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Technical Note

Financial assessment of the National Health Insurance Fund

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1. Introduction and objective

The ILO has been supporting the introduction of the National Health Insurance Scheme (NHIS) of Ghana since 2002. A full report on the work of the ILO undertaken between 2002 and 2004 was published last year [1]. In 2004, the ILO already undertook a financial analysis of the Public Health Budget and of the NHIS [2]. Conclusions were preliminary and it was recommended that further analyses be undertaken.

Implementation of the NHIS only really started in 2005 but it is important that new projections are available. It became even urgent to have some estimates on the financial viability of the NHIF, as there is presently in Ghana a debate as to the use of the apparent "surplus" of the National Health Insurance Fund (NHIF). The MOH faces a budget crisis this year as donors are less forthcoming with direct support to the health sector, channelling increasingly their resources by way of general budget support; at the same time, the Ministry of Health's budget commitments have increased considerably over the last couple of years [3].

This work is the result of a one-week mission undertaken by Mr. Florian Léger of the Social Security Department of the ILO. He was supported during his mission by Ms. Laura Rose of the World Bank Office in Accra. He also received full support from the Secretariat of the National Health Insurance Council and notably from its Executive Secretary Mr. Ras Boateng. Thanks also go to Ms. Helen Dzikunu who kindly shared data collected by DANIDA, and to Andreas Grüb for his comments on the first draft of this note.

Based on the health budget developed in 2004, this assessment focuses on the development of the financial situation of the NHIF alone. A more complete health budget will be undertaken later in the year.

[1] ILO. 2005. Improving Social Protection for the Poor: Health Insurance in Ghana; the Ghana Social Trust pre-pilot project, Final Report, ILO/RP/Ghana/R.15 (Geneva) at http://www.ilo.org/public/english/protection/socfas/research/global/ global.htm.

[2] Léger, F. & Yankah, B. (2004). *Financial Analysis of the National Public Health Budget and of the National Health Insurance Scheme* (Discussion paper No. 4, Annex 2, of Ghana Social Trust-pre-pilot project, Final Report, ILO/RP/Ghana/R.15). Geneva: International Labour Organization.

[3] See Health Sector Review 2005 *draft*.

2. Methodology and assumptions

2.1. Methodology

The model used for this assessment is a simplified version of the ILO Health Budget model. The model relies on a number of exogenous assumptions that are presented below.

It projects income and expenditure of the NHIF from 2006 to 2010. Revenues are composed of the National Health Insurance Levy (NHIL), of Social Security and National Insurance Trust (SSNIT) contributions and of investment income. Expenditures are disaggregated under subsidy payments to the district schemes, service providers' support, financially distressed schemes, and administration costs.

2.2. Assumptions

Demography

Population projections were taken from ILO (ibid). The population of Ghana is approximately 20.4 million in 2005 and grows to 22.7 million in 2010, i.e. at an annual growth rate of 2.1 per cent.

Economic

Economic assumptions on Gross Domestic Product (GDP) and price are taken from the Ghana Growth and Poverty Reduction Strategy (GPRS II) for the period 2006–2009 and figures for 2010 are assumed to be equal to 2009 figures.

Medical inflation

Medical inflation was assumed to be a constant real 2 percentage points, i.e. not including a possible increase of costs by using different treatment standards.

Utilization and cost per case

It is presently too early to know how the NHIS will impact on utilization of health care services. Experience data provided by DANIDA and collected in the last four months of 2005 in the Brong Ahafo and Eastern Regions provide interesting information. Utilization experiences an increasing trend and average cost of services is also on the increase, especially for members of District Mutual Health Insurance Scheme (DMHIS). Many community-based schemes existed for some time in these two regions, and this explains why they are the most advanced regions regarding the implementation of the NHIS. It is of course difficult to know how quickly the other regions will catch up but these two regions may be taken as a benchmark.

Assumptions are built on these data. A global indicator (including contacts at all levels of health-care facilities for both outpatient and inpatient) for utilization and another for average cost were calculated.

In the last four months of 2005, the average cost per contact is about 60,000 cedis and this data was taken as a national estimate for the assessment. It is further assumed that this average cost will follow medical inflation.

Extrapolated yearly utilization of members of DMHIS is estimated to be about 2. A national estimate utilization factor of 1.5 was assumed for 2006 (as it is believed utilization

is higher in the above 2 regions) and increased to 2 in 2007, 2.1 in 2008 and 2.15 in 2009 and 2010. This assumption has a significant impact on the result of the assessment.

