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Contents

Abbreviations and acronyms

DMHIS	District and sub-metro Mutual Health Insurance Schemes
GDP	Gross Domestic Product
GHS	Ghana Health Service
ILO	International Labour Office
MDG	Millennium Development Goal
MOH	Ministry of Health (Ghana)
NHIC	National Health Insurance Council
NHIF	National Health Insurance Fund
NHIS	National Health Insurance System
SIDA	Swedish International Development Cooperation Agency
UNDP	United Nations Development Programme
US$	United States dollar
WHO	World Health Organization

Forward and acknowledgements

The simulations for the task were undertaken on the version of the health budget which was developed by the International Labour Office (ILO). The present work was done in the framework of a Swedish International Development Cooperation Agency (SIDA) financed technical cooperation project and permitted the continuation of ILO technical advisory support to the government of Ghana in the context of their National Health Insurance System.

The updating of the National Public Health Budget model and the drafting of the report was commissioned to Mr. Ben Asumang (Head of the Actuarial Department at the Social Security and National Insurance Trust – SSNIT) and benefited from contributions from Mr. Ben Yankah (from the Actuarial Department at the SSNIT). Ms. Fiona Kilpatrick (official from the UK Works and Pensions Department) provided valuable inputs and support to the team. Mr. David Tumwesigye, consultant on the project as of June 2007, provided support during consultations with the National Health Insurance Council (NHIC) and the Ministry of Health (MOH) and during the training workshops for national officials. Technical advice was provided to the team and work reviewed by Mr. Florian Léger from the Social Security Department of the ILO (SEC/SOC).

The present work was part of a wider range of support which encompassed the updating of the National Public Health Budget model in consultation with the National Health Insurance Council and the Ministry of Health, the utilization of the updated model for the analysis of policy options requested by the government and last but not least the building of national capacity. This was done through on-the-job training and workshops which were held for national officials.

Executive summary

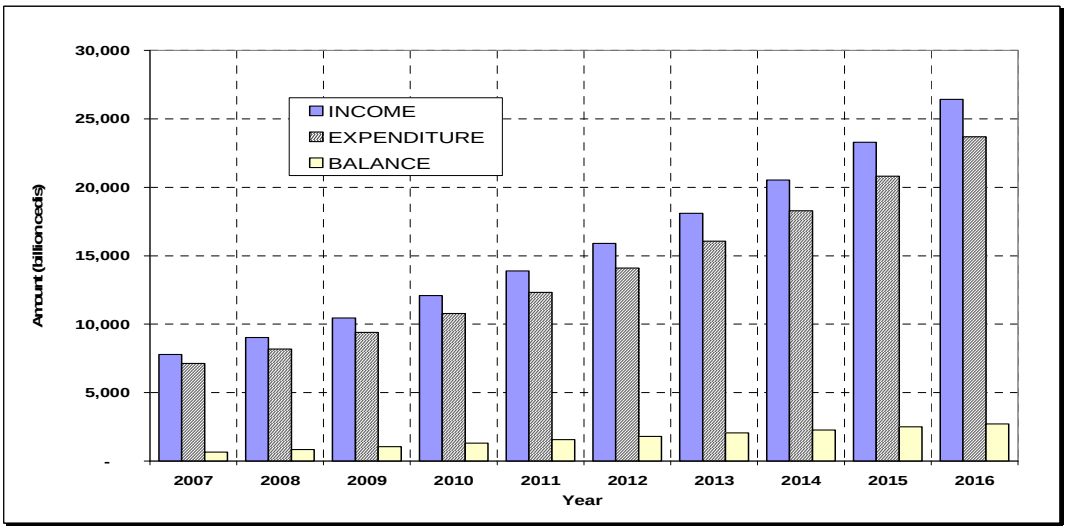
Health care financing is a major challenge for every government. Introducing a National Health Insurance Scheme, with its related financial and governance issues, is even more complex. The determination of the government of Ghana to make health care accessible to all residents through the adoption of the National Health Insurance Act in 2003 and the implementation of the National Health Insurance System (NHIS) constitutes a considerable challenge. Nevertheless, a challenge worth taking up as there is an evident link between good health, a productive life, economic development and poverty reduction. Thus, the majority of the Millennium Development Goals (MDG) are linked in some way to indicators of health status. The MDG Africa Steering Group has emphasized the "critical importance of financing national health systems to improve the quality of life of Africa's people" [1] in order "to ensure that the poor can access health services". However, it is only through effective and efficient governance from the design of the health system to its day to day operations that access to and delivery of quality health care can be provided to the population. Governance of the operations of the system requires monitoring the income and expenditure sources of the system on a regular basis in order to ascertain its financial soundness and to ensure that corrective measures can be taken well in time should the financial soundness be compromised due to socio-economic developments or scheme specific parameters.

This financial study involves the assessment of the evolution of the costs involved in providing public healthcare through the National Health Insurance System in Ghana and it's financing during the next decade.

The study shows that under conservative coverage increases (attaining 60 per cent of national coverage by 2016), the income of the National Public Health Budget exceeds expenditure thus producing an increasing surplus during the projection period which permits the National Public Health Budget to cover approximately one year of benefit and administrative expenditures. However, a breakdown of the budgets between the Ministry of Health (MOH) and the National Health Insurance Scheme shows that while the MOH budget was in deficit, the budget of the National Health Insurance Scheme on the other hand will produce increasing surplus. By 2010, the funding ratio shows that the reserve fund at the end of the year can meet more than 5 times the annual benefit and administrative expenditure of the National Health Insurance Scheme). Figure E.1 shows the development of the financial situation of the consolidated National Public Health Budget for the next decade.

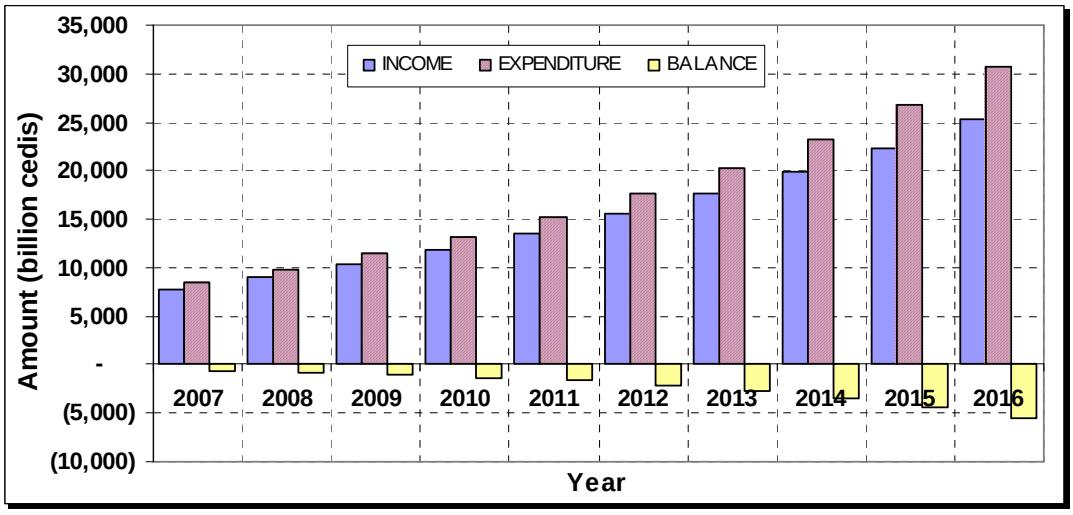
[1] Recommendations of the MDG Africa Steering Group launched at the African Union Summit held on 1 July 2008 in Sharm El-Sheikh, Egypt. See http://www.mdgafrica.org/achieving_mdg.html

Figure E.1. Development of National Public Health Budget: income, expenditure and balance 2007-2016



Under the scenario of a faster pace of population coverage (attaining 100 per cent by 2016) and an increase in utilization of health services by 50 per cent, expenditure exceeds income of the health sector as of the initial projection year. However, the objective of total population coverage should be attained under a prudent approach as results are very sensitive to assumptions chosen. Therefore, regular monitoring of the health sector through health budget exercises should be undertaken. Figure E.2 shows the development of the financial situation of the consolidated National Public Health Budget for the next decade under the faster coverage scenario.

Figure E.2. Development of National Public Health Budget: income, expenditure and balance 2007-2016 (50% increase in utilization)



As the model results have shown, the National Health Insurance System in Ghana under a prudent pace of coverage increase is financially sound under the assumption that government will not reduce its financial support to the health sector and that the earmarked resources will be transferred to the health system. As the Government of Ghana has shown since the adoption of the National Health Insurance Act which put into place the health system, national commitment exists to provide all Ghanaians with access to health care. This will lay the basis for Ghana to achieve the health related MDGs or at least make significant progress towards their achievement by 2015.

1. Introduction

The main objective of this exercise is the revision and update of the National Public Health Budget Model which was applied in the projection of the Health Budget for 2003-2005. This review follows two previous exercises carried out in 2003 and June 2006 by experts of the International Labour Office (ILO).

The first National Public Health Budget Model was developed in the context of the Ghana Social Trust Pre-Pilot Project by the International Labour Organisation (ILO) in 2003[2], before the National Health Insurance Scheme became operational in 2005. In support of the Government's health insurance policy, it served to provide the government with a financial analysis of the, at that time, forthcoming National Health Insurance System. The report represented the first attempt to evaluate the financial impact of the National Health Insurance Act. Implementation of the National Health Insurance System (NHIS)[3] only really started in 2005 and therefore it became critical that new projections were undertaken based on the newly available data and experience. Furthermore, it became necessary to have estimates on the financial viability of the National Health Insurance Fund (NHIF), as there was an ongoing debate in Ghana at that time on the use of the apparent "surplus" of the NHIF. The second exercise[4] was thus carried out in early 2006 by Mr. Florian Léger, of the Social Security Department of the ILO.

Following a request by the National Health Insurance Council (NHIC) and the Ministry of Health during a mission by the ILO with the scheme in its early stages of implementation and the availability of more relevant information and data an update of the National Public Health Budget was undertaken.

The objective of this financial study involves the assessment of the evolution of the costs involved in providing public healthcare and it's financing during the next decade. This paper will therefore quantify the amount that the government is projected to spend on healthcare with the introduction of the health insurance system. The effects of increased utilization of health care facilities on the cost of health care will also be examined.

In a first phase, the modelling of the health budget involved the updating and the improvement of the National Public Health Budget Model. This included the following tasks: (i) Extension of the projections by updating the base data and the assumptions, and (ii) Improvement of the model by (a) the segregation of healthcare into group and type of treatment (b) the separation of the Ministry of Health (MOH) and NHIF budget (c) an improvement of the module on the exemption for the poor. A regionalized version of the National Public Health Budget model was also developed. This involved the preparation of a model that could be adapted and aggregated to establish national results for the 123 District Mutual Health Insurance Schemes (DMHIS). That model will then serve as the basis for the projection of advances on equalisation or subsidy payments to the schemes.

In a second phase the project aimed to build up national capacity. The National Public Health Budget model was delivered to the NHIS and the MOH. The report and results of the updated health budget were presented to high-level stakeholders and health financing

[2] See ILO (2005) and Yankah, B; Léger, F. (2004).

[3] The National Health Insurance Scheme and the National Health Insurance System are used within the report interchangeably and designate the national health system put into place by the National Health insurance Act, 2003.

[4] See ILO (2006).

practitioners from the Ministries of Finance and Health, and the NHIC and its Secretariat. Staff of the National Health Insurance Secretariat and the Ministry of Health were also trained on the use of the model.

2. The social health environment in Ghana

The Government of Ghana in 2003, proposed a National Health Insurance System as part of the Ghana Poverty Reduction Strategy (GPRS) which highlighted the commitment of the government to ensuring access to health care through the improvement of basic health care for the poor. The strategies include "…bridging gaps in access to health, nutrition, and family planning services, ensuring sustainable financing arrangement that protects the poor, and enhancing efficiency in service delivery…" [5].

The objective of the health insurance scheme was to address the health needs of the poor and the vulnerable. Hitherto, the out-of-pocket payment for health care at the point of service delivery — popularly known as the "cash and carry" — had cut off the majority of the population from accessing health care due to financial reasons.

Act 650, which set up the National Health Insurance Scheme was passed in October 2003 and the legislative instrument (LI 1809) followed in 2004. This Act fuses the two concepts of Social Health Insurance and Mutual Health Organizations. As a consequence, the National Health Insurance Scheme advocates the concepts of equity, cross-subsidization and solidarity, thus favouring the poor and under-privileged in society. As part of the new National Health Insurance System, the Government of Ghana has made a commitment to "devise a mechanism for ensuring that the basic health care needs of indigents are adequately provided for" [6].

The National Health Insurance System will consist of almost 140 District and sub-metro Mutual Health Insurance Schemes (DMHIS) which will be financed by a combination of personal contributions from persons in the informal economy (approximately cedis 72,000 per annum or US$8 for adults), a social insurance transfer of 2.5 per cent for all members of the Social Security and National Insurance Trust (SSNIT) and a 2.5 per cent health insurance levy payable on selected goods and services (i.e. a VAT type indirect tax). By this arrangement, there is an in-built cross-subsidization mechanism; adults pay on behalf of children, the healthy cover for the sick and urban dwellers pay more than rural dwellers.

The system is co-ordinated and supervised by the NHIC which is managing inter alia the National Health Insurance Fund (NHIF). This Fund receives the proceeds from the contributions and the levy and will subsequently allocate it to the DMHIS.

All health service providers within the public and private sectors as well as mission health institutions are being mobilized into providing the defined benefit package of the scheme. They, however, are required to satisfy accreditation criteria.

According to the Act, every person living in the country is to belong to a health insurance scheme. Even though the law (Act 650) was passed in October 2003, the coverage or membership of all persons registered across the country as at June 2006 was about six million (which was about 29 per cent of the population of the country).

It is observed that the provisions of benefits by the scheme actually commenced in 2005 even though the 2.5 per cent contributions from the SSNIT became effective in 2004. The delay in the taking off of the scheme was attributed to lack of education of the general public. Also, a number of employees in the formal sector enjoy some form of health

[5] See Government of Ghana (2003a), pp. iv.

[6] Government of Ghana (2003b).

benefit from their employers (as part of collective agreement), the quality of which is deemed better than the minimum benefit package provided by the health insurance scheme.

Despite some improvements in many health indicators, including mortality and morbidity, crude indicators still demonstrate the need for further major improvements. In 2005, the under-5 mortality rate was 112 per 1,000 live births, but this rose to 118 in the poorest quintile. Immunization rates ranged from 86 per cent in the top quintile to 62 per cent in the lowest. Likewise, 7 per cent of children were under height in the top quintile and 31 per cent in the lowest[7]. The principal causes of under-5 mortality in Ghana are malaria, acute respiratory infections, diarrhoea, malnutrition and measles. Life expectancy at birth in 2006 was 56 years for males and 58 years for females, and healthy life expectancy 49.0 and 50.0 years respectively (2003 figures)[8]. Compared to life expectancy in some of the neighboring countries in the region such as Togo and Senegal where life expectancy was respectively 55 years and 57 years for males and 60 years and 61 years for females, Ghana has improvements to make. The reason for the relatively lower life expectancy has been attributed amongst others to lack of access to affordable and quality health care, HIV aids and infant mortality[9].

The ILO has estimated two indicators of access deficit. The first is a staff-related access deficit which is estimated to be approximately 66 per cent for Ghana. The health professional density-based access deficit indicator (i.e. the staff-related access (SRA) deficit), is measured using the relative difference of the national density levels of health professionals and the Thailand[10] benchmark. Thailand was used as a normative benchmark because it achieves good health outcomes with a staffing ratio of one health professional for 313 population (2004 WHOSIS data). The second is a birth attendance access (BAA) deficit which was obtained using the difference between 100 and the percentage of live births attended by skilled personnel at a given time – thus revealing the percentage of live births not cared for by a qualified health professional. This birth attendance access (BAA) deficit for Ghana has been calculated as 53 per cent[11].

Table 2.1. Ghana: Health financing indicators, 2005

Indicator	Value
Total health expenditure on health as a percentage of gross domestic product (GDP)	6.2
General government expenditure on health as percentage of total expenditure on health	34.1
Private expenditure on health as percentage of total expenditure on health	65.9
Per capita total expenditure on health at PPP int. dollar	93
Per capita government expenditure on health at PPP int. dollar	32

Source: WHO, National Health Data, 2006.

[7] UNDP (2007a), data for 2005.

[8] WHOSIS data.

[9] UNDP (2007b).

[10] Health professionals include physicians, nurses and midwives.

[11] ILO (2007a).

Total health expenditure in 2005, according to WHO figures, was 6.2 per cent of GDP, and about 66 per cent of this expenditure was constituted by private out-of-pocket payments. Total health expenditure per capita amounted to US$93 PPP. Ghana spends around the African region average expenditure per capita. In 2005, the average for the African region was 112 US$ PPP [12]. However, Ghana still has a long way to go to reach the levels of high spenders in the region like Namibia with US$ 344 PPP and South Africa at US$ 811 PPP. At the time of its independence in 1990, the Namibian government set out a policy of providing universal access to health services to all Namibians by 2000 [13] and set forth to develop a comprehensive health system with health as one of the main priorities of the Government. The health expenditure per capita reflects this commitment as per capita government expenditure on health represents more than 65 per cent of total expenditure per capita.

While the government of Ghana has taken a big step by introducing the National Health Insurance System with an ambitious target of covering all the population, the road ahead is challenging. For the health system to be able to meet its ultimate goal which should be to improve the health status of the population and ensure access to quality health care to all, targeting resources where they are most needed and efficient, and adopting policies which will contribute to reaching this goal are essential. This requires an in-depth analysis of the National Health System through its mapping in form of a National health budget.

[12] WHO (2008).

[13] Government of Namibia (2000).

3. Methodology

The National Health Insurance System in Ghana started implementation in 2005. As with the implementation of any social security system the road ahead will provide its challenges. Therefore, putting into place the tools for good governance is essential right from the start in order to ensure that developments of the scheme which could pose problems in the future are tackled through correct policy decisions as early as possible. One such tool to assist scheme managers and policy makers is the health budget.

The health budget models "…describe the expenditure and financing of the National Health care delivery system…and permit the projection of the future financial status of the system…They provide a mapping of the interactions between financiers (contributors and taxpayers), third-party financial intermediaries (insurance schemes or the State), providers, and beneficiaries (patients) in the health sector…" [14].

