. **Project management**. With the departure of the director for MOH-PPME shortly after effectiveness, the overall leadership of the project at national level suffered, resulting in a lack of proactivity, insufficient accountability for meeting the project schedule and sub-optimal communication channels between MOH and GHS. Whereas initial efforts to address these shortcomings had little effect on downstream implementation, the more comprehensive Rapid Results Approach undertaken in April 2009 was successful in building leadership and program management skills needed to accelerate the achievement of results. More specifically, based on the deliberations emanating from this process the GOG team identified the following needs for change in their management of the project: (i) project management style, from a nutrition-centric to a more operations centric style with a focus on leveraging the existing processes and resources; and (ii) a separate political versus strategic leader, including clear roles and responsibilities for both. The identified change in implementation arrangements needed at central level was subsequently addressed during restructuring, and a rapid acceleration in the implementation of activities and subsequent achievement of results was seen. No change in project management at regional, district or community level was required at any point of the project.

23. **Implementation roll-out**. According to the initial implementation plan, roll out of the activities at district level was envisioned to commence in only the 4 districts which had previously implemented activities under CBNFSC in order to allow the project team to fully utilize the lessons learned. However, based on serious flooding at the very beginning of the project in the three northern and less accessible regions, the implementation plan was changed and 19 districts in the worst affected areas, with increased needs for health and nutrition service delivery, were decided to be reached within the first year. Given the dependence on a cascade system of support from central to district level, the decision to reach three regions outside of the CBNFSC meant that additional support to local governments was required from central level simultaneously with technical inputs for the procurement of key goods and services. The high workload caused a delay in timely delivery of technical specifications by GHS-N, which subsequently resulted in a lack of sufficient commodities (registers, weighing scales and communication materials), an obstacle to both initiate and maintain implementation of activities at community level. This was partially resolved by temporary solutions such as borrowing supplies from UNICEF, and fully resolved with the additional technical and

contract management support for GHS-N shortly after restructuring. Issues with poor logistics management and the subsequent inability to account for LLINs procured in 2007/8 and 2009 resulted in a decision to hold any further distribution of nets. The completion of a technical audit and the development of an improved LLIN tracking system completely identified and resolved all such issues.

24. **Implementation at community level.** The delivery of services at community level was influenced by several factors: (i) physical access especially during raining seasons; (ii) extent of ownership/involvement of district and sub-district staff; and (iii) the commitment of communities especially community volunteers. The issue of poor physical access is inherent to most community based projects as they generally aim to reach the most underserved communities. Similarly one of the community selection criteria used by district officials in this project was "hard to reach". The project mitigated the impact of physical assess through the provision of vehicles and motorcycles for district and sub-district levels respectively, however some areas remained very difficult to reach nonetheless, even with 4 wheel drive vehicles, during raining season however this was due to lack of paved roads and hence outside the scope of this project. Strong supportive supervision of community services by district and sub-district level was ensured through repeated sensitization of district level staff, the provision of vehicles and the inclusion of a specific supervision budget in the district plans. Some of the best performing communities were endowed with Community Health Nurses (CHNs) who were able to draw in additional support from colleagues across sectors such as the agriculture extension officers. At community level, the enthusiasm and commitment of volunteers was essential for the delivery of services. While limited funding of inputs and incentives were found to be insufficient by volunteers, this was managed well by introducing creative solutions for rewarding volunteers by the districts and communities themselves. For example, some districts spend the limited "transport" funds available to enroll volunteers into the National Health Insurance Schemes, rather than paying them directly and thereby providing better value for money. Other districts requested additional funding from the DAs to support the volunteers with t-shirts or by instituting awards for the best performing communities. Similarly some communities rewarded volunteers for their work by exempting them from communal labor and levies.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

25. **Design.** The M&E system design was strong, and well aligned with the strategic priorities of the sector. It consisted of the following components: (i) baseline and endline surveys conducted at district level; (ii) routine data collection at community level, collated at district levels, and monitored at regional level; and (iii) standard quarterly, semi-annual and annual reviews; and a midterm review. Overall the methodological soundness of the arrangement was good, relatively easy to implement and allowed for the existing systems to be utilized and strengthen, hence also ensuring long term sustainability. The PDO indicators chosen were relevant and independently verifiable.

26. **Implementation.** An electronic register (eRegister) database system, able to capture a broad range of transactional data from community level and link such outputs to the outcomes captured in the District Health Information System, was developed and

piloted and is currently being implemented by the GHS. The project also hired several data entry clerks at district level and purchased servers for the storage and centralization of data, as well as supported post campaign survey on LLINs distribution thereby further strengthening the overall M&E system for the delivery of community-based services. Challenges with respect to the timely communication of routine collected data and monitoring reports featured throughout the project, due to suboptimal communication structures and challenges with transport and other logistics especially at district and sub-district levels. Measures taken included the use of centrally dispatched data collection teams to ensure availability of essential data for decision making; continual sensitization of local government authorities regarding the need for improved monitoring and supervision; and refresher training to district health management teams and community volunteers. The system became widely used, found reliable, and relied on by the GOG and Development Partners to monitor the Millennium Acceleration Framework (MAF) on MDG5 currently being implemented to speed up the achievement of the maternal mortality target by 2015.

27. **Utilization.** The aggregation of routine collected data at sub-district levels made it initially difficult for the districts to identify individual poor performing communities, thereby the utilization of routine collected data for decision making at district level was somewhat reduced. However this problem was fully overcome through the development of the eRegister system which allows district to tease out the performance of individual communities from the sub-district averages, thereby significantly improving the ability of Local Government Authorities (LGAs) to make informed decisions in the future once the system is implemented across the country. Further the routine collected data was fully utilized at central and regional level to evaluate district performance and improvements made and assess the need for additional support in order to improve the delivery of community-based health and nutrition services. This level of data management is being taken on board by other partners such as UNICEF, a sign of increasing confidence in and reliability of the system.

2.4 Safeguard and Fiduciary Compliance

28**.** **Safeguards.** The project was classified as category C and triggered only one safeguard triggered namely Pest Management (OP4.09) due to the use of insecticide treated bed nets, however no separate pest management plan was required given that the national medical waste management plan followed the WHO guidelines for medical waste disposal and use of insecticides. LLINs safeguard measures were implemented by GHS-NMCP in collaboration with the Environmental Protection Agency (EPA) and other agencies including a strategy on safe disposal or recycling of nets. No social safeguards were triggered by the project. The project was pro-poor as its focus was on the regions where poverty and poor health status is highest.

29. **Financial Management.** An in depth financial management (FM) report at the end of the project concluded that the FM systems in place provides the necessary assurance that the Bank loan proceeds has been used for the intended purposes and the quarterly progress reports including procurement, physical and financial progress, and annual audit reports can be relied on. Throughout the project FM arrangements were

rated satisfactory or moderately satisfactory with only minor issues identified; no qualified issues or accountability issued were raised in audit reports. Issues with slow disbursement were resolved with the change in implementation and project management arrangements and the subsequent enhanced overall project implementation as well as by the above measures for more speedy replenishment.

30. **Procurement.** The initial procurement plan signed during negotiations was revised and cleared during the restructuring phase. Procurement arrangements were slightly downgraded to moderately satisfactory eight times. Issues with procurement were resolved through a range of actions including the change in project management, frequent procurement clinics for both procurement and technical staff on the write up of TORs and the consultant selection process, addition of project staff in GHS-N and the revision of activities during restructuring and as a result the project closed with one of the most exemplary procurement records in the World Bank's portfolio in Ghana.

2.5 Post-completion Operation/Next Phase

31. **Continued WB support.** The Government has already addressed the post-completion next phase with a Bank-financed US$68 million follow-on operation to be negotiated in the coming months. This new operation, which aims to improve the utilization of community-based health and nutrition services for women of reproductive age, especially pregnant women, and children under the age of two in the entire country, builds on the lessons from this project by utilizing identical implementation structures while further enhancing the focus on results by utilizing financial incentive for performance. More specifically the proposed follow-up project will: (i) increase the availability of high impact health and nutrition interventions; and (ii) address access barriers using the existing community-based health service delivery strategies and communications channels to inform, sensitize and motivate care-givers, community leaders and other key audiences. This next World Bank operation will continue to strengthen the delivery mechanisms for community health and nutrition services established under the project; further enhance multi-sectoral coordination and collaboration; and continue to improve ownership and accountability of all stakeholder efforts towards improved maternal and child health outcomes.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation
Overall Rating: *Substantial*

The project is highly relevant to the country's development objectives, global priorities and the Bank's Country Partnership Strategy. The overall relevance is rated *Substantial*.

32. **The relevance of the objectives** of the project is rated *High.* Ghana signaled its commitment to scaling up nutrition services in March 2011 by joining the global Scaling Up Nutrition (SUN) movement and establishing a Cross Sectoral Planning Group on Nutrition under the National Development Planning Commission, Office of the President. The current National Malaria Control Strategy (2008-15) identifies improved access and

utilization of ITN as a key national strategy for malaria reduction and outlines clear targets for universal coverage. Further the new 2013 -2017 strategic plan for the health sector currently under preparation is expected to include emphasis on maternal and child health including nutrition and malaria prevention. The project is highly relevant to the Bank's priorities and development objectives. Its Health, Nutrition and Population strategy aims to support country efforts to control priority health aspects, such as nutrition and malaria, through health systems strengthening and strong results focus. In June 2013 it was announced that the Bank would triple the direct financing commitments for maternal and early childhood nutrition in FY13-14 and provide additional funding for technical and analytical support to countries with a high burden of undernutrition. Further, the Bank new Ghana Country Partnership Strategy (CPS) seeks to address the multiple challenges to improve the delivery of basic services and hence the objective remains relative.

33. **The relevance of the design** is rated *Substantial*. The strengths of the design include: (i) an appropriate choice of interventions based on sound technical priorities fully consistent with global recommendations for scaling up nutrition and the Ghana application of it to the country situation; (ii) a strong results chain with appropriate indicators plausibly connecting the development objective with the planned activities/inputs, outputs, processes and outcomes; (iii) the use of existing structures for implementation at regional, district, sub-district and community level; and (iv) good anticipation and mitigation of any exogenous factors which could potentially interfere with the results chain. In addition the project supported strong partnerships with other development partners supporting Ghana's nutrition and malaria efforts.

34. **The relevance of implementation** is rated *Substantial.* The project was implemented using the existing structures for delivery of health services in Ghana with delivery of services through the regional and district health management teams, and local government authorities as the primary provider of services. At sub-district and community level the project utilized and strengthened existing structures, namely the use of Community Health Workers and Nurses (CHW/CHN), community authorities including Community Health Committees (CHC) and community-based volunteers.

3.2 Achievement of Project Development Objectives

Rating: *Substantial*

35. Achievement of the PDO is rated *Substantial*, as measured against both the original and revised targets in accordance with the ICR guidelines. The achievements seen under this project against the revised targets are summarize in table 4 and detailed in the sections below. For final outcome ratings, separate outcome ratings against original and revised PDO indicators' associated targets are weighted in proportion to the share of actual disbursements made in the periods before and after the approval of the revision. In this case such a revision was made as part of the July 2010 restructuring, at which time 36% of the project funds had been disbursed.

Table 4: Summary of achievements of project indicators against revised targets

	Outcomes	No	Intermediate Outcomes	No	Total	% Achieved
Achieved	1,2,3,4	4	1,3,4,5,7,8,9,10,11	9	13	87%
Partially achieved	0	0		0	0	0%
Not achieved	0	0	2,6	2	2	13%
Not measured	0	0				
Total	4		11	11	15	100%

36. The MOH/Ghana Health Service developed a robust data management system that responded to the data needs at community level (see paragraph 25-27 on M&E). The Lot Quality Assurance Sampling (LQAS) survey was used to strengthen district-level monitoring and add evidence for decision making to improve implementation. In addition, a summary end line survey was added to the design when it became clear that the next DHS initially scheduled for 2013 was no longer going to take place. The end line survey findings are consistent with the program monitoring data findings. It should be noted that the MICS (2011) could not be used because: (i) different sampling methodologies hamper comparison of data; and (ii) MICS data look at district level aggregates, not project intervention areas. The causal relationship between the four PDO indicators and the intermediate outcome (IO) indicators is described in Annex 3 together with a more detailed analysis.

37. **PDO 1: Proportion (%) of infants under six months exclusively breastfed in the past 24 hours.** According to the project administrative data, weighted according to number of communities of the 5 regions which implemented the community-based health and nutrition services in all districts namely Northern, Upper East, Upper West, Central and Volta regions[1], 84.5% of children under the age of six months were exclusively breastfed. This surpasses the original target by 69% and the revised target by 80%. While improvements were seen in all regions the target was not met by in the Central region, principally because they did not implement activities in some districts until very late in the project and hence had limited time for impact. Given the relative limited number of Central Region communities then this has little impact on the significant achievements seen in the other regions and hence the overall impact.

38. **PDO 2: Proportion (%) of infants 6-9 months receiving semi-solid and/or solid foods in addition to breast milk in the past 24 hours.** According to the project programme data, targets were surpassed in all regions, on average 93.5% of children aged 6-9 months received appropriate complementary feeding and continued breastfeeding.

[1] Also, although the project was also implemented/piloted in one district/sub-metro area each in the Western, Greater Accra and Ashanti regions, then given the low geographical coverage of the project in these regions combined with the lack of project administrative data from two out of the three regions, then these districts are not included in the analysis. However given the relative limited number of communities/beneficiaries targeted in these areas then their omission from the analysis should have limited effect on the overall results.

39. **PDO 3: Proportion (%) of children under 2 years with diarrhea who received oral rehydration therapy.** The use of ORT in children under two years of age during diarrhea was significantly improved during the span of the project with the targets surpassed in all regions. On average 73.5% of children less than 2 years of age receive ORT when they have diarrhea.

40. **PDO 4: Proportion (%) of pregnant women and children under five years of age who sleep under LLINs the night preceding the survey is carried out.** Over the life of the project the utilization of LLIN significantly increased. According to MICS 2011 36% of pregnant women and 46% children under the age of five were utilizing LLINs in the project regions, surpassing the targets by more than 50%. Given that the data used to access progress on this indicator (MICS 2011) was collected prior to the completion of 7 out of the 10 planned regional mass-distribution campaigns it can be assumed that overall impact is likely even higher. This is because in the 3 regions which had completed the campaigns prior to the data collection, namely Northern, Eastern and Volta, an average improvement in LLIN utilization of 53% and 68% was observed in children and pregnant women respectively, whereas the same improvement was only 20% and 26% respectively in the project regions overall.