Coverage

The rate of increase of DMHIS membership is an exogenous assumption. Two scenarios on the coverage of DMHIS membership are presented, as this is the factor that impacts the most on the result.

Coverage is disaggregated by category of members, i.e. informal sector workers, SSNIT contributors, children, elderly and indigents. The assumptions for 2006 are based on data provided by the NHIS but assumptions for the following years are best estimates from the author. They are presented in Table 1. It is difficult to argue why those assumptions were chosen. Different targets from different partners (MOH, Ministry of Finance, NHIS) are available and those targets are often updated and therefore it was difficult to adopt one of these. Furthermore, the targets usually refer to overall coverage whereas, for the purpose of this assessment, it is necessary to set assumptions for each of the different categories of members as coverage is obviously different from one category to another.

SSNIT Contributions

The projection of the SSNIT contributions requires assumptions on the number of contributors to the SSNIT and of their average wage.

The development of the number of contributors to the SSNIT was taken from SSNIT internal actuarial valuation and provided by the actuarial Department of the SSNIT.

Development of average wage of SSNIT contributors has been assumed to follow productivity growth calculated as GDP divided by employment growth (here simplified as growth of SSNIT contributors).

Insurance Premiums

The 72,000 cedis premium that people in the informal sector have to pay to become a member of a DMHIS is assumed to grow with medical inflation as of 2007. Assumed increase of utilization is not reflected in the increase of the premium. Therefore, the premium remains lower than the average benefit cost of a member throughout the projection period and the gap even widens.

The premium is paid to the DMHIS but the amount of the premium has a direct impact on the financial viability of the NHIF as it influences the expenditure on financially distressed schemes.

Subsidies

According to the law, the NHIF provides subsidies to DMHIS for the following exempted groups:

- Indigents
- Under 18 years of age with both parents or guardians as contributors
- Under 18 years with community approved single parents
- Pensioners under the SSNIT scheme
- The Aged (70 years of age and above)

Furthermore, premiums of contributors to the SSNIT Pension Scheme are also paid from the NHIF.

The subsidy paid is equal to the number of registered persons in each of the above category times the amount per person [4]. In practice, the subsidy is paid only once the ID cards are issued by the DMHIS (after the waiting period of six months). This has some importance as currently the printing of the insurance cards is also slow due to the large number of cards to be delivered, inadequate printing materials and lack of trained DMHIS staff. The model takes this into account in the estimation of the payment of the subsidy. In this regard, the expected total subsidy for 2006 in this assessment is different from the one proposed by the NHIS in the 2006 Fund Allocation Formula.

For 2006, the NHIF transfers 100,000 cedis for each exempted person. It is assumed that the NHIS will continue to increase this amount by 20,000 cedis yearly to reach 180,000 cedis per person per year in 2010 [5]. This is still lower than the expected average benefit cost per person.

Investment Income

Investments are solely calculated on the reserve from the previous year. In the base year and throughout the projection period, rate of return on investments is assumed to be 8 per cent, which is the current rate of return of treasury bills.

Financially distressed scheme

The law mandates the NHIF to provide assistance to financially distressed DMHIS. As previously mentioned, the premium and subsidy paid to DMHIS might not suffice to pay all benefit expenditure of the DMHIS. In this case, the NHIF will have to cover the deficit of the DMHIS.

This is due to the fact that for paying members the premium of 72,000 cedis was estimated already a couple of year ago if not more and was based on old utilization data which were probably too low (and also the benefit package was not defined). For exempted members, even if the council has taken action and provided a higher subsidy, the gap between the subsidy and the actual benefit cost of a member still exists and is likely to widen year after year.

This expenditure item is projected separately for exempted members and for paying members and is calculated as the difference between the average benefit cost and the subsidy (respectively premium) times the number of exempted members (respectively paying persons).

Link between subsidy and financially distressed scheme

It has to be noted that the amount of the subsidy per person has no impact on the result of this assessment; it only changes the repartition of the expenditure between the subsidy and the financially distressed scheme.

[4] See NHIF Allocation Formula (2005 and 2006).

[5] The subsidy in 2005 was 80,000 cedis.

Service support providers

The 2006 Fund Allocation Formula allocates 250 billion cedis to improve access to health services. It is expected that the NHIF will continue to allocate an amount of 250 billion each year.

Administrative costs

Administrative costs include the Council secretariat operations, administrative and logistical support for DMHIS, 2nd phase of secretariat building and MIS and ICT solutions.