A health budget model is a tool for government policy, decision-making and good governance. Taking into account the income and expenditure of the schemes based on socio-demographic, legal and financial information and assumptions, the health budget model provides policy makers and scheme managers with a short-medium term view of the actuarial soundness of the scheme, i.e. whether the scheme is financially sustainable. Scenario projections permit to view modifications of assumptions and their effect on the financial status of the scheme. The tool provides the analytical basis for adopting corrective measures (i.e. increase of contribution rates) at an early on stage should the schemes' financial and demographical dynamics show changes (i.e. increases in expenditures due to increasing utilization rates). However, a prerequisite for the analysis to be useful is that the data and the assumptions used must be updated.

The health model is a tool for evaluating different health care expenditure and financing outcomes resulting from various policy options. The method adopted in the development of the model is presented in the next section. This revised model is also built on a limited database. The ILO will continue to incorporate feedback from experts in Ghana to improve the model.

The National Public Health Budget was developed by considering all sources of income flow into the public health system and the total costs involved in providing healthcare. The public health care budget is developed for the National Health Insurance System (NHIS) and the Ministry of Health (MOH). These were then aggregated into an income and expenditure statement in order to present national public health expenditure and its financing sources in one statement. The model is essentially a budget model relying on exogenous assumptions on the future development of utilization and the cost of units of care. The model allows for simulations of alternate financial scenarios and could serve as a planning tool for the health sector.

The data and information used in this paper were based on reports and statistics from various sources. These included the Budget Statement and Economic Policy of the Government of Ghana (several years), financial and statistical reports from the Ministry of Health and the National Health Insurance Council, statistical reports published by the Ghana Statistical Services, and the Social Security and National Insurance Trust (SSNIT) operational reports.

[14] See Cichon et al. (1999) pp 11.

As a first step, the necessary data (assumed indicators) used for the initial financial analysis were identified. Following that new projections with updated information were undertaken. A base scenario case with conservative coverage rates and a high coverage scenario case were developed.

4. Assumptions for the National Public Health Budget Model

The following sections provide some of the main assumptions used in the model. Annex 1 provides more details on the assumptions used.

4.1. Economic assumptions

The following sections detail the main assumptions used in the new projections. Annex 1 provides these in tabular form. The base information sources for the development of these assumptions is provided by the Ghana Statistical Service, the Ministry of Health, the SSNIT Operational Report, the Health Insurance Bill and National budgets (various years).

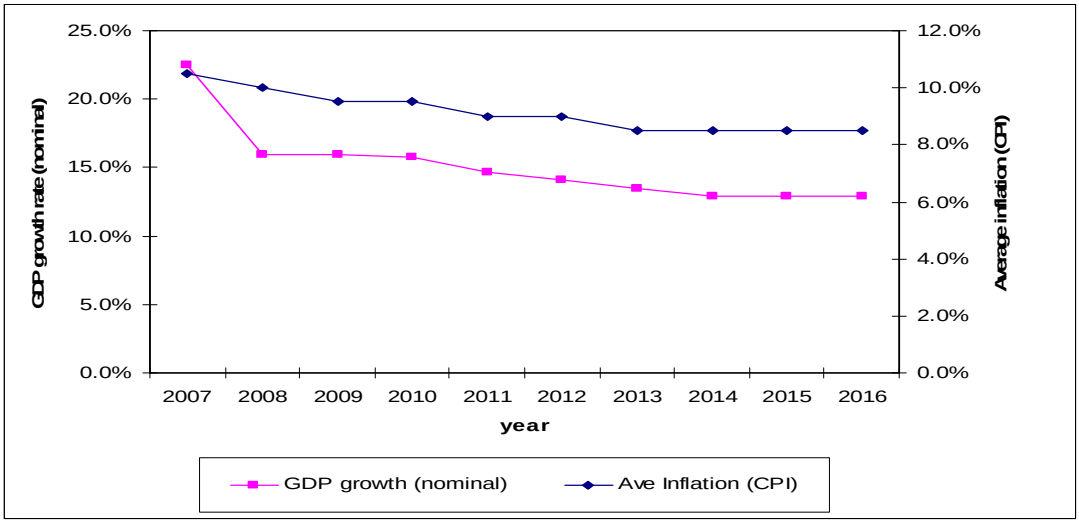
Table 4.1. Summary of projection assumptions 2007-2016, Ghana

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Health insurance - Contribution rate (%)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Average salary increase per annum (%)	15.8	15.0	14.3	14.3	13.5	13.5	12.8	12.8	12.8	12.8
Rate of increase of SSNIT membership (%)	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.0
Compliance level (formal sector) (%)	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Medical inflation (%)	13.1	12.5	11.9	11.9	11.3	11.3	10.6	10.6	10.6	10.6
GDP growth (nominal) (%)	22.5	16.0	16.0	15.8	14.7	14.1	13.5	12.9	12.9	12.9
Ave inflation (CPI) (%)	10.5	10.0	9.5	9.5	9.0	9.0	8.5	8.5	8.5	8.5

4.1.1. G.D.P. growth (nominal)

The nominal GDP growth rate is projected to decline gradually from 22.5 per cent in 2007 to 12.9 per cent in 2014. This rate is maintained up till 2025. Chart 4.1 shows the assumed real GDP growth rates used in the model.

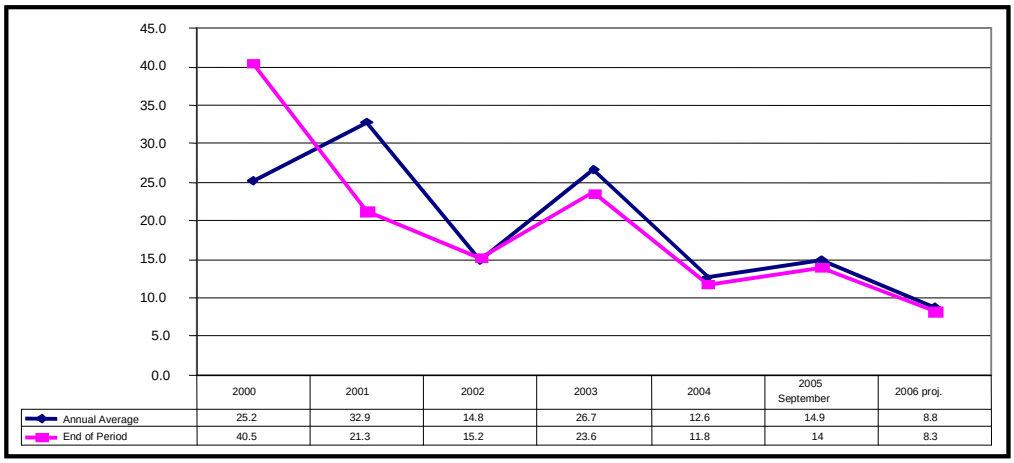
Chart 4.1. Projected GDP growth (real) and inflation rate in Ghana 2007-2016



4.1.2. Price inflation

Chart 4.2 below, was obtained from the Government 2006 Budget Statement. The Chart provides the trends of the movements of inflation from 2000 to September 2005 and projection for 2006. In consideration of this fact, the Average Price Inflation for the projection period has been conservatively estimated to assume single digit by 2009 from 10.9 per cent in 2006. For the projections, inflation is assumed to decrease by one-half percentage points annually until 2013. From 2013, inflation has been maintained constant at 8.5 per cent up to the end of the projection period of 2016.

Chart 4.2. Trends of inflation, 2000-2005, Ghana



	2000	2001	2002	2003	2004	2005 September	2006 proj.
Annual Average	25.2	32.9	14.8	26.7	12.6	14.9	8.8
End of Period	40.5	21.3	15.2	23.6	11.8	14	8.3

The price inflation is used also in the model to calculate medical goods inflation. Pharmaceutical goods, technology are subject to price increase which is higher than the general price increase. Therefore, a factor needs to be applied to general price increase which is in general judged on trends in past increases. Chart 4.1 shows the projected inflation rate used in the model.

4.1.3. Medical inflation

Medical inflation had in the past exceeded the Average Price Inflation (CPI); therefore the Medical Inflation for the projection period was modelled as the average of the wage and price inflation per period.

4.1.4. Average salaries

The projection of average salaries in the period is linked to the price inflation. It is expected that salaries would increase by a factor of 1.5 of price inflation per year. Past experience has shown that average salaries have increased faster than prices. Public sector wages increased considerably in 2006 due to the pressure exerted by important increases in health sector wages in order to retain skilled labour in the sector [15].

Average salaries projections will be used to calculate the contribution base from SSNIT members. A contribution of 2.5 percentage points of their social security contributions to the SSNIT are directed to the NHIS. Average salary projections are also used to calculate on the expenditure side the medical staff related costs of running the NHIS.

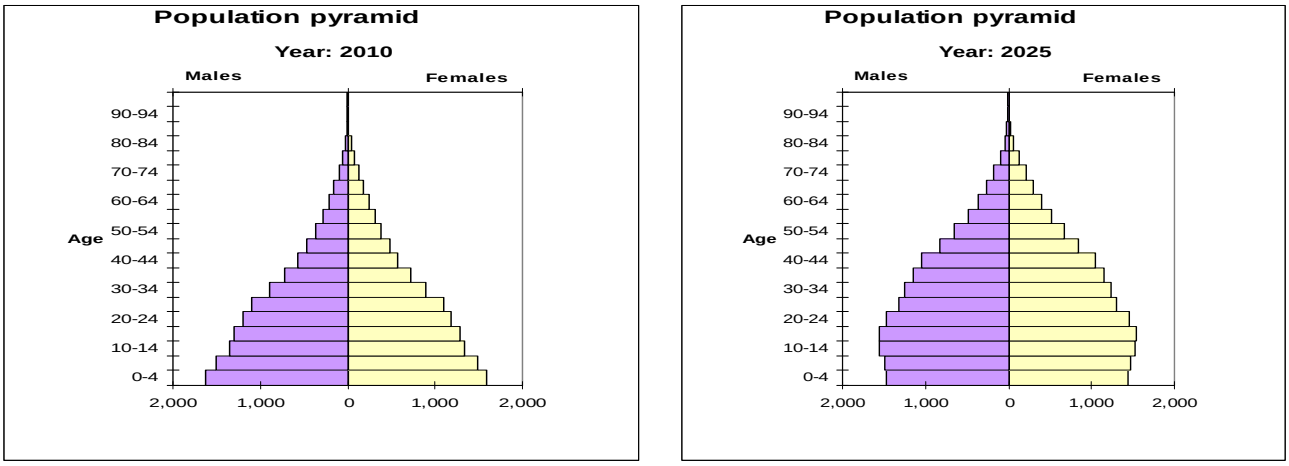
[15] IMF (2007).

4.2. Demographic assumptions

4.2.1. National Population

The ILO Population Model (ILO-POP) was used to project the national population over the projection period. The population is expected to increase from 22.1 million in 2006 to 26.8 by 2016 and 30.6 million by 2025. The structure of the population is important in determining utilization of health care and in turn the cost of the scheme. The very young as well as the elderly are big consumers of health care and thus have higher utilisation rates.

Chart 4.3. Population pyramid of Ghana, 2010 and 2025



The population pyramids (Chart 4.3) show the evolving structure of the population over the next 2 decades. From an expanding population structure in 2010 with high birth rates and a high proportion of very young and a low proportion of very old, the population of Ghana over the following decade and a half will stabilize itself with lower birth rates and a higher life expectancy. Thus, in 2010 and 2025[16] the proportion of under 14 will represent 37 per cent and 29 per cent respectively and that of over 60 will represent 5 and 7 per cent respectively.

While the distribution of population generates effects on the expenditure side of the system it also has effects on the income side. The National Health Insurance Act stipulates, all children under the age of 18 and the elderly above the age of 70 are exempt from payment of contributions. This is the group that generates very high expenditure and no income to the scheme.

4.2.2. Formal sector employees and family

The projections of the formal sector employees were based on the extension of the parameters provided by the Strategic Planning Implementation Unit of the SSNIT. This is directly related to the growth of the national economy and also the level of compliance.

Membership of the formal sector, on whose behalf SSNIT pays 2.5 per cent of their wages as National Health Insurance Premium, increases from 926,250 in 2006 to 1,257,384 in 2016. Health insurance premiums from SSNIT members are based on the membership level of the SSNIT scheme, 2.5 per cent of earnings and the expected compliance level.

[16] The year 2025 was chosen to better illustrate the evolving structure of the population in the country.

Throughout the projection period, SSNIT active membership and salaries were estimated by applying scheme-specific growth rates.

Applying an average family size of 5 — as established by the Ghana Statistical Service in the 2002 Demographic and Health Survey (which decreases by 0.1 percentage points annually from 2011 onwards) — the total members apart from pensioners projected to benefit from the 2.5 per cent SSNIT contribution as premiums would increase substantially from 4,631,248 in 2006 to 5,532,489 in 2016 representing approximately 21 per cent of the total population.

4.2.3. Security forces and agencies and family

This sector of workers includes the Military, Police, Fire Service, Customs Service and Immigration. Since data, particularly with regards to the size of the Military and Police were difficult to obtain, it was assumed that there exists a ratio of 2,000 citizens of the national population to one (1) personnel of the Security Forces and Agencies. This assumption is in conformity with that of 2003, 2004 and 2005.

Taking into account this assumption, 11,055 members were projected for 2006 and this was projected to rise to 13,413 by 2016. Considering the family size, the total number of persons (employees and family members) covered by the Security Forces and Agencies would range from 55,275 in 2006 to 59,017 in 2016. The health needs of this group are covered by the government.

4.2.4. Informal sector workers and family

Members in this group are made up of self-employed persons, retirees other than SSNIT pensioners, indigents and all others who do not contribute to the SSNIT nor work for any of the Security Agencies. Such persons have the option to join any Health Insurance Company — Mutual or Commercial — for their healthcare needs. In 2006, this group represented 79 per cent of the population.

It is this group that the National Health Insurance Secretariat must particularly concentrate efforts and resources to cover in the scheme if the NHIS is to meet its objective of universal coverage.

4.2.5. Health care utilization [17]

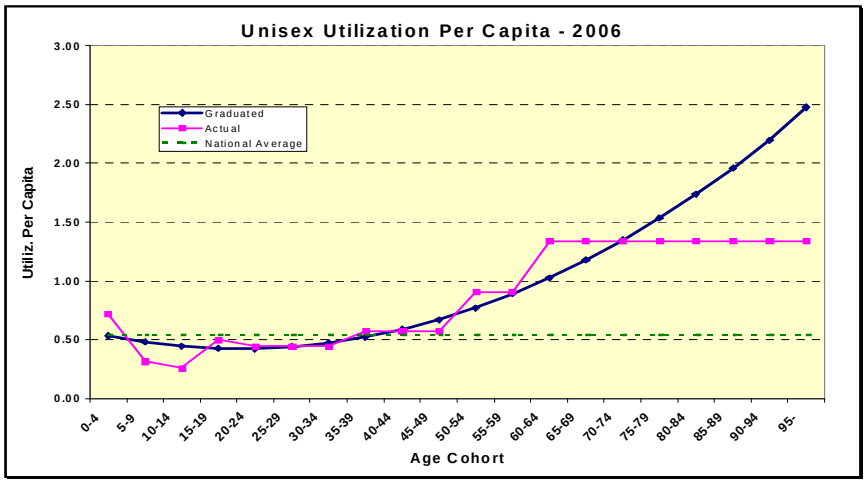
Health care costs are driven by utilization of health services. In order to be able to project the costs of the health system, an expenditure profile by age is needed. However, that requires a well established system of collection of information which in a new scheme like the NHIS would not be available as yet. Failing that a health care utilization and frequency profile by age should be used. In many developing countries these data are not collected.

Actual health services utilization data for 2006 was obtained from the Ministry of Health (MOH). The data was graduated and applied in the development of future utilization rates. Utilization by insured persons was assumed to be higher than for the non-insured. For the base year 2006 the ratio of utilization of insured to that of the non-insured was calculated as 1.97. This was done to show the effects of possible increases in utilization resulting from transition of persons from non-insured to insured status following the introduction of the National Health Insurance Scheme. This calculation was done such that the utilization

[17] Based on Yankah, B. and Léger, F. (2004).

of insured persons will match the utilization per capita obtained by using NHIS insured data for 2006.

Chart 4.4. Unisex actual and graduated healthcare utilization by age-group, 2006



Each year a new overall age-adjusted utilization indicator is calculated. As the NHIS covers more of the population and as access to health care is improved and people make more use of facilities, the utilization rate increases. Thus while in 2006, the national average utilization rate was 0.54 in 2016 it is projected that the rate increases to 0.612.

In the initial years of life, health consumption is relatively high. The lowest level of healthcare consumption is usually observed around age 15 for females and around age 20 for males. The 5-year age differential between the male and female age of minimum consumption is attributed to higher female consumption resulting from fertility after age 15. Beyond the age of minimum consumption, healthcare utilization increases to a level usually between four and seven times the minimum healthcare consumption level.

There are various other factors that also affect the utilization of health care. As GDP of the country increases and people earn more, utilization of health care increases. In order to take this into account, GDP elasticity of utilization should also be taken into account.

4.3. SSNIT membership and NHIS registration

4.3.1. Rate of increase of SSNIT membership

Past membership growth rate of the scheme has not been uniform. In 2007, SSNIT contributors represented approximately 4.1 per cent of the total population. However, with the growth of the national economy, which is reflected in the improvement of the GDP — as evidenced in the last few years — membership of the scheme is assumed to increase on average by 3.1 per cent per year.

4.3.2. Rate of increase of the MHO membership

The registration of members into various Mutual Health Insurance Schemes has encountered varied problems including the mode of registration and the break away from old traditions. These factors may account for the low rates of registrations into the schemes in the past.

The NHIC, (with the support of Government) has however employed an I.T. Company to tackle the registration issue. Also educational activities, such as radio advertisements and District Council rallies are being held regularly to sensitise members of the public on the benefits of the scheme. Furthermore, government has emphasized commitment in the presentation of the 2006 National Budget by reiterating the intention to facilitate the operations of all the District Mutual Health Insurance Schemes (DMHIS) by removing any form of identified bottlenecks pertaining to subsidy and delays of financial disbursements.

It is assumed that the informal sector coverage increases by 3 percentage points annually from its level of 2007 until 2016. As part of the new National Health Insurance System, the Government of Ghana has made a commitment to "devise a mechanism for ensuring that the basic health care needs of indigents are adequately provided for" [18]. The indigents are exempt from the payment of premiums. It is assumed that the coverage of this group increase by 0.5 percentage points annually from its level of 2007 until 2016.

