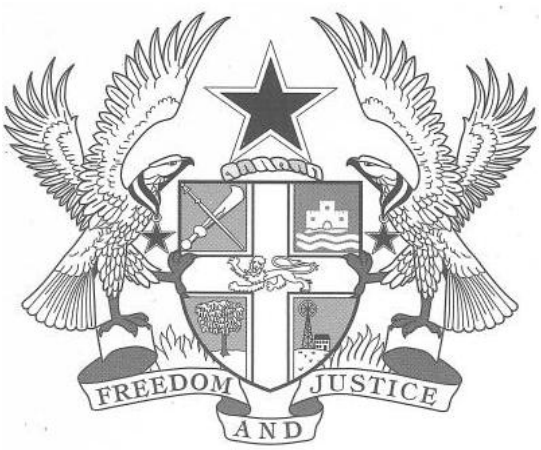
Ghana Health Sector Medium-Term Development Plan 2010-2013

Costing Exercise Report

September 23, 2010



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Contents

List of Acronyms

CHPS	Community-based Health Planning and Services
DP	Development Partner
GHC	Ghana (new) cedi
GHS	Ghana Health Service
HSMTDP	Health Sector Medium-Term Development Plan
IMF	International Monetary Fund
ITN	Insecticide-treated bednet
MBB	Marginal Budgeting for Bottlenecks
MDG	Millennium Development Goal
MTEF	Medium-term expenditure framework
MOFEP	Ministry of Finance and Economic Planning
MOH	Ministry of Health
PMTCT	Prevention of mother-to-child transmission of HIV
WB	World Bank
UNICEF	United Nations Children's Fund

Executive summary

The Government of Ghana is currently preparing a Medium Term Development Plan to extend the Growth and Poverty Reduction Strategy 2006-2009. As part of the process, the Ghana National Development Planning Commission (NDPC) has requested all sectors, including the Ministry of Health, to prepare individual Sector Medium Term Development Plans (SMTDP) to cover the period 2010-2013. This report presents the results of the Health Sector Medium-Term Development Plan (HSMTDP) costing exercise, which was commissioned and led by the Ministry of Health, with support from Ghana Health Services, the World Bank and UNICEF.

The main objectives of the HSMTDP costing exercise were as follows:

1. *Cost the strategic plan as a whole*
2. *Identify recurrent and capital components of the plan as well as resource gaps*
3. *Estimate the potential health impacts the plan could deliver*

The costing exercise did not include a formal bottleneck analysis or reconsideration of the strategies in the HSMTDP, but simply costed the plan as presented in September 2010. The five "pillars," or core strategies of the HSMTDP are as follows:

1. *Bridge the equity gaps in access to health care and nutrition services and ensure sustainable financing arrangements that protect the poor*
2. *Improve governance and strengthen efficiency and effectiveness in health service delivery, including medical emergencies*
3. *Improve access to quality maternal, neonatal, child and adolescent health services*
4. *Intensify prevention and control of non-communicable and communicable diseases and promote healthy lifestyle*
5. *Strengthen institutional care, including mental health service delivery*

A mixed-methods approach was employed, which drew upon the Marginal Budgeting for Bottlenecks (MBB) costing tool for MDG-related services and health systems strengthening, plus activity-based costing for additional services such as mental health and pandemic preparedness. Data inputs and intermediate results were validated with GHS and MOH stakeholders through two validation workshops and two Partners Meeting presentations at the beginning and end of the exercise.

Three alternative HSMTDP scenarios were prepared for this exercise. The **first scenario, "status quo,"** assumes implementation of existing strategies at the current pace of progress, with few strategic shifts or

adjustments made to the health system; few of the HSMTDP targets would be met. The **second scenario, "conservative HSMTDP",** assumes a moderate incremental increase in the availability of resources to fund priority health services, such that 70-80% of the HSMTDP's stated 2013 targets might be achieved. The **third scenario, "ambitious HSMTDP,"** assumes the availability of a more generous funding package sufficient to implement the entire plan and achieve 100% of the targets.

Total health expenditure in 2009 amounted to approximately US $724 million, of which 17% was contributed by development partners, 32% by the National Health Insurance Strategy, and 51% by the Government of Ghana (MOF and MOH). Capital and recurrent expenses were approximately 15% and 85%, respectively.

Box 1: Cost summary

In millions, $US	
Baseline 2009 expenditure	724
Total cost, status quo	4,387
Total cost HSMTDP conservative	4,992
Total cost, 2010-2013, HSMTDP ambitious	5,888
Average annual cost, HSMTDP ambitious	1,472
Projected resource gap, HSMTDP ambitious	*-1,284*
In millions, Ghana new cedis (GHC)	
Baseline 2009 expenditure	1,042
Total cost, status quo	6,317
Total cost HSMTDP conservative	7,118
Total cost, 2010-2013, HSMTDP ambitious	8,478
Average annual cost, HSMTDP ambitious	2,119
Projected resource gap, ambitious scenario:	*-1,848*

The results of the costing exercise suggest that USD $4.4, USD $5.0 and USD $5.9 billion will be necessary to implement the status quo, conservative and ambitious scenarios, respectively, between 2010 and 2013. This is equivalent to an annual average budget resource requirement of about USD$1,097 million for the status quo scenario, USD$1,248 million for the conservative scenario, and USD$1,472 for the ambitious scenario. Of the USD $5.9 billion required for the ambitious scenario HSMTDP, 60% would be recurrent expenses and 40% would be capital expenses. The total annual expenditure ranges from USD $1,080.75 million in 2010 to USD $1,894.38 million in 2013 (Table 1).

Put in terms of annual per capita health spending, the marginal (additional) costs per capita per year are forecasted to be USD $20, USD $25, and USD $34 for the status quo, conservative HSMTDP and ambitious HSMTDP scenarios, respectively (figure 2). Total per capita health spending in 2010 was approximately $30 .

The HSMTDP emphasises clinical care over community and outreach-based services. Specifically, clinical services account for 67% of the total costs in the HSMTDP ambitious scenario. According to the National Chart of Accounts classifications, item 4, investment expenses, is the largest item, accounting for an

average of about 40% of the total costs in all three scenarios. Personnel emoluments are the second largest item, at 27%, followed by direct service expenses (26%), and administrative expenses (7%).

Figure 1: Projected annual costs of the full ("ambitious") HSMTDP, in millions US$ (progressive financing scenario)

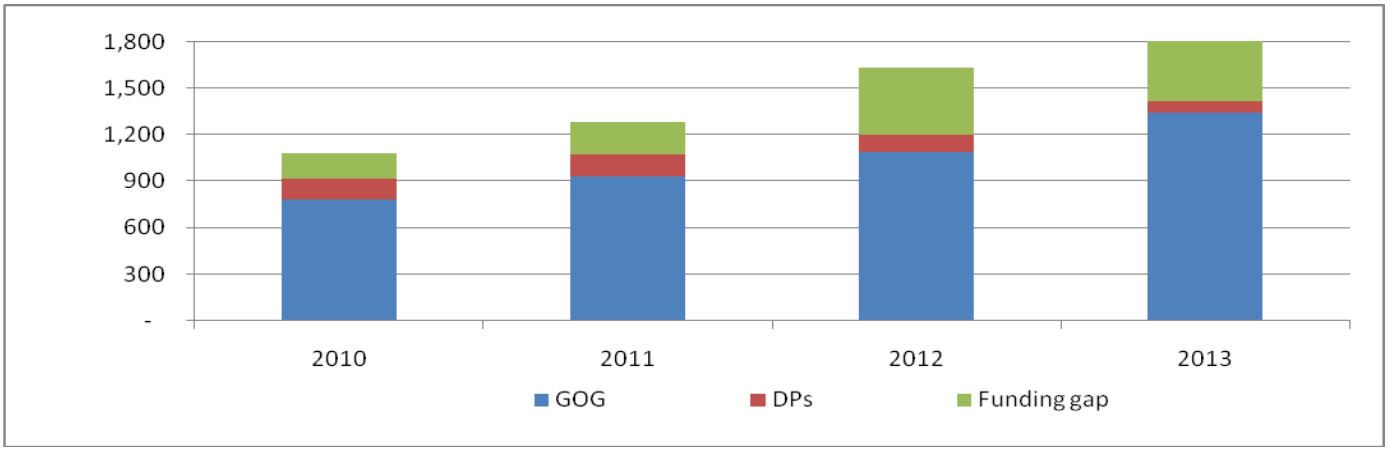


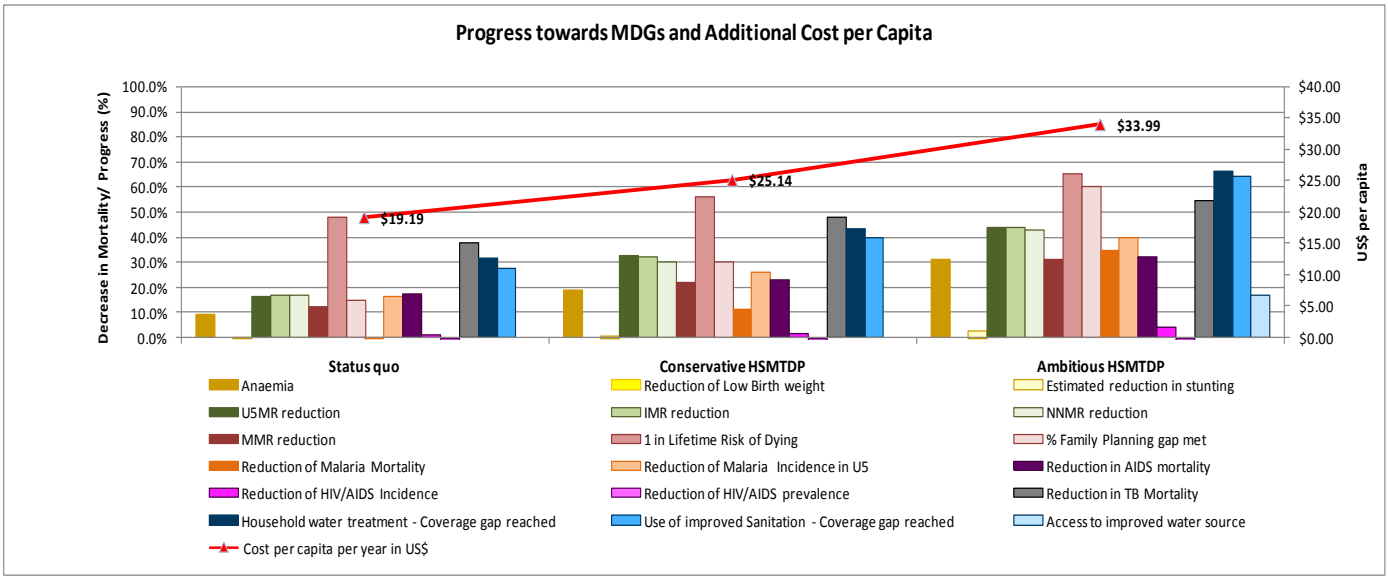
Table 1: Total costs of the full ("ambitious") HSMTDP, in millions $US

	Baseline expenditure	2010	2011	2012	2013	Total	%
Total	724.22	1,080.75	1,278.36	1,634.97	1,894.38	5,888.46	100%
Capital investment	108.63	369.07	455.42	688.16	816.33	2,328.99	40%
Recurrent	615.59	711.67	822.94	946.81	1,078.05	3,559.47	60%

A classification of the total costs into the 5 strategic pillars of the plan shows that pillar 4, which seeks to redirect government efforts towards intensification of prevention and control of non-communicable and communicable diseases and promote healthy lifestyles, is associated with the highest costs (34%), followed by objective 3, improvement of access to quality maternal, neonatal, child and adolescent health services.

A fiscal space analysis was also conducted to determine the country's financial capacity and the ability of the Government to finance the HSMTD. Using MOFEP and IMF macroeconomic projections, projected DP commitments and government health expenditure projections, public health spending under a progressive scenario is estimated to rise from US $869 Million in 2010 to US $1.42 billion in 2013, representing an average annual increase of 18%. Thus, between 2010 and 2013 the public health sector is expected to benefit from an additional inflow of nearly US$ 546 million. Under an alternative scenario assuming that the Abuja target is reached in 2011, public health spending would rise to the slightly higher figures of $1.46 billion in 2013. Based on the two alternative fiscal space scenarios, the HSMTDP is forecasted to encounter a funding gap of between $ 1 and $1.3 billion.

Figure 2: Marginal per capita costs and impacts of three health strategy scenarios in Ghana



Based on epidemiological modelling, the ambitious HSMTDP could support a 31% reduction in maternal mortality and a 44% reduction in under-five mortality. Such reductions could put Ghana on track for MDG 4 and MDG 5 attainment by 2015, while the country is almost certain to fall short of both targets if the plan is not implemented (status quo).

In conclusion, the HSMTDP 2010-2013 could represent a window of opportunity for Ghana to make concerted efforts to improve health system infrastructure. In this case, a substantial and temporary increase in resources for health may be deemed entirely necessary. *Such efforts to strengthen Ghana's health system could translate into tremendous gains for Ghanaians, particularly if infrastructure investments explicitly target the most underserved districts.* Compared to similar exercises conducted elsewhere in the region, however, the estimated $5.9 billion investment, which translates into a marginal cost of nearly $34 per capita per year, is quite high. Much of the increase in costs can be attributed to the high unit costs of infrastructure investments in Ghana, coupled with the HSMTDP's emphasis on strengthening clinical services rather than community and population-oriented services. Future strategic planning processes may want to consider options for achieving similar impacts at a reduced cost.

1. Introduction

The Government of Ghana is currently preparing a Medium Term Development Plan to replace the Growth and Poverty Reduction Strategy 2006-2009. As part of the process, the Ghana National Development Planning Commission (NDPC) has requested all sectors, including the Ministry of Health, to prepare individual Sector Medium Term Development Plans (SMTDP) to cover the period from 2010 to 2013. The plan reflects the government's development agenda for the medium term and aligns previous policies with the national objective of attaining middle income status by 2020.