The Finance Committee has directed that expenditure on the Council secretariat should not exceed 5 per cent of total revenue to the Council. It was therefore assumed that 5 per cent of total revenue (excluding revenue from investment) would be budgeted for the Council secretariat each year. Efforts could be undertaken to have this ratio decreased.

Administrative and logistical support to schemes are high in 2006 due to a one-off investment for the provision of vehicles, computers etc. As of 2007, a smaller amount is estimated, based on recurrent administrative cost. This amount follows the same growth as for Council secretariat expenditure.

The secretariat building is budgeted for 2006 but a further 50 per cent of the cost is also budgeted for 2007.

Finally, the MIS&ICT solution is also budgeted for 2006 and 2007. As of 2008, a depreciation rate of 20 is allocated to the maintenance of the installation.

Table 1 summarizes all assumptions.

Table 1. Projection assumptions, 2005–2010, (per cent, except last four lines)

Year	2005	2006	2007	2008	2009	2010
SSNIT Contribution Rate	2.5	2.5	2.5	2.5	2.5	2.5
Average Salary Increase (real)		3.2	2.9	3.2	2.9	3.0
Increase of SSNIT membership		3.1	3.1	3.1	3.0	2.9
Medical inflation (real)		2.0	2.0	2.0	2.0	2.0
GDP growth rate (real)		6.1	5.8	6.1	5.7	5.7
Average Inflation (CPI)		10.0	9.5	9.3	9.0	9.0
Rate of interest on investment		8.5	8.5	8.5	8.5	8.5
DMHIS Coverage, Scenario 1						
Informal sector	8	40	55	65	70	70
SSNIT contributors	51	70	80	80	80	80
Children	19	57	74	84	89	89
Elderly	76	80	80	80	80	80
Indigents	9	50	60	65	70	70
DMHIS Coverage, Scenario 2						
Informal sector	8	30	35	40	45	50
SSNIT contributors	51	50	50	50	50	50
Children	19	45	50	54	59	64
Elderly	76	75	75	75	75	75
Indigents	9	30	50	50	50	50
Average cost of a contact	60,000	67,944	76,400	85,950	96,234	107,807
Average utilization		1.50	2.00	2.10	2.15	2.15
Average benefit cost per insured		101,916	152,800	180,496	206,903	231,785
Subsidy per person	80,000	100,000	120,000	140,000	160,000	180,000

3. Projection of NHIS coverage

Scenario 1

As a result of the assumptions on coverage, table 2 presents the development of the number of persons insured under a DMHIS for the different categories of member. Under this scenario, almost 85 per cent of the population of Ghana would be insured by 2010.

Table 2. **Expected health insurance coverage, scenario 1**

End of year	2005	2006	2007	2008	2009	2010
Children	1,836,249	5,687,769	7,445,696	8,544,497	9,137,450	9,314,372
Elderly (70+)	294,892	319,449	327,282	335,485	344,114	353,224
SSNIT Pensioners	48,547	50,039	51,569	53,119	54,686	56,267
SSNIT contributors	514,147	721,517	849,805	875,342	901,158	927,224
Indigents	91,804	528,692	653,906	729,663	808,962	891,916
Total exempted	2,785,639	7,307,466	9,328,258	10,538,107	11,246,369	11,543,003
Paying members	737,492	3,797,226	5,381,532	6,550,887	7,262,823	7,473,839
Total insured	**3,523,131**	**11,104,692**	**14,709,790**	**17,088,993**	18,509,193	**19,016,842**
Total population of Ghana	**20,425,652**	**20,877,917**	**21,332,817**	**21,788,843**	**22,244,558**	**22,698,581**
Coverage rate (%)	17.2	53.2	69.0	78.4	83.2	83.3

Scenario 2

Table 3 presents the development of coverage under scenario 2 and shows that slightly less than 60 per cent of the population would be insured by 2010.

