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Republic of Sierra Leone National Health Accounts: Financial Year 2004, 2005 and 2006

Dr Joses Muthuri Kirigia,
World Health Organization, Regional Office for Africa, B.P. 06, Brazzaville, Congo.
Email: kirigiaj@afro.who.int

Michael Amara
Ministry of Health and Sanitation, Freetown, Sierra Leone

Joses Muthuri Kirigia
World Health Organization
Regional Office for Africa
Brazzaville, Congo

Ade T. Renner
WHO Country Office
Freetown, Sierra Leone

Eyob Zere
World Health Organization
Regional Office for Africa
Brazzaville, Congo

Magnus Gborie
Ministry of Health and Sanitation, Freetown, Sierra Leone

Juliet Nabyonga
WHO Country Office
Kampala, Uganda

Edward Magbity
Ministry of Health and Sanitation, Freetown, Sierra Leone

Dante Bendu
Ministry of Health and Sanitation, Freetown, Sierra Leone

Sarah Fox
Ministry of Health and Sanitation, Freetown, Sierra Leone

Clifford Kamara
Ministry of Health and Sanitation, Freetown, Sierra Leone

Festus Amara
Ministry of Health and Sanitation, Freetown, Sierra Leone

Abstract
Objectives: (i) To estimate the total health expenditure from various sources; (ii) to determine total health expenditure by various financing agents; (iii) to track the flow of health funds from financing agents to various providers; (iv) to examine the distribution of funds from providers to various public health functions.

Data sources: Data were collected from both secondary and primary sources. The primary data were collected using seven specially NHA designed survey questionnaires for donors, government ministries, local councils, private employers, health

service providers, insurance companies, parastatals and NGOs. The household health expenditure data were obtained from the national population census of 2004.

Study selections: The NHA questionnaires were administered to were administered to a total of 177 Agencies/Institutions, comprising: 16 Donors, 11 Ministries, 19 Local Councils, 36 Private Employers, 55 Providers, 1 Insurance Company, 20 Parastatals and 36 NGOs. No information was collected on Traditional Healers, drug stores and other clinics that are not legally registered with the Ministry of Health and Sanitation.

Data synthesis: The total health expenditure (THE) was approximately Le 815,911,166,288 in 2004; Le 966,849,360,080 in 2005; and Le 968,441,819,608 in 2006. The per capita total health expenditure was Le163,941 in 2004, Le189,783 in 2005 and Le185,636 in 2006. The households, through direct out-of-pocket payments to health care providers, contributed 67.13% in 2004, 64.08% in 2005 and 69.25% in 2006 to the total health expenditure. During the three years between 17.76% (year 2004) and 10.97% (year 2006) of the total health funding came from donors (international health development partners). The Government of Sierra Leone contribution grew from 15% in 2004 to 19% of the total health expenditure in 2006.

Conclusion: There is need to institutionalise NHA to ensure that it can be conducted on a regular and sustained basis. In the process of institutionalizing NHA, it will be necessary: (i) to reinforce the institutional and human capacities of the unit responsible for undertaking NHA; (ii) to explore the feasibility of integrating NHA data collection within the national health information management systems; (iii) to include questions on household out-pocket payments for health care in the national household survey data collection instruments routinely carried out by the Statistics Sierra Leone (SSL); and (iv) to continually involve SSL in NHA activities.

1. Introduction

The Republic of Sierra Leone is located on the West coast of Africa and covers an area of 72000 square kilometers. It is bordered by Guinea to the north and northwest and by Liberia on the East and South East (UNDP 1995; Government of Sierra Leone 2004a).

Sierra Leone is one of the 15 Economic Community of West African States (ECOWAS). In 2004 the ECOWAS had a total population of 254.5 million people (WHO 2006). The total population of Sierra Leone was 4.98 million (Government of Sierra Leone 2004a), i.e. 1.96% of the ECOWAS population. The population aged 60 years and above decreased from 5.6% in 1994 to 5.5% in 2004. The population density was 69 persons per square kilometre. Sierra Leone had an annual population growth rate of 2.6%, which was equal to that of Benin and Togo. The total fertility rate (TFR) was 6.1 in 2004, which was higher than the average ECOWAS TFR of 5.7. Sierra Leone's dependency ratio increased from 83 to 86 per 100 persons; which was lower than the average for ECOWAS of 96 per 100 (WHO 2006).