In fulfilment of this requirement, the Ministry of Health has drafted a Health Sector Medium Term Development Plan (HSMTDP) for 2010 – 2013. The HSMTDP will also replace the sector's third five-year Programme of Work 2007 – 2011 (5YPOWIII), which expires in 2011. The strategic plan focuses on programmes and interventions designed to improve the health system's efficiency and bridge access to quality health care. In its broad perspective, the plan's strategies reflect a policy framework directed primarily towards the attainment of the UN's Millennium Development Goals (MDGs), particularly those related to health (MDG 1, 4, 5, 6, 7).

The HSMTDP falls under the thematic area of Human Development, productivity and employment in the Medium-Term Development Policy Framework (2010-2013) and defines the following five strategic objectives:

1. *Bridge the equity gaps in access to health care and nutrition services and ensure sustainable financing arrangements that protect the poor;*
2. *Improve governance and strengthen efficiency and effectiveness in health service delivery, including medical emergencies;*
3. *Improve access to quality maternal, neonatal, child and adolescent health services;*
4. *Intensify prevention and control of non-communicable and communicable diseases and promote healthy lifestyle;*
5. *Strengthen institutional care, including mental health service delivery.*

This report presents the methods and results of the HSMTDP costing exercise, which was commissioned by the MOH and supported by the World Bank, UNICEF and Danida in September 2010.

Table 12: Key elements of the HSMTDP and their relationship with MDG and poverty reduction targets. Source: study authors

Key Elements of the HSMTDP	Millennium Development Goal (MDG) association	Association with Poverty Reduction
Enhance access to health care and nutrition services	MDG 1: Reduce protein-energy malnutrition MDG 4: Reducing child mortality by three-quarters MDG 5: Reducing maternal mortality by three-quarters	Reduce Poverty by half of 1990 levels.
Intensify prevention and control of communicable diseases such as HIV and AIDS Malaria Tuberculosis	MDG 6: Halting and reversing the spread of HIV and AIDS, TB and malaria	
Bridging Access, and Social Welfare through: Equity Strengthened efficiency Strengthened response to medical emergencies	All health-related MDGs, including MDG 7: Sustainable access to safe drinking water	Reduce Poverty by half of 1990 levels.
Ensure sustainable financing arrangements that protect the poor	MDG 8: Increase access to essential and affordable drugs	
Non-MDGs	Strengthen institutional care and Mental Health service delivery Intensify prevention and control of non-communicable Governance, strengthen efficiency	Non-MDGs

1. Objectives of the HSMTDP Costing Exercise

The objectives of the HSMTDP costing exercise were as follows:

1. ***Preparation:*** Locate sources of information for obtaining costs on all inputs to the health sector covering recurrent costs (staff, infrastructure, drugs etc) and capital investments (new buildings and equipment).

2. ***Cost the strategic plan as a whole***:
    a. Use the four year strategic plan to estimate the total cost of full implementation, covering projected staff increases, infrastructure investments, and costs associated with expanding the essential package of services to reach the entire population, as defined by program targets.
    b. Estimate current shortfalls in financing the health sector as a whole, and how this could be addressed over time.

c. Link the final cost estimates to the preparation of the budgets for the subsequent years, showing how investment will need to increase over the 3 years for the strategic plan to be fully implemented.

3. ***Identify recurrent and capital components of the plan:***
   a. Cost the services expected to be provided at each level of the health system at desired levels of coverage, together with the investments in human resources, infrastructure, and system strengthening investments required to deliver those services;
   b. Estimate the recurrent costs associated with delivering the services (personnel, consumables, overhead)
   c. Indicate the costs by year

4. Estimate the potential health impacts the plan could deliver, if implemented properly.

5. Methods

3.1 Overview

The costing exercise was conducted by a working group assembled under the direction of the Ministry of Health/PPME and complemented by representatives from the World Bank, UNICEF and Danida. The group agreed upon a mix of methods developed and refined through similar exercises in other countries and further adapted to suit Ghana's specific context and goals.

The exercise involved five steps: a) an assessment of the structure of the health system and current coverage of high-priority interventions; b) specification of new coverage targets associated with the planned strategies (including facility construction and HR targets); c) calculation of the marginal costs of implementing the HSMTDP; d) integration of the marginal cost estimates with the baseline (2010) budget; e) assessment of the available

Table 2: Data sources used in the HSMTDP costing exercise (details in Annex 6)

Data type	Most common source
Baseline coverage of key health and nutrition interventions	DHS 2008, updated with newer data from program reports where applicable
New health sector strategies	HSMTDP draft 12 August, 2010; Ghana Child Health Strategy; GHS Strategic Plan, individual program plans 2010-2015
Service coverage targets for 2013	Same as above
Epidemiology	DHS 2008, UNICEF, WHO and UNFPA data; expert opinion
Demography	DHS and Ghana Statistical Service
Macroeconomics	IMF and Ghana Ministry of Finance and Economic Planning (MOFEP)
Unit prices: infrastructure and vehicles	Ghana health sector Capital Investment Plan (CIP); revised by MOH
Unit prices: drugs and basic commodities	UNICEF global supply data (occasionally updated where relevant)
Infrastructure development targets	Ghana health sector CIP, revised by MOH
Funding sources and projected funding flows	MOH

resources or fiscal space for implementing the plan and identification of funding gaps. Each of these steps is described in detail below.

Assessment of the structure of the current health system and current coverage of high-priority interventions

The exercise began with a simple assessment of the structure and coverage of Ghana's current health system, based on data compiled for Ghana's previous costing exercises, new reports and surveys, and expert inputs. This process involved reviewing data regarding logistics and the supply chain, human resources, health facility accessibility, initial and continuous use of services, and the coverage of high-priority services meeting acceptable quality standards. Additional data points included health facility staffing norms and projections, health facility construction and renovation plans, and the service packages currently provided through the public health system at different levels. The purpose of this process was to generate a description of the Ghana health system's overall structure and key constraints, which the HSMTDP will address.

Whenever possible, data were taken from well-known surveys and MOH/ GHS program documents (Table 2; see Annex 6 for a full list of citations). Expert opinion and group consensus were used as a last resort when survey and report data were not available. For example, no data were available on the average distance between a primary health center and first referral center (both necessary for calculating transport costs). In this case, the costing team referred to program managers at GHS, reviewed a range of calculations, and settled upon an average estimate.

Box 1: Programs included in the HSMTDP

- Maternal, newborn and child health, including community, outreach and primary care services
- Nutrition, including community prevention and treatment of severe malnutrition
- Community hygiene
- HIV-AIDS prevention and treatment
- TB treatment
- Malaria prevention and treatment
- Neglected disease eradication (yaws, guinea worm, schistosomiasis)
- Non-communicable diseases: management of common chronic illnesses
- First and second referral hospital services (district and regional hospitals)
- Mental health (community and institutional)
- Disease surveillance and pandemic preparedness
- Ambulance services

Specification of new coverage targets associated with the planned strategies

The HSMTDP specifies a number of new or modified strategies to address current health system constraints, such as improvements to supply chain management and monitoring, expansion of the CHPS compounds, reinforcement of pro-poor financing mechanisms (including free or subsidized care for certain conditions as well as the National Health Insurance Scheme), and refined human resource policies. The plan also presents 2013 targets and associated annual milestones. The targets relate primarily to

reductions in morbidity and mortality, improved equity indices, and expanded coverage of certain priority health interventions.

In order to translate the strategies and impact targets into specific inputs and costs, more exact program targets had to be confirmed. For example, to calculate the new number of nurses needed, the baseline and 2013 nurse target coverage targets were collected and verified. Similarly, to determine the precise inputs needed for strengthening the drug and commodity supply chain, the baseline availability of drugs and supplies, specific supply chain bottlenecks (such as procurement and monitoring problems), new targets and associated budget inputs (such as buffer stocks and expanded support for stock monitoring) were confirmed.

Many of the necessary coverage targets were already specified in separate strategic plans. When targets were not already developed, program managers were asked to offer a conservative estimate for the 3 year period. (Please refer to Annex 1 for the final coverage targets)

Calculation of the marginal costs of implementing the HSMTDP

Several possible approaches to calculating marginal costs were proposed this exercise. For example, most programs have already developed and submitted individual budgets covering the 2010-2013 period (either for internal purposes or for funding proposals). These dozen or so budgets could be combined and streamlined, but the working group felt that the risk of over-estimating program-specific inputs and under-estimating systems strengthening investments was too high. Another approach discussed was activity-based costing, which has been employed quite successfully in previous costing exercises in Ghana. Again, given the scope of the HSMTDP, activity-based costing was felt to be cumbersome and unlikely to capture horizontal costs and efficiencies across programs. A third option was to employ one of several health system costing tools currently available through the UN and other development partners.

Following discussions in the working group and recommendations from World Bank and UNICEF regional experts, a combination of the three approaches was agreed upon. The Marginal Budgeting for Bottlenecks (MBB) planning and budgeting tool was selected as the principal costing tool due to prior applications in Ghana, present in-country expertise, and its ability to cost health systems horizontally and link costs to impact projections.[1] Understanding that the MBB has certain limitations—such as its lack of non-MDG-related strategies such as mental health services—the tool-based costing process was supplemented by a number of smaller activity-based costing exercises, drawing upon existing program budgets. This combined approach was felt to be most efficient and likely to reduce the risk of double-counting inputs. The tool-based modelling was conducted by a team of two MBB experts under the oversight of the larger working group.

[1] Developed by UNICEF and the World Bank. For more information, please refer to: http://www.who.int/pmnch/topics/economics/costing_tools/en/index12.html

Integration of the marginal costs with the baseline (2010) budget

The marginal cost estimates were finally combined with the baseline budget—prepared by MOH staff from the Ghana Ministry of Health 2009 Financial Statement -- to produce the total costs.

Validation processes

The costing exercise included two validation processes: a review of data sources and coverage targets (September 1) and a review of preliminary cost estimates (September 8). Comments and suggestions were incorporated and their associated impacts on the budget were discussed. The cost estimates were compared to program budgets during and immediately after the validation workshop and the major differences were reviewed.

Assessment of fiscal space and resource gaps

The fiscal space analysis was divided into two steps: 1) an attempt to quantify the current health financing of the Government and its Development Partners (DPs), 2) estimation of the potential financial envelopes that the Government and its DPs could be expected to dedicate to the health sector.

For this purpose, the team used multiple references: (i) The on-going Public Expenditure Review (WB and others, 2010), (ii) The draft National Health Insurance Fund Allocation Formula (2010), (iii) MOFEP data (provided during the workshop on data validation, September 1st 2010), IMF data based on the latest mission (2010), WHO National Health Accounts database (2010), MOH Financial Statement (2010), and MOFEP 2010 Budget Statement including MTEF tables (2009). The cross utilization of several sources of information helped to avoid double counting and to eliminate private funding sources, especially out-of-pocket spending at MOH facilities, which in Ghana are included in public accounts (as part of the IGF).

3.2 Challenges

A number of issues surfaced in the course of the costing activities that could not be easily resolved, despite extensive meetings and discussions, and should be prioritized for follow up prior to developing the 2011 annual workplan and budget. These include the following:

HSMTDP objective overlap: The five strategic objectives of the HSMTDP appear to overlap considerably and the assumptions behind them are not always clear. This had an impact on the allocation of costs across the five objectives; allocation could be updated based on further information.

Unit costs for infrastructure: Unit cost estimates for health facilities were generally quite high and not always standardized. For example, there was some confusion about the standard design and price of constructing a CHPS compound. Ultimately, the MOH capital investment group offered estimates (erring on the higher side), which should be further verified as new data become available. If the unit prices can be brought down, the costs of the HSMTDP may be reduced substantially. (Please refer to Box 3 and Annex 2 for major unit prices)

Capital investment and construction plans: The number of facilities to be developed or rehabilitated between 2010-2013 was not entirely clear at the outset of the costing exercise. The capital investment group and program managers agreed upon provisional figures that can be further updated if necessary. (Please refer to Box 2)

Health worker projections: Clear targets for health worker recruitment, training and deployment were not readily available for this exercise. Initial projections were developed based on desired improvements in service coverage and quality, then discussed with the HR division of the MOH. The final estimates were felt to be ambitious but acceptable and consistent with previously identified priorities.

Baseline coverage of hospital services: Coverage statistics for community-based, outreach and primary health care services were relatively easy to verify from surveys and program documents, but statistics for hospital services—such as the percentage of complicated deliveries or complicated malaria cases treated correctly—were generally not available. Program managers generated estimates based on related data points and routine monitoring statistics but this imprecision affected the impact modelling.

Data on causes of maternal mortality: Over 30% of maternal deaths are attributed to “undefined” causes in the 2007 Ghana Maternal Health Survey. These deaths cannot be linked to life-saving interventions when modelling impacts. The costing group worked with maternal health program managers to re-assign some of the “undefined” maternal deaths to specific conditions. The maternal mortality reduction estimates presented in this report may still be underestimations.

Different input prices used in different program budgets and input overlap: The program budgets submitted by different health divisions were generally quite high and included a number of apparent duplications. For example, most budgets included funding for community meetings, advocacy and information and education, but connections between them were not explained, nor were the unit prices and assumptions behind the calculations provided. The costing team therefore had to make certain decisions about reducing program budgets to account for expected efficiencies. These assumptions were discussed during both validation workshops. A key issue for follow-up is the interrelationship (if any) between various environmental health activities, such as malaria control, guinea worm and schistosomiasis eradication, and community sanitation projects.

4 HSMTDP costs

4.1 Three scenarios

Three alternative HSMTDP scenarios were prepared for this exercise. The **first scenario, "status quo,"** assumes that insufficient funding is received, or political will and expertise are insufficient to make the numerous strategic shifts outlined in the HSMTDP and the next four years are a continuation of the current health strategy. In this "status quo" scenario, pipeline projects are implemented at the current pace of progress. The **second scenario ("conservative HSMTDP")** assumes that a moderate amount of funding is received for the HSMTDP and priority elements of the plan are implemented. Priorities were taken to be MDG-related services and community-based non-MDG services, plus a limited number of new ambulances and most of the required new or renovated health facilities. In this scenario, coverage of essential services is expanded to reach 75-80% of the stated 2013 targets. The **third scenario, "ambitious HSMTDP,"** assumes the receipt of more generous funding that is sufficient to implement the full plan as currently outlined, including all prioritized capital investments and full expansion of MDG- and non-MDG health services to meet the 2013 targets at 90-100%.