Table 3. **Expected health insurance coverage, scenario 2**

End of year	2005	2006	2007	2008	2009	2010
Children	1,836,249	4,453,578	4,980,533	5,507,320	6,032,622	6,623,997
Elderly (70+)	294,892	299,484	306,827	314,518	322,607	331,148
SSNIT Pensioners	48,547	50,039	51,569	53,119	54,686	56,267
SSNIT contributors	514,147	515,369	531,128	547,089	563,224	579,515
Indigents	91,804	528,692	544,921	561,279	577,830	594,611
Total exempted	2,785,639	5,847,162	6,414,979	6,983,325	7,550,968	8,185,538
Paying members	737,492	2,847,919	3,424,611	4,031,315	4,668,958	5,338,456
Total insured	**3,523,131**	**8,695,082**	**9,839,590**	**11,014,640**	**12,219,926**	**13,523,994**
Total population of Ghana	**20,425,652**	**20,877,917**	**21,332,817**	**21,788,843**	**22,244,558**	**22,698,581**
Coverage rate (%)	17.2	41.6	46.1	50.6	54.9	59.6

4. Financial projections

Scenario 1

The development of the income and expenditure of the NHIF until 2010 under scenario 1 is presented in Table 4. In 2006, a surplus is still expected but already in 2007 a deficit is anticipated following the sharp increase of subsidy payments and payments to financially distressed schemes. The deficit increases in the following years and in 2010 the accumulated fund becomes negative.

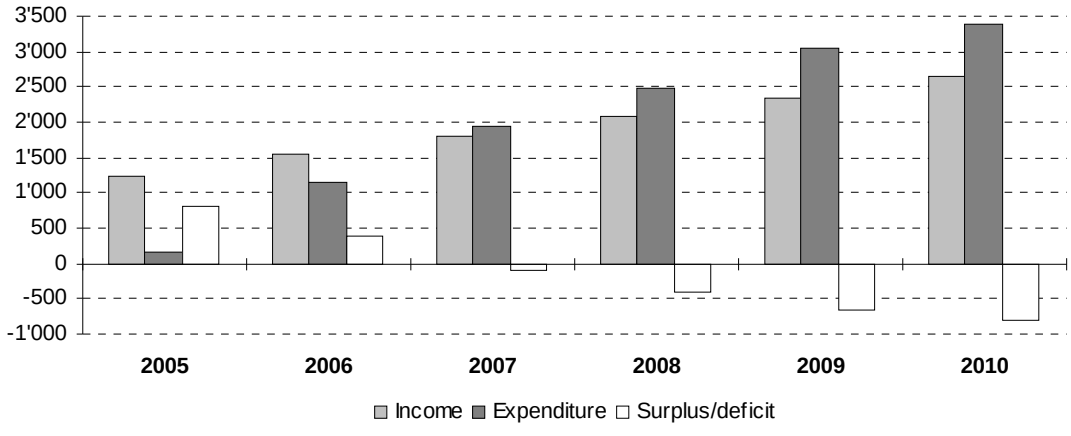
Table 4. **Development of NHIF income and expenditure under scenario 1 (in billion cedis), 2005–2010**

	2005	2006	2007	2008	2009	2010
Income (*)	**984**	**1,557**	**1,826**	**2,091**	**2,363**	**2,661**
NHIL	1,012	1,182	1,369	1,587	1,829	2,109
SSNIT contribution	263	309	358	415	479	552
Investment income		66	98	89	55	1
Expenditure	**155**	**1,157**	**1,948**	**2,505**	**3,046**	**3,471**
Subsidies	***75***	***505***	***998***	***1,391***	***1,743***	***2,041***
Indigent		31	71	97	123	148
Children		376	788	1,119	1,415	1,656
Elderly		31	39	46	54	63
SSNIT contributors and pensioners		67	100	128	151	175
Service Providers Support	**40**	**250**	**250**	**250**	**250**	**250**
Financially distressed Schemes	**1**	**58**	**436**	**629**	**787**	**878**
Support for exempted members		3	248	348	425	464
Support for paying members		55	187	281	363	414
Total administration	**39**	**345**	**264**	**236**	**266**	**302**
Council secretariat	2	75	86	100	115	133
Administration/Logistics	37	160	87	101	116	134
Secretariat Building		18	9	—	—	—
MIS&ICT		92	82	35	35	35
Surplus/Deficit	**829**	**400**	**(122)**	**(415)**	**(683)**	**(810)**
Accumulated fund	829	1,229	1,108	693	10	(800)
Funding ratio	0.71	0.63	0.44	0.23	0.00	

* Income for 2005 is lower than NHIL and SSNIT contributions as all funds were not released to the NHIF. Including 2004, it is estimated that about 700 billion cedis are currently due to the NHIF.

Chart 1 presents the development of income, expenditure and their difference, i.e. the balance. In 2010, the deficit represents about 30 per cent of income.