Table 4.2. Coverage rate: base assumptions, 2006-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
SSNIT contributors (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SSNIT Pensioners (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Children Under 18 year (%)	43.3	46.3	49.3	52.3	55.3	58.3	61.3	64.3	67.3	70.3
Elderly aged 70 and above (exclude SSNIT pensioners) (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Indigents (%)	16.7	17.2	17.7	18.2	18.7	19.2	19.7	20.2	20.7	21.2
Informal sector (%)	20.8	23.8	26.8	29.8	32.8	35.8	38.8	41.8	44.8	47.8
National (%)	35.7	38.3	40.9	43.6	46.2	48.8	51.4	54.0	56.6	59.2

According to the base scenario, approximately 60 per cent of the population is expected to be covered by the year 2016.

4.4. Income sources

4.4.1. Employee contributions

The National Health Insurance Act (2003) makes provision for the transfer of 2.5 percentage points of social security contributions to the National Health Insurance Fund. This means a mandatory contribution for all workers covered under the SSNIT scheme.

From 2007, employee contributions were based on 2.5 per cent of salary, computed as the product of the average salary and the number of active contributors of the SSNIT pension scheme and the applicable compliance level. Not all covered members of the SSNIT scheme pay their contributions. The compliance rate which indicates the proportion of the expected covered members who pay contributions in the period under consideration has been assumed to be 90 per cent throughout the projection period in conformity with the 2006-2011 Strategic Plan of the Trust. Over the projection period, SSNIT active membership and average salaries were projected by applying scheme-specific growth rates.

[18] Government of Ghana (2003b).

The model assumes that the 2.5 per cent premium by SSNIT members will not be altered over the projection period.

4.4.2. Government funding/Donor support

Government and donor funding are major sources of finance for the health sector. Healthcare income from government and donors were obtained from the financial statements of MOH and NHIC. Future government funding is assumed to be driven by nominal GDP growth whilst donor funding is assumed to be driven by inflation. It should be noted that with the exception of the base year 2006, HIPC funds were not considered in the future income projections.

4.4.3. Insurance premiums

Insurance premiums were based on membership of District Mutual Health Insurance Schemes (DMHIS) and the average premium amount. The annual premium was projected to grow by medical inflation, which was computed as the mean of inflation (consumer price index) and wage inflation.

4.4.4. Internally Generated Funds (IGF)

The introduction of the National Health Insurance Scheme would affect the revenue to the health sector from out-of-pocket payments. The reduction in funds to be generated from out-of-pocket payments will depend on the rate of coverage of the informal sector workers and their families and also the rate of medical inflation, which was assumed to drive the cost of healthcare. It should also be noted that the model implicitly operates on the basis of the existing fee structure which may have to change in the future to provide an incentive for the non-insured to join the health insurance scheme. There are no co-payments assumed for insured persons.

Health care funding generated from out-of-pocket payments for 2006 was obtained from the financial statement of MOH for 2006. From year 2007 and beyond, IGF is projected based on medical inflation and the number of non-insured persons.

4.4.5. Health insurance levy

The National Health Insurance Act, 2003 (paragraph 78(a)) stipulates that the NHIS will also be financed through a health insurance levy. The earmarked levy represents a charge of 2.5 per cent calculated on all supply of goods and services including imported goods and services in Ghana (paragraph 86 of the National Health Insurance Act). From the base value of 2006 (taken from the NHIC accounts) the health insurance levy is projected annually in-line with GDP growth.

4.4.6. Investment income

Investment income for the base year was based on actual investment income for the year recorded in the financial statement of NHIC for 2006. Throughout the projection period, income from investments was based on the previous year's reserve and applicable government Treasury bill rate.

4.5. Cost of health care

The cost of health care was calculated based on the total cost of healthcare delivery, that is, the total expenditure incurred by tertiary, regional and district hospitals and all public health centres — personnel emoluments, administration, service expenses and investments.

Based on the 2006 average National Health care utilization rate the expected number of contacts at hospitals or clinics was calculated for the total population in the base year. The average cost of contact was then obtained by dividing total costs by the number of contacts and thereafter driven by medical inflation.

5. Projection of the National Public Health Budget (base case)

Using the base assumptions, financial projections were done for the National Public Health Budget. Separate budgets for the Ministry of Health and the National Health Insurance Scheme were also prepared. The results of the projections will be discussed in this section.

5.1. National Public Health Budget

5.1.1. National Public Health Budget for 2006

The income expected from the various sources, namely, government (general taxation), donors, Contribution from SSNIT members, health insurance levy, premiums from MHOs IGFs, Financial credits and interest on NHIF reserves is estimated at 6,660 billion cedis in the year 2006 as indicated in Table 5.1 below. Estimated expenditure amounted to 5,967 billion cedis composed of 2,011 billion cedis on Clinical care, 3,010 billion cedis on public goods and 948 billion cedis which were NHIS direct expenditure.

The resulting balance is estimated at 692 billion cedis, which is mainly an NHIF balance due to the high amount of the levy as compared to expenditure that have not yet matured.

Table 5.1. Estimated consolidated national public health budget for the base year (2006), in billion cedis

Income	**6,660**
Government funding *(from 2006 MOH Statement of Revenue & Expenditure, Exhibit G)*	2,638
Donors' support *(from 2006 MOH financial statement, Exhibit F)*	835
2.5 per cent contribution from SSNIT *(from SSNIT Accounts)*	410
Health insurance levy *(from 2006 NHIC accounts)*	1,585
Insurance Premiums from MHOs *(from NHIC Operations Department)*	137
Internally Generated Funds *(from 2006 MOH Statement of Revenue & Expenditure, Exhibit G)*	319
Financial credits *(from 2006 MOH Statement of Revenue & Expenditure, Exhibit G)*	418
Interest on NHIF reserves *(from 2006 NHIC accounts)*	68
Expenditure	**5,967**
Clinical care (cost of healthcare) *(from 2006 MOH financial statement, Exhibit F)*	2,011
Public goods (Government & Donors) [1] *(from 2006 MOH financial statement, Exhibit F)*	3,010
Personnel emoluments (Government)	1,249
Administration	94
Service	930
Investments	737
NHIS *(From NHIC)*	948
Balance	**692**

[1] Refers to healthcare expenditures which are not directly related to treatment costs.

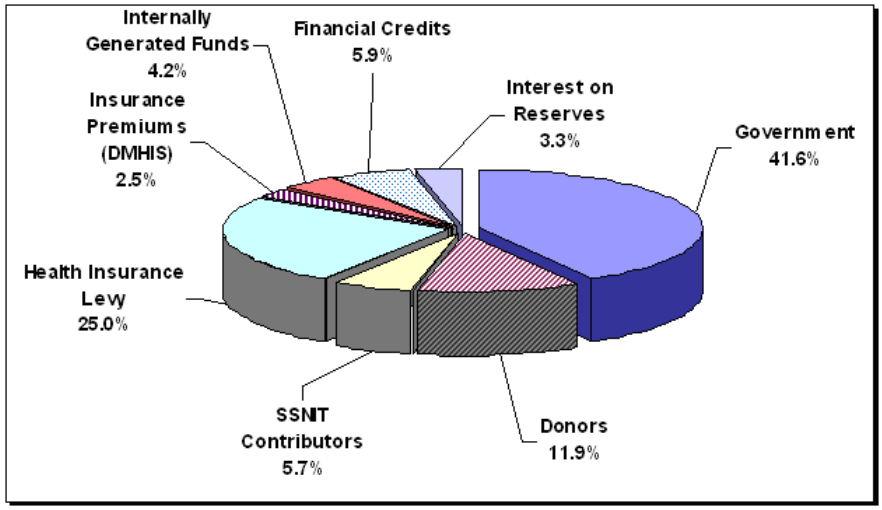
5.1.2 Income projection

Table 5.2, below provides a summary of the projections of the income of the National Public Health Budget. The total income is expected to grow from 7,775 billion cedis in 2007, reaching 12,083 billion in 2010. Total income is estimated to be 26,415 billion cedis by the end of the projection period in 2016. Refer to Annex 2 for further details.

Table 5.2. National Public Health income (in billion cedis), 2007-2016

	2007	2008	2009	2010	2016
Total	**7,775.02**	**9,014.93**	**10,434.26**	**12,082.53**	**26,415.42**
Government funding	3,231.60	3,747.50	4,347.10	5,033.51	10,746.35
Donors' support	922.66	1,014.92	1,111.34	1,216.92	2,003.70
SSNIT contributors	440.05	521.87	614.95	724.68	1,810.66
Health insurance levy	1,942.07	2,252.11	2,612.44	3,024.95	6,458.14
Insurance premiums (DMHIS)	191.55	253.68	328.57	420.01	1,452.91
IGF (Out of Pocket)	326.82	360.16	393.81	429.57	642.48
Financial credits	461.91	508.11	556.38	609.23	1,003.12
Sub-Total	7,517.32	8,658.34	9,964.59	11,458.87	24,117.36
Interest on reserves (NHIS)	257.69	356.59	469.67	623.67	2,298.06

Chart 5.1. National Public Health income sources, 2007



5.1.3. Expenditure projection

In broad terms, the expenditure of the National Public Health Budget was considered under two main categories — Ministry of Health expenditure and National Health Insurance Scheme expenditure.

Expenses under the MOH include cost of healthcare for both insured and non-insured persons. The cost of healthcare is based on total government and donor expenditure on hospitals and health centres in respect of personnel emoluments, administration and service expenses. MOH expenses also include government and donor healthcare expenditure other than those for hospitals and health centres.

The NHIS expenditure covers the administrative expenses of the NHIS Secretariat (including infrastructure and other logistics) and subsidies to District Mutual Health Insurance Schemes (DMHIS) in respect of indigents, children under 18 years, elderly above 70 years, SSNIT contributors and pensioners. The Secretariat also provides support for service providers and distressed district schemes.

It is observed that the total health care cost would increase from 7,129 billion cedis in 2007 to 10,781 billion by 2010. The total healthcare cost is projected to reach 23,699 billion in 2016. Table 5.3 below provides a summary of the total expenditure from 2007 to 2010 and 2016. Refer to Annex 2 for details of the projections up to 2016.

Table 5.3. Composition of the National Public Health expenditure (in billion cedis), 2007-2016

	2007	2008	2009	2010	2016
Total	**7,129.47**	**8,188.29**	**9,394.91**	**10,780.72**	**23,698.86**
MOH Expenses	5,882.55	6,747.30	7,697.34	8,782.63	18,342.49
NHIS Expenses	1,246.93	1,440.98	1,697.57	1,998.09	5,356.37
MOH Expenses (%Total)	82.5	82.4	81.9	81.5	77.4
NHIS Expenses (%Total)	17.5	17.6	18.1	18.5	22.6

Expenditure oscillates between 5.1 and 5.2 per cent of GDP during the projection period.

5.1.4. Cash flow analysis

Table 5.4 below provides the analysis of the annual cash flow of the National Public Health Budget from 2007 to 2016. The model produces a positive balance (i.e. income less expenditure) of 645 billion cedis in 2007, which increases steadily to 1,302 billion cedis in 2010. In 2016 the balance is projected to be 2,717 billion cedis.

Table 5.4. Cash flow analysis of the National Public Health, 2007-2016

	2007	2008	2009	2010	2016
Income (in billion cedis)	7,775.02	9,014.93	10,434.26	12,082.53	26,415.42
Expenditure (in billion cedis)	7,129.47	8,188.29	9,394.91	10,780.72	23,698.86
Balance (surplus/deficit) (in billion cedis)	645.54	826.65	1,039.35	1,301.81	2,716.56
Balance as % of income	8.3	9.2	10.0	10.8	10.3
Reserves (EOY) (in billion cedis)	7,381.73	8,208.37	9,247.72	10,549.53	23,398.17
Fund ratio	0.90	0.87	0.86	0.86	0.87

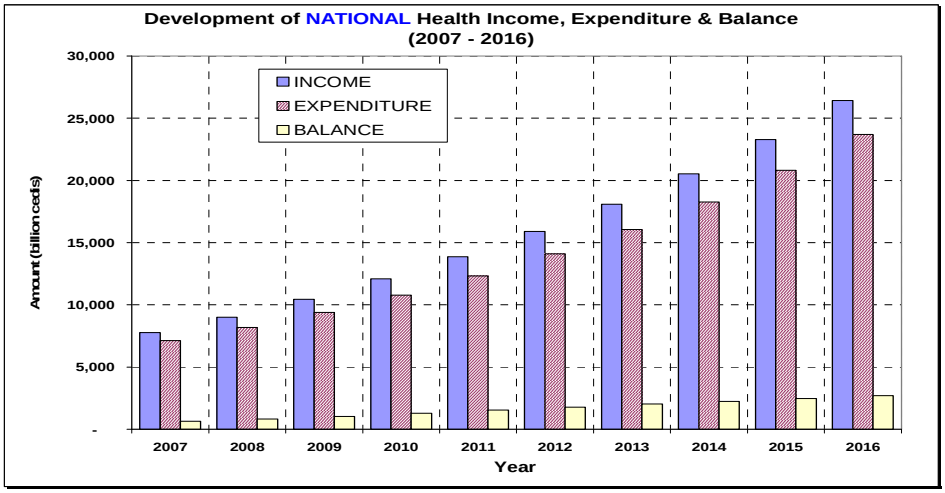
Expressing the balance as a percentage of income implies that for 2007 approximately 91.7 per cent of the total income obtained was disbursed leaving 8.3 per cent for investment. The balance as a percentage of income is projected to be 10.8 per cent of income in 2010 and 10.3 in 2016.

The End of Year (EOY) reserve is estimated to be 7,382 billion cedis in 2007 and increase to 10,550 billion cedis in 2010. It is expected to reach 23,398 billion cedis in 2016.

The funding ratio estimates the number of times (in years) the reserve fund at the end of a particular year can meet all the projected annual expenditure in the ensuing year. For example, a funding ratio of 2 at the end of year 2007 implies that the scheme reserves would be adequate to pay all expenses — benefit and administrative — up to 2009 if there

is no additional income obtained and all projections of expenditure remain unchanged. In social insurance schemes, the funding ratio is generally smaller than one as with large insured population, the average benefit expenditure per insured or covered person and the contribution rate are generally more stable[19]. The funding ratio (Fund/Projected Expenditure) in the case of the Health system in Ghana decreases from 0.90 in 2007 to 0.86 in 2010. This means that the reserves could cover expenditure for just under a year. The fund ratio in 2016 is projected to be 0.87. Refer to Annex 2 for the details up to 2016.

Chart 5.2. Development of the National Public Health Budget: income, expenditure & balance (2007-2016)



5.2. NHIS Budget

5.2.1. Income

The main income sources for the National Health Insurance Scheme include the following:

- 2.5 per cent of SSNIT contributors' wages.
- Health insurance levy collected by VAT.
- Health Insurance Premiums (DMHIS).
- Donor support – NGOs.
- Interest on reserves.

Table 5.5, below displays the summary of the budget of the NHIS from 2007 to 2016. The total income for the NHIS is expected to grow from 2,832 billion cedis in 2007 to 4,793 billion cedis in 2010. Total income is estimated to reach 12,020 billion cedis by the end of the projection period in 2016. Refer to Annex 3 for further details.

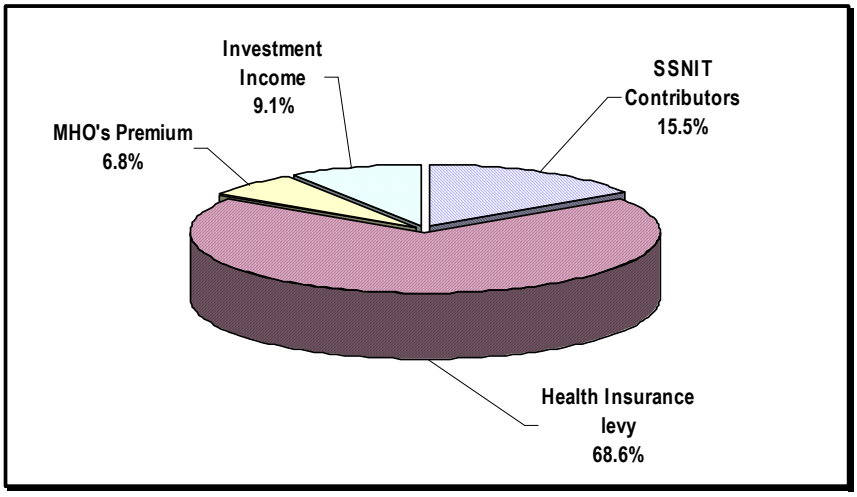
[19] Cichon et al (1999), pp 115-116.

Table 5.5. Composition of NHIS Income (in billions cedis), 2007-2016

	2007	2008	2009	2010	2016
Total	**2,832.03**	**3,384.24**	**4,025.63**	**4,793.30**	**12,019.77**
Levy from SSNIT members	440.05	521.87	614.95	724.68	1,810.66
Health insurance levy	1,942.07	2,252.11	2,612.44	3,024.95	6,458.14
Insurance Premiums (DMHIS)	191.55	253.68	328.57	420.01	1,452.91
Investment Income	257.69	356.59	469.67	623.67	2,298.06

Health insurance levy is the main source of income for the NHIS. It provides about 68.6 per cent of the income for 2007 whilst SSNIT contributors provide 15.5 per cent. Premiums from the informal sector registered members also accounted for 6.8 per cent. Investment income is expected to constitute 9.1 per cent of income. The distribution of income sources for 2007 is displayed in Chart 5.3.

Chart 5.3. Income sources for the NHIS, 2007



5.2.2. Expenditure

The expenditure of the National Health Insurance Scheme includes the following:

- Direct support to schemes — Administration and logistical support, subsidies in respect of exempted members and reinsurance (DMHIS Claims).
- Benefits paid by DMHIS.
- Support to partner institutions.
- Support for financially distressed schemes in respect of exempted and paying members.
- Administrative Expenses.

Table 5.6 provides the development of expenditure of the NHIS over the next decade. Refer to Annex 3 for details.