Box 2: Infrastructure construction included in 2011-2013 HSMTDP

Source: Capital Investment and PPME teams, MOH

(Ambitious scenario, meeting targets)

CHPS compounds	1,162
Primary health center	145
District hospitals	46
Regional hospital	5
Teaching hospital	1

Box 3: Infrastructure unit prices ($USD)

Source: Capital Investment Team, MOH

**All civil works will also incur an additional 10% consultation fee*

CHPS compound	
Civil works	55,000
Equipment and supplies	6,000
Primary health center	
Civil works	350,000
Equipment and supplies	80,000
District hospitals	
Civil works	19,000,000
Equipment and supplies	8,000,000
Regional hospital	
Civil works	28,000,000
Equipment	15,000,000
Teaching hospital	
Civil works	40,000,000
Equipment	-

4.2 Assumptions

A number of assumptions were made when modelling and costing the HSMTDP, most notably infrastructure development objectives and working definitions of the five strategic objectives in the HSMTDP.

Infrastructure plan: Infrastructure costs make up more than 1/3 of the HSMTDP costs in both the conservative and ambitious strategies. The MOH decided to include all urgently needed facilities in the ambitious scenario (Box 2). The conservative scenario is identical except that it omits the teaching hospital. A portion of these costs will be certainly be covered by loans, donor assistance and support from local groups and private organizations, but the full amount required is included in the HSMTDP costs.

Allocation assumptions for the HSMTDP 5 strategic objectives

Allocating budget items to the five strategic objectives was challenging as they overlap considerably. The costing exercise applied the following broad working definitions of the five objectives (details available on request).

Objective 1: training, emergency-related activities, specialist outreach
Objective 2: Management, oversight and governance including monitoring and evaluation
Objective 3: All primary care investments and recurrent costs
Objective 4: Communicable and non-communicable diseases; district and regional hospital investments
Objective 5: all mental health services

Salaries were apportioned across all 5 objective areas.

4.3 Total costs

The total cost of implementing the full HSMTDP is estimated to be USD$5.9 billion over four years, or 8.5 billion Ghana cedis (GHC). Of this, $2.3 billion (39%) are capital investment costs. Under the more conservative scenario, in which MDG-related services are prioritized and capital investments are reduced, the costs may be reduced to $5 billion, of which $1.7 billion (33%) are capital investment. The status quo scenario is also costly, at $4.4 billion, of which $1.3 billion (29%) are capital investment. The high costs in the status quo scenario are driven by a number of "pipeline" projects, such as construction of several new hospitals, for which funding has already been committed. (Tables 3A, 3B, and 3C)

Box 4: Cost summary

In millions, $US	
Baseline 2009 expenditure	724
Total cost, status quo	4,387
Total cost HSMTDP conservative	4,992
Total cost, 2010-2013, HSMTDP ambitious	5,888
Average annual cost, HSMTDP ambitious	1,472
In millions, Ghana new cedis (GHS)	
Baseline 2009 expenditure	1,042
Total cost, status quo	6,317
Total cost HSMTDP conservative	7,118
Total cost, 2010-2013, HSMTDP ambitious	8,478
Average annual cost, HSMTDP ambitious	2,119

Table 3A: Total costs, Status Quo scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total in GHS)	%
Total	724.22	868.61	980.06	1,194.27	1,344.24	4,387.17	6,317.52	100
Capital investment	108.63	199.07	244.11	384.58	456.89	1,284.65	1,849.90	29
Recurrent	615.59	669.54	735.95	809.69	887.35	3,102.52	4,466.88	71

Table 3B: Total costs, HSMTDP Conservative scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total in GHC)	%
Total	724.22	950.22	1,096.72	1,374.25	1,570.84	4,992.03	7188.52	100
Capital investment	108.63	261.10	320.31	500.64	594.45	1,676.50	2414.16	34
Recurrent	615.59	689.12	776.41	873.61	976.39	3,315.53	4774.36	66

Table 3C: Total costs, HSMTDP Ambitious scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total in GHC)	%
Total	724.22	1,080.75	1,278.36	1,634.97	1,894.38	5,888.46	8,479.38	100
Capital investment	108.63	369.07	455.42	688.16	816.33	2,328.99	3,353.75	40
Recurrent	615.59	711.67	822.94	946.81	1,078.05	3,559.47	5,125.64	60

4.4 Costs by service delivery mode

Tables 4A, 4B, and 4C present the HSMTDP costs by three levels of service delivery. **Family oriented community based services** include all interventions delivered at the community level, either by community health volunteers or community health nurses in CHPS zones. Examples include distribution of insecticide-

treated bednets, counselling on home-based treatment of diarrhea with ORS, and nutrition counselling. These services have been broadened to include several new interventions in the new HSMTDP, including community case management for acute respiratory infections and malaria, expanded home-based support for newborns and their mothers, and community management of severe acute malnutrition in target districts.

Population oriented schedulable services include additional community-based services delivered on a schedulable basis, usually through outreach workers. This includes childhood immunizations and vitamin A supplementation, family planning, antenatal care, and PMTCT. In Ghana, these services are provided at both primary care facilities and through special outreach services, such as national immunization campaigns, Child Health Weeks, and mobile clinics.

Individual oriented clinical services include all services delivered in health facilities on an episodic rather than schedulable basis. Interventions include primary care services, such as integrated management of childhood illnesses (IMCI); first-level referral services, such as basic emergency obstetric care; and second-level referral services, such as treatment of severe malaria and comprehensive emergency obstetric care.

In all three scenarios, individual oriented clinical services comprise over 60% of the total costs, largely due to the high projected capital investments. This proportion increases to 66% in the most ambitious scenario. In other words, the HSMTDP, as currently envisioned, is highly focused on expanding the availability of clinical services, particularly by investing in better clinical infrastructure and equipment at the district and regional levels.

Table 4A: Costs by service delivery mode, Status Quo scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total in GHC)	%
Family oriented community based services	72.42	77.58	81.99	86.40	90.81	336.78	483.84	8
Population oriented schedulable services	144.84	139.31	145.46	151.60	157.74	594.11	855.52	14
Individual oriented clinical services	362.11	497.71	573.48	752.02	866.31	2,689.52	3,872.91	61
District, provincial, national governance & management	144.84	154.01	179.13	204.25	229.37	766.75	1,104.12	17
Total	724.22	868.61	980.06	1,194.27	1,344.24	4,387.17	6,317.52	100

Table 4B: Costs by service delivery mode, HSMTDP Conservative scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total GHC)	%
Family oriented community based services	72.42	80.46	86.85	93.23	99.61	360.15	5,186.62	7
Population oriented schedulable services	144.84	151.14	163.33	176.04	189.25	679.77	978.87	14
Individual oriented clinical services	362.11	560.18	658.92	888.16	1,035.96	3,143.23	4,526.25	63
District, provincial, national governance & management	144.84	158.44	187.63	216.82	246.00	808.88	1,164.79	16
Total	724.22	950.22	1,096.72	1,374.25	1,570.84	4,992.03	7,118.52	100

Table 4C: Costs by service delivery mode, HSMTDP Ambitious scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total GHC)	%
Family oriented community based services	72.42	86.36	94.79	103.23	111.67	396.05	570.31	7
Population oriented schedulable services	144.84	155.43	168.41	181.84	195.73	701.41	1,010.03	12
Individual oriented clinical services	362.11	673.72	814.50	1,113.80	1,315.45	3,917.47	5,641.16	67
District, provincial, national governance & management	144.84	165.23	200.66	236.10	271.53	873.52	1,257.87	15
Total	724.22	1,080.75	1,278.36	1,634.97	1,894.38	5,888.46	8,479.38	100

4.5 National chart of accounts

Table 5 presents the HSMTDP total costs broken down by the four principal items in the National Chart of Accounts. In both the conservative and ambitious HSMTDP scenarios, item 4 (investment expenses) is the largest item, followed by personnel emoluments (salaries) and direct service expenses. It is worth noting that many budget items were assigned to service expenses that could ostensibly be assigned to other categories. For example, ITNs are often considered a capital expense but are considered a service expense in Ghana.

Table 5: Costs by National Chart of Accounts Items (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total GHC)	%
Status quo	724.22	868.60	980.06	1,194.27	1,344.24	4,387.17	6317.525	100
Item 1 Personnel Emoluments	275.47	305.03	334.58	364.14	393.69	1,397.44	2012.31	32
Item 2 Administrative Expenses	34.71	48.81	65.23	86.82	111.71	312.57	450.10	7
Item 3 Services Expenses	296.22	320.54	332.52	344.51	356.49	1,354.06	1,949.85	31
Item 4 Investment Expenses	117.82	194.23	247.72	398.81	482.34	1,323.10	1,905.26	30
Conservative HSMTDP	724.22	950.22	1,096.72	1,374.25	1,570.84	4,992.03	7,188.52	100
Item 1 Personnel Emoluments	275.47	312.71	349.95	387.18	424.42	1,474.26	2,122.93	30
Item 2 Administrative Expenses	34.71	52.60	73.42	100.90	132.66	359.57	517.78	7
Item 3 Services Expenses	296.22	331.92	351.62	371.83	392.56	1,447.92	2,085.01	29
Item 4 Investment Expenses	117.82	253.00	321.74	514.34	621.21	1,710.28	2,462.80	34
Ambitious HSMTDP	724.22	1,080.75	1,278.36	1,634.97	1,894.38	5,888.46	8,479.38	100
Item 1 Personnel Emoluments	275.47	322.56	369.65	416.73	463.82	1,572.76	2,264.77	27
Item 2 Administrative Expenses	34.71	59.23	87.90	125.41	168.89	441.44	635.67	7
Item 3 Services Expenses	296.22	342.66	366.68	391.16	416.10	1,516.60	2,183.90	26
Item 4 Investment Expenses	117.82	356.30	454.13	701.66	845.57	2,357.66	3,395.03	40

4.6 5 Strategic objectives

Tables 6 A, 6B and 6C present the HSMTDP costs by the Plan's five strategic objectives. These objectives are as follows:

1. To bridge the equity gaps in access to health care and nutrition services and ensure sustainable financing arrangements that protect the poor;
2. To improve governance and strengthen efficiency and effectiveness in health service delivery,

3. To improve access to quality maternal, neonatal, child and adolescent health services;
4. To intensify prevention and control of non-communicable and communicable diseases and promote healthy lifestyles;
5. To strengthen institutional care, including mental health service delivery.

As mentioned above, assigning budget items to the five strategic objectives was difficult as the objectives are more thematic than operational in nature. For example, bridging equity gaps in access to healthcare and nutrition (objective 1) could be understood to overlap considerably with improving access to quality maternal, neonatal, child and adolescent health services (objective 3).

Based on the working definitions established by the costing group, objective 4 is associated with the highest costs (34%), followed by objective 3. The high costs associated with objective 4 are largely due to the fact that the disease surveillance, eradication of neglected tropical diseases, and pandemic preparedness budgets submitted to the costing group were quite high, and that control of non-communicable diseases is a new priority for Ghana and will require substantial investments to initiate.

Table 6A: Costs by HSMTDP objectives, Status Quo scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total GHC)	%
(Total)	724.22	868.61	980.06	1,194.27	1,344.24	4,387.18	6,317.54	100
Objective 1	58.35	74.15	85.75	105.82	120.61	386.34	556.33	9
Objective 2	159.79	173.38	183.60	194.88	207.23	759.08	1,093.08	17
Objective 3	206.47	254.07	287.71	321.62	355.81	1,219.21	1,755.66	28
Objective 4	171.28	226.31	259.67	385.98	451.99	1,323.94	1,906.47	30
Objective 5	128.33	140.70	163.33	185.97	208.60	698.60	1,005.98	16

Table 6B: Costs by HSMTDP objectives, Conservative scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total GHC)	%
(Total)	724.22	950.23	1,096.72	1,374.25	1,570.84	4,992.03	7,188.52	100
Objective 1	58.35	84.54	99.55	125.31	144.37	453.77	653.43	9
Objective 2	159.79	177.21	190.88	205.94	222.39	796.43	1,146.86	16
Objective 3	206.47	284.78	332.54	381.16	430.64	1,429.13	2,057.95	29
Objective 4	171.28	258.70	302.30	463.92	549.07	1,573.99		32

							2,266.55	
Objective 5	128.33	144.99	171.45	197.91	224.37	738.72	1,063.76	15

Table 6C: Costs by HSMTDP objectives, Ambitious scenario (millions US$)

	Baseline	2010	2011	2012	2013	Total	(Total GHC)	%
(Total)	724.22	1,080.75	1,278.36	1,634.97	1,894.38	5,888.46	8,479.38	100
Objective 1	58.35	91.66	109.69	140.73	163.65	505.73	728.25	9
Objective 2	159.79	183.93	203.84	225.80	249.81	863.39	1,243.28	15
Objective 3	206.47	334.86	398.90	463.80	529.56	1,727.12	2,487.05	29
Objective 4	171.28	318.91	382.01	588.17	702.32	1,991.41	2,867.63	34
Objective 5	128.33	151.38	183.93	216.48	249.03	800.81	1,153.17	14

4.7 Program areas

Tables 7A, 7B, and 7C present the marginal (additional) costs per year by major program area. The 2009 MOH Financial Statement does not break down costs by program areas and thus an accurate baseline was not available to enable the total costs to be calculated. Table 7A presents all additional costs for MDG-related conditions and overall health systems strengthening, which were calculated using the MBB tool. Table 7B presents the other costs for additional program areas that were calculated outside the MBB tool using activity-based costing methods and existing program budgets. Due to the volume of data, only the costs for the ambitious strategy are presented here; similar tables for the conservative and status quo strategies are available upon request.