Sierra Leone had an adult literacy rate of 35.1%, which was lower than the average ECOWAS adult literacy rate of 42% (UNDP 2006). In 2004 the country had second lowest Human Development Index (HDI), after Niger (HDI=0.311). Sierra Leone's HDI of 0.335 was lower than the average HDI for ECOWAS of 0.436 and the global average HDI for low human development countries was 0.427 (UNDP 2006).

The real gross domestic product for Sierra Leone in 1980 was $754 million. By 2004 it had increased to $908 million. Between 2000 and 2004 the country experienced a constant real GDP growth rate of 11.2%; which was mainly attributed to growth in the industry (13.1% between 2000-2004) and service (14.1% between 2000-2004) sectors' value added. Over the same period the agricultural sector experienced a small growth in value added of 1.9% (World Bank 2006).

The real GDP per capita decreased from US$233 in 1980 to $170 in 2004 (World Bank 2006). The real GDP per capita for Sierra Leone was higher than those of Guinea-Bissau, Liberia and Niger. However, per capita GDP being an average measure hides the inequalities in GDP distribution among the population. Between 1989 and 2004 the Gini Coefficient for Sierra Leone decreased from 0.629 to 0.390; which means that income inequalities have decreased over time (Government of Sierra Leone 2004b).

According to the 2004 population census the average life expectancy for Sierra Leone now stands at 48.4 years (Government of Sierra Leone 2004a). The adult mortality rate for Sierra Leone was 538 per 1000, was higher than that of all the other ECOWAS countries, except for Cote d'Ivoire. The average adult mortality rate for ECOWAS was 410 per 1000 and the median was 441 per 1000. The reported maternal mortality ratio (MMR) for Sierra Leone of 1800 per 100000 live births was the highest among the ECOWAS countries. It was far much higher than the average MMR for ECOWAS of 905/100000 (and median of 800/100000) (World Health Organization 2005).

In order to improve abovementioned health indicators, the Ministry of Health and Sanitation (MOHS) plans to develop a comprehensive health sector strategic plan (HSSP) geared at boosting national health systems performance, by reinforcing its six building blocks of leadership and governance; service delivery; health workforce; information; medical products, vaccines and technologies; and financing (World Health Organization 2007). The development of HSSP ought to be based on exhaustive analysis of the current and expected levels of public, private and external health system financing. Unfortunately, prior to the study reported in this paper, there was a dearth of the health financing envelop in Sierra Leone.

Therefore, the overall objective of undertaking NHA was to establish the amount, sources and uses of funds in the public and private health sectors in Sierra Leone for fiscal years 2004 to 2006. The specific objectives were to: (i) to estimate the total health expenditure from various sources; (ii) to determine total health expenditure by various financing agents; (iii) to track the flow of health funds from financing agents to various providers; (iv) to examine the distribution of funds from providers to various public health functions.

2. Materials and Methods

2.1 An overview of Sierra Leonean health System

In this subsection we review briefly the Sierra Leonean national health system building blocks of leadership and governance (stewardship); health services provision; health workforce; medicines, vaccines and technologies; and health financing. A health system includes all health promotion, disease prevention, treatment, rehabilitation, community and home-based activities whose primary purpose is to promote, restore or maintain individual's physical, mental and social well-being (World Health Organization 2007).

2.1.1 Leadership and Governance

In order to exercise its stewardship role, the Government of the Republic of Sierra Leone developed a broad based national health policy (Government of Sierra Leone 2002) in 1993 and revised it in 2002. The health sector planning follows the government planning cycle, and is based on the medium term expenditure framework (MTEF). There is a MOHS three–year medium term rolling plan and budget (Government of Sierra Leone 2004c) which covered both government and the major donor funding spanning from 2006 to 2008.

2.1.2 Health Services Provision

Table 1 indicates that as of September 2006 Sierra Leone had a total of 927 health facilities. Forty-five of those facilities were hospitals, i.e. 69% owned by government, 24% owned by faith-based missions, and 7% owned by private-for-profit entities. About 47% of the total health facilities are maternal and child health Aid posts. The referral system between peripheral health units (PHUs) and the secondary and tertiary health care levels is weak.