Chart 1. **Development of income, expenditure and balance, scenario 1, 2005–2010, billion cedis**



Scenario 2

The development of the income and expenditure of the NHIF until 2010 under scenario 2 is presented in Table 5. It should be kept in mind that the only difference with scenario 1 concerns the different coverage. Income from the NHIL and SSNIT contributions are identical to scenario 1; only income from investment differs. On the expenditure side, service providers' support is identical to scenario 1, as are administration costs. Expenditure differs on subsidies, and on financially distressed schemes.

In this scenario, a surplus is maintained until the end of the projection. In 2010, the accumulated fund represents about one year of expenditure.

Table 5. **Development of NHIF income and expenditure under scenario 2 (in billion cedis), 2005–2010**

	2005	2006	2007	2008	2009	2010
Income (*)	984	1,557	1,835	2,134	2,470	2,855
NHIL	1,012	1,182	1,369	1,587	1,829	2,109
SSNIT contribution	263	309	358	415	479	552
Investment income		66	107	132	162	195
Expenditure	155	1,048	1,519	1,759	2,062	2,424
Subsidies	*75*	*410*	*710*	*938*	*1,163*	*1,416*
Indigent		20	52	77	91	106
Children		303	553	734	923	1,139
Elderly		30	36	43	51	59
SSNIT contributors and pensioners		56	69	83	97	113
Service Providers Support	*40*	*250*	*250*	*250*	*250*	*250*
Financially distressed Schemes	*1*	*43*	*296*	*335*	*383*	*456*
Support for exempted members		2	177	179	183	201
Support for paying members		41	119	156	201	255
Total administration	*39*	*345*	*264*	*236*	*266*	*302*
Council secretariat	2	75	86	100	115	133
Administration/Logistics	37	160	87	101	116	134
Secretariat Building		18	9	—	—	—
MIS&ICT		92	82	35	35	35
Surplus/Deficit	829	510	315	376	408	432
Accumulated fund	829	1,339	1,654	2,030	2,438	2,869
Funding ratio	0.79	0.88	0.94	0.98	1.01	

* Income for 2005 is lower than NHIL and SSNIT contributions as all funds were not released to the NHIF. Including 2004, it is estimated that about 700 billion cedis are currently due to the NHIF.

Chart 2 presents the development of income, expenditure and their difference, i.e. the balance under scenario 2. In 2010, the surplus represents about 15 per cent of income.

Chart 2. **Development of income, expenditure and balance, scenario 2, 2005–2010, (in billion cedis)**

5. Conclusions

Results presented in this paper should be interpreted with caution as the NHIF is at an early stage of development. Moreover, a simplified methodology has been used.

It is interesting to note that some of conclusions of the 2004 study are still relevant and we quote:

> "It must be assumed that public health-care expenditure will grow rapidly over the next ten years. Revenues of the public health care delivery system (…) will also increase. This is intended as the National Health Insurance Act sets out to mobilize new resources to the health sector. However, the expected increase in utilization of insured persons will lead to a subsequent increase in overall expenditure that will outpace the growth of resources and hence create a financing gap. The faster the extension of actual insurance coverage the earlier that imbalance could emerge.
>
> However, it seems that with realistic expectations as to the achievable progress of population coverage and a realistic assumption regarding the increase of the utilization of the insured persons there would be a period of around four to five years during which the overall system would remain in surplus. This should provide some breathing space to fine-tune the financing system (…) A critical condition for financial equilibrium during the coming years is that the government will not reduce its financial commitment to the health sector and hence all new sources of revenues (contributions for SSNIT, levy on VAT and contributions of the insured persons) are truly additional resources. Should the government attempt to reduce its commitment to the health sector the deficit will emerge much faster …"

It can also be argued that the NHIS is presently on a fast rather than a slow track. Therefore, if the NHIL brings more resources than was anticipated, it is also likely that utilization of health services and average cost per contact will be higher than expected. The actual level that utilization and coverage will reach will determine the financial situation of the NHIF.

Furthermore, this paper revealed that the expenditure on the financially distressed schemes will represent a significant proportion of total expenditure if subsidies and premiums are not adequately adjusted.

If the implementation of the NHIS is successful, with coverage higher than 50 per cent and a significant increase of overall utilization, the totality of the financial resources of the NHIF will be necessary. In the medium term, higher premiums to the DMHIS, higher formal sector contributions, higher NHIL or a suitable combination of the three will probably be necessary to secure the finances of the NHIF.

Finally, it is recommended that a financial assessment of the NHIF be undertaken at least once a year until the NHIF has reached a more stable stage.