Table 5.6. Composition of NHIS Expenditure (in billion cedis), 2007-2016

	2007	2008	2009	2010	2016
Total	**1,246.93**	**1,440.98**	**1,697.57**	**1,968.09**	**5,356.37**
Benefits paid by DMHIS	716.95	849.12	1,037.79	1,262.55	3,594.10
Administrative expenses	24.50	27.20	30.04	33.18	57.30
Service providers support	427.99	481.49	538.66	602.63	1,117.03
Support – Distressed schemes	1.88	-	-	-	423.74

The expenditure of the NHIS are mainly composed of the benefits paid by the district schemes which represent 57 per cent of its expenditure in 2007 increasing to a proportion of 67 per cent by 2016. This is expected as there are more and more people covered by the schemes. Administrative expenditure remains low between 2 and 1 per cent. Service providers support, which develops in line with medical inflation assumptions, increases at a smaller pace than benefits. Under this scenario, support to distressed schemes only appears in 2011 which implies that as of that year some district schemes will be in deficit and that the NHIF will have to cover this deficit. This is mainly due to the demographic development (more people covered).

Table 5.7. Decomposition of benefits paid by the DMHIS, 2007-2016

	2007	2008	2009	2010	2016
Benefits paid by DMHIS (in billion cedis)	716.95	849.12	1037.79	1262.55	3594.10
Number of insured	6,177,118	8,381,625	8,814,000	9,616,788	15,846,032
Number of contacts	5,174,188	7,026,996	7,397,752	8,081,790	13,497,119
Average cost per contact	90,190	102,027	114,781	128,411	266,286
Utilization rate	0.8376	0.8384	0.8393	0.8404	0.8518

The above Table 5.7 provides some information on the development of the number of insured, the number of contacts and the average cost of the contact. It shows in numerical value what the expected increase in coverage represents. Thus between 2007 and 2016 there is more than a doubling of the number of covered. Therefore, as the utilization rate has been maintained almost constant this means that the total number of contacts will also be more than doubling.

5.2.3. Cash flow analysis

Table 5.8 below provides the analysis of the annual cash flow of the NHIS Budget from 2007 to 2016. Considering the base assumptions, the model produces positive balances throughout the projection period — beginning from 1,585 billion cedis in 2007 to 2,795 billion cedis in 2010 and 6,663 billion cedis in 2016. Refer to Annex 3 for more details.

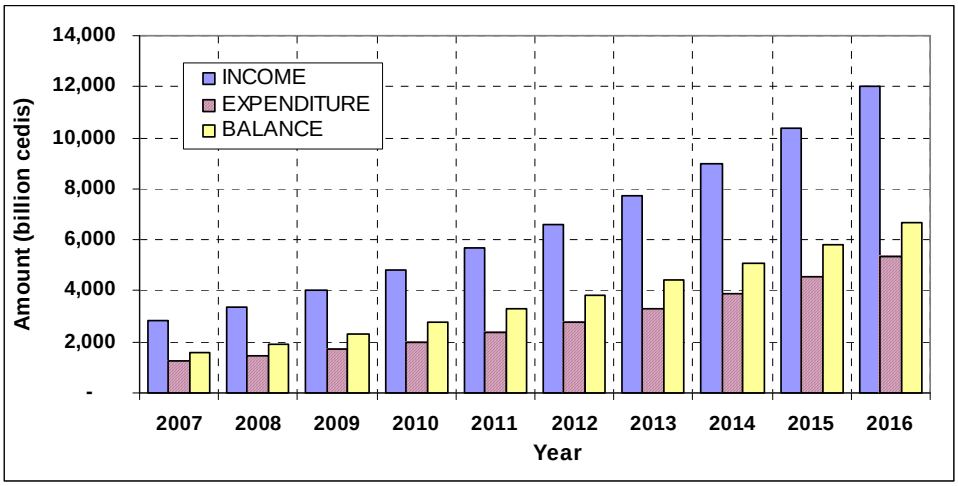
Table 5.8. Cash flow analysis of the NHIS, 2007-2016

	2007	2008	2009	2010	2016
Income (in billion cedis)	2,832.03	3,384.24	4,025.63	4,793.30	12,019.77
Expenditure (in billion cedis)	1,246.93	1,440.98	1,697.57	1,998.09	5,356.37
Balance (surplus/deficit) (in billion cedis)	1,585.10	1,943.26	2,328.06	2,795.21	6,663.40
Balance as % of income	56	57	58	58	55
Reserves (EOY) (in billion cedis)	5,156.74	7,100.00	9,428.06	12,223.27	41,403.57
Funding ratio	3.58	4.18	4.72	5.18	6.58

The End of Year (EOY) fund reserve is estimated to be 5,157 billion cedis in 2007. It is expected to increase to 12,223 billion cedis in 2010 and 41,404 billion cedis in 2016. The annual balance, expressed as a percentage of income, ranges from 56 per cent in 2007 to 58 per cent in 2010. Chart 5.4 below provides a pictorial description of the cash flow of NHIS up to 2016. The funding ratio (fund divided by projected expenditure) increases from 3.58 in 2007 to 5.18 in 2010. The fund ratio is projected to reach 6.58 in 2016.

This funding ratio is very high and there is no reasonable justification for holding such a high reserve. A funding ratio of one, in order to cover the benefit and administrative expenditures for one year is sufficient in the case of a social insurance scheme. Even though it is clear that expenditure levels over the next years will increase as the scheme matures and coverage increases, the high level of current reserves gives the National Health Insurance Council (NHIC) the possibility to propose policy options to use these reserves for example to boost population coverage by providing premium subsidies for registration of specific vulnerable categories of the population. The NHIC has a clear mandate to "…make proposals to the Minister for the formulation of policies on health insurance…" (see National Health Insurance Act 650 Article 2 §2(e)). Furthermore, the National Health Insurance Act 650 Article 27 paragraph 2(d) states that the monies from the Fund shall be expended as follows "…to provide support to facilitate provision of or access to health service…". In this context a further ILO study prepared in 2007 (ILO 2008) based on a request by the NHIS studied the option of providing free health insurance coverage to all children under the age of 18 decoupled from the requirement of parental coverage. The study showed that it is feasible.

Chart 5.4. Development of NHIS income, expenditure and balance (2007-2016)



5.3. Ministry of Health (MOH) Budget

5.3.1. Income

The main income sources for the Ministry of Health include the following:

- Government (National Budget Support)
- Donor support
- Internally Generated Fund (IGF)
- Claims payment to Ghana Health Service (GHS)

- Transfers from NHIS
- Financial Credits

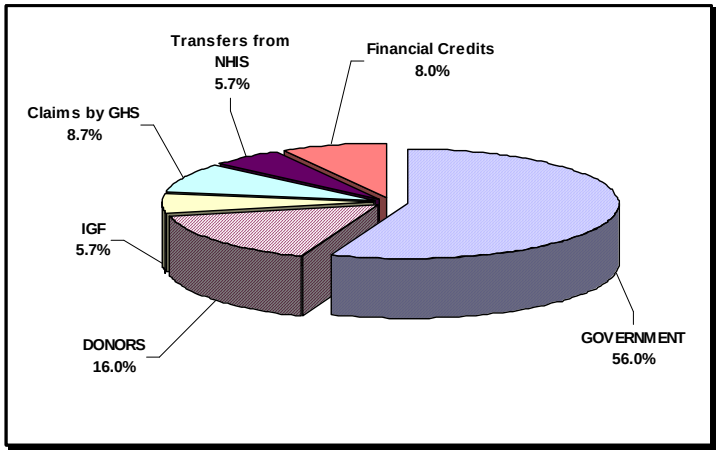
Table 5.9, below displays the summary of the MOH budget from 2007-2016. Refer to Annex 4 for further details.

Table 5.9. Composition of MOH income (in billion cedis), 2007-2016

	2007	2008	2009	2010	2016
Total	**5,774.62**	**6,619.14**	**7,603.83**	**8,731.15**	**18,311.11**
Government	3,231.60	3,747.50	4,347.10	5,033.51	10,746.35
Donors	922.66	1,014.92	1,111.34	1,216.92	2,003.70
Internally Generated Funds (IGF)	326.82	360.16	393.81	429.57	642.48
Claim payments to GHS	501.86	594.38	726.45	883.79	2,515.87
Transfers from NHIS	329.76	394.06	468.75	558.14	1,399.59
Financial credits	461.91	508.11	556.38	609.23	1,003.12

Government funding is the main source of income for the MOH. The total Government funding is projected to increase from 3,232 billion cedis in 2007 to 5,034 billion cedis by 2010. The amount is expected to increase to 10,746 billion cedis by 2016. It constitutes about 56 per cent of the health care income for 2007 whilst 16 per cent is expected from Donors. Internally generated funds account for 5.7 per cent of income in 2007 and decrease to 3.5 per cent in 2016. This is due to the fact that more and more people are covered by the NHIS and therefore do not have to make co-payments. Claim payments to GHS, which represents the benefits paid by the DMHIS for treatment by GHS facilities account for 8.7 per cent of income. Transfers from NHIS and Financial credits account for 5.7 per cent and 8.0 per cent respectively. The distribution of income sources is displayed in Chart 5.5.

Chart 5.5. Income sources for the MOH, 2007



5.3.2. Expenditure

The expenditure of the Ministry of Health was considered under two main categories:

a. Expenditure on hospitals and health centres,

b. Health expenditures other than Hospitals and health centres. These expenditures cover personnel emoluments, administration expenses, service expenses, and investments.

Table 5.10 provides the development of MOH expenditure from 2007 to 2016. Refer to Annex 4 for details.

Table 5.10. Composition of MOH expenditure (in billion cedis), 2007-2016

	2007	2008	2009	2010	2016
Totals	**5,882.55**	**6,747.30**	**7,697.34**	**8,782.63**	**18,342.49**
Total cost of clinical care	**2,466.29**	**2,890.83**	**3,367.41**	**3,919.68**	**9,083.84**
Public goods	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**9,258.64**
Personnel Emoluments	1,445.88	1,662.76	1,899.71	2,170.42	4,518.57
Administration	103.45	113.80	124.61	136.45	224.67
Service	1,052.04	1,183.54	1,324.08	1,481.32	2,745.76
Investments	814.88	896.37	981.53	1,074.77	1,769.65

It is projected that the total expenditure of the MOH would increase from 5,883 billion cedis in 2007 to 8,783 billion cedis in 2010 and 18,342 billion cedis in 2016. In 2016, the total cost of clinical care reaches the amount of expenditure on public goods. This means that over time the proportion that is spent on providing care increases. Among the expenditure on public goods, the main expense items are a personnel emolument which reflects the need for additional and well paid health professionals. This expense item increases by three between 2007 and 2016.

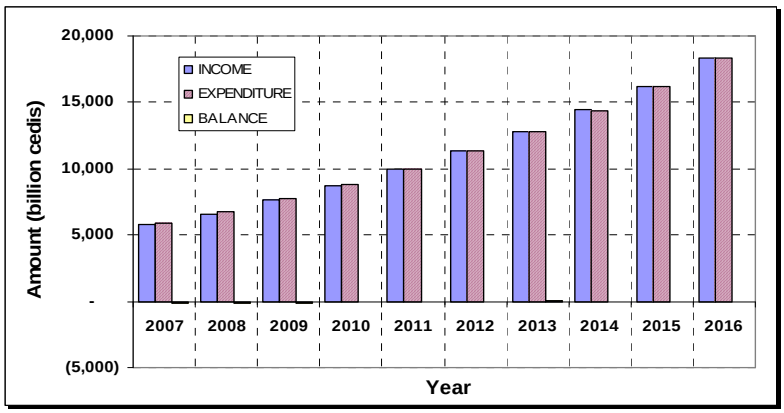
5.3.3. Cash flow analysis

Table 5.11 below provides the cash flow analysis of the MOH. Under the stated base assumptions, the MOH budget balance (i.e. income less expenditure) is expected to be negative throughout the projection period as expenditure exceeds income. Refer to Annex 4. The reserve fund of 308.77 billion cedis in 2007 is expected to decrease to 8.35 billion by 2016. The projected income, expenditure and balance for MOH are provided in Chart 5.6.

Table 5.11. Cash flow analysis of the MOH, 2007-2016

	2007	2008	2009	2010	2016
Balance (surplus/deficit) (in billion cedis)	(107.93)	(128.17)	(93.51)	(51.48)	(31.38)
Balance as % of income	-1.9	-1.9	-1.2	-0.6	-0.2
Reserves (EOY) (in billion cedis)	308.77	180.60	87.09	35.61	8.35
Fund ratio	0.05	0.02	0.01	0.00	0.00

Chart 5.6. Development of MOH income, expenditure and balance (2007-2016)



6. Projection of the National Public Health Budget (Alternative scenarios)

The health budget model allows for projections of different scenarios to view the effects of different economic, demographic or scheme specific assumptions. The IF-THEN type projections permit scheme managers as well as policy makers to analyze the projected effects on income and expenditure of the scheme for example if government were to take measures to increase the coverage of the scheme at a faster pace in order to reach universal coverage sooner. It also permits to analyze the effects of different economic assumptions such as for example higher inflation growth.

While these IF-THEN projections are essential tools for effective governance of the scheme, they are all the more critical governance tools during the beginning years of the scheme when historical scheme experience is lacking. This effects the development of a number of assumptions which are used for the projections.

Thus, a few alternative scenarios were studied in the following sections with respect to the health insurance coverage and the global utilization factor.

6.1. Effects of changes in utilization

The introduction of health insurance is likely to improve utilization provided the insured receive the quality and type of service they desire. Health service utilization is a major determinant of the cost of health care. Expected future utilization factors are obtained as the sum product of the utilization factors of insured and uninsured that are weighted by the respective number of insured and uninsured. Thus, the utilization factor does not only depend on the population structure and the level of health care utilization but also on the share of insured to uninsured persons.

The impact on the National Public Health Budget of an increase in the utilization of health care of insured persons by 50 per cent and by 100 per cent is provided in Charts 6.1 and 6.2 respectively. The effect is purely demographic as more contacts imply higher expenditure (average expenditure is not changed).

As a consequence, with base utilization increased by 50 per cent, already in 2007, the expenditure will exceed income and by 2015, the annual deficit is expected to be 4,300 billion cedis. When the utilization rate is increased by 100 per cent, the expenditures are obviously even higher and will exceed income to the tune of 11,000 billion cedis in 2015. Refer to Annexes 5.1 and 6.1 for details.

Chart 6.1. Development of National Public Health Budget: Income, expenditure and balance (50% increase in utilization)

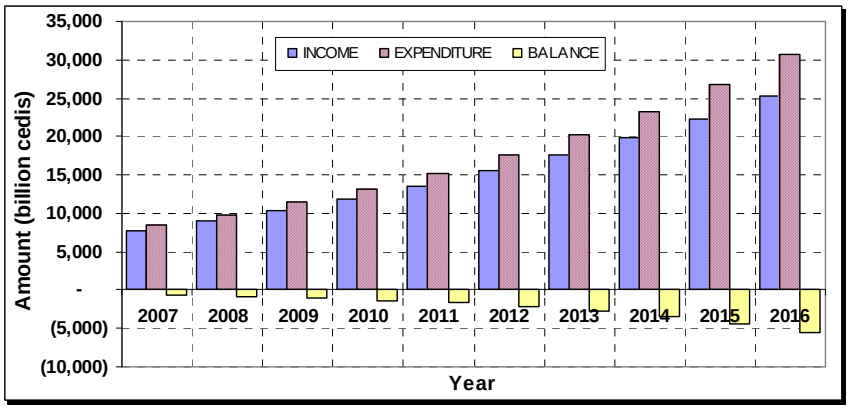
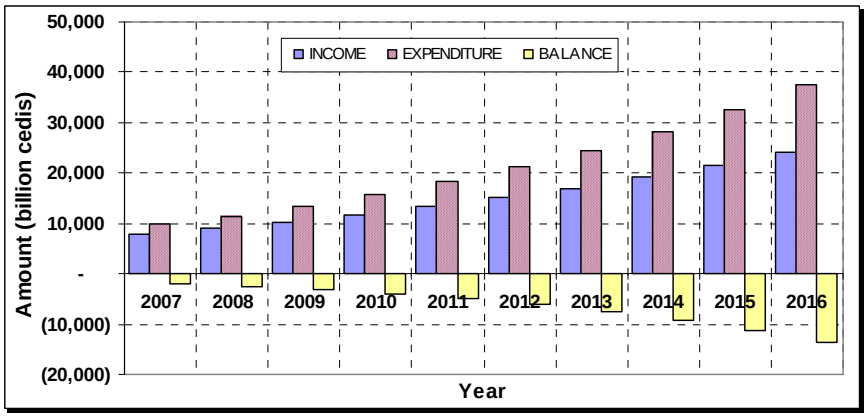


Chart 6.2. Development of National Public Health Budget: Income, expenditure and balance (100% increase in utilization)



When analyzing the results separately from the NHIS and the MOH, one notices that in the case of the increase of utilization by 50 per cent, the NHIS will still experience annual surpluses throughout the projection period, though these are naturally lower. In the case of the scenario of an increase of utilization by 100 per cent, the NHIS experiences annual deficit as of 2010. Refer to Annexes 5.2 and 6.2 for details on the NHIS budget developments. For the MOH annual deficit occurs under both scenarios of increase of utilization. The deficit is obviously higher in the case of an increase of utilization of 100 per cent. Refer to Annexes 5.3 and 6.3 for details on MOH budget developments.

6.2. Effects of changes in coverage rate and utilization on the NHIS budget

As already mentioned in the report, the situation of the National Health Insurance Scheme is also highly influenced by the number of Ghanaians it covers. In this scenario, health care expenditure therefore rise due to the increase in the number of contacts. The number of contacts increase due to higher utilization and higher number of covered persons.