Table 7A: Annual marginal costs by major program areas (core programs), in thousands $US

Generic major budget categories	2010	2011	2012	2013	Total	(Total GHC)
Child health	1,728.35	3,138.06	4,547.77	5,957.47	15,371.65	22,135.18
Child health drugs and supplies	1,441.89	2,565.13	3,688.37	4,811.61	12,506.99	18,010.07
Child health program management	286.47	572.93	859.40	1,145.87	2,864.67	4,125.12
Adolescent health	3.37	6.73	10.10	13.46	33.66	48.47
Adolescent program management	3.37	6.73	10.10	13.46	33.66	48.47
Immunization	3,769.86	7,463.42	11,612.59	16,217.37	39,063.23	56,251.05

Generic major budget categories	2010	2011	2012	2013	Total	(Total GHC)
Vaccines	3,640.21	7,204.13	11,223.66	15,698.80	37,766.81	54,384.21
EPI program management	129.64	259.29	388.93	518.57	1,296.43	1,866.86
Water, sanitation and hygiene	3,344.21	6,339.29	9,334.38	12,329.46	31,347.34	45,140.17
Nutrition[2]	TBD	TBD	TBD	TBD	TBD	TBD
Maternal health	1,387.51	2,257.85	3,128.18	3,998.52	10,772.07	15,511.78
Maternal health drugs and supplies	1,296.42	2,075.66	2,854.90	3,634.15	9,861.13	14,200.03
Maternal health program management	91.09	182.19	273.28	364.37	910.94	1,311.75
Family planning	123.18	240.36	357.54	474.72	1,195.80	1,721.95
Contraceptive commodities	122.35	238.70	355.05	471.40	1,187.49	1,709.99
Family planning program management	0.83	1.66	2.49	3.33	8.32	11.98
HIV/AIDS	553.82	1,043.47	1,533.12	2,022.77	5,153.19	7,420.59
HIV prevention	87.07	174.14	261.21	348.28	870.70	1,253.81
HIV/AIDS care and treatment	447.38	830.58	1,213.78	1,596.99	4,088.73	5,887.77
HIV/AIDS program management	19.38	38.75	58.13	77.50	193.76	279.01
TB	883.76	1,422.83	1,961.90	2,500.96	6,769.45	9,748.01
TB drugs and supplies	883.76	1,422.83	1,961.90	2,500.96	6,769.45	9,748.01
TB program management[3]						
Malaria	6,576.23	9,357.89	12,139.55	14,921.21	42,994.88	61,912.63
Anti-malaria drugs and supplies	195.90	331.68	467.45	603.22	1,598.24	2,301.47
ITNs	3,734.44	3,734.44	3,734.44	3,734.44	14,937.75	21,510.36
IRS	2,643.87	5,287.74	7,931.61	10,575.48	26,438.69	38,071.71
Malaria program management	2.02	4.04	6.06	8.08	20.19	29.07
Non-MDGs basic services	4,445.90	8,126.87	11,807.84	15,488.81	39,869.42	57,411.96
Human resources	51,188.53	86,466.79	121,782.62	157,136.04	416,573.98	599,866.53
Pre-service training	15,947.86	15,947.86	15,947.86	15,947.86	63,791.45	91,859.69

[2] Nutrition program activities, such as training of community health volunteers and community mobilization and behavior change activities, are combined with child health activities, including immunization (for vitamin A supplementation). Universal salt iodization programs are not included in this budget. Some funding for RUTFs are included in this budget, using conservative scale-up targets; the total cost was proportionally quite low and therefore combined with child health. The nutrition budget may be adjusted and amended after further discussion.

[3] TB program management was combined with other program management budgets

Generic major budget categories	2010	2011	2012	2013	Total	(Total GHC)
Salary	35,109.13	70,218.26	105,327.40	140,436.53	351,091.32	505,571.50
Incentives	131.54	300.66	507.36	751.65	1,691.21	2,435.34
Infrastructure, equipment and transport	362,960.22	472,402.85	740,319.26	910,562.85	2,486,245.18	3,580,193.06
Infrastructure	220,971.11	293,176.57	459,521.24	572,964.36	1,546,633.28	2,227,151.92
Equipment	140,408.91	177,370.63	278,666.91	335,191.94	931,638.39	1,341,559.28
Transport	1,580.20	1,855.65	2,131.10	2,406.55	7,973.51	11,481.85
Logistics	807.74	807.74	807.74	807.74	3,230.95	4,652.57
Warehouse, equipment, and vehicles	807.74	807.74	807.74	807.74	3,230.95	4,652.57
HMIS	1,266.66	2,533.33	3,799.99	5,066.65	12,666.63	18,239.95
Governance, accreditation and regulation	828.89	1,657.79	2,486.68	3,315.58	8,288.94	11,936.07

Table 7B: Annual marginal costs by major program areas (additional programs), in thousands $US

	2010	2011	2012	2013	Total	(Total GHC)
Mental health	3,263.70	3,548.64	4,134.14	4,675.13	15,621.61	22,495.12
Administration	496.15	628.97	682.10	709.73	2,516.96	3,624.42
Services	1,368.96	1,521.06	2,053.43	2,566.79	7,510.25	10,814.76
Investment	1,398.60	1,398.60	1,398.60	1,398.60	5,594.41	8,055.95
Yaws	79.63	87.37	67.60	56.98	291.57	419.86
Administration	20.98	20.04	15.18	12.81	69.01	99.37
Services	58.65	67.32	52.42	44.17	222.56	320.49
Oncho/schisto/lymphatic filariasis	276.56	256.30	257.11	91.83	881.81	1,269.81
Administration	37.18	46.38	32.63	14.68	130.86	188.44
Services	214.71	188.95	206.66	62.00	672.32	968.14
Investment	24.67	20.97	17.83	15.15	78.62	113.21
Guinea worm eradication	737.81	627.12	442.56	367.66	2,175.15	3,132.22
Administration	59.50	67.89	61.47	57.30	246.15	354.46
Services	442.92	442.92	335.12	267.22	1,488.19	2,142.99
Investment	235.39	116.31	45.97	43.14	440.81	634.77
Ambulance	9,949.78	9,949.78	9,949.78	9,949.78	39,799.12	57,310.73
Personnel	1,710.98	1,710.98	1,710.98	1,710.98	6,843.91	9,855.23
Administration	1,714.38	1,714.38	1,714.38	1,714.38	6,857.52	9,874.83
Services	1,719.70	1,719.70	1,719.70	1,719.70	6,878.81	9,905.49
Investment	4,804.72	4,804.72	4,804.72	4,804.72	19,218.88	27,675.19
GIFMIS	45.37	36.57	36.57	36.57	155.09	223.33

Services	45.37	36.57	36.57	36.57	155.09	223.33
Public Financial Management strengthening	279.72	279.72	279.72	279.72	1,118.88	1,611.19
Services	279.72	279.72	279.72	279.72	1,118.88	1,611.19
Statutory bodies	43,397.46	48,951.58	59,643.13	67,122.64	219,114.81	315,525.33
Personnel	21,698.73	24,475.79	29,821.57	33,561.32	109,557.41	157,762.67
Administration	8,679.49	9,790.32	11,928.63	13,424.53	43,822.96	-
Services	6,509.62	7,342.74	8,946.47	10,068.40	32,867.22	63,105.06
Investment	6,509.62	7,342.74	8,946.47	10,068.40	32,867.22	47,328.80
Teaching hospital investment	10,000.00	10,000.00	10,000.00	10,000.00	40,000.00	47,328.80
National Disease Control Centre					(to be added when available)	57,600.00
Health training schools investment	-	-	-	6,550.00	6,550.00	-
Overall total	68,030.03	73,737.08	84,810.62	99,130.31	325,708.04	9,432.00

5 Assessment of fiscal space

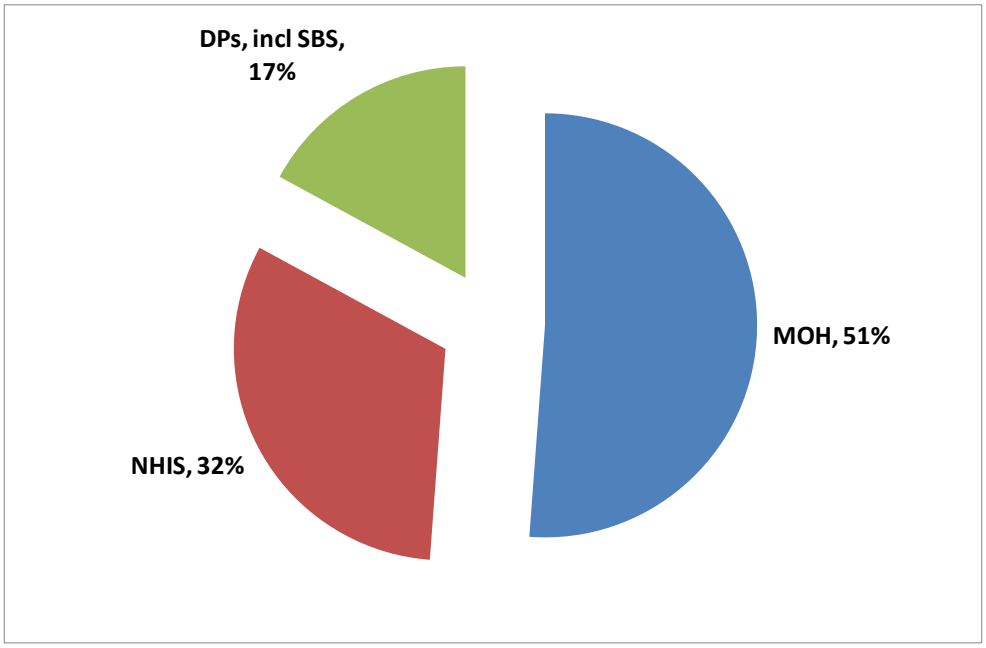
The fiscal space assessment aimed to determine the country's financial capacity and the government's potential to finance, entirely or partially, the HSMTDP 2010-2013, as well as to quantify the extra resources needed to achieve the HSMTDP objectives.

The analysis is divided into two steps: The first part attempts to quantify the Government and Development Partners' (DPs) current health financing. The second estimates the potential financial envelopes that the Government and its DPs are likely to dedicate to the health sector in the coming four years. For a full list of sources used in the fiscal space assessment, please refer to Annex 6.

5.1 Current Public Health Expenditure (2009)

In 2009, public health spending amounted to GHC 1.04 billion (US$ 724 million) or GHC 43 per capita (US$ 30). The structure of this expenditure by source of funds is shown in figure 1. The largest source is the funds transferred by the MOF to the MOH (a small part passes through the NHI Fund), which reached 51% in 2009. Funds raised by the NHIS and DPs were 32% and 17%, respectively.

Figure 1: Public health expenditure in 2009. Sources: MOH, NHIA, MOFEP, Team calculations



The spending structure by National Chart of Accounts Items shows that the MOH spends 67% of its resources to pay its staff, versus 18% and 14% for Investments and Services, respectively. In contrast to the MOH, NHIS and DPs (Sector Budget Support-SBS and Direct Support) dedicate 81% and 95% to Services, respectively.

Table 8: Public Health Expenditure by Item and by funding source in %, 2009. Sources: MOH, NHIA, MOFEP, WB, team calculations

	MOH	NHIS	DPs	Total
Item 1 - Personnel Emoluments	67.3%	1.4%	0.0%	34.9%
Item 2 - Administrative Expenses	1.0%	11.1%	2.8%	4.5%
Item 3 - Service Expenses	14.0%	80.9%	95.4%	49.1%
Item 4 - Investment Expenses	17.7%	6.5%	1.8%	11.5%
Total	100.0%	100.0%	100.0%	100.0%

5.2 Projected Public Health Expenditure

Despite the gloomy global economic context, MOFEP macroeconomic forecasts for Ghana (very close to IMF projections) are optimistic, as shown in the table below, and particularly in the event of substantial additional revenue from petroleum production ("Oil Scenario"). According to these projections, the share of public spending (excluding SBS) in GDP will decline between 2010 and 2012 and then rise slightly in 2013.

Table 9: Evolution of GDP, Inflation and share of Public Health Expenditure as a % of GDP, 2010-2013. Source: MOFEP (2010)

	2010	2011	2012	2013
GDP Growth (non-oil)	6.5	7.9	8.5	8.2
GDP Growth (oil)	6.5	20.1	6.8	5.3
GDP Growth (non-oil) - per capita	3.8	5.2	5.8	5.5
GDP Growth (oil)	3.8	17.4	4.1	2.6
Inflation (Average)	10.5	8.9	6.6	5.0
Inflation (end of period)	9.2	8.5	5.0	5.0
Public Expenditure (excluding DPs) as % of GDP (non-oil scenario)	37.9	35.8	33.5	34.8

The latest expenditure ceilings provided by MOF to Ministries were for 2010. The MTEF has not yet been prepared for the rest of the HSMTDP period 2011-2013. Thus, it was necessary to estimate the possible public health spending projections for 2010-2013. These estimates are based on the following assumptions:

1. For the sake of caution, the scenario "non-oil", which seems more plausible, has been selected for the analysis.
2. What is currently allocated to the health sector in the GOG Budget (ie excluding DPs) is slightly above 11% (2010).
3. In order to achieve a share of almost 15%, it is necessary that the Government both allocate and spend at least 1 additional percentage point on health each year to attain the following proportions: 12.5% in 2011, 13.5% in 2012 and 14.5% in 2013 (as per the Abuja Declaration).
4. In an alternative funding scenario, the Government is assumed to raise and maintain the sector's funding to the Abuja target of 15% of government spending beginning in 2011.

Table 10: Projected Public Health Expenditure, 2010-2013. Source: IMF, MOH, team calculations

	2010	2011	2012	2013
Government expenditure (non-oil scenario) in GHC	9,530,334,000	10,704,200,000	11,520,650,000	13,245,924,000
Progressive funding scenario				
Public Health Expenditure – PHE (excluding SBS)	11.03%	12.50%	13.50%	14.50%
Projected PHE (excluding SBS) in US$	732,359,973	932,356,630	1,083,748,693	1,338,345,049
Projected DP's contributions in US$*	137,076,859	138,999,962	115,666,319	76,980,036
Total Public Health Expenditure In US$	869,436,832	1,071,356,592	1,199,415,012	1,415,325,085

Abuja funding scenario				
Public Health Expenditure – PHE (excluding SBS)	11.03%	15.00%	15.00%	15.00%
Projected PHE (excluding SBS) in US$	732,359,973	1,118,827,956	1,204,165,215	1,384,494,878
Projected DP's contributions in US$*	137,076,859	138,999,962	115,666,319	76,980,036
Total Public Health Expenditure In US$	869,436,832	1,257,827,918	1,319,831,534	1,461,474,915

** Reduced levels in 2012 and 2013 due to lack of information about DPs commitments for these 2 years*

According to (i) information available on the DPs commitments, (ii) the projected macroeconomic context and (iii) assumptions related to the (increasing) share of health in the government budget, under the progressive scenario, public health spending will rise from US$ 869 Million to US$ 1.42 Billion in 2013, representing an average annual increase of 18%. Thus, between 2010 and 2013, nearly US$ 546 million (786 million GHC) additional funds should become available to the public health sector. Under the Abuja scenario, public health spending in 2013 would be slightly higher, at US$1.46 billion (2.10 billion GHC).