41. **Improvements in infant feeding and uptake of health services likely attributable to the project.** It is very likely that progress on the first three outcome indicators is to some extent attributable to the project. Although overall improvements in infant feeding and use of ORTs have been seen in the years prior to the project, there are indications that progress at a national level has been stagnating during the lifespan of the project (see Annex 3, figure 5), hence less likely that achievements seen in the project targeted regions are due to overall nationwide progress. Second, over the lifetime of the project relatively more pregnant women and young children received health services, as indicated by the proxy indicators IO 5, 6, 7. Although the administrative data at the end of the project records very low levels of vitamin A supplementation in children these levels were likely caused by supply issues during the last campaign rather decreases in the demand for the service. Recorded levels of antenatal and child vitamin A supplementation in 2012 were significantly higher, as well as vitamin A supplementation post-partum delivered through routine services continued to increase during the last year of the project (see Annex 3 figure A3.6).

42. To establish if the increase in utilization of services in the project regions over the lifetime of the project (2007-2013) could be attributable to the project, an analysis using comparable survey data (DHS 2008, MICS 2011) was conducted in the three northern regions, which had started implementing sub projects by the time the data collection for MICS 2011 started in August 2011, compared to national averages. Given that MICS 2011 did not include an indicator for vitamin A supplementation postpartum (IO7), only analysis of antenatal service delivery (IO5) and vitamin A supplementation of children (IO6) was done. The analysis revealed that the increase in the proportion of women who had received 4+ antenatal visits was higher on a national basis than in the 3 northern regions (see Annex 3 figure A3.7). However this indicator is not very sensitive to change as it captures a 2 year period, and it is quite likely that any potential improvements in

project regions would not be seen given that by the beginning of that time period only a very limited number of communities had started implementing community based interventions[2]. The same analysis also revealed that the relative improvements in the proportion of children aged 6-59 months who received one or more vitamin A supplements in the past six months was significantly higher in the project regions versus at national level. This is good indication that the achievements related to PDO indicators 1, 2, 3, and the related intermediate outcome indicators were attributable to the project.

43. **Improvements in utilization of LLINs likely attributable to the project.** The evidence for improved utilization of LLINs is supported by the significant improved access to LLIN (IO8) seen over the lifetime of the project. Given that data was not available specific for households with children under five the data for all households were used as a proxy and the progress on this indicator, combined with the knowledge that the majority of regions had not yet started or completed their campaigns by the time the survey was collected, gives sufficient evidence to conclude that the intermediate indicator (IO8) for access to LLIN was also met. This is further substantiated by the results of the post hang-up survey conducted for the project which reported that 66.2% of all households interviewed had received LLINs between 2010 and 2012. Improved access was possible because of the increase of LLIN supplies available nationally to which the 1.5 million nets contributed by the project (IO9). While an estimated 5 million nets were needed to ensure universal coverage in the project regions, given that women of childbearing age (14-49 years) and children under the age of five make up about half of the population in Ghana, it is reasonable to assume that the project financed LLIN correspond to approximately two thirds of the needs for pregnant women and children under five in the targeted regions. This combined with the fact that LLIN use was also promoted by the community volunteers in the project areas provides assurance that achievement of PDO 4 can, to a great extent, be attributable to the project. This analysis on attribution takes cognizance of the contribution of other malaria partners involved in the LLIN hang up campaign for universal coverage.

44. **Other achievements**. The project reached a total of 391,198 direct beneficiaries 61% of whom were women (IO11) with key health and nutrition services, including 81,667 pregnant women (IO10) and 309,531 children under the age of two years of age (IO10), in a total of 55394 communities. Improvements in community-based service delivery was aided by the improved supervision and support provided by the DHMTs (IO1), improved technical capacity of health workers (IO3) and community mobilization including the identification and training of 20,496 community volunteers and the establishment of community committees (CIC/CHC) (IO2). Further, through the development of the National Nutrition Policy (IO4) the necessary direction on the way forward for nutrition in the country is provided together with the evidence to build case

[2] According to the Midterm Review annex 3 and compared to the fact that 2843 communities in the three northern regions implemented activities at the end of the project, only 138 communities, equivalent to 4.85%, had started implementing interventions by September 2009, corresponding to ~2 year prior to the collection of MICS 2011.

for food security and nutrition, communication, advocacy and policy discourse at the national and community levels. In addition, the project, which targeted the most affected districts, contributed to mitigating the impact of malaria and nutrition deficiencies, thereby improving the health profile of these districts.

45. **Overall achievement result**. Given that the project PDO targets were revised during restructuring, in order to rate the achievement of the project an aggregated achievement of the PDO was calculated in accordance with the ICR guidelines. Achievement of the original objective, based on the weighted achievement of each element is ¼* (1.22+1.28+0.94+0.87) = 1.08 or 108 percent. The progress was therefore rated *Substantial* against the original PDO. Achievement against the revised objective, based on the weighted achievement of each element is ¼* (1.06+1.26+1.24+1.57) = 1.28 or 128 percent. The progress was therefore rated *High* against the revised PDO using the revised targets.

46. The aggregated achievement of the PDO, based on the separate outcome ratings against the original and revised project targets weighted in proportion to the share of actual disbursements made in the periods before and after approval of the revisions (36 percent and 64 percent respectively) is calculated as (0.36*108) + (0.64*128) = 38.88 + 81.92 = 120.8 percent, which represents a full achievement of the aggregated targets. Therefore the project's overall efficacy is rated as being ***Substantial*** (see table 5)**.** Restructuring of the project contributed significantly to the overall eventual contribution of the PDO through the changes in implementation arrangements and subsequent improved project management and the revision of targets while the tightening of the scope and the extension of the project by one year to allow for "catch up" also significantly contributed to the project's success.

Table 5. Aggregated assessment for achievement of PDO targets

	Against Original PDO targets	**Against Revised PDO targets**	**Overall**
Rating	Substantial	High	
Rating value (out of 4)	3	4	
Weight (% disbursed before /after restructuring)	36%	64%	100%
Weighted Value	1.08	2.56	3.64
Final rating			**Substantial**

3.3 Efficiency

Rating: *Substantial*

47. This project contributed to Ghana's development through the following mechanisms. First, it improved child survival by decreasing the incidence of stunting, anemia, and malaria. Second, it generated long-term economic benefit by increasing the size of active and productive labor force who can potentially contribute to economic growth and poverty elimination. Third, it promoted equity by targeting areas that suffered

from malnutrition problems. Fourth, the project contributed to improving the health system efficiency in Ghana by strengthening institutional capacity to make evidence-based decisions. Finally, it helped prevent unnecessary use of health care and reduced needed care for people with less cognitive development as a result of childhood stunting.

48. Evidence is available on the significant economic benefit of investment in types of health and nutrition interventions financed by the project. The most recent empirical estimates of the negative effects of stunting on worker productivity and adult earnings range from about 10 percent per year[3], to as high as 20 percent per year[4]. Anemia is associated with a 2.5 percent of reduction in wages. Productivity losses at the individual level are estimated to be more than 10 percent of life time earnings, which at the macro level can lead to a 2-3 percent loss in GDP.

49. Results from the economic analysis during restructuring concluded that this project is a sound investment. Benefits estimated for the analysis included increased lifetime earnings from reduced stunting, anemia, and iodine deficiency and Vitamin A deficiency. Other benefits included those from lives saved through use of LLINs and exclusive breast-feeding. Wage information was used to estimate future income flows of children who were saved through this project[5]. The net present value of the project investments was estimated to be about US40 million even with a discount rate of 5 percent. The benefit-cost ratio was estimated to be 2.81, meaning US$1 investment will yield US$2.81 benefit (See Annex 4 for details).

50. The conclusion from previous analysis remains valid, and indeed, is likely to be an underestimate. The analysis used standard methodology for economic evaluation, comparing cost and benefit taking into consideration time effect. The assumptions (summarized in Annex 4) used are based on global literature and are commonly accepted. The results may have underestimated the real benefit and efficiency of the project for two reasons. First, conservative assumptions were chosen when the evidence presents a range. Second, the analysis did not include benefits that cannot be easily translated to monetary values, e.g., system efficiency.

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[3] Hoddinott 2003, World Bank 2006, Quisumbing, Gillespie and Haddad 2003, Alderman Hoddinott and Kinsey 2002, Ross and Horton 2003

[4] Granthan-McGregor.S et al 2007

[5] Human capital methodology has been commonly used to estimate economic benefit related to human development. Although there are concerns about whether all the saved lives will have been employed, it is also worth noting that children saved through current investment will only enter the labor market after more than 10 years. Prospect of job market may be promising given the strong growth of economy in Africa continent. More importantly, average wage also reflects the situation of unemployment, which to the extent makes the concern less of an issue.

51. Although it is ideal to use recent ***outcome*** data to confirm the previous conclusion, it remains a challenge for many developing countries where routine data system is weak. With the absence of reliable administrative data, Demographic and Health Surveys (DHS) are commonly considered the gold standard for measuring child health outcomes (e.g., under-5 child mortality). Ghana DHS 2008 was conducted after project approval and the results were used to update project baseline values. The 2013 DHS has been delayed and it is possible that the survey will be withdrawn. ***Outcome*** data is available from two Multiple Indicator Cluster Surveys (MICS) for 2006 and 2010, however, the period between 2006 and 2010 is not sufficient to capture the full effect of the project, in particular the significant achievements made through the later stage. In addition, project effect cannot be accurately estimated using the MICS results, since there is no aggregate estimate available for the project areas.

52. The data at ***output*** level indicates that outcome may have improved more than expected, because many indicators measuring coverage of essential health and nutrition interventions have exceeded their targets. For example, the proportion of infants under six months who are exclusively breastfed in the 24 hours has increased from 72. 9 to 84.5 percent, exceeding the target of 80 percent. More than 90 percent of infants between six and nine months received semi-solid foods, exceeding the target of 74 percent. About 1.55 million bed nets (1.3 million estimated at appraisal) have been distributed through the project, accounting for approximately two-thirds of the needs for pregnant women and children under five in the targeted regions. Consequently, the proportion of under-five having slept under treated bed nets almost doubled during the project period, with the target exceeded by 50 percent.

53. Despite a one-year extension of project implementation, the project has been implemented efficiently. It has successfully expanded coverage of key health interventions at a large scale, achieving more than expected without additional resources. Implementation challenges were addressed in a timely manner to avoid any subsequent negative consequences. The Bank team responded to the government's requests to change implementation arrangements, which caused rapid acceleration in the implementation of activities. Following restructuring, technical and contract management support were provided to GHS-N for them to deliver technical specifications of procured goods in a timely manner, ensuring availability of commodities in facilities.

54. In conclusion, despite constraints of outcome level data, the efficiency of this project is substantial based on: i) the results from previous economic analysis that remains valid, ii) the results from output data analysis, and iii) the efficient project implementation, achieving more than expected results without additional resources.

3.4 Justification of Overall Outcome Rating
Rating: *Moderately Satisfactory*

Relevance	**Efficacy** (Achievement of PDO)	**Efficiency**
Substantial	*Substantial*	*Substantial*

Overall outcome rating: *Moderately Satisfactory*

55. As discussed in section 3.1 the projective objective, design and implementation were relevant both before and after restructuring. A change in senior management within the MOH PPME department resulted in poor project management and poor implementation which ultimately led to the restructuring of the project to change the implementation arrangement, reassess the targets and allow for additional time. Ultimately the project overcame the initial implementation issues and surpassed all of the four PDO indicator targets. It also achieved most intermediate outcome indicators and surpassed the number of beneficiaries of the project. Lastly, the objective of the project was achieved at the cost assumed at appraisal with an estimated 2.3 fold return on the investment.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

56. The project improved the capacity of local governments and communities to plan, budget and implement community based nutrition interventions and reached 5,394 communities with selected interventions. Though pregnant women were obvious project beneficiaries of the project, the role of community volunteers/growth promoters gave preference to women and ensured a minimum of 50% female participation. Also gender balance was specified in the sub-project manual for the formation of the community implementation committees.

(b) Institutional Change/Strengthening

57. The most significant institutional contributions were at levels below the central level, namely the capacity of local governments to plan, administer and supervise community based interventions both within and outside of the health sector. While coordination for nutrition across sectors could have been improved further, e.g. through more effective engagement of the District Assemblies, and improved mobilization of community leaders and the Community Assemblies, the use of community committees for coordination was to some extend effective while the identification, training and mobilization of community-based volunteers for service delivery significantly enhanced the capacity of communities to improve their nutritional situation.

(c) Other Unintended Outcomes and Impacts (positive or negative)

N/A

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

58. A beneficiary survey was conducted using a combination of qualitative and quantitative data collection in a total of 2,520 households across project areas. The perceptions and experiences of beneficiaries were very positive although limited awareness was found in Kumasi metro in Ashanti Region given late implementation of the project only 3 months prior to the survey. The survey highlighted that the project

significantly benefitted the target populations with: (i) improved utilization of antenatal services, bed nets, growth monitoring and health education; and (ii) perceived improved health and pregnancy outcomes; as well as (ii) improvement in related skills, such as hygiene practices and ability to identify danger signs in young children during illness.

59. The survey indicated that in most project areas community participation, mainly through the use of community volunteers, was good and specifically mentioned activities included the dissemination of health education, distribution of health commodities (such as LLINs, anthelmintic drugs and vitamin A supplements), and growth monitoring. However the survey also found that some barriers to access and utilization of services existed. These include high attrition rates; illiteracy and lack of motivation by the volunteers; financial constraints of families to implement newly gained knowledge on optimal feeding and care of young children and pregnant women; commodity supply issues including vitamin A capsules; and the fact that not all communities within a district were covered by the services. Other issues raised include the impact of certain social and cultural beliefs and practices; poor communication skills (e.g. scolding) by health facility staff; and issues of access especially in the most rural communities in the raining season.