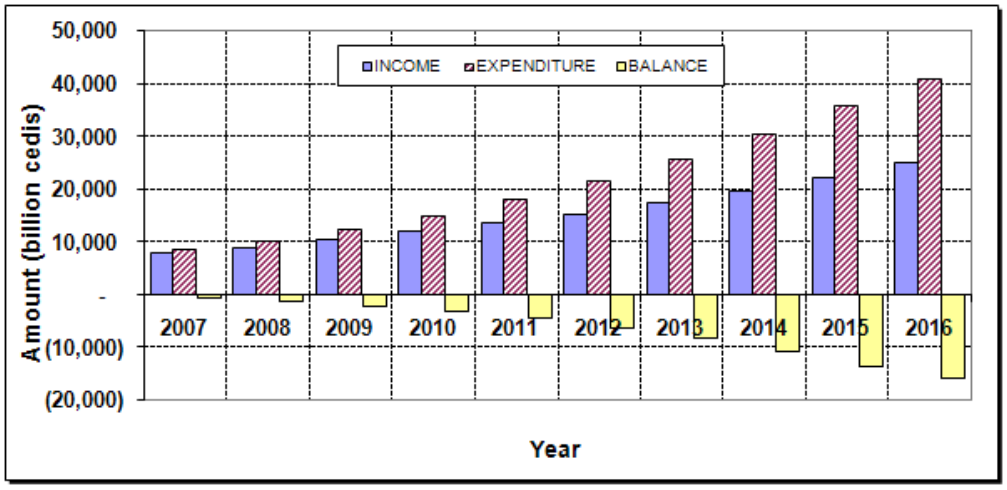
The coverage assumptions under that scenario are presented in Table 6.1. The effect of applying a higher coverage scenario with increase in the base utilization by 50 per cent on the National Public Health Budget is provided in Chart 6.3. Under this scenario, 100 per cent of the population is expected to be covered by the year 2015. Annex tables 7.1, 7.2 and 7.3 show the estimated developments of the National Public Health Budget, of the National Health Insurance Scheme and of the MOH budget respectively under that scenario.

Table 6.1. Alternative NHIS coverage scenario, 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
SSNIT contributors (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SSNIT Pensioners (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Children Under 18 year (%)	43.3	50.3	57.3	64.3	71.3	78.3	85.3	92.3	100.0	100.0
Elderly aged 70 and above (exclude SSNIT pensioners) (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Indigents (%)	16.7	26.7	36.7	46.7	56.7	66.7	76.7	86.7	100.0	100.0
Informal sector (%)	20.8	30.8	40.8	50.8	60.8	70.8	80.8	90.8	100.0	100.0
National (%)	35.7	43.6	51.6	59.6	67.7	75.7	83.7	91.8	100.0	100.0

In this scenario, expenditure will exceed income already in 2007, and in 2016, the deficit represents 63 per cent of total income.

Chart 6.3. Development of National Public Health Budget: Income, expenditure and balance (High coverage and 50% increase in utilization of insured)



7. Conclusions and recommendations

The case of Ghana is considered a very good example of the fact that the introduction of a National Health Insurance System with the ultimate objective of universal population coverage is possible to implement in a developing country context if the political will exists and resources are earmarked for this purpose. While the National Health Insurance System in Ghana has not yet attained universal coverage, in the few years since the adoption of Act 650 which put into place the system and when the system actually started being implemented in 2005, major steps have been taken to ensure that this becomes a reality in the near future. Population coverage from 2005 has been steadily increasing from a level of 17.2 per cent in 2005 [20] to a level of 47 [21] per cent by June 2007. Expenditure is projected to oscillate around 5.2 per cent of GDP.

The ILO has been assisting the government of Ghana since numerous years through advice in the context of the new National Health Insurance Scheme. The development of the National Public Health Budget model provides the government with the analytical tool to assess the financial results of the National Health Insurance System. While the results obtained from the projections were based on a number of assumptions, some valid trends can be discerned from the projections and simulations. It is clear from the simulations that increases in health care utilization by insured persons have substantial effects on health expenditure. Increases in utilization will result in increase in overall expenditure that will exceed the growth of resources and create a financial gap. The faster insurance coverage is extended the faster the expenditure will outpace the resources to create a financing gap. Additional funds will then be required to meet expenditure. Health care utilization is a major determinant of health care cost and varies with age. Efforts should be thus made to obtain accurate data on health care utilization by age to help in future financial analysis and research.

An essential requirement for good governance of any social security system is the availability and the reliability of data. This requires a good statistical system to be put in place at all levels of the system. This is a major investment but an investment which is essential. While it was noted that between the 2004 study and the present study data on utilization of health services was made available by the MOH, the effort for the improved collection of data should be continued.

The projections of the National Public Health Budget show that under status quo conditions while expenditures will continue to grow rapidly over the next decade, income will also follow and the system will generate surpluses during the next decade. These surpluses in the case of the NHIS will reach a level whereby they can cover in 2010 approximately 5 times the benefit and administrative expenditures of that year. Maintaining such a surplus is not advisable and Government will need to decide what should be done with the surplus in line with the fund utilization clauses stipulated in the National Health Insurance Act. Expenditure on the National Health Insurance System oscillate between 5.0 and 5.2 per cent of GDP annually during the projection period with

[20] See ILO (2006): *Financial assessment of the national health insurance fund. Technical note* (Geneva).

[21] According to data provided by NHIC in August 2007. However, for projection purposes the model has taken the more prudent estimate of national coverage rate of 27.3 per cent of the population for 2006.

health expenditure per capita at US$ 109 (PPP) in 2010 and steadily increasing to US$ 214 PPP by 2016 [22].

While the results presented in this report are inevitably tentative due to the number of assumptions that had to be made in lieu of actual data, there are some genuine trends that can be discerned with some degree of confidence from the simulations and projections. It is thus recommend to [23]:

- put into place a statistical system which permits the collection, compilation and storing of accurate health information data at all levels of the system for use by scheme managers, decision makers and stakeholders;
- regularly update the assumptions as reliable data become available such as for example on utilization of health care, medical inflation, etc.;
- monitor regularly the development of the financial situation and the increasing coverage rate through regular updates of the health budget model;
- stipulate by law a minimum level of reserves that the scheme (say for example 50 per cent during the maturing phase of steep coverage increase or 30 per cent of the annual benefit expenditure) has to hold over a certain projection period (say 10 years during the maturing phase);
- introduce provider payment systems that support the containment of per capita cost before a fee-for–service triggered "cost explosion" (as has been experienced by so many other schemes in the past) sets in.

As the model results have shown, the National Health Insurance System in Ghana under a prudent pace of coverage increase is financially sound under the assumption that government will not reduce its financial support to the health sector and that the earmarked resources will be transferred to the health system. As the Government of Ghana has shown since the adoption of the National Health Insurance Act which put into place the health system, national commitment exists to provide all nationals with access to health care. This will lay the basis for Ghana to achieve the health related MDGs or at least make significant progress towards their achievement by 2015.

[22] Calculated with PPP conversion factor constant at level of 2006. Source of PPP: Millennium Development Goals Indicators.

[23] Some of the recommendations were also made in ILO (2008).

8. Transfer of health sector governance knowledge to stakeholders in Ghana

Good financial governance of any social security system is a continuous process which requires scheme managers, policy makers and all interested stakeholders to monitor the financial developments of the scheme thoroughly at regular intervals. While the ILO has been providing support to the Government of Ghana since 2002 on the developments of the health sector, it has also made it a priority to build national capacity at the same time.

In a first step, numerous of the actuarial staff from the SSNIT have followed the joint ILO-University of Maastricht's Masters programme in Social Protection Financing. Having graduated from this course, these officials from the SSNIT have been trained in social protection financial management and financial planning as well as in social protection policy design. In a second step these actuaries, in collaboration with the ILO, have undertaken the valuation of the pension system SSNIT and the financial analysis of the National Health Insurance System in Ghana. They have adapted and updated the ILO-National Public Health Budget model to reflect the National Health Insurance context and undertaken the financial assessment of the system. The financial analysis and governance tool has national ownership.

A core group of very capable and dedicated national officials are now a precious resource for Government providing national expertise to undertake financial monitoring of the national social protection schemes in Ghana. They have provided policy advice to the MOH and the NHIC Secretariat in the context of this study. In a third step, the core group of national experts have and are providing training to high and middle – level health scheme managers and policy makers and they have delivered the national public health budget model to the MOH and the NHIC.

In March of 2007, the ILO held a training workshop in Accra for administrators of all the District Mutual Health Insurance Schemes. At the seminar, the initial outcome of the updated National Public Health Budget model was presented and training was provided in the use of performance indicators for health insurance schemes[24] administrators. These were a set of fairly simple and practical indicators which they could use to measure performance of the DMHIS. Around 200 people attended the seminar, including representatives from the Ministry of Health, the Ministry of Manpower, Youth and Employment and the Ministry of Finance; and the Ghana Health Service. Also present were 140 representatives, one from each of the district health insurance schemes; representatives of the social partners and the development partners; NGOs; and other stakeholders.

Following that and with the collaboration of Mr. Ras Boateng, Executive Secretary National Health Insurance Council (NHIC) and Dr. Edward Addai, Director Policy Planning Monitoring and Evaluation (PPME) at the Ministry of Health (MOH) and the financial support of the NHIC, a workshop was organised for the more in-depth training of a core group of staff of both institutions on the National Public Health Budget model. The two-day training retreat was held at the Volta Hotel Akosombo on the 9th and 10th November 2007. In total, thirteen participants of which four were from the MOH attended including Mr. Boateng and Dr. Addai. Prior to the training retreat briefings by the ILO consultants with Mr. Boateng and Dr. Addai provided an opportunity to present information about the health budget model and its role as an important governance tool, as

[24] See ILO (2007): *Performance indicators for District mutual health insurance schemes. Working paper* (Accra).

well as a forum to obtain feedback and request for up-to-date information to update the model [25]. See Annex 8 for a list the participants.

The retreat provided the participants with presentations on the National Public Health Budget model and clarification of issues. Practical hands-on manipulation of the National Public Health Budget model to perform specific policy analysis and simulation tasks was done and the model and accompanying background document were handed over to the participants of the two institutions. Pictures 8.1 to 8.5 show some of the moments during the retreat.

Picture 8.1. Presentation of the results of the National Public Health Budget model

Picture 8.2. The debates during the retreat: Mr. R. Boateng NHIC Executive Secretary making a point

[25] Information on the retreat taken from the "Briefing note on the update of and training on the health budget model" provided by Mr. D. Tumwesigye (ILO consultant).

Picture 8.3. Group work with Dr. E. Addai Director Policy Planning Monitoring and Evaluation (PPME)

Picture 8.4. Policy discussions, simulation of options, analysing results and debates among the group using the National Public Health Budget model

Picture 8.5. Mr. Boateng surrounded by some of the participants of the retreat

Given the close relations between MOH and NHIC and the importance of mutual collaboration and the high level of enthusiasm and intensity of the policy debate that followed the presentations and especially the discussions about the use and evolution of the health insurance funds, it is hoped that the MOH and the NHIC will take the initiative to organize such retreats in the future. Decisions on the way forward of the National Health Insurance system clearly require the MOH, the NHIC and other stakeholders such as the Ghana Health Service, the Ministry of Finance and the international donors to discuss on the basis of the analysis of present and future developments of the system. It clearly reinforces the importance of the health budget model as an important support in policy formulation.

The ball has been set rolling and the hope is that it now gains momentum.

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Annexes

Annex 1: Base Assumptions 2006-2016, Ghana

	Base Year	1	2	3	4	5	6	7	8	9	10
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Health Insurance Contribution Rate	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Average Salary Increase per annum	16.4%	15.8%	15.0%	14.3%	14.3%	13.5%	13.5%	12.8%	12.8%	12.8%	12.8%
Rate of Increase of SSNIT membership	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.0%	3.0%
Rate of Increase of SSNIT Pensioners	6.3%	6.3%	8.4%	8.6%	8.4%	8.8%	8.5%	8.2%	7.9%	7.6%	7.3%
Compliance level (formal sector)	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
Compliance level (informal sector)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Medical inflation	13.6%	13.1%	12.5%	11.9%	11.9%	11.3%	11.3%	10.6%	10.6%	10.6%	10.6%
GDP growth (nominal)	15.8%	22.5%	16.0%	16.0%	15.8%	14.7%	14.1%	13.5%	12.9%	12.9%	12.9%
Ave Inflation (CPI)	10.9%	10.5%	10.0%	9.5%	9.5%	9.0%	9.0%	8.5%	8.5%	8.5%	8.5%
Average 91-Day Treasury Bill Rate	10.2%	9.6%	9.2%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%
Total Population	22,110,080	22,591,828	23,074,767	23,557,377	24,038,195	24,515,825	24,989,963	25,459,214	25,922,248	26,378,045	26,826,116
Percentage of Indigents (19 - 69)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Fomal Sector Employees	926,250	954,996	984,830	1,015,746	1,047,705	1,080,695	1,114,606	1,149,323	1,184,755	1,220,786	1,257,384
Fomal Sector Employees & Family	4,631,248	4,774,982	4,924,152	5,078,732	5,238,524	5,295,408	5,350,110	5,401,817	5,449,873	5,493,537	5,532,489
Armed Forces & Police Service	11,055	11,296	11,537	11,779	12,019	12,258	12,495	12,730	12,961	13,189	13,413
Armed Forces & Police Service & Family	55,275	56,480	57,687	58,893	60,095	60,064	59,976	59,829	59,621	59,351	59,017
TARGET POPULATION:											
SSNIT contributors	905,976	934,094	963,275	993,514	1,024,773	1,057,041	1,090,210	1,124,167	1,158,823	1,194,066	1,229,862
SSNIT Pensioners	74,552	79,243	85,867	93,217	101,057	109,972	119,295	129,040	139,227	149,805	160,740
Children Under 18 years	9,974,229	10,094,469	10,212,524	10,326,039	10,432,999	10,536,251	10,631,368	10,719,019	10,795,734	10,854,965	10,900,725
Elderly aged 70 and above	421,821	432,164	442,996	454,390	466,419	479,175	492,780	507,342	522,987	539,808	557,857
SSNIT Pensioners aged 70 and above	12,482	12,788	13,108	13,445	13,801	14,179	14,581	15,012	15,475	15,973	16,507
Elderly aged 70 and above (exclude SSNIT pensioners)	409,339	419,376	429,888	440,944	452,618	464,996	478,198	492,330	507,512	523,835	541,350
Indigents (19 - 69)	1,119,788	1,154,163	1,188,809	1,223,864	1,259,406	1,295,005	1,331,368	1,367,971	1,404,862	1,442,287	1,479,908
Informal sector	9,558,439	9,841,216	10,123,610	10,407,459	10,693,445	10,978,316	11,264,967	11,551,846	11,840,995	12,137,765	12,438,006
COVERAGE RATE:											
SSNIT contributors	86.8%	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
SSNIT Pensioners	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Children Under 18 years	31.8%	43.3%	**46.3%**	**49.3%**	**52.3%**	**55.3%**	**58.3%**	**61.3%**	**64.3%**	**67.3%**	**70.3%**
Elderly aged 70 and above (exclude SSNIT pensioners)	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Indigents	12.6%	16.7%	**17.2%**	**17.7%**	**18.2%**	**18.7%**	**19.2%**	**19.7%**	**20.2%**	**20.7%**	**21.2%**
Informal sector	15.0%	20.8%	**23.8%**	**26.8%**	**29.8%**	**32.8%**	**35.8%**	**38.8%**	**41.8%**	**44.8%**	**47.8%**
Total (National)	27.3%	35.7%	38.3%	40.9%	43.6%	46.2%	48.8%	51.4%	54.0%	56.6%	59.2%
COVERAGE:											
SSNIT contributors	**786,681**	**934,094**	963,275	993,514	1,024,773	1,057,041	1,090,210	1,124,167	1,158,823	1,194,066	1,229,862
SSNIT Pensioners	**74,552**	**79,243**	85,867	93,217	101,057	109,972	119,295	129,040	139,227	149,805	160,740
Children Under 18 years	**3,173,245**	**4,366,222**	4,723,661	5,085,947	5,451,619	5,821,659	6,193,155	6,565,786	6,936,648	7,300,355	7,658,153
Elderly aged 70 and above (exclude SSNIT pensioners)	**409,339**	**419,376**	429,888	440,944	452,618	464,996	478,198	492,330	507,512	523,835	541,350
Indigents	**141,512**	**192,453**	204,174	216,314	228,893	241,838	255,286	269,144	283,426	298,188	313,366
Informal sector	**1,436,268**	**2,044,753**	2,407,136	2,786,851	3,184,234	3,598,411	4,030,317	4,479,510	4,946,865	5,434,981	5,942,561
Total Coverage	6,021,597	8,036,141	8,814,000	9,616,788	10,443,194	11,293,918	12,166,462	13,059,977	13,972,502	14,901,230	15,846,032
Non Covered Persons	16,033,208	14,499,207	14,203,080	13,881,695	13,534,905	13,161,843	12,763,526	12,339,408	11,890,125	11,417,465	10,921,066
Average Family Size	5	5.00	5.00	5.00	5.00	4.90	4.80	4.70	4.60	4.50	4.40

Development of NATIONAL Health income and expenditure (in billion cedis)