5.3 Fiscal space and sources of funding

Figures 2A, 2B and 2C present the total annual funding requirements of the HSMTDP, under the progressive financing scenario, with the funding gaps indicated in green. According to current fiscal space projections, there will be a $1.3 billion funding gap to implement the full HSMTDP and $387 million funding gap under the more conservative scenario. There is no expected funding gap for the status quo scenario.

Figure 2A: Funding gap, Progressive financing, Status quo scenario (millions US$)

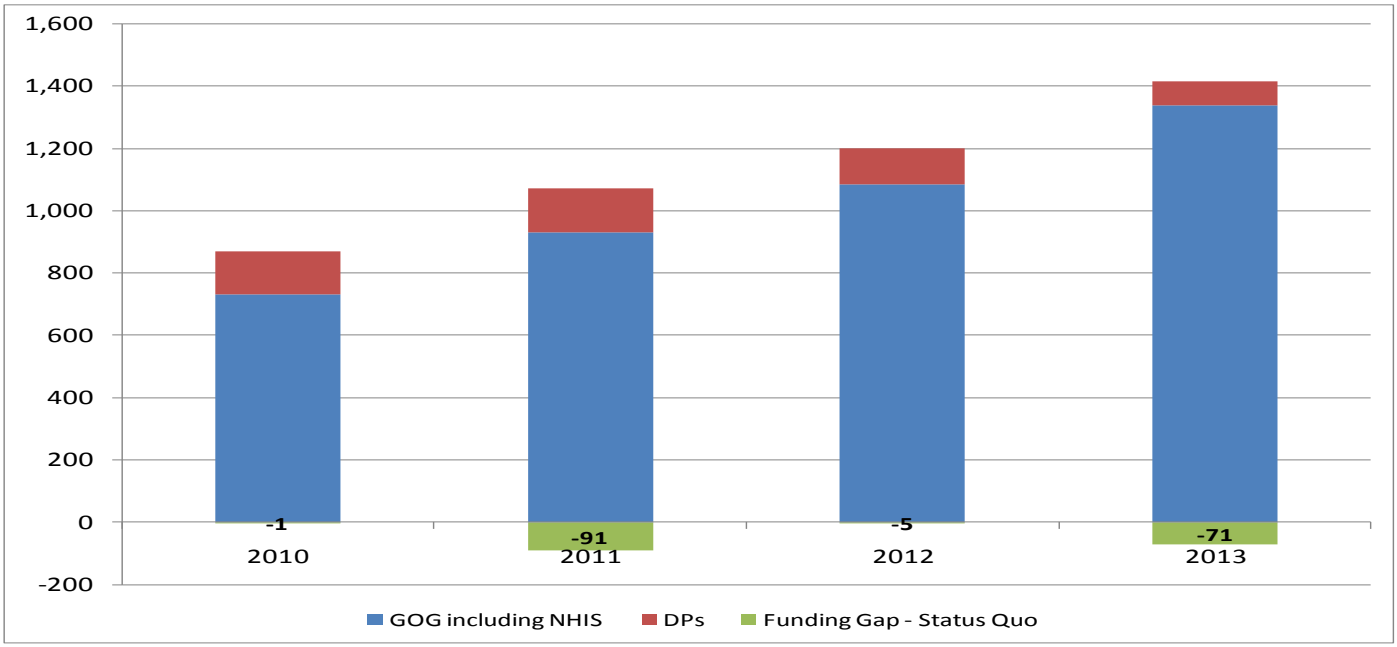


Figure 2B: Funding gap, Progressive financing, HSMTDP Conservative scenario (millions US$)

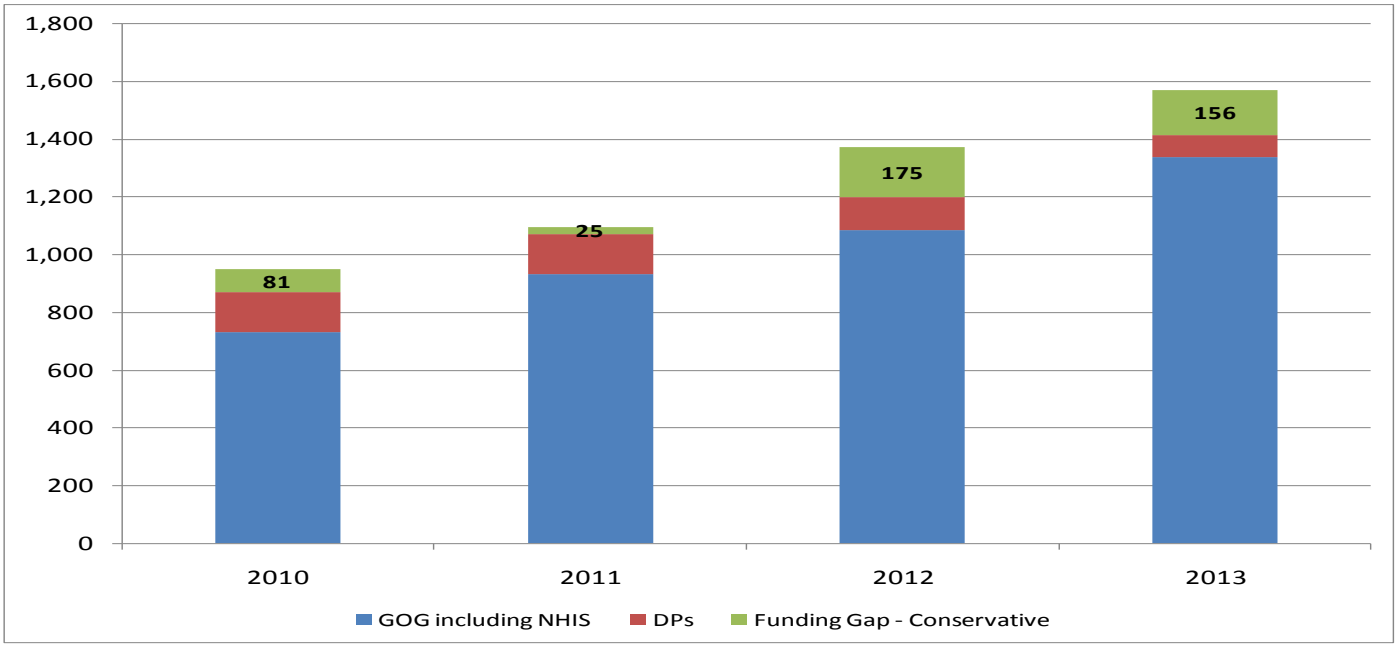
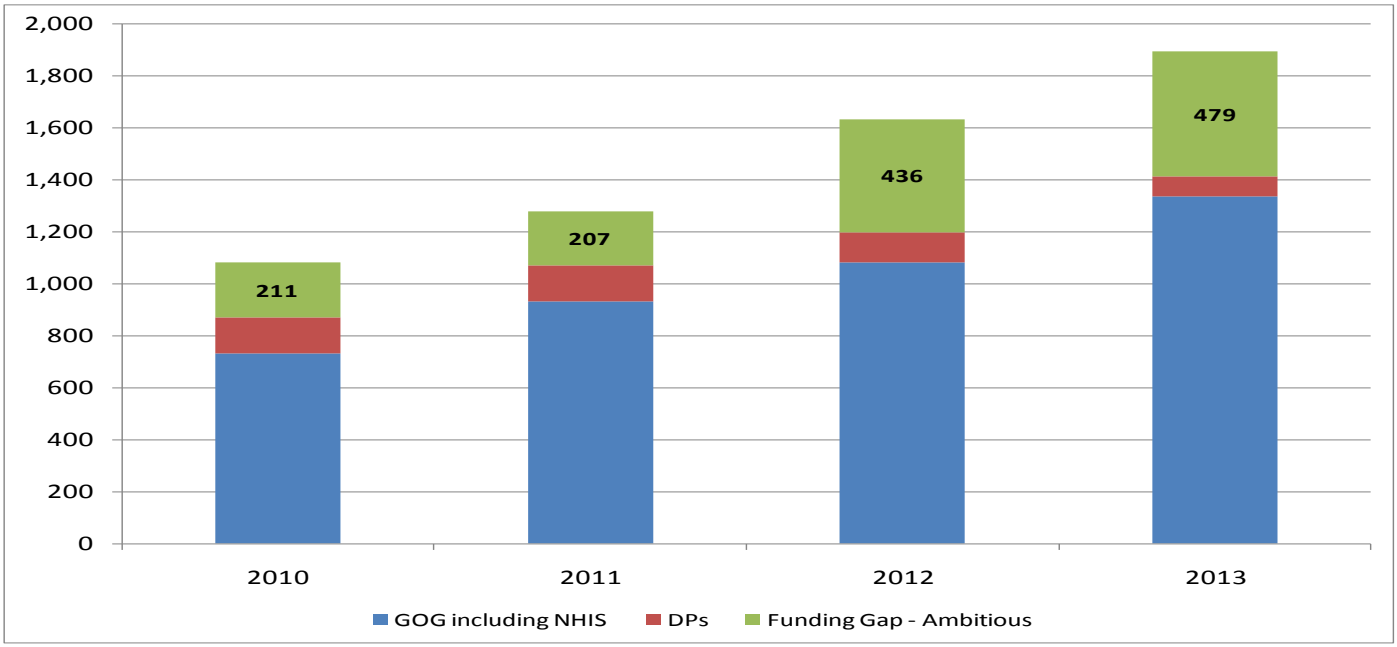


Figure 2C: Funding gap, Progressive financing, HSMTDP Ambitious scenario (millions US$)



Under the more optimistic financing scenario, whereby the Government would raise the share of the health sector to 15% of government spending beginning in 2011, the funding gap is much smaller, as is shown in the following three graphs.