4. Assessment of Risk to Development Outcome

Rating: *Moderate*

60. **Capacity and ownership.** Technical improvements in approaches to community services are likely to be sustained. Although the project suffered to some extend from issues of limited ownership by local government and communities, indicating a risk that the momentum gained and efforts achieved could be lost if efforts are not sustained, given the focus and high levels of political support on decentralization in Ghana and an ever increasing recognition of the importance of nutrition, the risk to the development outcomes is moderate. This is further substantiated through the declared interests of the GOG to invest further within this area and the fact that a follow-on investment with the World Bank for US$68 million will be negotiated in the coming months, coupled with other donor partners continued commitment to support nutrition and malaria efforts in Ghana.

61. **Leadership of community based interventions.** Given the diverse determinants, both indirect and direct, of malnutrition going forward there may be uncertainty as to which sector or entity should lead on the implementation of a comprehensive package of community services. While greater clarity exists with respect to malaria, and the importance of multisectoral action for nutrition is critical, there is need to ensure that sectoral roles and responsibilities are not lost as more and more sectors get involved in the scale up of nutrition interventions.

62. **Fiscal space.** Although the commitments for nutrition and malaria interventions in Ghana have been stated in various policies, strategies and events, limited funding for such activities remain. However, despite limiting fiscal space within the health sector, there is sufficient awareness within Ghana, the Ghana Government and health sector

entities, reflected in the new health 2013-2017 strategy being prepared, to advocate for, and obtain significant funding for nutrition and malaria prevention. Further the budgetary demands for the recurrent costs of the project were estimated to be modest (~1% of the overall health budget) ensuring long term sustainability of the investment. Therefore the risks to development outcomes in future are considered to be moderate.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry
Rating: *Moderately Satisfactory*

63. The Bank team was comprised of staff with a range of skills and knowledge, operational experience, nutrition and malaria technical expertise, and country specific knowledge. It effectively capitalized on the relevant knowledge and lessons learned from the previous CBFSNC, discussions with relevant stakeholders at all levels, and the sound relationship with the MOH and GHS based on the previous HSPS project. While a more in-depth analysis of the factors influencing the utilization and access to key nutrition and health services as well as the impact of barriers to behavior change might have been desirable, the decentralized arrangements were sufficiently well suited to deal with implementation flexibility needed to accommodate contextual and cultural differences across regions and districts. While the team should have been more aware of and address the challenges in establishing a formal institutional arrangement for the coordination of nutrition such as the proposed Inter-Ministerial Steering Committee on Nutrition and Child Survival, a multi-stakeholder platform, the Cross-Sectoral Planning Group (CSPG), has now been established, thanks in part to the project, under the National Development Planning Commission.

(b) Quality of Supervision
Rating: *Satisfactory*

64. The Task Team managed to use preparatory and supervisory resources to great effect, including proactively accessing trust funds from different sources. With regular supervision missions together with the strong day-to-day engagement of the co-TTL based in the country office, the team was able to provide extensive support and timely inputs to the client. For instance, when the flooding crisis happened shortly after the project effectiveness mission, the team quickly responded to a GOG request and assisted with the development of an operational strategy to assist the flood affected districts. The team noted the delays in implementation immediately and worked to support the client to resolve the issues, urging intensive remedial action on the part of the government project team. Although the team had its reservations, it agreed to scale up flood affected regions based on a detailed action plan with clearly established responsibilities and timelines. When it became clear that that the change in implementation strategy was not functioning, with major delays in getting data from the flood affected areas, the co-TTL met weekly with the newly formed GOG Implementation Task Force to assist in getting implementation back on track. The team further encouraged government to contract out

some of the activities including the preparation of the sub-project manual, to speed up implementation.

65. The team sought to improve project implementation by facilitating the Rapid Results Approach to build leadership and program management skills and thereby accelerate the achievement of results. This process led to the identification of the GHS-PPME director as the new overall project manager as well as more defined roles and responsibilities of the individuals in the government project team. Although the expectation was that this would expedite the implementation of various pending activities at national level and lead to a faster pace of downstream implementation, this was not the case. When implementation had still not improved two years into the project, the team conducted the Mid-Term Review early to pursue project restructuring. Continuous Task Team supervision resulted in quick identification and resolution of any misunderstandings regarding the restructuring process by the new project manager. The Bank team also decided to employ a field based implementation consultant to provide intensive support to the government team on a daily basis and the TTL conducted monthly follow up meetings with the client beyond the regular scheduled missions until the project closed.

(c) Justification of Rating for Overall Bank Performance
Overall Rating: *Moderately Satisfactory*

Overall the Bank team provided a *Moderately Satisfactory* level of support and supervision during the design and implementation of the project.

5.2 Borrower Performance

(a) Government Performance
Rating: *Moderately Satisfactory*

66. Government involvement and political commitment to the project was extremely good during preparations - when the initial project manager departed shortly after project effectiveness momentum and staff commitment suffered. The management of the project remained weak until after restructuring. Although various measures were taken, including increased frequency of technical and management review meetings, measures for improved accountability; and increased flexibility in the utilization of district allocations, implementation continued to be slow. Even the reassignment of day-to-day project management from MOH to GHS did not result in immediate improved implementation. Significant improvement of ownership was seen during the last half of the project (2011-2013). The GHS-PPME led the government team and improved performance dramatically and ensured better technical and management support was provided to the relevant technical departments. The leadership, dedication and ownership shown by GHS-PPME together with improved provisions for supervision to the government team also influenced ownership at regional and district level including the active involvement

of the Regional Coordination Committees and the District Assemblies in the project besides the Regional and District

67. Health Management Teams, sometimes planned but remained very limited in the first half of the project life. GHS-PPME also took action resolving issues hindering implementation such as the limited supply of commodities identified earlier in the project. As a result project performance improved significantly and a considerable scale up of community-based health and nutrition services was seen in the two final years of the project. For instance, in June 2010 only 10% of the targeted communities provided such services, by March 2011 the proportion had increased to 51% and by the end of the project 97% of the targeted communities implemented the key health and nutrition services supported under this project.

(b) Implementing Agency or Agencies Performance
Rating: *Satisfactory*

68. The performance of the implementing agencies under GHS was in general influenced by great dedication by the core team but constrained by insufficient human resources and capacities, especially within the area of contract and project management. This resulted in delays in delivering planned actions and activities. The strong dedication and strong sense of ownership of the project by key staff meant that they themselves were reluctant to request assistance for various tasks, such as the development of the public education materials which were done without input from the health promotion officers (despite the fact that these staff were experts in communication). While the need for additional technical support should have been identified by the technical staff themselves, this should have been a GHS-N project management responsibility.

69. After the decision was made to provide additional administrative and technical support especially to GHS-N, the development of key policies and strategies also moved forward. The technical team under the NMCP also ensured the strengthening of the coordination mechanisms and distribution channels for LLINs and ensured that the required safeguard measures were finally taken through the development of a national strategy for the safe disposal/recycling of nets in collaboration with the Department of Occupational Health, GHS and the implementation of this strategy in collaboration with EPA and other agencies.

70. No major issues with respect to procurement or financial management were encountered although contract management remained suboptimal through the life of the project resulting in delayed submissions by consultants.

71. While the government team ensured that basically all of the targeted communities (97%) and more than the targeted number of beneficiaries were reached, initial delays in implementation left the team scrambling during the latter part of the project to reach the final communities only a few months before closing. Implementation became more focused on the achievement of specific targets rather than achieving integration of activities under the project with that of other projects or initiatives. That said, overall integration of the project was good such as in contributing to development of the various

strategies/policies, development of the national monitoring system for community based health and nutrition services and the development of the eRegister to name a few, contributed significantly to the sector overall.

(c) Justification of Rating for Overall Borrower Performance
Rating: *Moderately Satisfactory*

72. The Government maintained strong political commitment to address nutrition and malaria concerns at community level, and made regular and timely counterpart contributions to support the project. Ultimately all PDO indicators were met, despite poor project management in the first half of the project which resulted in many communities not receiving services as early as might have been planned or possible,. Based on these considerations, the overall performance is rated moderately satisfactory.

6. Lessons Learned

73. **Support for specific priority areas alongside overall SWAp contribution.** The project was innovative in the use of an existing financing modality to direct more attention to neglected areas in the POW while still fully entrenched in the broader SWAp, thereby building upon the progress of using national systems and procedures and strengthening institutional capacity to achieve health outcomes, without regressing to project specific funding. Similarly, the use of Lot Quality Assurance Sampling (LQAS), a random sampling methodology to identify whether supervision areas (districts, sub-districts) were meeting project specific targets, combined with overall strengthening the M&E system at all levels, highlights how it is possible for earmarked funding to introduce innovation while contributing to the SWAp as a whole.

74. **Effective use of incentives for community volunteers.** One of the lessons learned under this project is the need to effectively utilize limited funding of inputs and incentives for volunteers to deliver community-based services given the overall high cost of providing incentives to such a large cadre of people. While as the financial inputs on their own were found to be insufficient by most volunteers, examples of more effective use of these funds and other incentives was seen across districts and communities such as the enrollment of volunteers into the National Health Insurance Schemes, the exemption from communal activities and levies and priority treatment at health facilities. However, in order to further optimize the inputs for community volunteers in the future links to performance should also be considered.

75. **Timely Restructuring.** The initial implementation arrangements for the project constrained its progress. The restructuring greatly improved the management arrangements and helped move the project forward. Because of the implementation constraints, the task team moved the anticipated date for the mid-term review forward in order to get to the restructuring earlier. Proactive supervision clearly led to improved project performance. In hindsight, this restructuring **could** even have been done earlier.

76. **Importance of local ownership.** The leadership, dedication and ownership shown by GHS-PPME together with improved provisions for supervision to the

government team positively influenced ownership at regional and district level. This also facilitated improved data management through the strengthening of e register. Community based health is now a cornerstone of health delivery system in Ghana.

77. **Other.** It should be mentioned that while the addition of a sub-metro areas of Accra and Kumasi in the Great Accra and Ashanti regions to the project was done especially to draw on lessons learned based on implementation in urban settings, late implementation of community-based health and nutrition services in these areas means that such lessons have still not been identified at this time.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

78. The Government team appreciates the efforts by the WB team from the proposal development through to the end of the project, including the preparation of the ICR. Throughout the project, the task team leaders and the team of consultants provided guidance and advice indicating the wealth of experience in handling such projects. For example guidance on early planning for the preparation of the ICR was very helpful.

79. The scheduled missions, though seemed disruptive at the time, sometimes helped shape the progress in implementation especially for the initial part of the project when performance started declining. Both task team leaders who worked on the project provided much support but were also firm on deliverables. The CPPR workshop, held in 2012, was also very educative and a good opportunity to share experience with other WB project staff.

80. The Government team appreciates the efforts in completing the ICR. Government team was very involved throughout the preparation. The main comments from Government team on the ICR were that: (i) the end line survey be used to inform the project performance evaluation; and (ii) program data play a key role in the analysis to guide continuous improvements in the quality and completeness of program data collection and management.

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(b) Cofinanciers

N/A

(c) Other partners and stakeholders

N/A

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
1. Institutional strengthening for coordination, implementation and outcomes	2.2	4.0	9
2. Community-based health and nutrition service delivery	13.0	11.9	52
3. Malaria prevention	9.8	9.1	39
Total Baseline Cost	25.00	25.00	
Physical Contingencies	0.00	0.00	0
Price Contingencies	0.00	0.00	0
Total Project Costs	0.00	0.00	
Front-end fee PPF	0.00	0.00	0
Front-end fee IBRD	0.00	0.00	0
Total Financing Required	**25.00**	**25.30**	**100**

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		0.50	0.50	100
International Development Association (IDA)		25.00	25.30	100

Annex 2. Outputs by Component

2.1. The project was organized around three components and the following presents the outputs from each component.

Component 1: Institutional Strengthening for Coordination, Implementation and Outcomes (US$ 4.0 million)

2.2 The specific objectives of this component were: (i) to develop effective inter-sectoral coordination, ownership, and accountability for nutrition towards the establishment of a coherent national program; and (ii) to strengthen the MOH and GHS to effectively coordinate implementation of the community-based health and nutrition program supported by the project. (Source: PAD)

2.3. The intermediate outcomes for component 1: (i) improved health sector ownership, leadership and accountability for nutrition and child survival outcomes; and (ii) nutrition mainstreamed in cross-sectoral operations; are shown in table A2.1 together with the associated intermediate results indicators.

Table A2.1: Intermediate results for Component 1

Intermediate Outcomes	Intermediate Outcome Indicators	Baseline (Original)	Baseline (Restructuring)	Original Target Value (Cumulative)	Revised Target Value (Cumulative)	Achieved
Improved health sector ownership, leadership and accountability for nutrition and child survival outcomes	Proportion (%) of planned supervision and support activities by District Health Management Teams (DHMTs) in the intervention areas having been conducted (IO1)	0	No data available	75%	75%	100%
	Proportion (%) of communities in target areas with a functional community health committee (IO@)	new	No data available	new	50%	23.1%
	Number (#) of health personnel receiving training (IO3)	(not in original results framework although mentioned)	159	(500)	500	3,853 health workers and 20,496 volunteers
Nutrition mainstreamed in cross-sectoral operations	Development of the National Nutrition Policy (IO4)	National Nutrition Policy not available	Procurement process has begun		Policy available	Policy available

2.4 **Establishment of coordination mechanisms at all levels**. Although the establishment of a formal national inter-ministerial coordination committee was dropped as an activity during restructuring, multiple coordination mechanisms were established both at national level and across sub-national levels. At the national level the Technical Committee (TC), functioned throughout the project life, frequently meeting with active participation and productive inputs from members. It was initially chaired by PPME-

MOH and subsequently by PPME-GHS after restructuring with members from Ghana Education Service (GES); Ministry of Food and Agriculture (MOFA); Department of Community Development (CD) under Ministry of Local Government, Rural Development and Environment (MLGRDE); Ministry of Women and Children's Affairs (MOWAC); and Ministry of Finance and Economic Planning (MOFEP).