Annex 2

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
Income	**6,660.28**	**7,775.02**	**9,014.93**	**10,434.26**	**12,082.53**	**13,882.49**	**15,892.06**	**18,099.01**	**20,535.06**	**23,293.35**	**26,415.42**
Government Funding	2,637.84	3,231.60	3,747.50	4,347.10	5,033.51	5,772.93	6,585.76	7,473.52	8,435.37	9,521.00	10,746.35
Donors' Support	834.98	922.66	1,014.92	1,111.34	1,216.92	1,326.44	1,445.82	1,568.71	1,702.05	1,846.73	2,003.70
Contributions by Employees (SSNIT)	409.70	440.05	521.87	614.95	724.68	848.42	993.17	1,154.68	1,342.03	1,559.16	1,810.66
Health Insurance Levy	1,585.24	1,942.07	2,252.11	2,612.44	3,024.95	3,469.31	3,957.79	4,491.30	5,069.33	5,721.75	6,458.14
Insurance Premiums (DMHIS)	136.68	191.55	253.68	328.57	420.01	528.03	657.95	808.97	988.30	1,201.18	1,452.91
IGF (Out of Pocket)	319.46	326.82	360.16	393.81	429.57	464.72	501.36	536.20	571.57	607.17	642.48
Financial credits	418.02	461.91	508.11	556.38	609.23	664.06	723.83	785.35	852.11	924.54	1,003.12
Sub-Total	**6,592.30**	**7,517.32**	**8,658.34**	**9,964.59**	**11,458.87**	**13,073.92**	**14,865.68**	**16,818.74**	**18,960.76**	**21,381.53**	**24,117.36**
Interest on Reserves (NHIS)	67.98	257.69	356.59	469.67	623.67	808.57	1,026.38	1,280.26	1,574.30	1,911.82	2,298.06
Expenditure	**5,968.67**	**7,129.47**	**8,188.29**	**9,394.91**	**10,780.72**	**12,327.30**	**14,107.01**	**16,052.72**	**18,274.27**	**20,808.58**	**23,698.86**
MOH Expenses	**5,020.91**	**5,882.55**	**6,747.30**	**7,697.34**	**8,782.63**	**9,965.71**	**11,309.65**	**12,762.48**	**14,402.65**	**16,253.60**	**18,342.49**
Clinical Care	**2,010.72**	**2,466.29**	**2,890.83**	**3,367.41**	**3,919.68**	**4,534.09**	**5,241.25**	**6,020.48**	**6,910.50**	**7,925.88**	**9,083.84**
Insured	851.59	1,286.79	1,589.54	1,942.73	2,363.47	2,847.94	3,419.02	4,067.87	4,824.68	5,705.10	6,728.09
Non-insured	1,159.13	1,179.50	1,301.29	1,424.69	1,556.21	1,686.15	1,822.23	1,952.60	2,085.81	2,220.78	2,355.76
Public Goods	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments (Gov't)	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
NHIS Expenses	**947.77**	**1,246.93**	**1,440.98**	**1,697.57**	**1,998.09**	**2,361.59**	**2,797.37**	**3,290.25**	**3,871.62**	**4,554.98**	**5,356.37**
Direct Support to Schemes	**426.25**	**676.63**	**787.93**	**910.67**	**1,043.40**	**1,210.73**	**1,405.45**	**1,621.18**	**1,867.99**	**2,149.14**	**2,469.61**
Admin. & Logistical Support	68.43	75.61	83.18	91.08	99.73	108.71	118.49	128.56	139.49	151.35	164.21
Subsidies	345.44	599.14	704.76	819.59	943.66	1,077.37	1,220.42	1,372.87	1,534.36	1,703.92	1,881.66
Re-Insurance (DMHIS Claims)	12.38	1.88	-	-	-	24.65	66.54	119.74	194.15	293.87	423.74
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	**466.66**	**716.95**	**849.12**	**1,037.79**	**1,262.55**	**1,521.35**	**1,826.42**	**2,173.03**	**2,577.31**	**3,047.63**	**3,594.10**
Balance (Surplus/Deficit)	**691.60**	**645.54**	**826.65**	**1,039.35**	**1,301.81**	**1,555.19**	**1,785.05**	**2,046.28**	**2,260.79**	**2,484.77**	**2,716.56**
As % of Income	**10.4%**	**8.3%**	**9.2%**	**10.0%**	**10.8%**	**11.2%**	**11.2%**	**11.3%**	**11.0%**	**10.7%**	**10.3%**
Cash Flow *(Surplus/Deficit less investment income)*	**623.62**	**387.85**	**470.06**	**569.68**	**678.15**	**746.62**	**758.66**	**766.02**	**686.50**	**572.95**	**418.50**
Fund at the end of the year	**6,736.18**	**7,381.73**	**8,208.37**	**9,247.72**	**10,549.53**	**12,104.72**	**13,889.77**	**15,936.05**	**18,196.84**	**20,681.61**	**23,398.17**
Rate of return on investment (T-Bill)	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
Contribution rate	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**
Fund Ratio	**0.94**	**0.90**	**0.87**	**0.86**	**0.86**	**0.86**	**0.87**	**0.87**	**0.87**	**0.87**	**0.87**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits*

Development of NHIS income and expenditure (in billion cedis)

Annex 3

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
INCOME	**2,199.93**	**2,832.03**	**3,384.24**	**4,025.63**	**4,793.30**	**5,654.33**	**6,635.29**	**7,735.21**	**8,973.96**	**10,393.91**	**12,019.77**
SSNIT (Health Ins. Contrib.)	**409.70**	**440.05**	**521.87**	**614.95**	**724.68**	**848.42**	**993.17**	**1,154.68**	**1,342.03**	**1,559.16**	**1,810.66**
Membership	*926,250*	*954,996*	*984,830*	*1,015,746*	*1,047,705*	*1,080,695*	*1,114,606*	*1,149,323*	*1,184,755*	*1,220,786*	*1,257,384*
Average Salary (in million cedis)	**17.69**	**20.48**	**23.55**	**26.91**	**30.74**	**34.89**	**39.60**	**44.65**	**50.34**	**56.76**	**64.00**
Health Insurance levy	**1,585.24**	**1,942.07**	**2,252.11**	**2,612.44**	**3,024.95**	**3,469.31**	**3,957.79**	**4,491.30**	**5,069.33**	**5,721.75**	**6,458.14**
Premium income (DMHIS)	**136.68**	**191.55**	**253.68**	**328.57**	**420.01**	**528.03**	**657.95**	**808.97**	**988.30**	**1,201.18**	**1,452.91**
Interest on Fund	**67.98**	**257.69**	**356.59**	**469.67**	**623.67**	**808.57**	**1,026.38**	**1,280.26**	**1,574.30**	**1,911.82**	**2,298.06**
Donor support	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**947.77**	**1,246.93**	**1,440.98**	**1,697.57**	**1,998.09**	**2,361.59**	**2,797.37**	**3,290.25**	**3,871.62**	**4,554.98**	**5,356.37**
Admin. & Logistical Support	**68.43**	**75.61**	**83.18**	**91.08**	**99.73**	**108.71**	**118.49**	**128.56**	**139.49**	**151.35**	**164.21**
Subsidies	***345.44***	***599.14***	***704.76***	***819.59***	***943.66***	***1,077.37***	***1,220.42***	***1,372.87***	***1,534.36***	***1,703.92***	***1,881.66***
Indigent	*10.66*	*19.25*	*22.46*	*25.96*	*29.76*	*33.86*	*38.29*	*43.06*	*48.18*	*53.67*	*59.54*
Children (Under 18)	*239.06*	*436.62*	*519.60*	*610.31*	*708.71*	*815.03*	*928.97*	*1,050.53*	*1,179.23*	*1,314.06*	*1,455.05*
Elderly (70 &above)	*30.84*	*41.94*	*47.29*	*52.91*	*58.84*	*65.10*	*71.73*	*78.77*	*86.28*	*94.29*	*102.86*
SSNIT Contributors	*59.26*	*93.41*	*105.96*	*119.22*	*133.22*	*147.99*	*163.53*	*179.87*	*197.00*	*214.93*	*233.67*
SSNIT Pensioners	*5.62*	*7.92*	*9.45*	*11.19*	*13.14*	*15.40*	*17.89*	*20.65*	*23.67*	*26.96*	*30.54*
Re-Insurance (DMHIS Claims)	**12.38**	**1.88**	**-**	**-**	**-**	**24.65**	**66.54**	**119.74**	**194.15**	**293.87**	**423.74**
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	466.66	716.95	849.12	1,037.79	1,262.55	1,521.35	1,826.42	2,173.03	2,577.31	3,047.63	3,594.10
Number insured	*6,177,118*	*8,381,625*	*8,814,000*	*9,616,788*	*10,443,194*	*11,293,918*	*12,166,462*	*13,059,977*	*13,972,502*	*14,901,230*	*15,846,032*
Number of OPD + IPD cases	*5,174,188*	*7,026,996*	*7,397,752*	*8,081,790*	*8,788,469*	*9,519,038*	*10,272,221*	*11,047,823*	*11,844,719*	*12,660,947*	*13,497,119*
Average cost per visit	*90,190.00*	*102,027.43*	*114,780.86*	*128,411.09*	*143,659.91*	*159,821.65*	*177,801.58*	*196,693.00*	*217,591.63*	*240,710.74*	*266,286.26*
Utilisation rate	*0.84*	*0.84*	*0.84*	*0.84*	*0.84*	*0.84*	*0.84*	*0.85*	*0.85*	*0.85*	*0.85*
BALANCE (Surplus/Deficit)	**1,252.16**	**1,585.10**	**1,943.26**	**2,328.06**	**2,795.21**	**3,292.74**	**3,837.92**	**4,444.97**	**5,102.34**	**5,838.94**	**6,663.40**
As % of Income	57%	56%	57%	58%	58%	58%	58%	57%	57%	56%	55%
FUND (End of Year)	**3,571.64**	**5,156.74**	**7,100.00**	**9,428.06**	**12,223.27**	**15,516.01**	**19,353.93**	**23,798.90**	**28,901.24**	**34,740.18**	**41,403.57**
Rate of return on investment	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
FUND RATIO	**2.86**	**3.58**	**4.18**	**4.72**	**5.18**	**5.55**	**5.88**	**6.15**	**6.34**	**6.49**	**6.58**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Development of income and expenditure for MOH - (in billion cedis)

Annex 4

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
INCOME	**5,043.17**	**5,774.62**	**6,619.14**	**7,603.83**	**8,731.15**	**9,951.50**	**11,307.88**	**12,785.61**	**14,410.16**	**16,243.05**	**18,311.11**
GOVERNMENT	**2,637.84**	**3,231.60**	**3,747.50**	**4,347.10**	**5,033.51**	**5,772.93**	**6,585.76**	**7,473.52**	**8,435.37**	**9,521.00**	**10,746.35**
DONORS	**834.98**	**922.66**	**1,014.92**	**1,111.34**	**1,216.92**	**1,326.44**	**1,445.82**	**1,568.71**	**1,702.05**	**1,846.73**	**2,003.70**
IGF (Out of Pocket)	**319.46**	**326.82**	**360.16**	**393.81**	**429.57**	**464.72**	**501.36**	**536.20**	**571.57**	**607.17**	**642.48**
Claims Payment to GHS	**326.66**	**501.86**	**594.38**	**726.45**	**883.79**	**1,064.94**	**1,278.49**	**1,521.12**	**1,804.12**	**2,133.34**	**2,515.87**
Transfers from NHIS	**256.16**	**329.76**	**394.06**	**468.75**	**558.14**	**658.40**	**772.62**	**900.70**	**1,044.94**	**1,210.28**	**1,399.59**
Financial Credits	**418.02**	**461.91**	**508.11**	**556.38**	**609.23**	**664.06**	**723.83**	**785.35**	**852.11**	**924.54**	**1,003.12**
HIPC	**250.05**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**5,020.91**	**5,882.55**	**6,747.30**	**7,697.34**	**8,782.63**	**9,965.71**	**11,309.65**	**12,762.48**	**14,402.65**	**16,253.60**	**18,342.49**
Total Cost of Healthcare	**2,010.72**	**2,466.29**	**2,890.83**	**3,367.41**	**3,919.68**	**4,534.09**	**5,241.25**	**6,020.48**	**6,910.50**	**7,925.88**	**9,083.84**
Insured	**851.59**	**1,286.79**	**1,589.54**	**1,942.73**	**2,363.47**	**2,847.94**	**3,419.02**	**4,067.87**	**4,824.68**	**5,705.10**	**6,728.09**
Non-insured	**1,159.13**	**1,179.50**	**1,301.29**	**1,424.69**	**1,556.21**	**1,686.15**	**1,822.23**	**1,952.60**	**2,085.81**	**2,220.78**	**2,355.76**
Government & Donors	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
BALANCE (Surplus/Deficit)	22.27	(107.93)	(128.17)	(93.51)	(51.48)	(14.21)	(1.77)	23.13	7.51	(10.56)	(31.38)
As % of Income	**0.4%**	**-1.9%**	**-1.9%**	**-1.2%**	**-0.6%**	**-0.1%**	**0.0%**	**0.2%**	**0.1%**	**-0.1%**	**-0.2%**
RESERVES at the end of the year	**416.70**	**308.77**	**180.60**	**87.09**	**35.61**	**21.40**	**19.64**	**42.77**	**50.28**	**39.72**	**8.35**
FUNDING RATIO	**0.07**	**0.05**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Annex 5.1: Estimated development of the National Health Budget (in billion cedis) with 50% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
Income	**6,660.28**	**7,775.02**	**8,965.35**	**10,329.11**	**11,903.06**	**13,607.72**	**15,498.47**	**17,558.57**	**19,815.13**	**22,355.30**	**25,213.72**
Government Funding	2,637.84	3,231.60	3,747.50	4,347.10	5,033.51	5,772.93	6,585.76	7,473.52	8,435.37	9,521.00	10,746.35
Donors' Support	834.98	922.66	1,014.92	1,111.34	1,216.92	1,326.44	1,445.82	1,568.71	1,702.05	1,846.73	2,003.70
Contributions by Employees (SSNIT)	409.70	440.05	521.87	614.95	724.68	848.42	993.17	1,154.68	1,342.03	1,559.16	1,810.66
Health Insurance Levy	1,585.24	1,942.07	2,252.11	2,612.44	3,024.95	3,469.31	3,957.79	4,491.30	5,069.33	5,721.75	6,458.14
Insurance Premiums (DMHIS)	136.68	191.55	253.68	328.57	420.01	528.03	657.95	808.97	988.30	1,201.18	1,452.91
IGF (Out of Pocket)	319.46	326.82	360.16	393.81	429.57	464.72	501.36	536.20	571.57	607.17	642.48
Financial credits	418.02	461.91	508.11	556.38	609.23	664.06	723.83	785.35	852.11	924.54	1,003.12
Sub-Total	**6,592.30**	**7,517.32**	**8,658.34**	**9,964.59**	**11,458.87**	**13,073.92**	**14,865.68**	**16,818.74**	**18,960.76**	**21,381.53**	**24,117.36**
Interest on Reserves (NHIS)	67.98	257.69	307.01	364.52	444.19	533.80	632.80	739.82	854.36	973.77	1,096.36
Expenditure	**5,968.67**	**8,489.82**	**9,806.04**	**11,384.77**	**13,223.62**	**15,272.62**	**17,642.94**	**20,259.69**	**23,263.92**	**26,708.76**	**30,657.00**
MOH Expenses	**5,020.91**	**6,525.94**	**7,542.07**	**8,668.70**	**9,964.37**	**11,389.68**	**13,019.16**	**14,796.41**	**16,814.99**	**19,106.15**	**21,706.53**
Clinical Care	**2,010.72**	**3,109.69**	**3,685.60**	**4,338.78**	**5,101.41**	**5,958.06**	**6,950.76**	**8,054.41**	**9,322.84**	**10,778.43**	**12,447.89**
Insured	851.59	1,930.19	2,384.31	2,914.09	3,545.21	4,271.91	5,128.53	6,101.81	7,237.02	8,557.65	10,092.13
Non-insured	1,159.13	1,179.50	1,301.29	1,424.69	1,556.21	1,686.15	1,822.23	1,952.60	2,085.81	2,220.78	2,355.76
Public Goods	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments (Gov't)	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
NHIS Expenses	**947.77**	**1,963.87**	**2,263.96**	**2,716.07**	**3,259.25**	**3,882.94**	**4,623.78**	**5,463.28**	**6,448.94**	**7,602.60**	**8,950.47**
Direct Support to Schemes	**426.25**	**1,035.10**	**1,186.35**	**1,410.27**	**1,673.28**	**1,971.40**	**2,318.66**	**2,707.69**	**3,156.65**	**3,672.95**	**4,266.66**
Admin. & Logistical Support	68.43	75.61	83.18	91.08	99.73	108.71	118.49	128.56	139.49	151.35	164.21
Subsidies	345.44	599.14	704.76	819.59	943.66	1,077.37	1,220.42	1,372.87	1,534.36	1,703.92	1,881.66
Re-Insurance (DMHIS Claims)	12.38	360.35	398.42	499.60	629.89	785.32	979.75	1,206.26	1,482.80	1,817.68	2,220.79
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	**466.66**	**1,075.42**	**1,273.68**	**1,556.69**	**1,893.83**	**2,282.02**	**2,739.63**	**3,259.54**	**3,865.97**	**4,571.44**	**5,391.15**
Balance (Surplus/Deficit)	**691.60**	**(714.80)**	**(840.68)**	**(1,055.66)**	**(1,320.56)**	**(1,664.90)**	**(2,144.47)**	**(2,701.12)**	**(3,448.79)**	**(4,353.46)**	**(5,443.28)**
As % of Income	**10.4%**	**-9.2%**	**-9.4%**	**-10.2%**	**-11.1%**	**-12.2%**	**-13.8%**	**-15.4%**	**-17.4%**	**-19.5%**	**-21.6%**
Cash Flow *(Surplus/Deficit less investment income)*	**623.62**	**(972.49)**	**(1,147.69)**	**(1,420.18)**	**(1,764.75)**	**(2,198.70)**	**(2,777.27)**	**(3,440.95)**	**(4,303.16)**	**(5,327.23)**	**(6,539.64)**
Fund at the end of the year	**6,736.18**	**6,021.39**	**5,180.70**	**4,125.04**	**2,804.48**	**1,139.58**	**(1,004.88)**	**(3,706.01)**	**(7,154.80)**	**(11,508.26)**	**(16,951.54)**
Rate of return on investment (T-Bill)	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
Contribution rate	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**
Fund Ratio	**0.79**	**0.61**	**0.46**	**0.31**	**0.18**	**0.06**	**(0.05)**	**(0.16)**	**(0.27)**	**(0.38)**	**(0.48)**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Annex 5.2: Estimated development of the NHIS health budget (in billion cedis) with 50% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
INCOME	**2,199.93**	**2,832.03**	**3,334.66**	**3,920.48**	**4,613.83**	**5,379.56**	**6,241.70**	**7,194.78**	**8,254.02**	**9,455.87**	**10,818.07**
SSNIT (Health Ins. Contrib.)	**409.70**	**440.05**	**521.87**	**614.95**	**724.68**	**848.42**	**993.17**	**1,154.68**	**1,342.03**	**1,559.16**	**1,810.66**
Membership	*926,250*	*954,996*	*984,830*	*1,015,746*	*1,047,705*	*1,080,695*	*1,114,606*	*1,149,323*	*1,184,755*	*1,220,786*	*1,257,384*
Average Salary (in million cedis)	**17.69**	**20.48**	**23.55**	**26.91**	**30.74**	**34.89**	**39.60**	**44.65**	**50.34**	**56.76**	**64.00**
Health Insurance levy	**1,585.24**	**1,942.07**	**2,252.11**	**2,612.44**	**3,024.95**	**3,469.31**	**3,957.79**	**4,491.30**	**5,069.33**	**5,721.75**	**6,458.14**
Premium income (DMHIS)	**136.68**	**191.55**	**253.68**	**328.57**	**420.01**	**528.03**	**657.95**	**808.97**	**988.30**	**1,201.18**	**1,452.91**
Interest on Fund	**67.98**	**257.69**	**307.01**	**364.52**	**444.19**	**533.80**	**632.80**	**739.82**	**854.36**	**973.77**	**1,096.36**
Donor support	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**947.77**	**1,963.87**	**2,263.96**	**2,716.07**	**3,259.25**	**3,882.94**	**4,623.78**	**5,463.28**	**6,448.94**	**7,602.60**	**8,950.47**
Admin. & Logistical Support	**68.43**	**75.61**	**83.18**	**91.08**	**99.73**	**108.71**	**118.49**	**128.56**	**139.49**	**151.35**	**164.21**
Subsidies	***345.44***	***599.14***	***704.76***	***819.59***	***943.66***	***1,077.37***	***1,220.42***	***1,372.87***	***1,534.36***	***1,703.92***	***1,881.66***
Indigent	*10.66*	*19.25*	*22.46*	*25.96*	*29.76*	*33.86*	*38.29*	*43.06*	*48.18*	*53.67*	*59.54*
Children (Under 18)	*239.06*	*436.62*	*519.60*	*610.31*	*708.71*	*815.03*	*928.97*	*1,050.53*	*1,179.23*	*1,314.06*	*1,455.05*
Elderly (70 &above)	*30.84*	*41.94*	*47.29*	*52.91*	*58.84*	*65.10*	*71.73*	*78.77*	*86.28*	*94.29*	*102.86*
SSNIT Contributors	*59.26*	*93.41*	*105.96*	*119.22*	*133.22*	*147.99*	*163.53*	*179.87*	*197.00*	*214.93*	*233.67*
SSNIT Pensioners	*5.62*	*7.92*	*9.45*	*11.19*	*13.14*	*15.40*	*17.89*	*20.65*	*23.67*	*26.96*	*30.54*
Re-Insurance (DMHIS Claims)	**12.38**	**360.35**	**398.42**	**499.60**	**629.89**	**785.32**	**979.75**	**1,206.26**	**1,482.80**	**1,817.68**	**2,220.79**
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	466.66	1,075.42	1,273.68	1,556.69	1,893.83	2,282.02	2,739.63	3,259.54	3,865.97	4,571.44	5,391.15
Number insured	*6,177,118*	*8,381,625*	*8,814,000*	*9,616,788*	*10,443,194*	*11,293,918*	*12,166,462*	*13,059,977*	*13,972,502*	*14,901,230*	*15,846,032*
Number of OPD + IPD cases	*5,174,188*	*10,540,493*	*11,096,627*	*12,122,685*	*13,182,703*	*14,278,557*	*15,408,332*	*16,571,734*	*17,767,078*	*18,991,421*	*20,245,678*
Average cost per visit	*90,190.00*	*102,027.43*	*114,780.86*	*128,411.09*	*143,659.91*	*159,821.65*	*177,801.58*	*196,693.00*	*217,591.63*	*240,710.74*	*266,286.26*
Utilisation rate	*0.84*	*1.26*	*1.26*	*1.26*	*1.26*	*1.26*	*1.27*	*1.27*	*1.27*	*1.27*	*1.28*
BALANCE (Surplus/Deficit)	**1,252.16**	**868.15**	**1,070.70**	**1,204.42**	**1,354.58**	**1,496.62**	**1,617.92**	**1,731.50**	**1,805.09**	**1,853.26**	**1,867.60**
As % of Income	57%	31%	32%	31%	29%	28%	26%	24%	22%	20%	17%
FUND (End of Year)	**3,571.64**	**4,439.79**	**5,510.49**	**6,714.91**	**8,069.49**	**9,566.11**	**11,184.03**	**12,915.53**	**14,720.61**	**16,573.88**	**18,441.48**
Rate of return on investment	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
FUND RATIO	**1.82**	**1.96**	**2.03**	**2.06**	**2.08**	**2.07**	**2.05**	**2.00**	**1.94**	**1.85**	**1.75**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Annex 5.3: Estimated development of the MOH health budget (in billion cedis) with 50% increase in utilization in 2007