Figure 2D: Funding gap, Abuja financing, status quo scenario

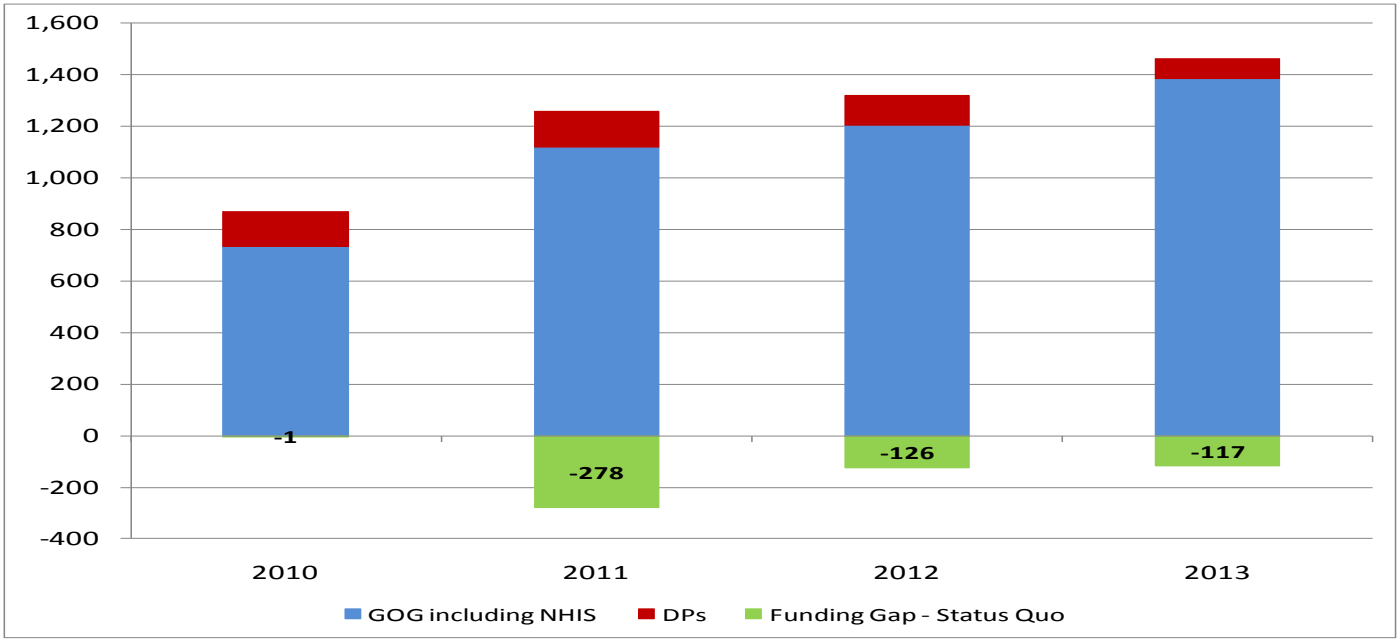


Figure 2E: Funding gap, Abuja financing, HSMTDP conservative scenario

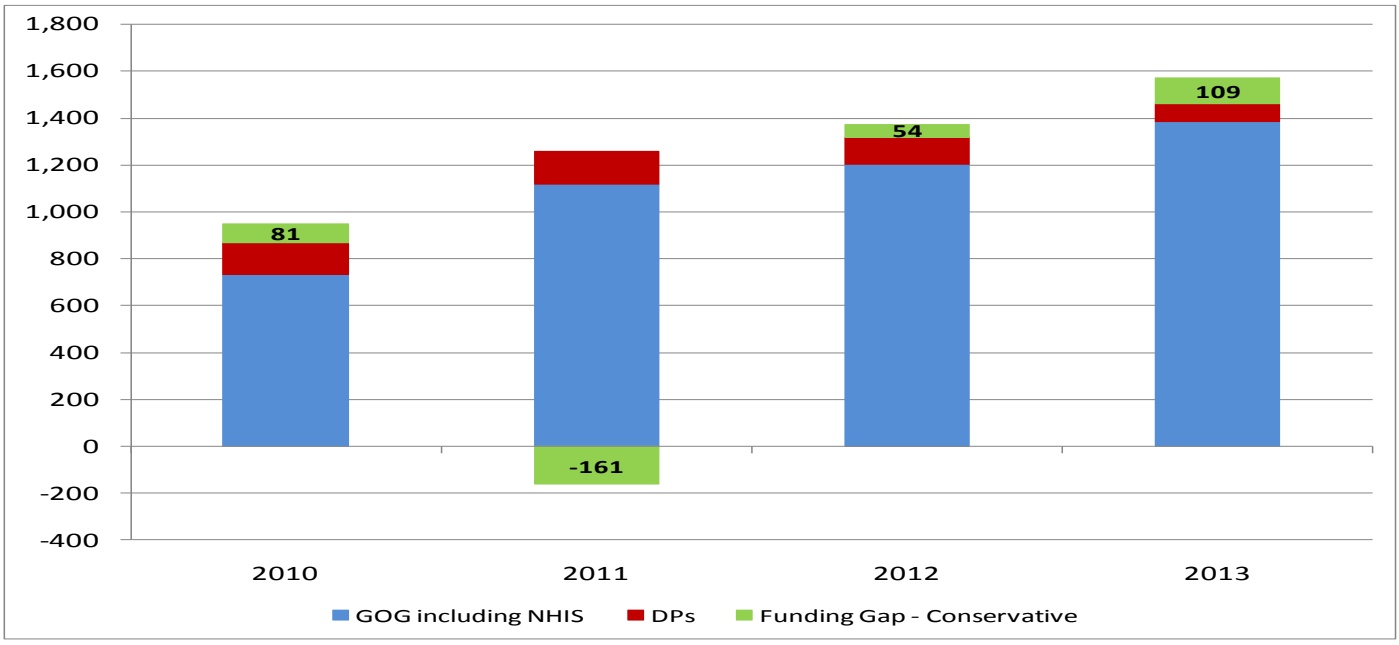
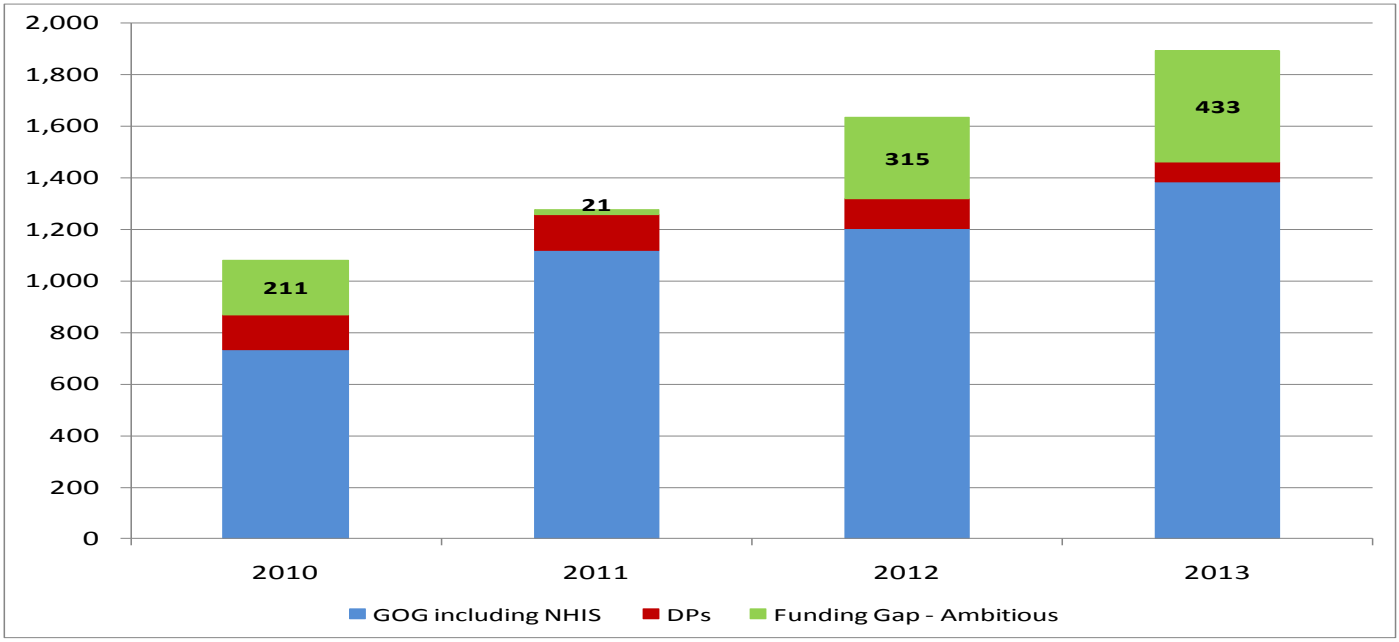


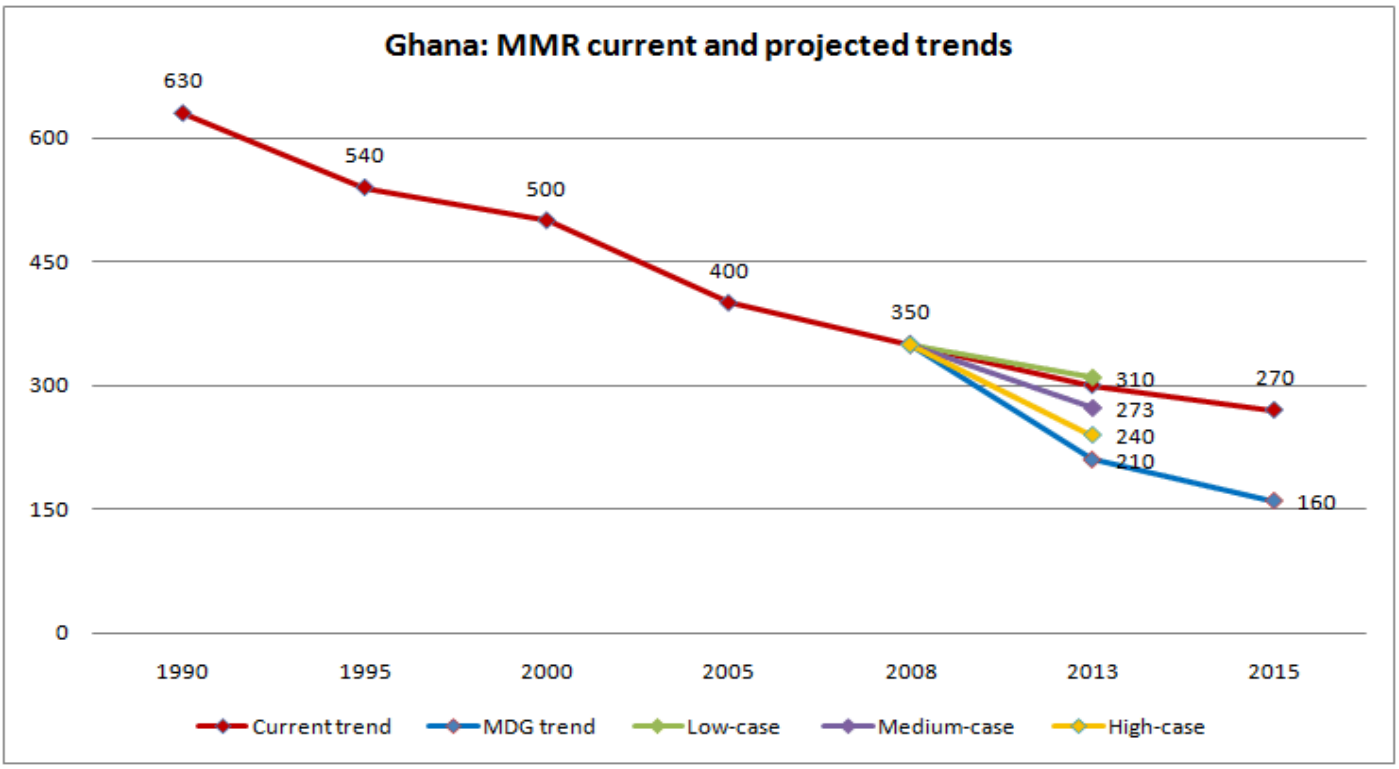
Figure 2F: Funding gap, Abuja financing, Ambitious scenario



6. HSMTDP forecasted impacts

Figure 3 presents some of the potential impacts of the conservative and ambitious HSMTDP scenarios as compared with the status quo. It is clear that the HSMTDP, if implemented correctly, could lead to substantial accelerations in progress towards Ghana's health and development targets. Specifically, the ambitious strategy could bring Ghana to 87% of the MDG 4 target by 2013, which would bring Ghana back "on track" for MDG 4 attainment in 2015. In contrast, continuing on the current track may only bring Ghana to 58% of the target. Maternal mortality is not as easy to reduce, but under the conservative and ambitious HSMTDP scenarios, women would have better access to quality delivery services at the district level and mortality could therefore be reduced by up to 31% from the 2008 baseline (44% from 1990 levels), corresponding to 59% of the MDG 5 target. This would put Ghana nearly on-track for MDG 5 attainment. (Figure 3 and Table 8) It is important to note that this maternal mortality projection could be an underestimation, as maternal mortality—both the rate and causes—have not been measured rigorously in Ghana in many years. The lack of sound baseline data on maternal mortality made epidemiological modelling difficult.

Figure 3: Historical and forecasted reductions in maternal mortality in Ghana. Source: Trends in Maternal Mortality, WHO, UNICEF, UNFPA, World Bank, 2010; MBB epidemiological modelling for 2008-2015.



CHPS zones and increased funding for community volunteers and community mobilization, along with new services for the treatment of severe acute malnutrition, could also substantially improve children's nutrition status. Under the HSMTDP ambitious scenario, progress towards the MDG 1 target (as expressed by the proportion of children stunted by age 5) could be accelerated to 56%. Additional investments in community and outreach services, such as expanded micronutrient supplementation for mothers and children, more rapid CMAM scale-up, and ongoing support for complementary feeding through community health volunteers, could produce more impressive results at a very low additional cost (not modelled).

Table 8: Selected health impacts for the HSMTDP

	Status quo	Conservative	Ambitious
% U5MR reduction from 1990	40.0%	51.9%	60.1%
% achievement of MDG4	59.9%	77.8%	90.1%
% MMR reduction from 1990 levels	29.3%	37.2%	44.4%
% achievement of MDG5	39.1%	49.6%	59.2%
% achievement MDG1 malnutrition goal	16.4%	44.3%	56.1%
% achievement MDG6 malaria goal	0.1%	22.5%	69.3%

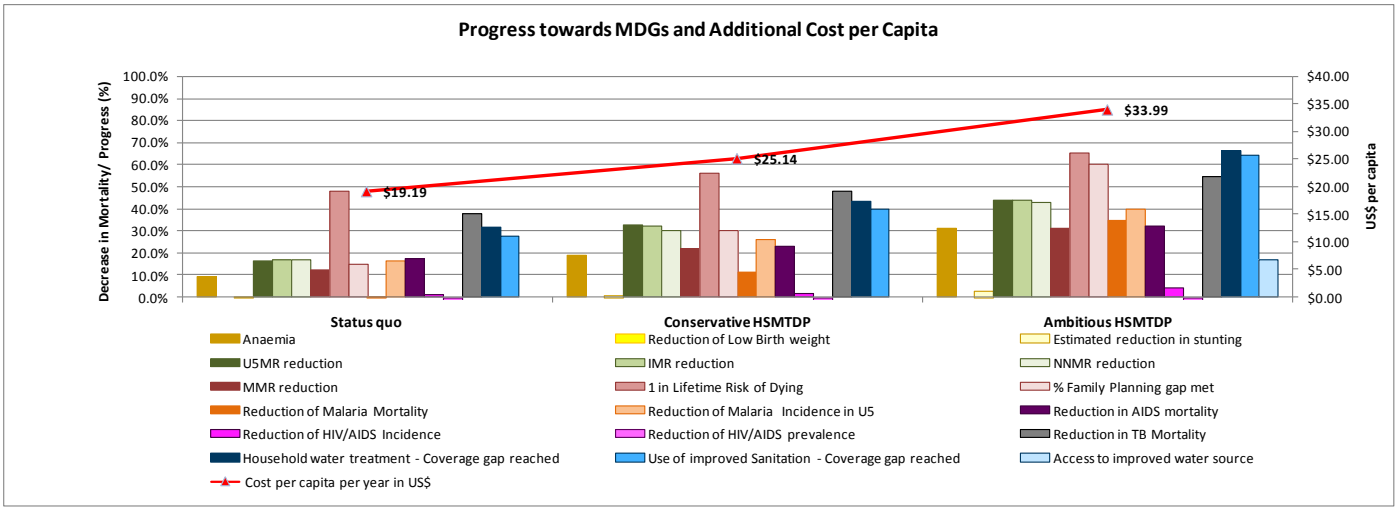
7. Study limitations

There are a number of limitations with this study. First and most importantly, the funding sources, funding projections and fiscal space estimates are "best guesses" as of September 2010 and could change substantially. Second, the costs of non-MDG services had to be calculated separately outside our primary model and may therefore be less accurate (overestimations), assuming that most are delivered through the same health facilities as MDG-related services. Third, the unit costs of health facilities and equipment have a very strong influence on the costs, but were not widely confirmed. If infrastructure could be reduced even moderately, the total cost of the HSMTDP would fall substantially. Finally, the total cost of the HSMTDP is smaller than the sum of its parts. In other words, if all the program budgets were added together, they would amount to more than $5.9 billion. This is not so much a limitation as a point of caution: the calculations used for this study assume improved efficiency in health service delivery in Ghana, including better harmonization of activities across different program areas. In order to stay within these cost estimates, national and sub-national planning and budgeting processes will need to be strengthened accordingly.

8. Conclusion

Figure 4 presents the impacts and the marginal costs, expressed as additional dollars per capita per year (a larger copy of this table is in Annex 5). Clearly, the HSMTDP could advance results, particularly for newborns and young children, but the additional cost is quite high at nearly $34 per capita per year. While much of the additional costs are investments that will have long-term impacts, these costs may be considered high within the West Africa region. The 2010-2013 period may represent a special time for Ghana to make concerted efforts to improve health system infrastructure, in which case a temporary spike in health expenditure may be deemed entirely worthwhile. On the other hand, the health of women and children in particular might be more rapidly improved in the coming four years, at a lower price, if some of the infrastructure and clinical investments were shifted towards improving the quality and coverage of community, outreach and primary care services, and ensuring that demand for these services increases alongside the supply. Based on these findings, a number of recommendations have been compiled for consideration when translating the 2010-2013 HSMTDP into annual workplans, or when designing the next HSMTDP.