2.5 In each of the 5 project regions Regional Advisory Committees (RAC) were established, based on existing social sector sub-committees and chaired by the Regional Coordinating Director of the Regional Coordination Council (RCC). They were composed of regional directors from GHS, Ministry of Food and Agriculture (MOFA), Ghana Education Service (GES), Child Health Department under Ministry of Women and Children's Affairs (MOWAC), Department of Community Development under Ministry of Local Government, Rural Development and Environment (MLGRDE), as well as the Regional Planning Officer from Ministry of Finance and Economic Planning (MOFEP) and a regional focal person for the project. These committees coordinated the district sub-projects, provided technical assistance and reviewed all of the proposals, budgets and performance of the district sub-projects.

2.6 Similarly, in each of the 77 project districts a District Advisory Committee (DAC) was established, based on existing social sector sub-committees, and chaired by the District Chief Executive. Members included the various heads of Ministries, Departments and Agencies drawn from the Social Services Sub-committee of the District Assembly (DA), namely health, agriculture, education and community development. The DACs were responsible for planning, budgeting and overseeing the sub-projects including the development of annual district plans of action. In order to provide additional support to the district, GHS also developed together with key stakeholders specific guidelines for community level planning and budgeting which were subsequently included in the overall planning guidelines provided to all districts from MOFEP.

2.7 The project reached 5394 (97%) of the targeted 5584 communities, 23.1% of which managed to have functional Community Implementation Committees (CIC), many of which were established based on existing community health committees. These CICs facilitated the identification of the community volunteers, also known as the "community growth promoters". The CICs hosted regular meetings with sub-district staff such as the community health officers (CHO) and nurses (CHN), to whom they also provided monthly progress reports to, and organized periodic community dunbars (meetings), to discuss progress and any pertinent issues.

2.8 **Development of key strategies to mainstream nutrition across sectors.** To mainstream nutrition into the multisectoral development agenda, key strategies and guidelines were developed. This included preparation of the milestone *National Nutrition Policy* which will guide planning and implementation of future nutrition activities in Ghana and is currently awaiting adoption as a cabinet paper. A companion document, the national *Nutrition Advocacy Strategy* was designed to guide activities for improved awareness and responsibility across sectors and at all levels has been implemented in part under this project. Preparation of the school health and nutrition curriculum was dropped

during restructuring however the project instead significantly contributed to the development of a comprehensive *Community Service Delivery Strategy* which addresses three major challenges: multiple service delivery mechanisms, volunteer standards and a data collection system at community level.

2.9 **Development of a national Vitamin A Supplementation Strategy.** Vitamin A is recognized as one of the highest priority micronutrients for child survival. The very important Ghana national strategy, on how to ensure twice-yearly distribution of vitamin A supplements in a post- National Immunization Days (NID) era, was one of the key outcomes of this component.

2.10 **Development of a broad electronic monitoring system for a range of community based health and nutrition services.** In order to develop a monitoring system which could capture relevant information at community level and make it accessible to a range of stakeholders, GHS developed an electronic register database system (eRegister) which captures a wide range of program data from community level and links the outputs to the outcomes captured in the District Health Information System. The project thus produced a means to provide critical information to benefit the broader health sector. This mechanism has been adopted and is being used by a broad range of health partners in the country

2.11 **Improved project management capacity of GHS.** The project enhanced the GHS working environment, an element with a bearing on staff productivity. Before project support GHS-N facilities were extremely poorly equipped making it very difficult for the staff to work efficiently. Project inputs improved internet connectivity and provided for printers, scanners and computers. Additional skilled contracting and technical personnel were provided as well as project financing participation of key staff in relevant management training and courses.

Component 2: Community-Based Health and Nutrition Service Delivery (US$11.9 mill)

2.12 The specific objective of this component was: to scale up community based health and nutrition services for children under two and pregnant women based on a community-level package of Essential Nutrition Actions. (Source: PAD)

2.13 The intermediate outcomes for component 2: (i) enhanced care of pregnant women, lactating mothers and young children; and (ii) improved micronutrient intake in target group; are shown in table A2.2 together with the associated intermediate results indicators.

Table A2.2: Intermediate results for Component 2

Intermediate Outcomes	Intermediate Outcome Indicators	Baseline (Original)	Baseline (Restructuring)	Original Target Value (Cumulative)	Revised Target Value (Cumulative)	Achieved
Enhanced care of pregnant women, lactating mothers and young children	Proportion (%) of mothers of children under two years of age who had at least 4 pregnancy care visits during their most recent pregnancy (IO5)	69*	70.8**	79	78	83
Improved micronutrient intake in target group (Note: revised during restructuring. Original: Improved status in targeted children aged under two)	Proportion (%) of children 6-59 months of age who have received at least one vitamin A supplement in the last six months (IO6)	78*	58.3**	80	70	51.6
	Proportion (%) of new mothers who receive high-dosage vitamin A supplements within 8 weeks of delivery (IO7)	43*	60.3**	53	69	74.9

Source: * DHS 2003 (national averages), **DHS2008 (target region average)

2.14 **Delivery of community based health and nutrition services to 391,198 beneficiaries.** As can be seen from table A2.3 the project was implemented in 97% (5,394) out of the targeted 5,584 communities reaching 309,531 children under the age of two and 81,667 pregnant women with key community based health and nutrition services.

Table A2.3: Project coverage data

Regions	Districts		Communities		Beneficiaries			
					Children under 2		Pregnant Women	
	Target	Covered (%)	Target	Covered (%)	Target	Covered (%)	Target	Covered (%)
Northern	20	20 (100%)	1928	1738 (90.1%)		119,163		33,218
Upper East	9	9 (100%)	584	584 (100%)		43,052		9,950
Upper West	9	9 (100%)	521	521 (100%)		23,590		13,798
Central	17	17 (100%)	961	961 (100%)		40,328		6,295
Volta	18	18 (100%)	1436	1436 (100%)		72,031		17,010
Western	2	2 (100%)	49	49 (100%)		5,192		1396
Ashanti	1	1 (100%)	60	60 (100%)		6,175		0
Greater Accra	1	1 (100%)	45	45 (100%)		N/A*		N/A*
Total	77	77 (100%)	54	5394 (97%)	300,000	309,531 (103%)	65,000	81,667 (126%)
					Total number (%) of beneficiaries			**391,198** (107%)

*Coverage data from the selected sub-metro district in Greater Accra was not yet available given late implementation and reporting on activities

2.15 **Improved community level capacity for delivering nutrition and health services.** Each of the 5,394 communities had a minimum of one community volunteer identified for a maximum of 25 children under the age of two who was trained to become a "community growth promoter". In total 20,946 volunteers were trained, equivalent to

one volunteer per every 15 children. The reason for the increased number trained was due to the fact that not all community children participated given the distances covered by some communities, and the inaccessibility of such services, for example during raining season, in some communities. In some other cases volunteers dropped out, some because of low morale, others because of relocation, resulting in the need to identify and train new volunteers as community growth promoters.

2.16 **Regular growth monitoring.** In each of the communities the trained growth promoters organized regular child growth promotion sessions. During these sessions children were weighted and their progress (or lack thereof) discussed with mothers/caretakers. The sessions also included counseling on good infant and young child feeding practices, promotion of vitamin A supplementation, importance of adequate iron intake and iodized salt, deworming, LLIN use as well as hygiene and environmental sanitation practices. Caretakers of children who were ill or overdue for vaccinations were encouraged to take their children to the nearest health facility for appropriate action. Similarly pregnant women were strongly encouraged to attend antenatal care services and in doing so the project increased demand for health services and utilization of health facilities. Home visits were conducted especially to follow up on children who were growth faltering or not attending growth promotion session. By the end of the project more than three quarters (76%) of participating children and their caretakers attended the community based growth promotion sessions regularly, defined as attending a minimum of two sessions in the last three months, according to administrative data collected.

2.17 **Improved uptake of antenatal care services**. During growth promotion sessions, mothers and caretakers were informed about the importance of regular attendance of antenatal care to help ensure improved future pregnancy outcomes. During the course of the project the utilization of such services increased in the project areas; at the end of the project an estimated 83% of women with children under the age of two had attended a minimum of four antenatal care visits in her last pregnancy.

2.18 **Improved demand for vitamin A supplementation**. Over the lifetime of the project the demand, as indicated by the increased uptake, of twice yearly vitamin A supplementation for children age 6-59 months improved, as well as increased demand and uptake of post-partum supplementation for mothers. However, at the first few months issues of stock outs, and hence unavailability of supplies, resulted in a marked drop in the proportion of children under five years of age who had received a dose of vitamin A in the last six months, as seen in annex 3 table A3.6, despite the increased demand for the service from communities. Nonetheless, the proportion of women who received vitamin A supplements post-partum improved steadily throughout the life of the project and remained high. This indicator is a longer-term measure and hence is less influenced by the stock-outs experienced at the end of the project. In sum, the project resulted in improved demand for vitamin A supplementation.

2.19 **Implementation of advocacy and communication activities.** As part of the activities undertaken by each district, various advocacy and communication activities were undertaken. These included sensitization sessions at community level with the aim

of creating better awareness of the importance and impact of such community based nutrition and health services, and enhanced ownership and community engagement in the project. Activities also included group education on selected key messages based on the national package of Essential Nutrition Actions (ENA)[6], such as the importance of exclusive breast feeding, directed at community and household decision makers such as fathers, grandmothers, mothers in- law, and religious leaders, in addition to mothers. At national level a video highlighting the experiences and success of the project was also developed to generate understanding and knowledge of the importance of community based nutrition and health services and their potential impact on key health outcomes.

Component 3: Malaria Prevention (US$9.1 million)

2.20 The specific objective of this component was: to increase utilization of long lasting insecticide treated nets in order to reduce malaria related morbidity and mortality among children under five and pregnant women. (Source: PAD)

2.21 The intermediate outcome for component 3: (i) reduced burden of and damage due to malaria infection; is shown in table A2.3 together with the associated intermediate results indicators.

Table A2.3: Intermediate results for Component 3

Intermediate Outcomes	Intermediate Outcome Indicators	Baseline (Original)	Baseline (Restructuring)	Original Target Value (Cumulative)	Revised Target Value (Cumulative)	Achieved
Reduced burden of and damage due to malaria infection	Proportion (%) of households with children under five having at least one LLIN (revised) (Original: proportion of households in the intervention areas who have at least 2 LLINs reaches 80% by 2011)	Not available	46.2**	80	51	57.6
	Number (#) of LLIN purchased and/or distributed		0.9million		1.55 mill	1.55 mill

Source: * DHS 2003 (national averages), **DHS2008 (target region average)

2.22 **Distribution of 1.55 million long lasting insecticide-treated nets (LLINs).** The project supported the National Malaria Control Program (NMCP) to procure and distribute a total of 1.55 million LLINs over the 5 year life span of the project, as part of

[6] ENA is a set of affordable and highly effective nutrition interventions delivered at health facilities and in communities to improve the growth and micronutrient status of children. These essential actions protect, promote and support the achievement of six priority nutrition behaviors: (i) exclusive breastfeeding for six months; (ii) adequate complementary feeding starting at about six months with continued breastfeeding for two years; (iii) appropriate nutritional care of sick and severely malnourished children; (iv) adequate intake of vitamin A for women and children; (v) adequate intake of iron for women and children; (vi) adequate intake of iodine by all members of the household.

the overall national program. The NMCP was also supported by other donors including the President's Malaria Initiative, UNICEF and the Global Fund. During the first years of the project bed nets were distributed, according to the national distribution policy, at a subsidized cost to pregnant women and children under two through campaigns and/or through various community outreach programs, antenatal clinics and Child Welfare Clinics or other routine public health services. The oversight and overall responsibilities of the activities fell under the GHS National Malaria Control Program (GHS-NMCP) while implementation was done through the decentralized Health Management Teams (HMT) at regional, district and sub-district levels.

2.23 As agreed the LLINs funded through the project were included in the larger pool of nets managed under NMCP together with inputs from other donors with distribution based on needs rather than geographical limitations. This meant that project regions already supplied with nets did not receive direct support from this project, but that nets instead were diverted to other regions. Due to procurement delays the 700,000 nets were procured for the 2007 National Maternal and Child Campaign were distributed as vouchers of which 84% were exchanged for nets in early 2008. (see table A2.4).

Table A2.4 Distribution of LLINs during the 2007 campaign

Region	**Total number of nets delivered to the region**	**Number (%) of coupons exchanged for nets**	**Use of remaining balance of nets**
Greater Accra	260,000	200,592	Remaining 59,408 nets were distributed free of charge to children age 0-11 months during the 2008 campaign
Ashanti	302,000	286,039	Remaining 15,961 nets were distributed to children under 5 and pregnant women at community durbars and outreach programs
Central	122,000	91,452	Remaining 30,548 nets were distributed to children <5 years at the child welfare clinics
Volta	15,120	9,194	Remaining 5,926 nets were given to hospital wards in the region
Total nets distributed for 2007 campaign	699,120	587,277 (84%)	
Remaining nets carried over into 2008 distribution	880		
Overall number procured	700,000		

2.24 In 2009 an additional 200,000 nets were distributed through the regular health delivery system. Neither staff from NMCP nor any of the Regional nor District HMTs were able to provide any information on the number of nets sold, versus LLINs still available or whether intended beneficiaries were reached. Although additional nets were procured in 2010, then these did not get distributed until all of the previous nets had been accounted for through a technical audit.

2.25 Around the time of the midterm review of the project and the preparations for restructuring, GHS changed the ITN distribution model from subsidized distribution to free mass distribution through regional door-to-door hang-up campaigns, as a means to achieve the national target universal ITN coverage. Therefore the subsequent 450,000

LLIN purchased with funds from this project, were distributed through successful universal hang-up campaigns, carried out by community volunteers through a door-to-door hang-up exercise.

2.26 **Revision of the routine LLIN distribution system.** The change in distribution policy led to the inclusion of a new activity under the malaria control component one designed to ensure more long term plans for LLIN distribution in Ghana. This was accomplished with project support in the development of a revised and enhanced routine LLINs distribution system. This system, consisting of distribution of LLINs during the first ANC visit, with the second measles vaccination (at ~18 months of age) during the expanded program of immunization and through schools when entering grades 2 and 6, will allow GHS to better monitor and sustain progress in achieving universal coverage through the door-to-door hang up campaigns, and to allow LLIN promotion at community and health facility level to build on improved, and sustained LLIN access.