District	Bo	Bombali	Bonthe	Kailahun	Kambia	Kenema	Koinadugu	Kono	Moyamba	Port Loko	Pujehun	Tonkolili	Western Area	Total
CHC	22	16	8	12	11	21	11	10	12	11	13	8	20	**175**
CHP	12	18	7	30	8	17	4	15	6	21	9	9	10	**166**
Community Hospital	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
Govt. Clinc	0	0	0	0	0	0	0	0	0	0	0	0	3	**3**
Govt. Clinic	1	0	0	0	0	0	0	0	1	0	0	0	4	**6**
Govt. Hospital	1	2	1	2	1	2	0	1	2	2	1	1	14	**30**
Ind. Clinic	0	0	1	0	0	0	0	0	0	0	0	0	1	**2**
Indust. Hospital	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
MCHP	36	46	16	11	19	44	27	37	56	55	25	52	15	**439**
Mission Clinic	6	3	2	0	2	2	0	1	5	4	0	1	11	**37**
Mission Hospital	1	3	1	0	0	1	0	0	0	1	0	2	2	**11**
NGO Clinic	4	0	2	0	1	1	0	1	1	0	0	1	3	**14**
Priv. Clinic	5	3	0	0	0	3	0	4	0	1	0	0	23	**39**
Priv. Hospital	1	0	0	0	0	0	0	0	0	0	0	0	2	**2**
Total	**89**	**92**	**38**	**56**	**42**	**91**	**42**	**69**	**83**	**95**	**48**	**74**	**108**	**927**

Table 1: Summary of health facilities as of September 2006

Source: *Government of Sierra Leone 2004c*.

The management of the health system is organized in a three-tier system: central, district and community levels:

- Central level: The central level is responsible for development of health policy, strategic plans and formulation of guidelines. It is responsible for resource mobilization; supervision, monitoring and evaluation of health services.

- District level: There are 14 health districts in the country. The District Health Management Team (DHMT), under the leadership of the District Medical Officer (DMO) is responsible for the planning, organization, management, implementation, monitoring and supervision of health programmes in the district. All primary health care activities have been devolved to district councils which came into operation in 2004. DHMTs access funds through the district councils to implement health delivery services. The district hospitals are managed by hospitals boards established by a Hospital Boards Act in 2003. In each district hospital is a Hospital Management Committee headed by the either the Medical Superintendent in the case of Regional/provincial hospital or by the Medical Officer- in -Charge in the case of a district hospital. As at now, district councils have no grip on hospitals in their districts.

- Community level: At the community level, peripheral health units such as MCH Aide posts, Community Health posts and Community Health Centres are responsible for the delivery of primary health care in those communities. The Community Health Centres are headed by Community Health Officers, who also supervise all health activities at the MCH Aide posts and Community health posts.

2.1.3 Health Workforce

Table 2 presents a distribution of health workers in ECOWAS countries in 2004. ECOWAS had a total contingent of the following human resources for health: 45426 physicians, 276559 nurses, 3014 midwives, 3653 dentists, 10727 pharmacists, 2348 public and environmental health workers, 125891 community health workers, 5700 laboratory technicians, 11981 Other health workers, and 29464 Health management and support workers (*3*). Out of those total human resources, 168 (0.37%) physicians, 1841 (0.67%) nurses, 5 (0.14%) dentists, 34 (0.32%) pharmacists, 136 (5.79%) public and environmental health workers, 1227 community health workers (0.97%), and 4 (0.014%) health management and support workers were in the Republic of Sierra Leone (WHO 2006).