	Base Year 0	1	2	3	4	5	6	7	8	9	10
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
INCOME	**5,043.17**	**6,025.55**	**6,910.56**	**7,954.82**	**9,152.15**	**10,451.98**	**11,901.30**	**13,483.24**	**15,228.39**	**17,200.49**	**19,429.12**
GOVERNMENT	**2,637.84**	**3,231.60**	**3,747.50**	**4,347.10**	**5,033.51**	**5,772.93**	**6,585.76**	**7,473.52**	**8,435.37**	**9,521.00**	**10,746.35**
DONORS	**834.98**	**922.66**	**1,014.92**	**1,111.34**	**1,216.92**	**1,326.44**	**1,445.82**	**1,568.71**	**1,702.05**	**1,846.73**	**2,003.70**
IGF (Out of Pocket)	**319.46**	**326.82**	**360.16**	**393.81**	**429.57**	**464.72**	**501.36**	**536.20**	**571.57**	**607.17**	**642.48**
Claims Payment to GHS	**326.66**	**752.79**	**891.58**	**1,089.68**	**1,325.68**	**1,597.42**	**1,917.74**	**2,281.68**	**2,706.18**	**3,200.01**	**3,773.80**
Transfers from NHIS	**256.16**	**329.76**	**388.29**	**456.50**	**537.24**	**626.40**	**726.79**	**837.77**	**961.11**	**1,101.05**	**1,259.67**
Financial Credits	**418.02**	**461.91**	**508.11**	**556.38**	**609.23**	**664.06**	**723.83**	**785.35**	**852.11**	**924.54**	**1,003.12**
HIPC	**250.05**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**5,020.91**	**6,525.94**	**7,542.07**	**8,668.70**	**9,964.37**	**11,389.68**	**13,019.16**	**14,796.41**	**16,814.99**	**19,106.15**	**21,706.53**
Total Cost of Healthcare	**2,010.72**	**3,109.69**	**3,685.60**	**4,338.78**	**5,101.41**	**5,958.06**	**6,950.76**	**8,054.41**	**9,322.84**	**10,778.43**	**12,447.89**
Insured	**851.59**	**1,930.19**	**2,384.31**	**2,914.09**	**3,545.21**	**4,271.91**	**5,128.53**	**6,101.81**	**7,237.02**	**8,557.65**	**10,092.13**
Non-insured	**1,159.13**	**1,179.50**	**1,301.29**	**1,424.69**	**1,556.21**	**1,686.15**	**1,822.23**	**1,952.60**	**2,085.81**	**2,220.78**	**2,355.76**
Government & Donors	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
BALANCE (Surplus/Deficit)	22.27	(500.39)	(631.52)	(713.89)	(812.22)	(937.70)	(1,117.86)	(1,313.17)	(1,586.60)	(1,905.66)	(2,277.41)
As % of Income	**0.4%**	**-8.3%**	**-9.1%**	**-9.0%**	**-8.9%**	**-9.0%**	**-9.4%**	**-9.7%**	**-10.4%**	**-11.1%**	**-11.7%**
RESERVES at the end of the year	**416.70**	**-83.70**	**-715.21**	**-1429.10**	**-2241.32**	**-3179.02**	**-4296.88**	**-5610.06**	**-7196.66**	**-9102.32**	**-11379.73**
FUNDING RATIO	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Annex 6.1: Estimated development of the National Health Budget (in billion cedis) with 100% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
Income	**6,660.28**	**7,775.02**	**8,915.78**	**10,222.24**	**11,720.46**	**13,329.53**	**15,101.24**	**17,014.24**	**19,091.05**	**21,412.83**	**24,117.36**
Government Funding	2,637.84	3,231.60	3,747.50	4,347.10	5,033.51	5,772.93	6,585.76	7,473.52	8,435.37	9,521.00	10,746.35
Donors' Support	834.98	922.66	1,014.92	1,111.34	1,216.92	1,326.44	1,445.82	1,568.71	1,702.05	1,846.73	2,003.70
Contributions by Employees (SSNIT)	409.70	440.05	521.87	614.95	724.68	848.42	993.17	1,154.68	1,342.03	1,559.16	1,810.66
Health Insurance Levy	1,585.24	1,942.07	2,252.11	2,612.44	3,024.95	3,469.31	3,957.79	4,491.30	5,069.33	5,721.75	6,458.14
Insurance Premiums (DMHIS)	136.68	191.55	253.68	328.57	420.01	528.03	657.95	808.97	988.30	1,201.18	1,452.91
IGF (Out of Pocket)	319.46	326.82	360.16	393.81	429.57	464.72	501.36	536.20	571.57	607.17	642.48
Financial credits	418.02	461.91	508.11	556.38	609.23	664.06	723.83	785.35	852.11	924.54	1,003.12
Sub-Total	**6,592.30**	**7,517.32**	**8,658.34**	**9,964.59**	**11,458.87**	**13,073.92**	**14,865.68**	**16,818.74**	**18,960.76**	**21,381.53**	**24,117.36**
Interest on Reserves (NHIS)	67.98	257.69	257.43	257.64	261.60	255.61	235.57	195.50	130.28	31.30	-
Expenditure	**5,968.67**	**9,850.16**	**11,449.93**	**13,393.93**	**15,667.91**	**18,217.94**	**21,178.87**	**24,466.65**	**28,253.57**	**32,608.93**	**37,615.14**
MOH Expenses	**5,020.91**	**7,169.34**	**8,336.84**	**9,640.07**	**11,146.11**	**12,813.65**	**14,728.67**	**16,830.35**	**19,227.33**	**21,958.71**	**25,070.58**
Clinical Care	**2,010.72**	**3,753.08**	**4,480.37**	**5,310.14**	**6,283.15**	**7,382.03**	**8,660.27**	**10,088.35**	**11,735.18**	**13,630.98**	**15,811.93**
Insured	851.59	2,573.58	3,179.08	3,885.45	4,726.94	5,695.87	6,838.04	8,135.74	9,649.36	11,410.20	13,456.17
Non-insured	1,159.13	1,179.50	1,301.29	1,424.69	1,556.21	1,686.15	1,822.23	1,952.60	2,085.81	2,220.78	2,355.76
Public Goods	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments (Gov't)	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
NHIS Expenses	**947.77**	**2,680.82**	**3,113.08**	**3,753.86**	**4,521.80**	**5,404.29**	**6,450.20**	**7,636.31**	**9,026.25**	**10,650.23**	**12,544.57**
Direct Support to Schemes	**426.25**	**1,393.58**	**1,610.91**	**1,929.17**	**2,304.56**	**2,732.08**	**3,231.87**	**3,794.21**	**4,445.30**	**5,196.76**	**6,063.71**
Admin. & Logistical Support	68.43	75.61	83.18	91.08	99.73	108.71	118.49	128.56	139.49	151.35	164.21
Subsidies	345.44	599.14	704.76	819.59	943.66	1,077.37	1,220.42	1,372.87	1,534.36	1,703.92	1,881.66
Re-Insurance (DMHIS Claims)	12.38	718.82	822.98	1,018.50	1,261.16	1,546.00	1,892.96	2,292.77	2,771.46	3,341.49	4,017.84
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	**466.66**	**1,433.89**	**1,698.24**	**2,075.58**	**2,525.10**	**3,042.70**	**3,652.83**	**4,346.06**	**5,154.62**	**6,095.25**	**7,188.19**
Balance (Surplus/Deficit)	**691.60**	**(2,075.14)**	**(2,534.15)**	**(3,171.69)**	**(3,947.44)**	**(4,888.41)**	**(6,077.63)**	**(7,452.41)**	**(9,162.52)**	**(11,196.10)**	**(13,497.78)**
As % of Income	**10.4%**	**-26.7%**	**-28.4%**	**-31.0%**	**-33.7%**	**-36.7%**	**-40.2%**	**-43.8%**	**-48.0%**	**-52.3%**	**-56.0%**
Cash Flow *(Surplus/Deficit less investment income)*	**623.62**	**(2,332.83)**	**(2,791.58)**	**(3,429.33)**	**(4,209.04)**	**(5,144.01)**	**(6,313.19)**	**(7,647.91)**	**(9,292.81)**	**(11,227.40)**	**(13,497.78)**
Fund at the end of the year	**6,736.18**	**4,661.04**	**2,126.90**	**(1,044.79)**	**(4,992.23)**	**(9,880.64)**	**(15,958.27)**	**(23,410.68)**	**(32,573.20)**	**(43,769.30)**	**(57,267.09)**
Rate of return on investment (T-Bill)	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
Contribution rate	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**
Fund Ratio	**0.68**	**0.41**	**0.16**	**(0.07)**	**(0.27)**	**(0.47)**	**(0.65)**	**(0.83)**	**(1.00)**	**(1.16)**	**(1.32)**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Annex 6.2: Estimated development of the NHIS health budget (in billion cedis) with 100% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
INCOME	**2,199.93**	**2,832.03**	**3,285.09**	**3,813.61**	**4,431.23**	**5,101.37**	**5,844.47**	**6,650.45**	**7,529.95**	**8,513.40**	**9,721.71**
SSNIT (Health Ins. Contrib.)	**409.70**	**440.05**	**521.87**	**614.95**	**724.68**	**848.42**	**993.17**	**1,154.68**	**1,342.03**	**1,559.16**	**1,810.66**
Membership	*926,250*	*954,996*	*984,830*	*1,015,746*	*1,047,705*	*1,080,695*	*1,114,606*	*1,149,323*	*1,184,755*	*1,220,786*	*1,257,384*
Average Salary (in million cedis)	**17.69**	**20.48**	**23.55**	**26.91**	**30.74**	**34.89**	**39.60**	**44.65**	**50.34**	**56.76**	**64.00**
Health Insurance levy	**1,585.24**	**1,942.07**	**2,252.11**	**2,612.44**	**3,024.95**	**3,469.31**	**3,957.79**	**4,491.30**	**5,069.33**	**5,721.75**	**6,458.14**
Premium income (DMHIS)	**136.68**	**191.55**	**253.68**	**328.57**	**420.01**	**528.03**	**657.95**	**808.97**	**988.30**	**1,201.18**	**1,452.91**
Interest on Fund	**67.98**	**257.69**	**257.43**	**257.64**	**261.60**	**255.61**	**235.57**	**195.50**	**130.28**	**31.30**	**-**
Donor support	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**947.77**	**2,680.82**	**3,113.08**	**3,753.86**	**4,521.80**	**5,404.29**	**6,450.20**	**7,636.31**	**9,026.25**	**10,650.23**	**12,544.57**
Admin. & Logistical Support	**68.43**	**75.61**	**83.18**	**91.08**	**99.73**	**108.71**	**118.49**	**128.56**	**139.49**	**151.35**	**164.21**
Subsidies	***345.44***	***599.14***	***704.76***	***819.59***	***943.66***	***1,077.37***	***1,220.42***	***1,372.87***	***1,534.36***	***1,703.92***	***1,881.66***
Indigent	*10.66*	*19.25*	*22.46*	*25.96*	*29.76*	*33.86*	*38.29*	*43.06*	*48.18*	*53.67*	*59.54*
Children (Under 18)	*239.06*	*436.62*	*519.60*	*610.31*	*708.71*	*815.03*	*928.97*	*1,050.53*	*1,179.23*	*1,314.06*	*1,455.05*
Elderly (70 &above)	*30.84*	*41.94*	*47.29*	*52.91*	*58.84*	*65.10*	*71.73*	*78.77*	*86.28*	*94.29*	*102.86*
SSNIT Contributors	*59.26*	*93.41*	*105.96*	*119.22*	*133.22*	*147.99*	*163.53*	*179.87*	*197.00*	*214.93*	*233.67*
SSNIT Pensioners	*5.62*	*7.92*	*9.45*	*11.19*	*13.14*	*15.40*	*17.89*	*20.65*	*23.67*	*26.96*	*30.54*
Re-Insurance (DMHIS Claims)	**12.38**	**718.82**	**822.98**	**1,018.50**	**1,261.16**	**1,546.00**	**1,892.96**	**2,292.77**	**2,771.46**	**3,341.49**	**4,017.84**
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	466.66	1,433.89	1,698.24	2,075.58	2,525.10	3,042.70	3,652.83	4,346.06	5,154.62	6,095.25	7,188.19
Number insured	*6,177,118*	*8,381,625*	*8,814,000*	*9,616,788*	*10,443,194*	*11,293,918*	*12,166,462*	*13,059,977*	*13,972,502*	*14,901,230*	*15,846,032*
Number of OPD + IPD cases	*5,174,188*	*14,053,991*	*14,795,503*	*16,163,580*	*17,576,937*	*19,038,076*	*20,544,442*	*22,095,645*	*23,689,437*	*25,321,895*	*26,994,238*
Average cost per visit	*90,190.00*	*102,027.43*	*114,780.86*	*128,411.09*	*143,659.91*	*159,821.65*	*177,801.58*	*196,693.00*	*217,591.63*	*240,710.74*	*266,286.26*
Utilisation rate	*0.84*	*1.68*	*1.68*	*1.68*	*1.68*	*1.69*	*1.69*	*1.69*	*1.70*	*1.70*	*1.70*
BALANCE (Surplus/Deficit)	**1,252.16**	**151.21**	**172.00**	**59.75**	**(90.57)**	**(302.92)**	**(605.73)**	**(985.86)**	**(1,496.30)**	**(2,136.83)**	**(2,822.86)**
As % of Income	57%	5%	5%	2%	-2%	-6%	-10%	-15%	-20%	-25%	-29%
FUND (End of Year)	**3,571.64**	**3,722.85**	**3,894.85**	**3,954.60**	**3,864.04**	**3,561.11**	**2,955.39**	**1,969.53**	**473.23**	**(1,663.60)**	**(4,486.46)**
Rate of return on investment	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
FUND RATIO	**1.33**	**1.20**	**1.04**	**0.87**	**0.71**	**0.55**	**0.39**	**0.22**	**0.04**	**(0.13)**	**(0.30)**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Annex 6.3: Estimated development of the MOH health budget (in billion cedis) 100% increase in utilization in 2007