2.27 **Improved tracking of the distribution of bed nets.** In the early stages of the program, the lack of information on the amount and utilization of funds collected and bed net distribution, led to the expansion of the M&E component for the NMCP during restructuring of the project. The project gave support to the development of an improved LLIN tracking system to address weaknesses in the existing logistics management system. While the initially planned insecticide resistance monitoring was dropped as it was supported by others and fell outside the main focus of the project. Staff from the Regional Medical Stores and the District Health Management Teams (DHMT) was trained on how to use the new system as well as trained in general logistical management.

2.28 **Improved utilization of LLINs in Ghana.** Over the life of the project the utilization of LLINs improved in general in Ghana. Because national data (MICS 2011) was collected before the regional Universal Coverage Campaigns were initiated or fully completed in the majority of regions including Northern, Upper East, Upper West, Central and Western regions, it is not possible to accurately assess whether there was increased utilization was seen as a result of the promotion of bed nets by the project-supported community growth promoters and community health workers.

2.29 **Improved safeguards management for bed nets.** With support from the project the Occupational Health Department under GHS developed a national strategy on the safe disposal or recycling of insecticide treated bed nets.

Annex 3. Analysis of the PDO and intermediate indicators

3.1 The relationship between the various PDO and intermediate indicators, also known as the results chain, is depicted in figure 1 below. Given the causal relationships between PDO indicators 1,2,3, and intermediate outcome (IO) indicators 1,2,3,4,5,6,7,10,11 and similarly the relationship between PDO 4 and IO 8,9 indicators, then these will be discussed in that order.

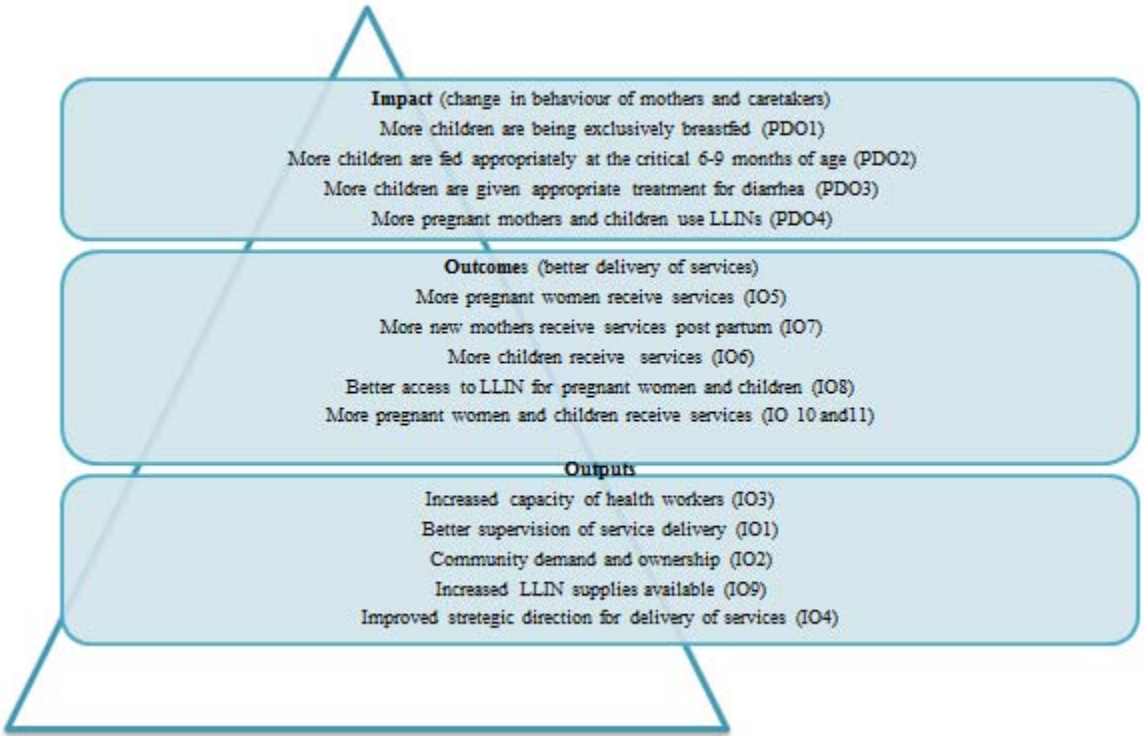

Figure A3.1 The relationship between the various PDO and Intermediate Outcome (IO) indicators

Project Development Objective 1: "*Proportion (%) of infants under six months exclusively breastfed in the past 24 hours".* (Achievement of revised target: 84.5/80 = 106%) – **Achieved**

3.2. **Improvement in exclusive breastfeeding rates.** According to the project administrative data, weighted according to number of communities of the 5 regions which implemented the community-based health and nutrition services in all districts namely Northern, Upper East, Upper West, Central and Volta regions, 84.5% of children under the age of six months were exclusively breastfed. This surpasses the original target by 69% and the revised target by 80% (see figure A3.2 below).

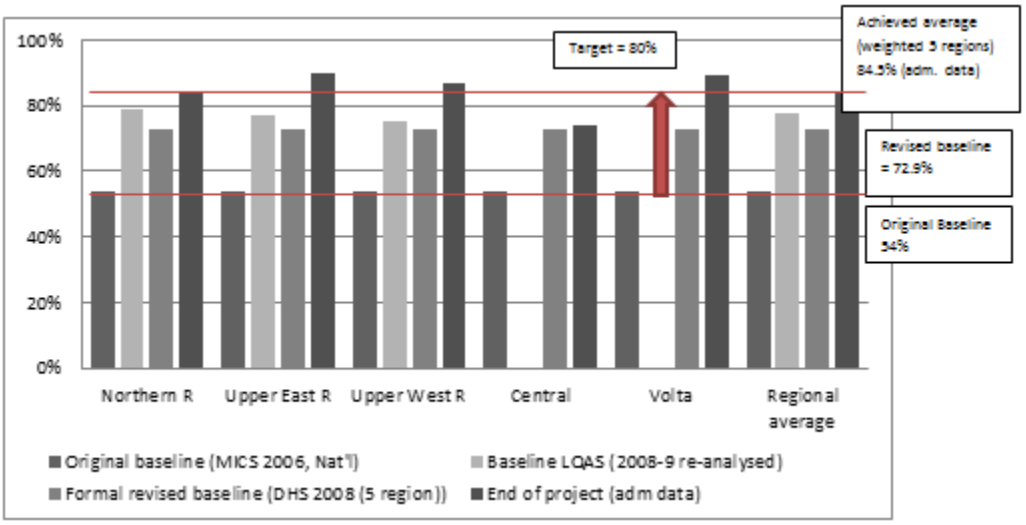

Figure A3.2: Exclusive breastfeeding prevalence (%) in project regions at start and end of project

3.1 While improvements were seen in all regions the target was not met by in the Central region, principally because they did not implement activities in some districts until very late in the project and hence had limited time for impact. Given the relative limited number of communities in this region this has little impact on the significant achievements seen in the other regions and hence the overall impact.

3.2 The planned DHS 2013 did not take place and given issues with the quality of the endline survey, project administrative data was used instead for this as well as for the other outcome indicators. Also, although the project was also implemented/piloted in one district/sub-metro area each in the Western, Greater Accra and Ashanti regions, given the limited project geographical coverage in these regions combined with the lack of project administrative data from two out of the three aforementioned regions, these districts were not included in the analysis. However given the relative limited number of communities/beneficiaries targeted in these areas their omission from the analysis should have limited effect on the overall results.

Project Development Objective 2: "*Proportion of infants 6-9 months receiving semi-solid and/or solid foods in addition to breast milk in the past 24 hours"* (Achievement of revised target: 93.5/74 = 126%) - **Achieved**

3.3 **Improvement in appropriate feeding practices of children age 6-9 months.** According to project administrative data the targets were surpassed in all regions, on average 93.5% of children aged 6-9 months received appropriate complementary feeding and continued breastfeeding (figure A3.3 below).

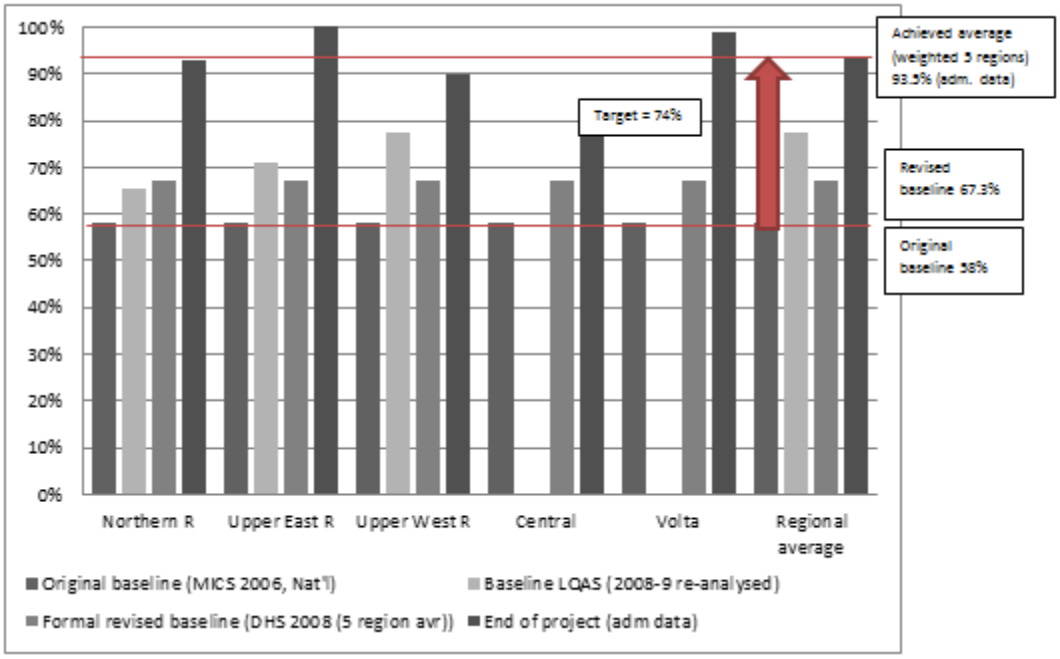

Figure A3.3: Prevalence (%) of appropriate complementary feeding and continued breastfeeding at age 6-9 months at start and end of project

Project Development Objective 3: "*Proportion of children under 2 years with diarrhea who received oral rehydration therapy*" (Achievement of revised target: 73.3/59 = 124%) – **Achieved**

3.4 **Improvement in use of Oral Rehydration Therapy (ORT).** The use of ORT in children under two years of age during diarrhea was significantly improved during the span of the project with the targets were surpassed in all regions. On average 73.5% of children less than 2 years of age receive ORT when they have diarrhea.

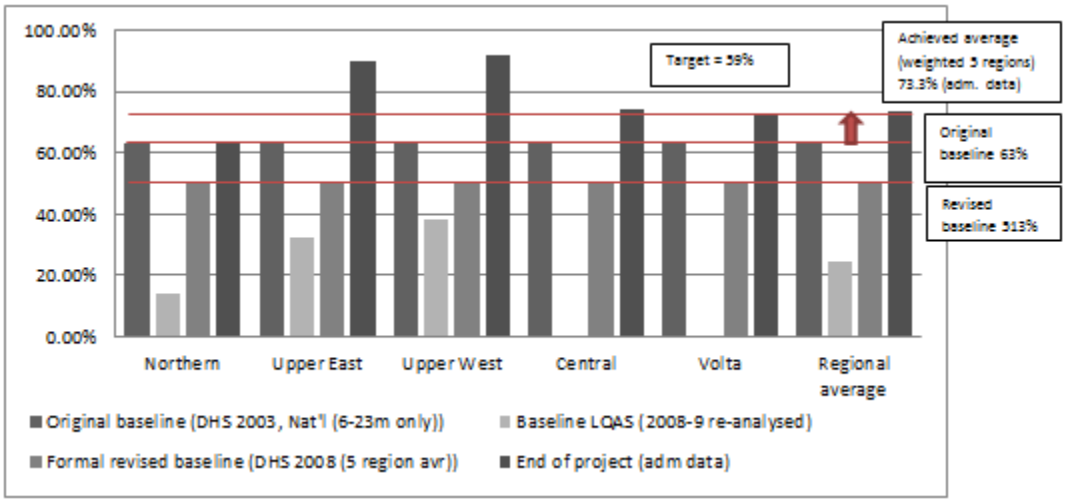

Figure A3.4: Proportion (%) of children under 2 years of age with diarrhoea who receive oral re-hydration therapy at start and end of project

3.5 **Progress seen likely attributable to the project.** First, while other factors might also have had impact, significant progress on the first three project outcome indicators is attributable to the project. For example, while improvements in infant feeding and use of ORTs occurred in the years prior to the project, national level progress stagnated during the lifespan of the project (see figure A3.5 below). It was therefore unlikely achievements seen in the project regions were due to overall nationwide progress, but rather due to efforts of the project.

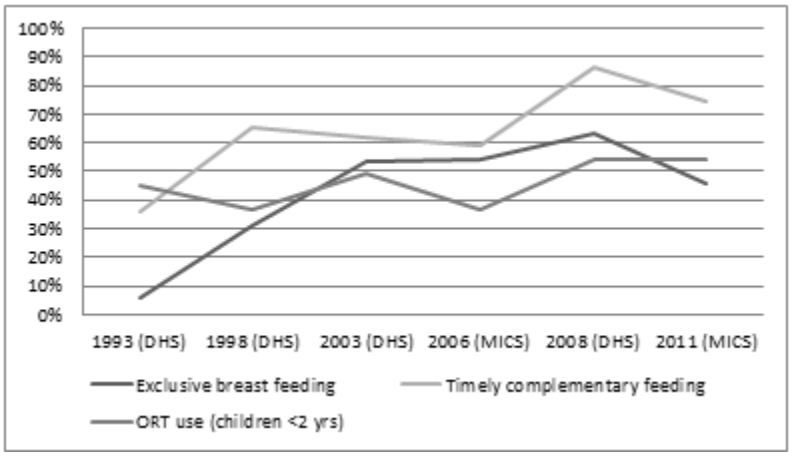

Figure A3.5: Trends in prevalence of exclusive breastfeeding, timely complementary feeding practices and use of ORT in Ghana (1988-2011)

3.6 Secondly, over the lifetime of the project relatively more pregnant women and young children received health services, as indicated by the proxy indicators IO 5, 6, 7. Although the administrative data at the end of the project reflect very low levels of vitamin A supplementation in children, this was likely caused by supply issues during the last campaign rather than any permanent decrease in the demand for the service. In fact levels recorded in 2012 were significantly higher and the levels of vitamin A supplementation post-partum delivered through routine services continued to increase during the last year of the project (see figure A3.6 below).