Figure 4: Marginal per capita costs and impacts of three health strategy scenarios in Ghana (from left to right: status quo, conservative HSMTDP and ambitious HSMTDP). Table 8 is also reproduced in full-size in Annex 6.



9. Lessons learned

Through this study, the core team learned a number of important lessons, summarized below.

Data limitations: The greatest challenge in this study was locating reliable and recent data. Data constraints were encountered in all areas, from baseline coverage of health interventions, to consistent future coverage targets, to health expenditures.

Strategies were not always clearly linked to objectives. For example, accelerating progress towards the health-related MDGs, particularly MDG4 (reducing under-five mortality) is a stated priority in the HSMTDP, but community-based health and nutrition strategies, which are known to be highly cost-effective, are not strongly emphasized and make up only a small portion of the forecasted costs.

Infrastructure planning is not rationalized. Facility constructions plans were at times unclear. Locations, numbers, and unit prices were difficult to confirm. Unit prices were felt to be high, compared to other West Africa countries. Standards may need to be set or reconsidered, particularly if the Ghana health system is to become more efficient and decentralized.

Human resource plans: The HSMTDP's capital investments will create a large demand for new human resources, yet human resources are already a key bottleneck in the public health system. The HSMTDP does not outline a clear response to these current and forecasted constraints.

Ambulance services: The HSMTDP includes a massive plan for increasing ambulance services. This too could be explored further with other non-government sectors and local governments to ensure cost sharing and efficiency.

Realism of the 2013 coverage targets. The coverage targets included in the HSMTDP are quite ambitious and sometimes inconsistent with one another. For example, according to our projections, several service coverage targets could not be met under the human resource and facility targets initially provided; both had to be revised (in consultation with the MOH) to be more realistic. These targets should be revisited again with local government representatives, especially as the government moves towards their plans for decentralization.

Existing expertise in results-based planning and budgeting/ the Marginal Budgeting for Bottlenecks tool: The MBB tool was used in Ghana during the preparation of the previous HSMTDP (2007-2010) and multiple MOH and GHS staff members received training. This existing understanding and facility with the MBB helped to accelerate the process and precision of cost estimation.

Methodology and the MBB tool: Ghana used a mixed approach to costing the HSMTDP; the process of developing the final methodology was a very valuable exercise that other countries might draw upon when engaging in similar exercises. The MBB model was updated to incorporate non-communicable disease programs and other services into the cost projections. This exercise helped UNICEF and WB experts to better understand the MBB's advantages and limitations in such practical settings, and to prepare recommendations for future modifications. The MBB may also be used during the annual program of work preparation and costing.

Health system assessment or bottleneck analysis: A formal bottleneck analysis was not conducted for this study, but this exercise can be very useful, especially to planners at the local levels. The Government may consider this aspect of the MBB and for its future use in the country, including at district level to assess district-specific health systems constraints.

10 Recommendations

Based on the results of the costing exercise and lessons learned, the working group would like to offer the following recommendations for strengthening the public health system, with respect to both strategy and finance, and preparing future HSMTDPs.

1. **Strengthen information systems:** Invest in improving routine monitoring and evaluation systems to enable more reliable data availability; build capacity in data-driven planning and budgeting processes at decentralized levels.

2. **Prioritize preventive and primary health care services:** Prioritize community, outreach and primary care service scale up and quality improvement in the most vulnerable areas for the most rapid and cost-effective improvements in the major causes of illness and death among children and mothers.

3. **Prioritize nutrition interventions at the community level:** Consider investing more in nutrition services, including expanded micronutrient supplementation programs for women, adolescent girls, and children to address the underlying causes of maternal and child illnesses at a low cost.

4. **Develop urban PHC programs to reach the most vulnerable:** Convene a special working group on addressing the health issues of the urban poor. New data suggest that service quality is often lower in poor urban areas than rural villages and that mortality rates in urban slums are the highest in the country. Current community health strategies, such as CHPS compounds, may need to be modified for urban settings.

5. **Improve the distribution of health human resources:** Consider providing incentives (financial and non-financial) and consider adding hardship allowances to encourage health workers to reside in under-served areas (HR, especially at the nurse and midwife levels, were identified as major system bottlenecks, but is not thoroughly addressed in the HSMTDP).

6. **Build intersectoral partnerships:** Explore a closer link (in policy and practice) between health and other sectors, particularly water and sanitation.

7. **Rationalize capital investments for infrastructure:** Consider deferring some or all referral facility investments for the next planning period, once equity gaps in access to an essential minimum package of services have been reduced.

8. **Build partnerships for service delivery and capital investment:** Explore ways of reducing the prices of facility construction, particularly CHPS compounds and district health centers through reinforcing partnerships with communities and local governments. For example, standard government prices could be agreed upon and published; private organizations bidding for construction contracts could be encouraged to meet these norms. If these prices can be reduced, CHPS compounds in particular could be scaled up much more rapidly, bringing a basic package of services to the most vulnerable and reducing unnecessary hospital admissions. Partnerships should also be explored with the private sector, encouraging public-private partnerships in capital investment and service delivery.

9. **Rationalize the use of medicines and commodities:** Medicine costs are accelerating, and ways and means need to be explored to ensure that an essential medicine package is fully available at the health facility levels meeting international competitive pricing, and that prescription use is rationalized. The

National Health Insurance Schemes can be instrumental in ensuring rationalization of medicine use and pricing.

10. **Pursue results-based financing:** Explore opportunities to partner with local governments and service delivery points, drawing on performance based grants and payments.

11. **Move towards integrated planning and budgeting at district levels:** Programs often do not follow integrated planning and budgeting processes, and redundancy and inefficiency can lead to unnecessary costs and fragmented funding.

12. **Provide appropriate resources for the institutionalization of the National Health Accounts (NHA):** Regularly conduct NHA and monitor and report on health expenditures for the use of central and local government resources, including DACF and IGF, non-government resources, and of all external financing.

13. **Explore alternate financing sources:** This includes building partnerships with local governments (in the use of DACF and common funds), with private sector, and local communities. Lobby strongly with the central government to ensure appropriate resources are allocated from Government budgets, and timely releases of funds are ensured.

14. **Increase NHIS enrolment:** Ensure increased enrolment of the population into the NHIS, and particularly of those who are among the poor and among the “exempt”. Improve the harmonization of the NHIS definition of the poor with the LEAP program, and accelerate the enrolment (with appropriate resource allocations) of the poor and vulnerable into NHIS.

Annex 1 – Final Coverage Targets

Data sources: *Baseline data taken from DHS 2008 and program monitoring data (see full list of citations below, in Annex 5). National targets taken from program managers and adjusted by the MBB tool to be consistent with key inputs, such as infrastructure and new human resources.*

		National target by 2013		
	Baseline	**Low-case**	**Medium-case**	**High-case**
Family oriented community based services				
% children <5 sleeping previous night under insecticide treated net	40%	40%	47%	69%
% households treating water at home (filter, chlorine, flocculation)	8%	37%	47%	69%
% of population with access to improved source of drinking water	82%	82%	82%	85%
% of population using improved sanitation	13%	37%	47%	69%
Hand washing with soap	25%	37%	47%	69%
Safe disposal of child feces	48%	48%	48%	69%
Hygiene promotion	-	37%	47%	69%
% household sprayed (IRS)	2%	22%	29%	32%
Safe home delivery	8%	8%	8%	8%
Newborns breastfed within one hour of birth	52%	52%	59%	69%
% LBW infants receiving extra care	9%	15%	25%	35%
% children 0-5 months exclusively breastfed	63%	64%	65%	72%
% children aged 12-15 months receiving breast milk.	91%	91%	91%	91%
% children 6-9 months receiving complementary food and continued breastfeeding	68%	68%	68%	72%
% of children with diarrhea who drank more	24%	36%	54%	68%
% of children with SAM receiving therapeutic feeding	5%	18%	27%	34%
Population oriented schedulable services				
% couples with demand currently using a modern method	29%	35%	40%	45%
% high risk sexual contacts with use of condom	56%	56%	56%	68%
% pregnant women receiving 3 ANC visits including urine test	46%	61%	63%	74%
% mothers with birth in last 12 months protected against tetanus	72%	72%	72%	74%
% pregnant women who received antithelmics (deworming) during their pregnancy	35%	61%	63%	74%
% pregnant women with syphilis screened and treated with antibiotics	75%	75%	75%	75%
% pregnant women with anemia receiving Iron supplementation	89%	89%	89%	89%
% pregnant women who received 2 doses of IPT during their pregnancy	44%	61%	63%	74%
% HIV+ pregnant women receiving a complete course of ARV prophylaxis to reduce MTCT	22%	37%	63%	75%
% pregnant women receiving provider initiated testing and counseling for HIV	40%	55%	63%	75%
% eligible HIV+ pregnant women receiving cotrimoxazole prophylaxis	7%	37%	51%	68%
% eligible HIV+ adults receiving cotrimoxazole prophylaxis	7%	37%	51%	68%

		National target by 2013		
% exposed and infected children receiving cotrimoxazole prophylaxis	7%	37%	51%	68%
% children 12-23 months who received Measles vaccination	90%	90%	90%	90%
% children 12-23 months who received BCG vaccine	96%	96%	96%	96%
% children 12-23 months who received OPV vaccine	86%	86%	86%	86%
% children 12-23 months who received Pentavalent	88%	88%	88%	88%
% children 12-23 months who received 3 doses of pneumococcal vaccine	0%	0%	88%	88%
% children 12-23 months who received rotavirus	0%	0%	88%	88%
% pregnant women receiving Vitamin A within 2 months after birth	60%	72%	75%	76%
% of children aged 6-36 months who received at least one high dose vitamin A supplement within the last 6 months	56%	72%	75%	76%
Individual oriented clinical services				
% deliveries assisted by (aux-nurse) midwife or physician	57%	62%	67%	82%
% of deliveries with active management of third stage	27%	57%	72%	82%
% complicated pregnancy treated in quality EOC facility (B-EONC or C-EONC)	30%	43%	65%	85%
Caesarian Section Rate (CS/5%)	0%	4%	6%	8%
% of health facilities offering neonatal resuscitation	40%	56%	63%	70%
% pregnant women with risk of prematurity receiving antenatal steroids from a skilled health worker	16%	55%	65%	75%
% Preterm prolonged rupture of membranes receiving antibiotics	31%	46%	56%	66%
% (pre) eclampsia cases receiving Magnesium Sulphate from a skilled health worker	42%	56%	67%	85%
% cases of neonatal sepsis receiving antibiotic from a skilled health worker	48%	51%	58%	73%
% neonates with jaundice treated in hospital (first or second line)	54%	54%	56%	62%
% new born with asphyxia, severe infection of low birth weight treated in hospital (first or second line) quality neonatal care	9%	39%	45%	57%
% ARI treated with antibiotics by a skilled health worker	20%	27%	47%	57%
% of cases of dysentery and enteric fevers treated with antibiotics by a skilled health worker	32%	32%	35%	47%
% diarrhea cases treated with Zinc by a skilled health worker	10%	7%	11%	14%
% children with malaria receiving ACT from a skilled health worker	55%	55%	67%	72%
% pregnant women with malaria receiving ACT from a skilled health worker	43%	43%	43%	47%
% adults with malaria receiving ACT from a skilled health worker	72%	72%	72%	72%
% of cases of cases of complicated malaria requiring 2nd line drugs actually managed	58%	58%	58%	58%
Management of severe malaria	49%	49%	49%	53%
% of adults with STI being diagnosed and treated	33%	35%	38%	48%
% AIDS cases treated for opportunistic	78%	78%	78%	78%

		National target by 2013		
infections by a skilled health worker				
% circumcised men 15-24	96%	96%	96%	96%
% eligible children receiving ART	14%	39%	45%	58%
% eligible HIV+ pregnant women receiving ART	22%	39%	45%	58%
% eligible HIV+ adults receiving ART	32%	39%	45%	54%
Children second-line ART	13%	38%	44%	54%
% first line ART failures receiving adequate second line ART regimen	16%	41%	46%	54%
Management 2nd line ART failure	0%	45%	49%	55%
% TB cases diagnosed and treated among all incident TB cases	38%	38%	53%	56%
% TB cases re-treated among all TB patients	11%	40%	45%	54%
% MDR TB patients treated with second line drugs of all estimated MDR cases	2%	45%	49%	55%
Other emergency acute care	24%	45%	49%	55%

Annex 2 – Unit Prices (selected inputs only)

Health facility costs: Construction, rehabilitation, maintenance

Parameter name	Unit	Ghana Value ($US)	Reference
Housing for health care professional	per worker	50,000	MOH Capital Investment team, but needs further confirmation
Health post construction	Per unit	55,000	MOH Capital Investment team, but needs further confirmation
Health post rehabilitation	Per unit	16,500	Percentage of new construction costs (see below)
Health post maintenance	Per unit	1,925	Percentage of new construction costs (see below)
Water for health post	Per year	-	Included in maintenance costs
Electricity for health post	Per year	1,100	Percentage of new construction costs (see below)
Health center construction	Per year	350,000	MOH Capital investment team
Health center rehabilitation	Per year	105,000	Percentage of new construction costs (see below)
Maintenance of health center	Per year	12,250	Percentage of new construction costs (see below)
Water for health center	Per year	3,500	Percentage of new construction costs (see below)
Electricity for health center	Per year	7,000	Percentage of new construction costs (see below)
Construction first level referral care facility	Per unit	19,000,000	MOH Capital Investment team, but needs further confirmation
Rehabilitation of first level referral care facility	Per unit	5,700,000	Percentage of new construction costs (see below)
Maintenance first level referral care facility	Per year	665,000	Percentage of new construction costs (see below)
Water for first level referral care facility	Per year	190,000	Percentage of new construction costs (see below)
Electricity for first level referral care facility	Per year	380,000	Percentage of new construction costs (see below)
Construction second level referral care facility	Per unit	28,000,000	MOH Capital Investment team, but needs further confirmation
Rehabilitation of second level referral care facility	Per unit	8,400,000	Percentage of new construction costs (see below)
Maintenance of second level referral care facility	Per year	980,000	Percentage of new construction costs (see below)
Water for second level referral care facility	Per year	280,000	Percentage of new construction costs (see below)
Electricity for second level referral care facility	Per year	560,000	Percentage of new construction costs (see below)