	Base Year 0	1	2	3	4	5	6	7	8	9	10
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
INCOME	5,043.17	6,276.48	7,201.98	8,305.60	9,572.78	10,952.06	12,494.29	14,180.42	16,046.13	18,157.42	20,559.39
GOVERNMENT	2,637.84	3,231.60	3,747.50	4,347.10	5,033.51	5,772.93	6,585.76	7,473.52	8,435.37	9,521.00	10,746.35
DONORS	834.98	922.66	1,014.92	1,111.34	1,216.92	1,326.44	1,445.82	1,568.71	1,702.05	1,846.73	2,003.70
IGF (Out of Pocket)	319.46	326.82	360.16	393.81	429.57	464.72	501.36	536.20	571.57	607.17	642.48
Claims Payment to GHS	326.66	1,003.72	1,188.77	1,452.91	1,767.57	2,129.89	2,556.98	3,042.24	3,608.24	4,266.68	5,031.74
Transfers from NHIS	256.16	329.76	382.52	444.06	515.98	594.01	680.54	774.38	876.79	991.31	1,132.00
Financial Credits	418.02	461.91	508.11	556.38	609.23	664.06	723.83	785.35	852.11	924.54	1,003.12
HIPC	250.05	-	-	-	-	-	-	-	-	-	-
EXPENDITURE	5,020.91	7,169.34	8,336.84	9,640.07	11,146.11	12,813.65	14,728.67	16,830.35	19,227.33	21,958.71	25,070.58
Total Cost of Healthcare	2,010.72	3,753.08	4,480.37	5,310.14	6,283.15	7,382.03	8,660.27	10,088.35	11,735.18	13,630.98	15,811.93
Insured	851.59	2,573.58	3,179.08	3,885.45	4,726.94	5,695.87	6,838.04	8,135.74	9,649.36	11,410.20	13,456.17
Non-insured	1,159.13	1,179.50	1,301.29	1,424.69	1,556.21	1,686.15	1,822.23	1,952.60	2,085.81	2,220.78	2,355.76
Government & Donors	3,010.19	3,416.25	3,856.47	4,329.93	4,862.96	5,431.62	6,068.40	6,742.00	7,492.15	8,327.72	9,258.64
Personnel Emoluments	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
BALANCE (Surplus/Deficit)	22.27	(892.86)	(1,134.86)	(1,334.47)	(1,573.33)	(1,861.59)	(2,234.38)	(2,649.93)	(3,181.19)	(3,801.29)	(4,511.18)
As % of Income	0.4%	-14.2%	-15.8%	-16.1%	-16.4%	-17.0%	-17.9%	-18.7%	-19.8%	-20.9%	-21.9%
RESERVES at the end of the year	416.70	-476.16	-1611.03	-2945.49	-4518.82	-6380.41	-8614.79	-11264.72	-14445.91	-18247.20	-22758.38
FUNDING RATIO	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annex 7.1: Estimated development of the National Health Budget (in billion cedis) with High Coverage & 50% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
Income	**6,660.28**	**7,775.02**	**9,008.84**	**10,419.69**	**12,043.63**	**13,798.43**	**15,738.46**	**17,841.44**	**20,133.16**	**22,674.38**	**25,356.72**
Government Funding	2,637.84	3,231.60	3,747.50	4,347.10	5,033.51	5,772.93	6,585.76	7,473.52	8,435.37	9,521.00	10,746.35
Donors' Support	834.98	922.66	1,014.92	1,111.34	1,216.92	1,326.44	1,445.82	1,568.71	1,702.05	1,846.73	2,003.70
Contributions by Employees (SSNIT)	409.70	440.05	521.87	614.95	724.68	848.42	993.17	1,154.68	1,342.03	1,559.16	1,810.66
Health Insurance Levy	1,585.24	1,942.07	2,252.11	2,612.44	3,024.95	3,469.31	3,957.79	4,491.30	5,069.33	5,721.75	6,458.14
Insurance Premiums (DMHIS)	136.68	191.55	328.36	500.36	716.21	979.10	1,301.59	1,685.18	2,147.45	2,682.56	3,040.99
IGF (Out of Pocket)	319.46	326.82	328.97	322.44	307.17	279.29	238.12	179.70	102.44	0.85	0.97
Financial credits	418.02	461.91	508.11	556.38	609.23	664.06	723.83	785.35	852.11	924.54	1,003.12
Sub-Total	**6,592.30**	**7,517.32**	**8,701.83**	**10,065.01**	**11,632.67**	**13,339.56**	**15,246.09**	**17,338.44**	**19,650.79**	**22,256.59**	**25,063.93**
Interest on Reserves (NHIS)	67.98	257.69	307.01	354.68	410.95	458.88	492.37	503.00	482.37	417.79	292.79
Expenditure	**5,968.67**	**8,489.82**	**10,249.56**	**12,404.50**	**14,982.50**	**17,952.68**	**21,471.62**	**25,477.15**	**30,175.19**	**35,707.28**	**40,243.87**
MOH Expenses	**5,020.91**	**6,525.94**	**7,762.13**	**9,172.82**	**10,830.15**	**12,703.37**	**14,887.25**	**17,331.25**	**20,157.71**	**23,436.26**	**26,299.30**
Clinical Care	**2,010.72**	**3,109.69**	**3,905.66**	**4,842.89**	**5,967.19**	**7,271.75**	**8,818.86**	**10,589.25**	**12,665.57**	**15,108.54**	**17,040.66**
Insured	851.59	1,930.19	2,717.06	3,676.39	4,854.40	6,258.40	7,953.38	9,934.87	12,291.74	15,105.43	17,037.10
Non-insured	1,159.13	1,179.50	1,188.59	1,166.50	1,112.79	1,013.35	865.48	654.38	373.83	3.11	3.56
Public Goods	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments (Gov't)	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
NHIS Expenses	**947.77**	**1,963.87**	**2,487.43**	**3,231.68**	**4,152.35**	**5,249.31**	**6,584.36**	**8,145.90**	**10,017.47**	**12,271.02**	**13,944.57**
Direct Support to Schemes	**426.25**	**1,035.10**	**1,289.43**	**1,645.70**	**2,076.44**	**2,581.50**	**3,184.02**	**3,879.09**	**4,697.69**	**5,689.35**	**6,388.53**
Admin. & Logistical Support	68.43	75.61	83.18	91.08	99.73	108.71	118.49	128.56	139.49	151.35	164.21
Subsidies	345.44	599.14	762.11	946.63	1,153.08	1,382.28	1,634.22	1,909.24	2,207.05	2,549.69	2,719.39
Re-Insurance (DMHIS Claims)	12.38	360.35	444.14	607.99	823.63	1,090.52	1,431.31	1,841.28	2,351.14	2,988.31	3,504.93
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	**466.66**	**1,075.42**	**1,451.44**	**1,963.90**	**2,593.19**	**3,343.19**	**4,248.64**	**5,307.14**	**6,566.16**	**8,069.22**	**9,101.10**
Balance (Surplus/Deficit)	**691.60**	**(714.80)**	**(1,240.72)**	**(1,984.80)**	**(2,938.88)**	**(4,154.24)**	**(5,733.15)**	**(7,635.71)**	**(10,042.03)**	**(13,032.90)**	**(14,887.15)**
As % of Income	**10.4%**	**-9.2%**	**-13.8%**	**-19.0%**	**-24.4%**	**-30.1%**	**-36.4%**	**-42.8%**	**-49.9%**	**-57.5%**	**-58.7%**
Cash Flow	**623.62**	**(972.49)**	**(1,547.73)**	**(2,339.48)**	**(3,349.83)**	**(4,613.12)**	**(6,225.53)**	**(8,138.71)**	**(10,524.40)**	**(13,450.69)**	**(15,179.93)**
(Surplus/Deficit less investment income)											
Fund at the end of the year	**6,736.18**	**6,021.39**	**4,780.67**	**2,795.86**	**(143.02)**	**(4,297.26)**	**(10,030.41)**	**(17,666.12)**	**(27,708.15)**	**(40,741.05)**	**(55,628.20)**
Rate of return on investment (T-Bill)	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
Contribution rate	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**	**2.5%**
Fund Ratio	**0.79**	**0.59**	**0.39**	**0.19**	**(0.01)**	**(0.20)**	**(0.39)**	**(0.59)**	**(0.78)**	**(1.01)**	**(1.23)**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Annex 7.2: Estimated development of the NHIS health budget (in billion cedis) with High Coverage & 50% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
INCOME	**2,199.93**	**2,832.03**	**3,409.35**	**4,082.43**	**4,876.79**	**5,755.71**	**6,744.93**	**7,834.15**	**9,041.19**	**10,381.27**	**11,602.57**
SSNIT (Health Ins. Contrib.)	**409.70**	**440.05**	**521.87**	**614.95**	**724.68**	**848.42**	**993.17**	**1,154.68**	**1,342.03**	**1,559.16**	**1,810.66**
Membership	*926,250*	*954,996*	*984,830*	*1,015,746*	*1,047,705*	*1,080,695*	*1,114,606*	*1,149,323*	*1,184,755*	*1,220,786*	*1,257,384*
Average Salary (in million cedis)	**17.69**	**20.48**	**23.55**	**26.91**	**30.74**	**34.89**	**39.60**	**44.65**	**50.34**	**56.76**	**64.00**
Health Insurance levy	**1,585.24**	**1,942.07**	**2,252.11**	**2,612.44**	**3,024.95**	**3,469.31**	**3,957.79**	**4,491.30**	**5,069.33**	**5,721.75**	**6,458.14**
Premium income (DMHIS)	**136.68**	**191.55**	**328.36**	**500.36**	**716.21**	**979.10**	**1,301.59**	**1,685.18**	**2,147.45**	**2,682.56**	**3,040.99**
Interest on Fund	**67.98**	**257.69**	**307.01**	**354.68**	**410.95**	**458.88**	**492.37**	**503.00**	**482.37**	**417.79**	**292.79**
Donor support	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**947.77**	**1,963.87**	**2,487.43**	**3,231.68**	**4,152.35**	**5,249.31**	**6,584.36**	**8,145.90**	**10,017.47**	**12,271.02**	**13,944.57**
Admin. & Logistical Support	**68.43**	**75.61**	**83.18**	**91.08**	**99.73**	**108.71**	**118.49**	**128.56**	**139.49**	**151.35**	**164.21**
Subsidies	***345.44***	***599.14***	***762.11***	***946.63***	***1,153.08***	***1,382.28***	***1,634.22***	***1,909.24***	***2,207.05***	***2,549.69***	***2,719.39***
Indigent	*10.66*	*19.25*	*34.88*	*53.86*	*76.42*	*102.75*	*133.15*	*167.82*	*207.00*	*259.61*	*281.18*
Children (Under 18)	*239.06*	*436.62*	*564.54*	*709.44*	*871.47*	*1,051.04*	*1,247.91*	*1,462.14*	*1,693.11*	*1,953.89*	*2,071.14*
Elderly (70 &above)	*30.84*	*41.94*	*47.29*	*52.91*	*58.84*	*65.10*	*71.73*	*78.77*	*86.28*	*94.29*	*102.86*
SSNIT Contributors	*59.26*	*93.41*	*105.96*	*119.22*	*133.22*	*147.99*	*163.53*	*179.87*	*197.00*	*214.93*	*233.67*
SSNIT Pensioners	*5.62*	*7.92*	*9.45*	*11.19*	*13.14*	*15.40*	*17.89*	*20.65*	*23.67*	*26.96*	*30.54*
Re-Insurance (DMHIS Claims)	**12.38**	**360.35**	**444.14**	**607.99**	**823.63**	**1,090.52**	**1,431.31**	**1,841.28**	**2,351.14**	**2,988.31**	**3,504.93**
Support to Partner Institutions	**378.33**	**427.99**	**481.49**	**538.66**	**602.63**	**670.43**	**745.85**	**825.09**	**912.76**	**1,009.74**	**1,117.03**
Operating Expenses	**21.96**	**24.50**	**27.20**	**30.04**	**33.18**	**36.46**	**40.07**	**43.82**	**47.92**	**52.40**	**57.30**
Benefits paid by DMHIS	466.66	1,075.42	1,451.44	1,963.90	2,593.19	3,343.19	4,248.64	5,307.14	6,566.16	8,069.22	9,101.10
Number insured	*6,177,118*	*8,381,625*	*10,044,090*	*12,132,450*	*14,299,708*	*16,545,749*	*18,867,873*	*21,264,060*	*23,731,627*	*26,302,722*	*26,750,592*
Number of OPD + IPD cases	*5,174,188*	*10,540,493*	*12,645,284*	*15,293,866*	*18,050,876*	*20,918,286*	*23,895,399*	*26,981,852*	*30,176,535*	*33,522,472*	*34,177,885*
Average cost per visit	*90,190.00*	*102,027.43*	*114,780.86*	*128,411.09*	*143,659.91*	*159,821.65*	*177,801.58*	*196,693.00*	*217,591.63*	*240,710.74*	*266,286.26*
Utilisation rate	*0.84*	*1.26*	*1.26*	*1.26*	*1.26*	*1.26*	*1.27*	*1.27*	*1.27*	*1.27*	*1.28*
BALANCE (Surplus/Deficit)	**1,252.16**	**868.15**	**921.91**	**850.75**	**724.44**	**506.40**	**160.57**	**(311.75)**	**(976.28)**	**(1,889.75)**	**(2,341.99)**
As % of Income	57%	31%	27%	21%	15%	9%	2%	-4%	-11%	-18%	-20%
FUND (End of Year)	**3,571.64**	**4,439.79**	**5,361.71**	**6,212.46**	**6,936.90**	**7,443.30**	**7,603.86**	**7,292.11**	**6,315.83**	**4,426.09**	**2,084.09**
Rate of return on investment	**10.2%**	**9.6%**	**9.2%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**	**8.8%**
FUND RATIO	**1.82**	**1.78**	**1.66**	**1.50**	**1.32**	**1.13**	**0.93**	**0.73**	**0.51**	**0.32**	**0.13**

NOTE: *The subsidies are not included in the expenditure since they are used to pay benefits and thus captured under Benefits Paid*

Annex 7.3: Estimated development of the MOH health budget (in billion cedis) with High Coverage & 50% increase in utilization in 2007

	Base Year 0 2006	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
INCOME	**5,043.17**	**6,025.55**	**7,012.49**	**8,187.36**	**9,549.92**	**11,053.16**	**12,752.97**	**14,634.50**	**16,741.05**	**19,150.37**	**21,475.93**
GOVERNMENT	**2,637.84**	**3,231.60**	**3,747.50**	**4,347.10**	**5,033.51**	**5,772.93**	**6,585.76**	**7,473.52**	**8,435.37**	**9,521.00**	**10,746.35**
DONORS	**834.98**	**922.66**	**1,014.92**	**1,111.34**	**1,216.92**	**1,326.44**	**1,445.82**	**1,568.71**	**1,702.05**	**1,846.73**	**2,003.70**
IGF (Out of Pocket)	**319.46**	**326.82**	**328.97**	**322.44**	**307.17**	**279.29**	**238.12**	**179.70**	**102.44**	**0.85**	**0.97**
Claims Payment to GHS	**326.66**	**752.79**	**1,016.01**	**1,374.73**	**1,815.23**	**2,340.24**	**2,974.05**	**3,715.00**	**4,596.31**	**5,648.45**	**6,370.77**
Transfers from NHIS	**256.16**	**329.76**	**396.99**	**475.36**	**567.86**	**670.20**	**785.39**	**912.22**	**1,052.76**	**1,208.80**	**1,351.01**
Financial Credits	**418.02**	**461.91**	**508.11**	**556.38**	**609.23**	**664.06**	**723.83**	**785.35**	**852.11**	**924.54**	**1,003.12**
HIPC	**250.05**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
EXPENDITURE	**5,020.91**	**6,525.94**	**7,762.13**	**9,172.82**	**10,830.15**	**12,703.37**	**14,887.25**	**17,331.25**	**20,157.71**	**23,436.26**	**26,299.30**
Total Cost of Healthcare	**2,010.72**	**3,109.69**	**3,905.66**	**4,842.89**	**5,967.19**	**7,271.75**	**8,818.86**	**10,589.25**	**12,665.57**	**15,108.54**	**17,040.66**
Insured	**851.59**	**1,930.19**	**2,717.06**	**3,676.39**	**4,854.40**	**6,258.40**	**7,953.38**	**9,934.87**	**12,291.74**	**15,105.43**	**17,037.10**
Non-insured	**1,159.13**	**1,179.50**	**1,188.59**	**1,166.50**	**1,112.79**	**1,013.35**	**865.48**	**654.38**	**373.83**	**3.11**	**3.56**
Government & Donors	**3,010.19**	**3,416.25**	**3,856.47**	**4,329.93**	**4,862.96**	**5,431.62**	**6,068.40**	**6,742.00**	**7,492.15**	**8,327.72**	**9,258.64**
Personnel Emoluments	1,249.14	1,445.88	1,662.76	1,899.71	2,170.42	2,463.42	2,795.98	3,152.47	3,554.41	4,007.60	4,518.57
Administration	93.62	103.45	113.80	124.61	136.45	148.73	162.12	175.90	190.85	207.07	224.67
Service	929.98	1,052.04	1,183.54	1,324.08	1,481.32	1,647.97	1,833.36	2,028.16	2,243.65	2,482.04	2,745.76
Investments	737.45	814.88	896.37	981.53	1,074.77	1,171.50	1,276.93	1,385.47	1,503.24	1,631.02	1,769.65
BALANCE (Surplus/Deficit)	22.27	(500.39)	(749.64)	(985.46)	(1,280.23)	(1,650.20)	(2,134.29)	(2,696.75)	(3,416.67)	(4,285.89)	(4,823.37)
As % of Income	**0.4%**	**-8.3%**	**-10.7%**	**-12.0%**	**-13.4%**	**-14.9%**	**-16.7%**	**-18.4%**	**-20.4%**	**-22.4%**	**-22.5%**
RESERVES at the end of the year	**416.70**	**(83.70)**	**(833.33)**	**(1,818.80)**	**(3,099.03)**	**(4,749.23)**	**(6,883.52)**	**(9,580.27)**	**(12,996.93)**	**(17,282.82)**	**(22,106.19)**
FUNDING RATIO	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Annex 8

List of participants of the Health Budget Training Retreat
(9-11 November 2007, Volta Hotel, Akosombo)

Attendance List

National Health Insurance Authority

1. Mr. Ras Boateng
2. Mr. Nathaniel Otoo
3. Mr. O.B. Acheampong
4. Ms. Aimee Yuori
5. Ms. Lydia Dsane-Selby
6. Mr. Francis Asenso-Boadi
7. Mr. Ahmed A. Imoro
8. Mr. Benjamin Kusi
9. Mr. Emmanuel Bruce Atta

Ministry of Health

10. Dr. Eddward Addai
11. Mr. Alhaji M. Muwiru
12. Mr. Kwakye Kantor
13. Ms. Lindsey Craig

Facilitators

14. Mr. Ben Odoteye Asumang
15. Mr. Benjamin Markin Yankah
16. Mr. Neil Tagoe
17. Mr. David Lambert Tumwesigye