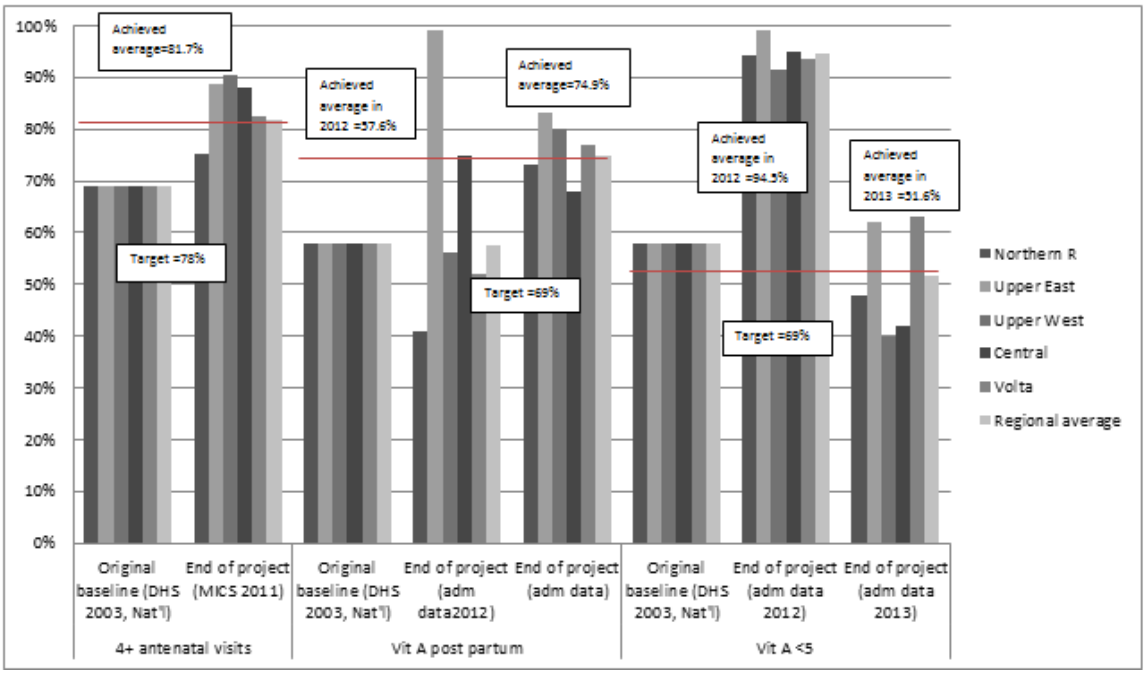

Figure A3.6: Proportion (%) of pregnant women, new mothers and children under five receiving key health and nutrition services at start and end of project

3.7 To determine if the increase in utilization of services in the project regions over the lifetime of the project (2007-2013) could be attributable to the project, an analysis using comparable survey data (DHS 2008, MICS 2011) was conducted. The three northern regions were chosen because they had started implementing sub projects by the time the data collection for MICS 2011 started (August 2011), versus overall national averages. Given that MICS 2011 did not include an indicator for vitamin A supplementation postpartum (IO7), only analysis of antenatal service delivery (IO5) and vitamin A supplementation of children (IO6) was done.

3.8 The analysis revealed that the increase in the proportion of women who made 4+ antenatal visits was higher on a national basis than in the 3 northern regions (see figure A3.7). However this indicator is not very sensitive to interventions made recently because it captures a 2 year period. As a result it is quite likely that any potential improvements in project regions would not be reflected given that at the beginning of that time period only a very limited number of communities had started implementing community based interventions[7]. The same analysis also revealed that the relative improvements in the proportion of children aged 6-59 months who received one or more vitamin A supplements in the past six months was significantly higher in the project regions versus at national level.

[7] According to the Midterm Review annex 3 and compared to the fact that 2843 communities in the three northern regions implemented activities at the end of the project, only 138 communities, equivalent to 4.85%, had started implementing interventions by September 2009, corresponding to ~2 year prior to the collection of MICS 2011.

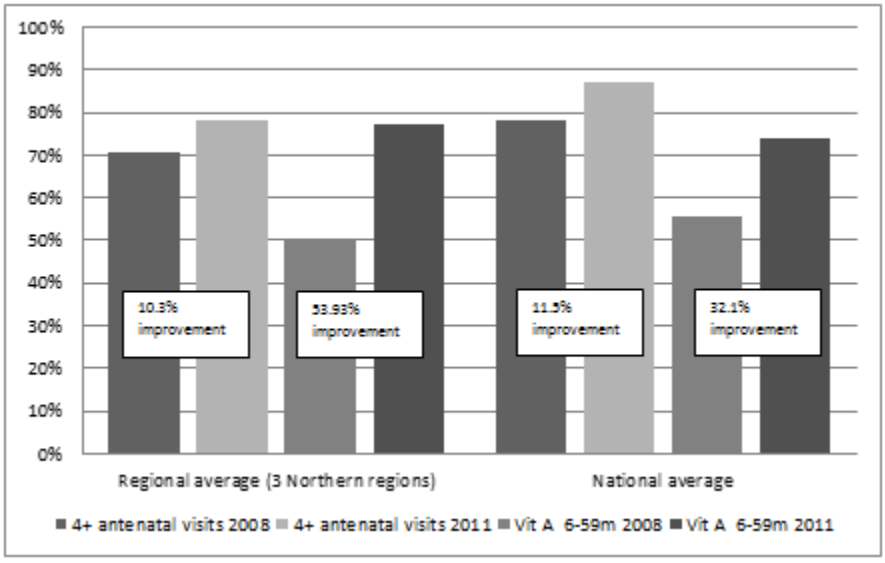

Figure A3.7: Proportion (%) of pregnant women and children under five receiving key health and nutrition services (IO 5,6) at start (DHS 2008) and end of project (MICS 2011)

3.9 Therefore there is good indication that the achievements related to PDO indicators 1,2,3 and the related intermediate outcome indicators were attributable to the project.

Project Development Objective 4: "*Proportion of pregnant women and children under five years of age who sleep under LLINs the night preceding the survey is carried out*" (Achievement of revised target for pregnant women: 36/25 = 144%) (Achievement of revised target for children: 46/30 = 153%) - **Achieved**

3.10 **Usage of LLINs has significantly improved.** Over the life of the project the utilization of LLINs significantly increased. According to MICS 2011 36% of pregnant women and 46% children under the age of five were utilizing LLINs in the project regions, surpassing the targets by more than 50% (see figure A3.8 below).

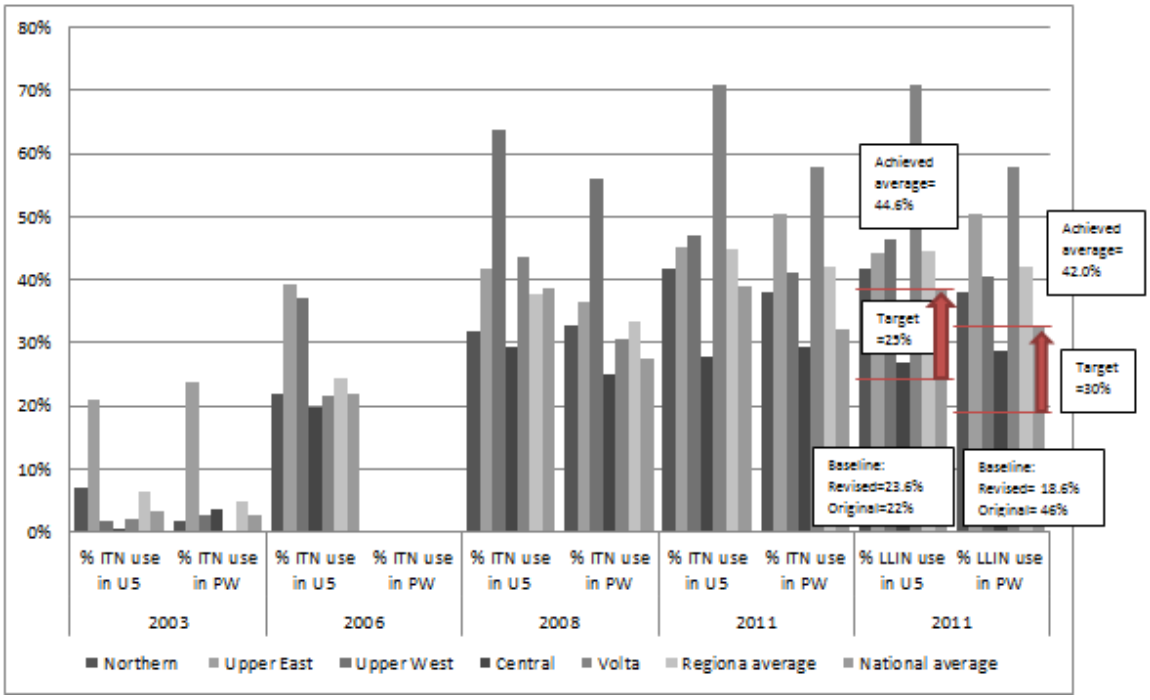

Figure A3.8: Progress on the use of LLIN and ITN by pregnant women and children under five

3.11 The data used to access progress on this indicator (MICS 2011) was collected prior to the completion of seven out of the 10 planned regional mass-distribution campaigns and it can be assumed that overall impact is likely even higher. This is because in the 3 regions which completed the campaigns prior to the data collection, namely Northern, Eastern and Volta, an average improvement in bed net utilization of 53% and 68% was observed in children and pregnant women respectively, whereas the same improvement was only 20% and 26% respectively in the project regions overall (see figure A3.9 below).

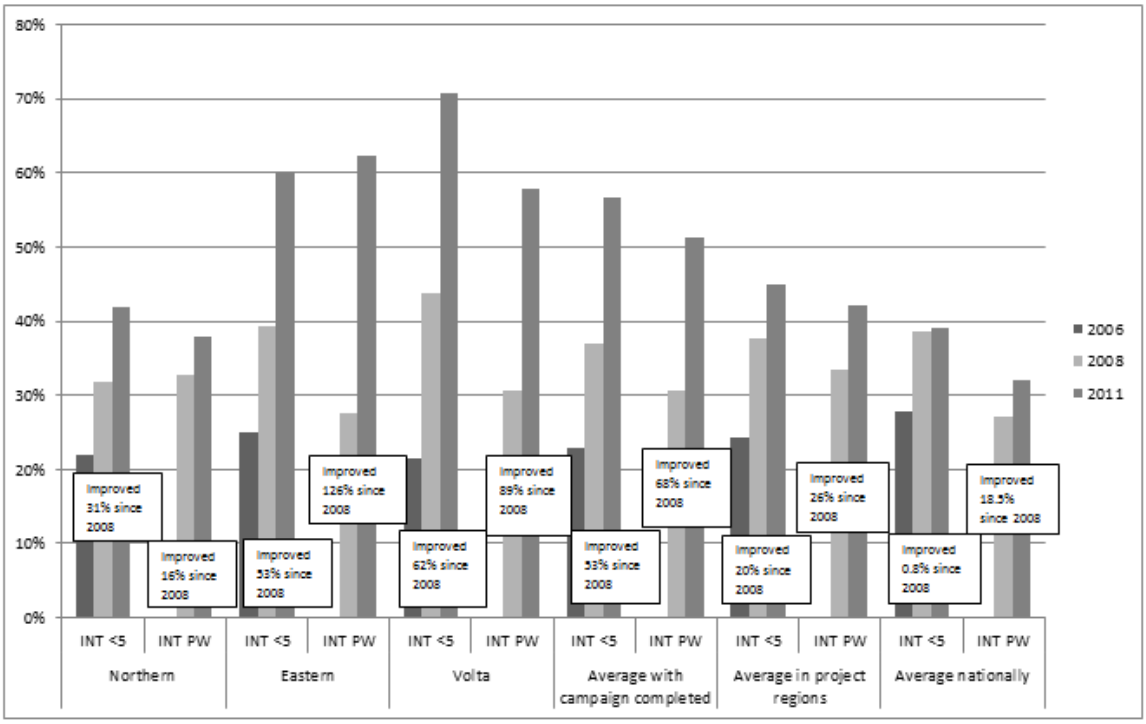

Figure A3.9: Improvements in use of ITN by pregnant women (PW) and children (<5 years)

3.12 The evidence for improved utilization of LLINs is supported by significant improved access to LLIN (IO8) seen over the lifetime of the project (figure A3.10). Data was not available specific for households with children under five and therefore data for all households were used as a proxy. The progress made on this indicator, especially given that the majority of regions had not yet started or completed their campaigns by the time the survey was collected, gives sufficient evidence to conclude that the intermediate indicator (IO8) for access to LLIN was also met. This is further substantiated by the results of the post hang-up survey conducted for the project which reported that 66.2% of all households interviewed had received LLINs between 2010 and 2012.