Parameter name	Unit	Ghana Value ($US)	Reference [Source]
Construction / Rehabilitation Health Service			
VCT center	Per unit	20,000	West and Central Africa Average (UNICEF)
Blood bank	Per unit	3,500,000	West and Central Africa Average (UNICEF)
Maintenance of blood bank	Per year	350,000	Percentage of new construction costs (see below)
Rehabilitation of office space	District	50,000	Percentage of new construction costs (see below)
Maintenance, electricity, water for offices	Per year	7,500	Percentage of new construction costs (see below)
Rehabilitation of buildings	Provincial	100,000	Percentage of new construction costs (see below)
Construction/rehabilitation of logistical base/store	District	500,000	West and Central Africa Average (UNICEF)
Maintenance, electricity, water for logistical base	Per year	75,000	Percentage of new construction costs (see below)
Construction/rehabilitation of logistical base/store	Provincial	1,000,000	West and Central Africa Average (UNICEF)
Maintenance, electricity, water etc.	Per year	150,000	Percentage of new construction costs (see below)
Construction/rehabilitation of logistical base/store	National	2,000,000	West and Central Africa Average (UNICEF)
Maintenance	Per year	400,000	Percentage of new construction costs (see below)
Cost of building a medical school	Per unit	150,000	West and Central Africa Average (UNICEF)
Maintenance medical school	Per year	15,000	Percentage of new construction costs (see below)
Equipment			
Radio 1 per 50 households	Per 50 households	200	West and Central Africa Average (UNICEF)
Equipment for health post	Per unit	6,000	West and Central Africa Average (UNICEF)
Maintenance of health post equipment	Per year	300	Percentage of new equipment costs (see below)
Equipment for health center	Per unit	80,000	West and Central Africa Average (UNICEF)
Maintenance of health center equipment	Per year		Percentage of new equipment costs (see below)
Material for resuscitation (ambu- bag)	Per unit		West and Central Africa Average (UNICEF)
Equipment for first level referral care facility	Per unit	8,000,000	West and Central Africa Average (UNICEF)
Maintenance of equipment first level referral care facility	Per year		Percentage of new equipment costs (see below)
Equipment for second level referral care facility	Per unit	15,000,000	West and Central Africa Average (UNICEF)
Equipment for surgery and obstetrics	Per unit		West and Central Africa Average (UNICEF)
Maintenance of equipment for second level	Per year		Percentage of new equipment costs

referral care facility			(see below)
Equipment for medical school	Per unit	50,000	West and Central Africa Average (UNICEF)

Maintenance (as share of capital cost)			
Maintenance of building (as share of construction cost)	%	10.0%	Ghana estimate 2010
Rehabilitation of building (as share of new construction cost)	%	30.0%	Ghana estimate 2010
Maintenance of equipment (as share of equipment cost)	%	5.0%	Ghana estimate 2010
Water / electricty recurent costs (as share of new construction)	%	15.0%	Ghana estimate 2010
Water installation (as share of new construction cost)	%	1.0%	Ghana estimate 2010
Electricity installation (as share of new construction cost)	%	2.0%	[Ghana estimate 2010

Annual salaries (total compensation not including benefits)

Parameter name	**Unit**	**Ghana Value (US$)**	**Reference [Source]**
Community health volunteers	Per year	unpaid	National policy
Driver	Per year	1,714.29	Health Sector Salary Structure (HSS), January 2009
Administrative staff	Per year	6,857.14	Health Sector Salary Structure (HSS), January 2009
Auxiliary nurses/midwives	Per year	2,948.57	Health Sector Salary Structure (HSS), January 2009
Laboratory technician / assistant	Per year	4,071.43	Health Sector Salary Structure (HSS), January 2009
Pharmacist / assistant	Per year	5,142.86	Health Sector Salary Structure (HSS), January 2009
Other paramedical staff	Per year	4,285.71	Health Sector Salary Structure (HSS), January 2009
Enrolled nurses	Per year	2,948.57	Health Sector Salary Structure (HSS), January 2009
Registered nurse	Per year	4,285.71	Health Sector Salary Structure (HSS), January 2009
Registered midwife or Nurse/Midwife	Per year	4,285.71	Health Sector Salary Structure (HSS), January 2009
Health officer	Per year	6,428.57	Health Sector Salary Structure (HSS), January 2009
General physician	Per year	12,214.29	Health Sector Salary Structure (HSS), January 2009
Medical specialist	Per year	20,571.43	Health Sector Salary Structure (HSS), January 2009
Managers	Per year	18,857.14	Health Sector Salary Structure (HSS), January 2009
Clerical and logistical support staff	Per year	2,142.86	Health Sector Salary Structure (HSS), January 2009
Senior managers (provincial / national)	Per year	17,142.86	Health Sector Salary Structure (HSS), January 2009
Clerical support staff (provincial / national)	Per year	2,142.86	Health Sector Salary Structure (HSS), January 2009

Annex 3 – HSMTDP Costing Group Workplan

HSMTDP costing exercise workplan - August 24-September 23, 2010

Task	Details: deliverables	Deadline
1 Discuss and agree upon methods	Team leader to propose possible approach; discussion; consensus documented in meeting PowerPoint	8/24
2 Draft and refine written summary of methods	Draft summary (5 pages maximum). Contents: goals, deliverables, details of approach and key steps, major references Draft PowerPoint presentation for Thursday business meeting	8/25
3 Produce work plan and team assignments	Work plan	8/25
4 Prepare meeting invitations and agendas	1. Data validation workshop, Sep 1 2. Budgeting workshop, Sep 7	8/26
5 Draft outline of final report	Key contents, including preferred format and budget format	8/26
6 Locate copies of existing program budgets	Eg. HIV, TB, malaria, IMCI/ child health, reproductive health, human resource plan, NHIS, health monitoring and evaluation system	8/26
7 Locate copies of 2010 budget and 2009 expenditure report		8/26
8 Enter baseline budget into MBB budgeting section	Team leader to provide simple checklist/ worksheet: items included, major source of financing	8/27
9 Finalize data collection	To be submitted in existing template. Please make sure the sources are clearly noted.	8/27
10 Data transfer into MBB tool		Weekend 8/28
11 Using program plans and HSMTDP draft, compile strategies and coverage frontiers	UNICEF to prepare the worksheets for ~15 interventions, baseline coverage, bottlenecks/ constraints, HSMTDP strategies, 2013 coverage targets	8/30
12 Prepare additional data validation sheets	Economics data primarily—team leader to help identify key data	8/30
13 Prepare presentations and group exercise instructions for the data validation workshop	Based on agenda	8/31
14 Meeting to review workshop 1	2 hours: Tuesday, 8/30 1-3 pm at UNICEF small conference room	8/31
15 Workshop facilitation	All working group members should be present. Workshop location: UNICEF large conference room	9/1
16 Compile the results of the workshop group exercises	Compile presentations, worksheets; note key outcomes and discussion points	9/2
17 Transfer the results of the group exercises into the MBB	Draft MBB base file	9/3
18 Preliminary modelling	For MDG-related illnesses and the general health system Preliminary results due to govt. no later than Monday, September 6	9/3-9/4-9/5
19 Preliminary activity-based costing	For mental health (and possibly non-communicable diseases)	9/3-9/4-9/5
20 Prepare presentations and group exercises for budgeting workshop; draft report	Specific assignments to be provided to group members	9/6
21 Facilitate budgeting workshop	All working group members to participate. Lead: WB	9/7

Task	Details: deliverables	Deadline
22 Formal debriefing	WB to determine participants and arrange meeting	9/8
23 Draft short report	As per outline.	Sep 10
24 Ongoing consultations	As needed to verify and refine the results and build consensus	Sep 13-17
25 Full report	Submit full report to Ministry of Health	Sep 23

Annex 4: Agendas for validation workshops

GHANA HSMTDP COSTING EXERCISE

AGENDA FOR FIRST DATA VALIDATION WORKSHOP

UNICEF Country Office, Accra

1 September, 2010

Time	Activity
9:00-10:00	Welcome and prayer
10:00-10:30	Presentation of goals, scope, and methods of the costing exercise
10:30-11:00	Presentation of key underlying principles
11:00-11:15	Tea break
11:15-11:30	Explanation of first group work session: goals, deliverables
11:30-1:00	Group work session: community-based programs • Water and sanitation; malaria prevention • Community maternal and newborn care; infant and young child feeding • Community case management for childhood illnesses Parallel session: macroeconomic indicators
1:00-2:00	Lunch
2:00-2:10	Explanation of second and third group work sessions
2:10-3:00	Group work session: outreach programs • Immunization and micronutrient supplementation • Family planning • Antenatal care • PMTCT and HIV prevention
3:00-4:00	Group work session: clinical services • Primary care (children, adults) • 1st referral hospitals • 2nd referral hospitals Parallel session: microeconomic indicators
4:00-4:10	Closing

AGENDA FOR SECOND DATA VALIDATION WORKSHOP

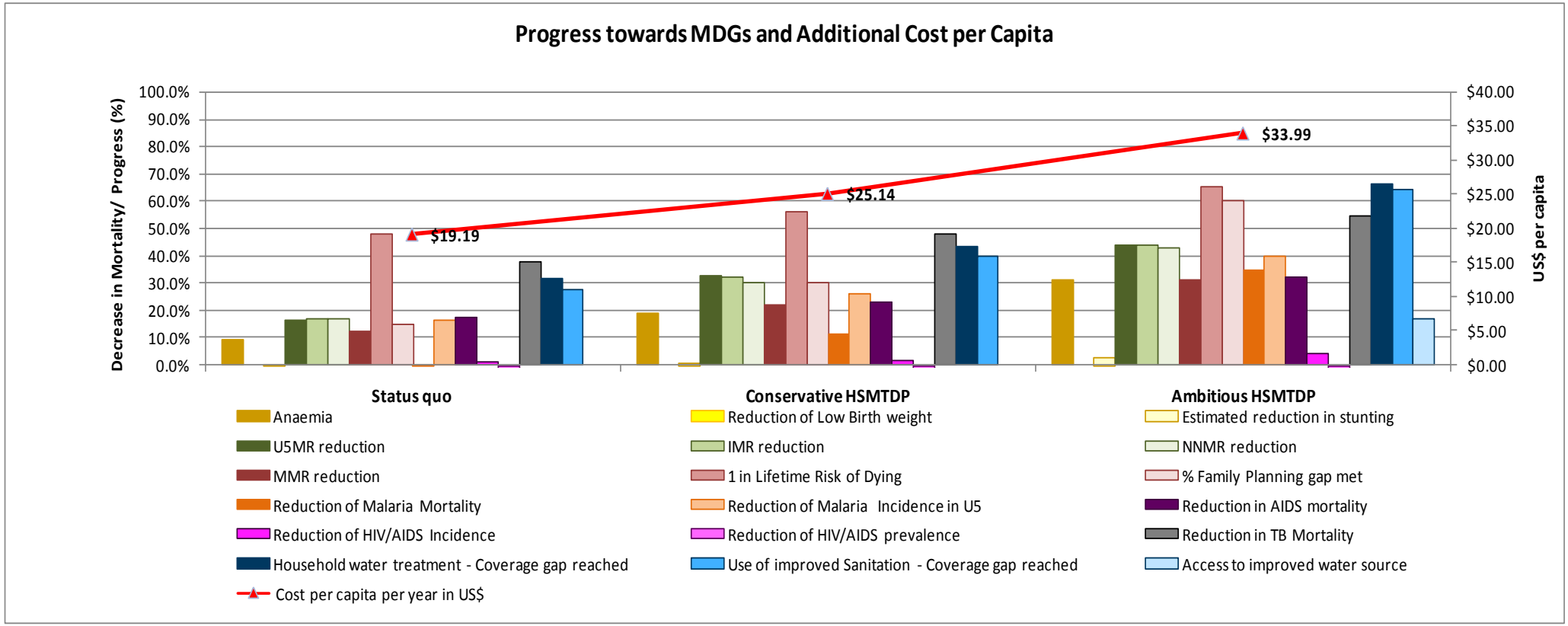
Ministry of Health Conference Room, Accra

7 September, 2010

Time	Activity
9:00	**Welcome and overview of the goals of the meeting**
9:15	**Review of purpose and methods of the costing exercise**
9:30	**Presentation: preliminary cost and impact estimates for 3 scenarios**

Time	Activity
	• Rationale behind 3 scenarios • Cost estimates • Projected impacts
10:00	**Review unit prices** • Community based strategies • Outreach strategies • Primary care • Secondary care
11:00	**Verify infrastructure targets and unit costs** • CHPS zones • Health centres • Hospitals • Staff housing
12:00	**Verify human resource targets**
13:00	**Lunch**
14:00	**Verify sources of funding and projected resources—priority areas** • GOG • Loans • DP commitments • Global Fund • GAVI, etc
14:30	**Verify additional budgets: non-MDG**
15:00	**Presentation of updated figures** • Marginal and total costs • Sector costs • Cost by strategic objective • Fiscal space
15:30	**Plenary discussion**
16:00	**Summary, next steps and close**

Annex 5: Results detail



Annex 6 – References

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Annex 7 – HSMTDP Costing Group Composition

- Mr. George Dakpallah, Acting Director, Policy Planning, Monitoring and Evaluation, Ministry of Health, Accra
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- Mr. Kwakye Kontor, Senior Planning Officer, Policy, Policy Planning, Monitoring and Evaluation, Ministry of Health, Accra
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- Dr. Netsanet Walelign, Senior Health Economist, World Bank, Nairobi
- Dr. Driss Zine-Eddine El-Idrissi, Senior Health Economist, World Bank, Dakar Regional Hub
- Dr. Karima Saleh, Senior Health Economist, World Bank, Accra
- Ms. Angela Micah, Consultant, World Bank, Accra
- Dr. Anirban Chatterjee, Chief, Health and Nutrition, UNICEF
- Ms. Josephine Agborson, Programme Analyst, Health and Nutrition, UNICEF
- Ms. Adeline Azrack, Consultant (sponsored by UNICEF)
- Dr. Kojo Appiah-Kubi, Consultant (sponsored by DANIDA)