Table 2: Distribution of health workers in ECOWAS countries in 2004

	Physicians		Nurses		Midwives		Dentists		Pharmacists	
Country	**Number**	**Density per 1000**	**Number**	**Density per 1000**	**Number**	**Density per 1000**	**Number**	**Density per 1000**	**Number**	**Density per 1000**
Benin	311	0.04	5789	0.84			12	0.00	11	0.00
Burkina Faso	789	0.06	5518	0.41	1732	0.13	58	0.00	343	0.03
Cape Verde	231	0.49	410	0.87			11	0.02	43	0.09
Côte d'Ivoire	2081	0.12	10180	0.60			339	0.02	1015	0.06
Gambia	156	0.11	1719	1.21	162	0.11	43	0.03	48	0.03
Ghana	3240	0.15	19707	0.92			393	0.02	1388	0.06
Guinea	987	0.11	4757	0.55	64	0.01	60	0.01	530	0.06
Guinea-Bissau	188	0.12	1037	0.67	35	0.02	22	0.01	40	0.03
Liberia	103	0.03	613	0.18	422	0.12	13	0.00	35	0.01
Mali	1053	0.08	6538	0.49	573	0.04	84	0.01	351	0.03
Niger	377	0.03	2716	0.22	21	0.00	15	0.00	20	0.00
Nigeria	34923	0.28	210306	1.70			2482	0.02	6344	0.05
Senegal	594	0.06	3287	0.32			97	0.01	85	0.01
Sierra Leone	168	0.03	1841	0.36			5	0.00	340	0.07
Togo	225	0.04	2141	0.43	5	0.00	19	0.00	134	0.03

SOURCE: *WHO 2006*.

Table 2: Continued

Country	Public and environmental health workers		Community health workers		Lab technicians		Other health workers		Health management and support workers	
	Number	Density per 1000	Number	Density per 1000	Number	Density per 1000	Number	Density per 1000	Number	Density per 1000
Benin	178	0.03	88	0.01	477	0.07	128	0.02	3281	0.47
Burkina Faso	46	0.00	1291	0.10	424	0.03	975	0.07	325	0.02
Cape Verde	9	0.02	65	0.14	78	0.16	42	0.09	74	0.16
Côte d'Ivoire	155	0.01			1165	0.07	172	0.01	2107	0.12
Gambia	33	0.02	968	0.68	99	0.07	3	0.00	391	0.27
Ghana					899	0.04	7132	0.33	19151	0.90
Guinea	135	0.02	93	0.01	268	0.03	17	0.00	511	0.06
Guinea-Bissau	13	0.01	4486	2.92	230	0.15	61	0.04	38	0.02
Liberia	150	0.04	142	0.04	218	0.06	540	0.15	518	0.15
Mali	231	0.02	1295	0.10	264	0.02	377	0.03	652	0.05
Niger	268	0.02			294	0.02	213	0.02	513	0.04
Nigeria			115761	0.91	690	0.01	1220	0.01		
Senegal	705	0.07			66	0.01	704	0.07	564	0.05
Sierra Leone	136	0.03	1227	0.24					4	0.00
Togo	289	0.06	475	0.09	528	0.11	397	0.08	1335	0.27

2.1.4 Medicines and Health Technologies

The Directorate of Drugs and Medical Supplies (DDMS) is responsible for the implementation and monitoring of the National Drug Policy. The Central Medical Stores, under the DDMS is responsible for medicines supply management for the public sector. The District Medical Stores and Hospital Pharmacies are responsible for the storage and distribution in the Peripheral Health Units and Hospitals, respectively. The latter manage the medicines revolving fund. Availability and accessibility of medicines continue to be a challenge. Those challenges have been exacerbated by inappropriate use of medicines due to shortages of pharmacy professionals. The situation has been compounded by absence of a National Essential Medicines List, Treatment Guidelines and National Formulary. The Government has been providing an average of ten Billion Leones of its annual budget for the procurement of medicines and medical supplies for the public sector (Government of Sierra Leone 2004d).

2.1.5 Health Financing

In the Republic of Sierra Leone, there are various sources of health sector funding. (i) Government tax revenue, allocated by the Ministry of Finance to various financing agents, e.g. Ministries of Health and Sanitation, Education Science and Technology, Defence, Local Government (including District Councils) and Foreign Affairs, and National Aids Secretariat. (ii) The households contribute to health funding through direct out-of-pocket payments (OOPs) for health goods and services. The OOPs do not go through any resource pooling and risk-sharing mechanism; and thus, exposes people to potentially catastrophic and impoverishing medical costs. (iii) Some employers provide medical cover for their employees, either through self-operated health clinics or paying premiums into health insurance schemes. (iv) The international donors (e.g. bilateral and multi-lateral agencies, Global Fund for AIDS, Tuberculosis and Malaria, GAVI) and international philanthropic organizations (including religious bodies) also contribute to health funding in the country.