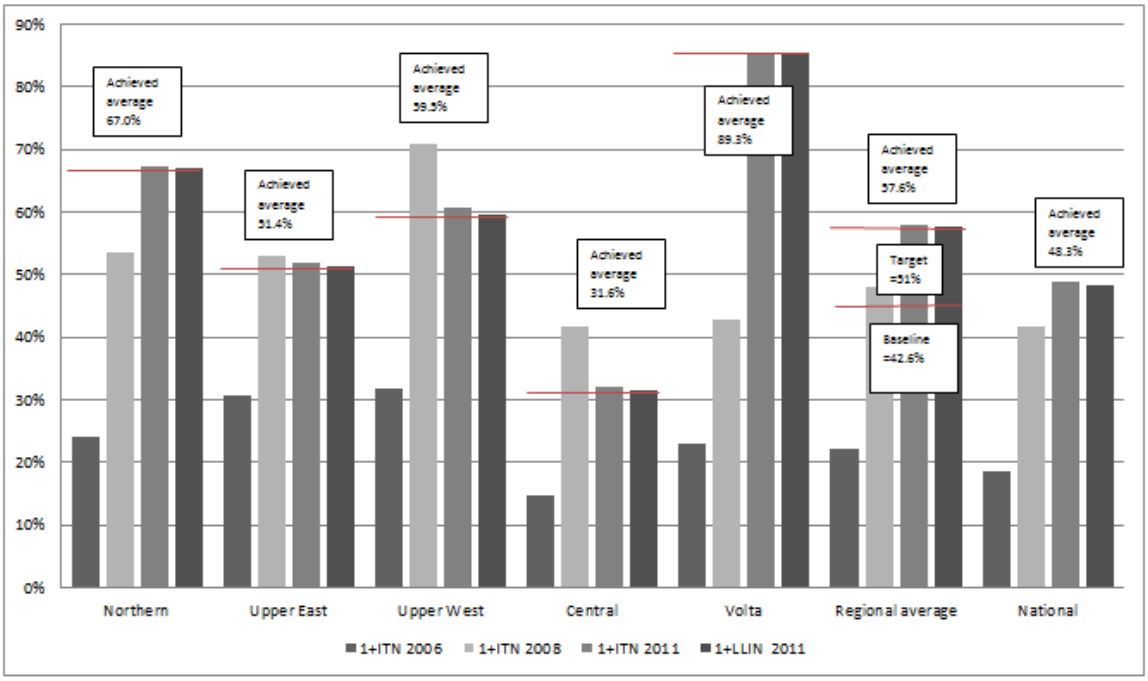

Figure A3.10: Trend in utilization and ownership of ITNs in project regions versus national averages

3.13 Improvement in access was made possible through the increase of LLIN supplies available nationally to which 1.5 million nets were contributed by the project (IO9). While an estimated 5 million nets were needed to ensure universal coverage in the project regions, then given that women of childbearing age (14-49 years) and children under the age of five make up about half of the population in Ghana, it is reasonable to assume that the nets financed under this project correspond to approximately two thirds of the needs for pregnant women and children under five in the targeted regions. This combined with the fact that LLIN use was also promoted by the community volunteers in the project areas, provides assurance that achievement of PDO 4, to a great extent, is attributable to the project.

3.14 **Other achievements**. The project reached a total of 391,198 direct beneficiaries 61% of whom were women (IO11) with key health and nutrition services, including 81,667 pregnant women (IO10) and 309,531 children under the age of two years of age (IO10), in a total of 55394 communities. The improvements in community-based service delivery was aided by the improved supervision and support provided by the DHMTs (IO1), improved technical capacity of health workers (IO3) and community mobilization including the identification and training of 20,496 community volunteers and the establishment of community committees (CIC/CHC) (IO2). Further, through the development of the National Nutrition Policy (IO4), the Ghana roadmap for nutrition improvement in the country is provided, along with the underlying evidence to make the case for food security and nutrition, communication, advocacy and policy discourse at national, regional, district and community levels.

Annex 4. Economic and Financial Analysis

4.1. The World Bank (IDA) financed Nutrition and Malaria Control for Child Survival Project (MCCSP) aimed to improve utilization of selected community-based health and nutrition services for children under the age of two and pregnant women in selected districts. It supported: (i) strengthening institutional capacity of relevant central, regional and district governments to bring cross-sectoral coordination and collaboration for effective and efficient management of results; (ii) creating demand for and expanding community-based delivery of selected health and nutrition services directly related to health and nutrition outcomes; and (iii) accelerating provision and promoting the utilization of LLINs for malaria prevention. The Bank financed the project in the amount of $25million during the period between 2007 and 2013. It is estimated that about 91 percent was spent directly planning and delivery of community-based health and nutrition services.

Project Development Impact

4.2.This project contributed to Ghana's development through the following pathways.

- First, it contributed to improving child survival by decreasing the incidence of stunting, anemia and malaria. According to WHO, malnutrition is the underlying contributing factor in about 45 percent of all child deaths and this can be prevented through improved nutrition practices. A recent World Bank study in Kenya demonstrated that increased ownership of insecticide-treated bed nets in endemic malaria zones explained 58 percent of the decline in infant mortality.

- Second, it generated long-term economic benefit by increasing active and productive labor force who can potentially contribute to economic growth and poverty elimination. With improved nutrition status, more children will survive into adulthood and work more productively as a result of better cognitive development. The most recent empirical estimates of the negative effects of stunting on worker productivity and adult earnings range from about 10 percent per year[8], to as high as 20 percent per year[9]. Anemia is associated with a 2.5 percent of reduction in wages. Productivity losses at the individual level are estimated to be more than 10 percent of life time earnings, which at the macro level can lead to a 2-3 percent loss in GDP.

- Third, it promoted equity by targeting areas where malnutrition is more prevalent. In all the five fully-covered provinces, the prevalence of

[8] Hoddinott 2003, World Bank 2006, Quisumbing, Gillespie and Haddad 2003, Alderman Hoddinott and Kinsey 2002, Ross and Horton 2003
[9] Granthan-McGregor.S et al 2007

stunting was higher than national average. This is a proxy measure for targeting poor population as poor people are more likely to have malnutrition and malaria. The project was also timely adjusted to cover the districts in the areas worst affected by serious flooding.

- Fourth, the project contributed to improving the efficiency of program implementation in Ghana by strengthening institutional capacity to take large-scale outcome improvement actions. For example, the MOH /Ghana Health Service developed a robust data management system that responded to the data needs at community level. Although not quantified, this greatly helps the country's capacity in making evidence-based decisions and realizing potential efficiency gains.

- Fifth, the project is also associated with other benefits such as prevented downstream losses from high use of health resources, required extra care for people with less cognitive development as a result of childhood stunting.

Justification for pubic intervention

4.3. Working with the public sector through this project is economically justified since: (i) it focused on high impact and cost effective nutrition and malaria interventions which are a public good, enabling better use of the finite resources; (ii) the presence of positive externalities through the consumption and/or production of goods and services that would otherwise not have been consumed; (iii) addressing market failures arising from imbalance between the knowledge of the supplier and the knowledge available to the consumer (information asymmetry); and (iv) having partnership with private sector is not practical in the target areas given their limited availability.

Cost-benefit Analysis

4.4. Although it is ideal to use recent outcome data to confirm the previous conclusion, it remains a challenge for many developing countries where routine data system is weak. With the absence of reliable administrative data, Demographic and Health Surveys (DHS) are commonly considered the gold standard for measuring child health outcomes (e.g., under-5 child mortality). Ghana DHS 2008 was conducted after project approval and the results were used to update project baseline values. The 2013 DHS has been delayed and it is possible that the survey will be withdrawn. There are data available from two Multiple Indicator Cluster Surveys (MICS) for 2006 and 2010. This period is not enough to capture the full effect of the project, in particular the significant achievements made through the later stage. In addition, project effect cannot be accurately estimated using the MICS results, since there is no aggregate estimate available for the project areas.

4.5. The results at output level, however, indicates that the outcome may have improved more than expected, because many indicators measuring coverage of essential health and nutrition interventions have exceeded their targets. For example, the proportion of infants under six months who are exclusively breastfed in the 24 hours has increased from 72. 9 to 84.5 percent, exceeding the target of 80 percent. More than 90 percent of infants between six and nine months received semi-solid foods, exceeding the target of 74 percent. About 1.55 million bed nets (1.3 million estimated at appraisal) have been distributed through the project, accounting for approximately two-thirds of the needs for pregnant women and children under five in the targeted regions. Consequently, the proportion of under-five having slept under treated bed nets almost doubled during the project period, with the target exceeded by 50 percent.

4.6. Despite a one-year extension of project implementation, the project has been implemented efficiently. It has successfully expanded coverage of key health interventions at a large scale, achieving more than expected without additional resources. Implementation challenges were addressed in a timely manner to avoid any subsequent negative consequences. The Bank team responded to the government's requests to change implementation arrangements, which caused rapid acceleration in the implementation of activities. Technical and contract management support were provided to GHS-N for them to deliver technical specifications of procured goods in a timely manner, ensuring availability of commodities in facilities.

4.7. The results from previous economic analysis remain valid based on the following ground.

- The previous analysis used the standard World Bank methods for evaluating projects where investment costs of resources used are compared with the stream of economic benefits, where stream of benefits and costs are discounted to present values using a discount rate to represent the opportunity cost of capital in the country.
- The assumptions used by the previous economic analysis were either based on Ghana specific health parameter or global scientific literature, with average or conservative estimate chosen when there is a range.
- Although not being quantified, it is expected that similar or even stronger results may come out of the analysis if data were available. The previous analysis was based on the target results specified in the project design. As the report shows in other sections, many indicators have exceeded original targets. It is therefore possible that the project has achieved greater benefits than being estimated previously. In addition, the analysis did not include some benefits that cannot be easily translated to monetary values, e.g., system efficiency.

Summary of previous cost-benefit analysis

4.8. At appraisal, the cost-benefit analysis concluded that, at 5 percent discount rate, the net present value of the project investments was estimated at about US32.3 million

with an internal rate of return estimated at 22 percent and a high benefit-cost ratio of 2.4. The results were robust to changing discount rate as 10 percent, halving the assumed effect of controlling anemia, iodine deficiency and malaria, or halving the assumed effect of exclusive breast feeding.

4.9. The analysis was updated at restructuring to reflect changes in flow of benefits due to implementation delay. The analysis showed that the benefit-cost ratio as 2.81 with a net present value of close to US$40 million.

Table A4.1 Cost-Benefit Analysis of the Ghana NMCCSP conducted during restructuring (in US$)

COSTS	**PRESENT VALUE---PROJECT COST** **At 5% discount rate**	**US$21.9 million**
BENEFITS	Present Value (PV) increased lifetime earnings arising from reduced stunting	US$6.7 million
	Present Value (PV) savings from exclusive breastfeeding and complementary feeding	US$21.3 million
	Present Value (PV) increased lifetime earnings with reduction in anemia, and iodine deficiency	US$26.4 million
	Present Value (PV) associated with saved lives from vitamin A and ITN coverage and lifetime productivity of family members	US$7.2 million
	PRESENT VALUE---ALL BENEFITS **At 5% discount rate**	**US$61.5 million**
	NET PRESENT VALUE	**US$39.6 million**

4.10. The methodology used in this project analysis was the standard World Bank methods for evaluating projects where investment costs of resources used are compared with the stream of economic benefits. This was the standard cost-benefit analysis, in which the stream of benefits and costs were discounted to present values using a discount rate to represent the opportunity cost of capital in the country. This analysis used 5 percent discount rate, but a sensitivity analysis using 10 percent is also estimated to assess the impact of higher opportunity cost of capital.

4.11. The direct beneficiaries of the project included about 50 percent children under 24 months (about 600,000) in the Northern, Upper West, Upper East, Volta and Central Regions, totaling 300,000. Pregnant and lactating women in these areas were also beneficiaries of the project. Likewise the 1.3 million LLINs financed by the project were distributed to all regions in the country, as part of the NMCP.

4.12. Benefits estimated for the analysis included increased lifetime earnings from reduced stunting, anemia, and iodine deficiency, reduced vitamin A deficiency, and lives saved from malaria intervention using LLINs, and economic benefits from exclusive breastfeeding derived from increased child survival. Human capital methodology was used to estimate future income flows of children who were saved through this project and will survive to adulthood[10].

4.13. Key assumptions used by previous economic analysis:

- An earnings premium of roughly 10% (for stunting avoidance), and 4% (for anemia avoidance) was applied as the effect of increased productivity potential.

- Based on Levin et al (1993), severely impaired persons due to iodine deficiency were 25% less productive compared to unaffected individuals.

- The relative risk of diarrhea mortality of partial versus exclusive breastfeeding for infants between 0-5 months was 3.011 and the relative risk for morbidity was 18.0.

- Daily production of breast milk for exclusively breastfeeding mothers was 0.750 liters per day and 0.51 liters for those partially breastfeeding[12]. The value of breast milk was estimated using the value of substitutes—artificial formula---at about $1 per liter.

- Given that contributions under this project was only for a small part of the overall vitamin A supplementation program in Ghana, the benefits estimated for purposes of this analysis was assumed at only a fraction of the overall benefits of the vitamin A supplementation program.

- For benefits of the malaria control, this analysis used the value of the reduction in the number of deaths of children under five as a result of the distribution of the ITNs in the areas covered by the project. A mortality prevention rate of half accounted for by this project in the targeted areas is assumed.

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[10] Human capital methodology has been commonly used to estimate economic benefit related to human development. Although there are concerns about whether all the saved lives will have been employed, it is also worth noting that children saved through current investment will only enter the labor market after more than 10 years. Prospect of job market may be promising given the strong growth of economy in Africa continent. More importantly, average wage also reflects the situation of unemployment, which to the extent makes the concern less of an issue.

[11] Victora 1987

[12] Hatloy and Oshaug 1997

Annex 5. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Modupe A. Adebowale	Consultant	AFTME	
Johanne Angers	Senior Operations Officer	ECSH1	
Ferdinand Tsri Apronti	Consultant	AFTA1	
Evelyn Awittor	Senior Operations Officer	AFTHW	
Gregoria Dawson-Amoah	Program Assistant	AFCW1	
Mohamed I. Diaw	Operations Assistant	CFPTO	
Edward Felix Dwumfour	Senior Environmental Specialist	AFTN1	
Marito H. Garcia	Lead Human Development Economist	AFTEW	
Manush A. Hristov	Senior Counsel	LEGEN	
Yi-Kyoung Lee	Senior Health Specialist	EASHH	
Bernhard H. Liese	Consultant	IEGCC	
Menno Mulder-Sibanda	Sr Nutrition Spec.	AFTHW	
Jonathan Nyamukapa	Sr Financial Management Specialist	AFTME	
Laura L. Rose	Sr Economist (Health)	AFTHD	
Kristine Schwebach	Social Development Specialist	AFTCS	
Supervision/ICR			
Adu-Gyamfi Abunyewa	Senior Procurement Specialist	AFTPW	
Ferdinand Tsri Apronti	Consultant	AFTA1	
Evelyn Awittor	Senior Operations Officer	AFTHW	
Samuel Bruce-Smith	Consultant	AFTDE	
Aissatou Chipkaou	Senior Program Assistant	AFTHW	
Noel Chisaka	Sr Public Health Spec.	AFTHW	
Gregoria Dawson-Amoah	Program Assistant	AFCW1	
Robert Wallace DeGraft-Hanson	Financial Management Specialist	AFTMW	
Mohamed I. Diaw	Operations Assistant	CFPTO	
Anders Jensen	Senior Monitoring & Evaluation	AFTDE	
Yi-Kyoung Lee	Senior Health Specialist	EASHH	
Ruth Afandi Mulahi	Senior Program Assistant	AFRSC	
Menno Mulder-Sibanda	Sr Nutrition Spec.	AFTHW	
Laura L. Rose	Sr Economist (Health)	AFTHD	
Elizabeth Alluah Vaah	E T Consultant	AFTME	
Joseph J. Valadez	Consultant	SASHD	
Janneke H. Blomberg	Nutrition Specialist	AFTHE	
Richard Seifman	Consultant	AFTHW	
Dominic S. Haazen	Lead Health Specialist	AFTHW	
Francisca Ayodeji Akala	Senior Health Specialist	AFTHW	
Yvette M. Atkins	Senior Program Assistant	AFTHE	
Gabriel Dedu	Governance Specialist	AFTP3	
Stephen Tetevie	Team Assistant	AFCW1	
Monica Bleboo	Consultant	AFTHW	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY07	27.71	115.87
FY08		0.00
Total:		115.87
Supervision/ICR		
FY07	0.0	0.00
FY08	46.93	119.83
FY09	33.77	182.34
FY10	35.85	166.21
FY11	42.05	164.58
FY12	20.79	65.56
FY13	23.43	177.00
Total:	202.80	895.52

Annex 6. Beneficiary Survey Results

6.1 In order to assess the views and perceptions of the direct beneficiaries in the intervention areas and the institutional stakeholders of the NMCCSP to provide feedback for project improvements, a Beneficiary Survey was conducted in March 2013 in 2 district each from the Northern, Upper East, Upper West, Central, and Volta regions as well in the district/sub-metro area in the Western, Ashanti and Greater Accra regions.

6.2 This was done through focus group discussions, key informant interviews and a questionnaire administered to the target direct beneficiaries based on the random sampling of 30 clusters from each district, from which 7 households were randomly selected. A total of 2,483 caregivers responded to administered questionnaires and 632 individuals were sampled and included in the focus group discussions while a total of 120 key stakeholders were interviewed as key informants.

6.3. **Key findings – in general**. In general the project was very well received and beneficiaries reported satisfaction and gratitude for the services provided directly in their community. The intervention with the highest perceived benefit was the distribution of LLINs while deworming was seen as being the least beneficial service delivered. The overall conclusion of the survey was that the project should be scaled up to cover all districts and regions in Ghana and sustained over a long period to help significantly improve the nutritional & malaria situation.

6.4. **Key findings – behaviors**. The survey reported that 73.6% of women had attended 4+ antenatal visits during their last pregnancy and 73% of the child growth cards examined were reported as "being up to date" indicating a good utilization of services provided. Further 62.3% of mothers and 60.8% of children were reported as having slept under a bednet the previous night, while 77% of all households visited were reported as to having bednets hangings based on observations.

6.5 **Key findings – barriers**. The following barriers were reported as contributing to a reduced access and utilization of services: (i) high attrition rate, illiteracy and lack of motivation by volunteers; (ii) financial constraints by families to provide the more nutrient dense foods to the pregnant women and children; (iii) issues of stock-outs resulting in insufficient supply of LLINs and vitamin A capsules; (iv) limited coverage, in that not all communities were implementing the project, access issues related to poor roads and long distances to health facilities; (v) project vehicles not always available as being utilized for other operational activities; and lastly (vi) impact of cultural and traditional practices e.g. in a district in Upper East region it was reported that pregnant women should hide their pregnancy while mothers with children under two years of age should not be brought out in public.

6.6 **Lessons learned**. The following was mentioned as lessons learned: (i) project benefitted the selected communities; (ii) importance of using implementation strategies which are responsive to varying to socio-economic contexts; and (iii) strong influence of traditional authorities and male household heads especially in the three northern regions.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

Annex 8. List of Supporting Documents

Key project documents:

PAD:
World Bank. 2007. *Ghana - Nutrition and Malaria Control for Child Survival Project*. http://documents.worldbank.org/curated/en/2007/05/7721884/ghana-nutrition-malaria-control-child-survival-project

Restructuring paper:
World Bank. 2010. *Main report*. Vol. 1 of *Ghana - Nutrition and Malaria Control for Child Survival Project : restructuring*. http://documents.worldbank.org/curated/en/2010/06/12576473/ghana-nutrition-malaria-control-child-survival-project-restructuring-vol-1-2-main-report

World Bank. 2010. *Data sheet*. Vol. 2 of *Ghana - Nutrition and Malaria Control for Child Survival Project : restructuring*. http://documents.worldbank.org/curated/en/2010/06/12576474/ghana-nutrition-malaria-control-child-survival-project-restructuring-vol-2-2-data-sheet

Financing agreements:
Hristov,Manush A.. 2007. *Financing Agreement, C4346-GH Conformed*. http://documents.worldbank.org/curated/en/2007/08/8188556/financing-agreement-c4346-gh-conformed

Molle,Anthony. 2010. *Amendment to the Financing Agreement Credit 4346 Conformed*. http://documents.worldbank.org/curated/en/2010/07/12703058/amendment-financing-agreement-credit-4346-conformed

Other project documents:

Awittor,Evelyn. 2012. *Ghana - Nutrition and Malaria Control for Child Survival : P105092 - Implementation Status Results Report : Sequence 15*. http://documents.worldbank.org/curated/en/2012/12/17085916/ghana-nutrition-malaria-control-child-survival-p105092-implementation-status-results-report-sequence-15

Awittor,Evelyn. 2012. *Ghana - Nutrition and Malaria Control for Child Survival : P105092 - Implementation Status Results Report : Sequence 14*. http://documents.worldbank.org/curated/en/2012/04/16231258/ghana-nutrition-malaria-control-child-survival-p105092-implementation-status-results-report-sequence-14

Bonsu Victor B, Atuik, William. (draft 2013). *Financial Management In-depth Review Report - Nutrition and Malaria Control for Child Survival Project*.

World Bank. 2013. *Ghana - Nutrition and Malaria Control for Child Survival Project : procurement plan*. http://documents.worldbank.org/curated/en/2013/01/17278695/ghana-nutrition-malaria-control-child-survival-project-procurement-plan

In addition: various Aide Memoires, Implementation Supervision Reports (ISRs), Procurement reports, Financial Management reports

Policy, Strategy, and Program Documents from the Government of Ghana

Ghana Health Services (2013 draft). *Preliminary report on consulting services to document best practices in the Nutrition and Malaria Control for Child Survival Project*

Ghana Health Services. 2013(draft) *National Nutrition Policy*

Ghana Health Services. 2013. *Strategies for Strengthening Vitamin A Supplementation in Ghana*

Ghana Health Services. 201? *National Nutrition Advocacy Strategy* - Report on development and production of nutrition advocacy materials and strategy for nutrition and malaria control for child survival project

Ghana Health Services. 2008. *Nutrition and Malaria Control for Child Survival Project. Sub-Project Manual*

Ghana Health Services. 2008. *The National Malaria Control Strategy* (2008-13)

Ghana Health Services. 2005. *Imagine Ghana Free of Malnutrition. A Concept Paper for Addressing nutrition in Ghana as a Development Problem, Using Health as an Entry Point*

Government of Ghana. 2011. MDG Acceleration Framework and Country Plan: Maternal Health.

Ministry of Health. 2013(draft). Health Sector Medium Term Development Plan (2014-18)

Ministry of Health. 2013. *Endline Survey for the Nutrition and Malaria Control for Child Survival Project.*

Ministry of Health. 2013. *Final report of the Beneficiary survey for the Nutrition and Malaria Control for Child Survival Project.*

Ministry of Health. 2013. *Final report on Long Lasting Insecticide treated Nets (LLINS) Post Hang-Up Survey for the Nutrition and Malaria Control for Child Survival Project.*

Ministry of Health. 2011. *Nutrition and Malaria Control for Child Survival Project. 2011 Baseline Report*

Ministry of Health. 2010. *Nutrition and Malaria Control for Child Survival Project. 2008 Baseline Report*

Ministry of Health. 2010. *Nutrition and Malaria Control for Child Survival Project. 2009 Baseline Report*

Ministry of Health. 2008. *The Ghana Health Sector 5 Year Programme of Work (2007-2011), Theme: Creating Wealth Through Health*

Ministry of Health. 2006. *National Health Policy*.

Population and Health Data

Ghana Statistical Service, Noguchi Memorial, ORC MACRO (2008). Ghana Demographic and Health Survey 2008.
http://www.measuredhs.com/publications/publication-FR221-DHS-Final-Reports.cfm

Ghana Statistical Service, Noguchi Memorial, ORC MACRO (2003). Ghana Demographic and Health Survey 2003
http://www.measuredhs.com/publications/publication-FR152-DHS-Final-Reports.cfm

Ghana Statistical Service, Noguchi Memorial, ORC MACRO (1998). Ghana Demographic and Health Survey 1998
http://www.measuredhs.com/publications/publication-FR106-DHS-Final-Reports.cfm

Ghana Statistical Service, Noguchi Memorial, ORC MACRO (1993). Ghana Demographic and Health Survey 1993.
http://www.measuredhs.com/publications/publication-FR59-DHS-Final-Reports.cfm

MICS. 2012. *Ghana Multiple Indicator Cluster Survey 2011*.
http://www.measuredhs.com/publications/publication-FR262-Other-Final-Reports.cfm

MICS.2007. *Ghana Multiple Indicator Cluster Survey 2006*.
http://www.measuredhs.com/publications/publication-FR226-Other-Final-Reports.cfm

MICS 2006. *Ghana – High Impact Rapid Delivery (HIRD) Supplementary Survey, 2007/2008 (District MICS)*
http://www.childinfo.org/files/MICS3_GhanaDistrict_FinalReport_2007_Eng.pdf.pdf

PROFILES. 2005. *Profiles calculator of the consequences of malnutrition in Ghana*

World Bank. Open Data. http://data.worldbank.org/country/ghana

Other:

Adom Baisie Ghartey. 2008. "Case Study of the Political Economy of nutrition Policies in Ghana"
http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/GhanaNutritionPolicyDPMenno.pdf

Asante FA and Asenso-Okyere K . 2001. Economic Burden of Malaria in Ghana; A Technical Report Submitted to the World Health Organisation (WHO), African Regional Office (AFRO).

Basics II. 2004. Using 'Essential Nutrition Actions (ENA)' to Accelerate Coverage with Nutrition Interventions in High Mortality Settings.
http://www.basics.org/documents/pdf/Using%20ENA.pdf#search="ena"

Black, R.E., Allen L.H., Bhutta Z.A., Caulfield L.E., de Onis M., Ezzati M., Mathers C., and Rivera J., for the Maternal and Child Undernutrition Study Group. 2008. "Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences. *Lancet* 371: 243-60.

Bleichrodt N, Born MP. 1994. A meta analysis of research on iodine and its relationship to cognitive development. In J.B. Stanbury (ed.) The Damaged Brain of Iodine Deficiency.

Caulfield LE, Stephanie A. Richard, and Robert E. Black. 2004. Undernutrition as an underlying cause of malaria morbidity and mortality in children less than five years old. Am J Trop Med Hyg. 71(Suppl2): 55-63

Ehrhardt S. et a1. 2006. Malaria, Anemia, and Malnutrition in African Children – Defining Intervention Priorities. JID. 194: 108-14

Engle, P et a1. 2007. Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world. Lancet 2007; 369: 229-42

Granthan-McGregor S et a1. 2007. Developmental potential in the first 5 years for children in developing countries. Lancet 2007; 369:60-70

Haddad LJ, Bouis HE. 1991. The impact of nutritional status on agricultural productivity: Wage evidence from the Philippines. Oxford Bull Economics and Stat, 1991; 53(1): 45-68.

Lancet. 2013. Maternal and Child Nutrition series. http://www.thelancet.com/series/maternal-and-child-nutrition

Ross J, Horton S. 1998. Economic consequences of iron deficiency. Ottawa: Micronutrient Initiative. 1998.

Ross JS. 1996. Relative Risk of Child Mortality Due to Vitamin A Deficiency. PROFILES 3 Working Notes Series, No. **2.** 1996

Scaling Up Nutrition. 2013. (accessed 04/09/2013) http://scalingupnutrition.org/sun-countries/ghana)

The World Bank. 2006. Directions in Development: Repositioning Nutrition as Central to Development, A Strategy for Large-Scale Action, Overview. http://siteresources.worldbank.org/NUTRITION/Resources/281846-1131636806329/NutritionStrategy.pdf

World Bank. 2006. *Ghana - Community-Based Poverty Reduction Project*.. http://documents.worldbank.org/curated/en/2006/05/6849132/ghana-community-based-poverty-reduction-project

World Bank. 1999. *Ghana - Community-based Poverty Reduction Project*. http://documents.worldbank.org/curated/en/1999/05/440637/ghana-community-based-poverty-reduction-project

World Bank. 2007. *Ghana - Country Assistance Strategy*. http://documents.worldbank.org/curated/en/2007/05/7667201/ghana-country-assistance-strategy

World Bank. 2003. *Ghana - Poverty Reduction Strategy Paper (PRSP) and joint assessment*. http://documents.worldbank.org/curated/en/2003/03/2166828/ghana-poverty-reduction-strategy-paper-prsp-joint-assessment

World Bank 2013 (draft) Project Appraisal Document: Maternal and Child Health and Nutrition Improvement Project (P145792).

World Bank 2013. Country Partnership Strategy for the Republic of Ghana (FY13-16). http://imagebank.worldbank.org/servlet/WDSContentServer/IW3P/IB/2013/08/29/000356161_20130829110704/Rendered/PDF/763690CAS0Ghan0400OUO0900Box379816B.pdf

World Health Organisation. 2013. Essential Nutrition Actions: improving maternal, newborn, infant and young child health and nutrition. http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/

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