The mainstay of the capital investment and logistics budget is therefore from donors and major international NGOs which are estimated to account for about 70-80% of this component of the budget. The main donors are World Bank, European Union, African Development Bank, Islamic Development Bank, USAID, DFID and the UN agencies. As at December 2005, 31 national and 33 international NGOs were registered with the health sector. The funding for NGOs comes mainly from international initiatives, e.g. GFATM, GAVI.

Funds to run the District health services comes mainly from central government (for Secondary and Tertiary Hospitals) and from local councils for PHU activities. Funds are also available for PHC through UN, bilateral and other agencies.

Most of the donor funding is targeted at either specific programmes or selected districts. The World Bank is supporting the strengthening of health systems through rehabilitation of health facility buildings and provision of equipment and logistics in four districts. The European Union is also supporting three districts whereas the African development Bank and Islamic Development Banks are funding the rehabilitation of three major hospitals in the capital. The UN agencies and bilateral organizations such as USAID support capacity building and the provision of services. The funding is either channelled through the MOHS to specific programmes, through NGOs or directly to specific districts.

It is estimated that private expenditure in health is 41% of total expenditure in 2004. This is very significant given the fact that over 70% of the population live below the poverty line. The Bamako Initiative of late 1980s and early 1990s which was aimed an increasing private contribution to health care financing was disrupted by the war.

2.2 NHA Conceptual Framework

In the current study, it was possible to obtain expenditure data disaggregated by financing sources, agents, providers, functions and beneficiaries. Thus, the data collected was adequate to complete only the following four NHA tables (WHO 2003):

(a) ***Health expenditure by financing source and type of financing agent (FS x FA):*** This table highlights resource mobilization patterns in the health system. It addresses the question "where does the money come from" by showing the financing sources that contribute to each financing agent. In Sierra Leone the financing agents include: Ministry of Health and Sanitation (MoHS), Ministry of Education Science and Technology (MoEST), Ministry of Defence (MoD), Ministry of Development and Economic Planning (MoDEP), Ministry of Foreign Affairs (MoFA), Ministry of Local Government (including district councils) (MoLG), National Aids Secretariat (NAS), Parastatals, private insurance, households, NGOs, and private firms. The sum of the funds channelled through all the financing agents should be equal to the total amount of money provided by the financing sources.

(b) ***Health expenditure by the type of financing agent and type of provider (FA x P):*** This table describes how funds are distributed across different types of providers, e.g., government hospitals (tertiary and district), faith-based organization hospitals, NGO hospitals, private-for-profit hospitals, Government Health Centres, FBO health centres, NGO health centres, private for profit health centres/clinics, pharmacies, opticians, pharmaceutical companies, administration of public health, provision of public health services, other (private insurance), all other providers of health administration, insurance firms, research institutions, education and training institutions, NGO health related activities, and rest of the world. Ideally, the sum of the funds received by all the providers should be equal to the total amount of money provided by the financing agents.

(c) ***Health expenditure by provider and type of function (P x F):*** This table shows how expenditures on different health functions are channelled through the various types of providers. It provides useful perspective on the contribution of different types of providers to the total spending on specific types of services, e.g. public health programmes vis-à-vis secondary and tertiary curative care.

(d) ***Health expenditure by type of financing agent and type of function (FA x F):*** This table shows who finances what types of services in the health system. It can also highlight the relative emphasis of public and private financing agents with respect to the various public health functions.

2.2.1 Data Collection and Sources

The current NHA study looks at the health expenditure from 1st of January 2004 to 31st December 2006. The expenditures were calculated using the accrual method. Expenditures refer to the actual amount of money spent and not the budgeted amount. The amount refers to expenditures attributed to the time period during which the activity took place or input was acquired, on an accrual basis. For example, if a piece of medical equipment was acquired in 2005, but was paid for in 2006, it should be recorded as expenditure for the fiscal year 2005.

This NHA study involved compilation of data from both secondary and primary sources. Some of the secondary data sources included: 2004, 2005 and 2006 Service Vote Ledger of the MoHS; The HSRDP Cash Book for 2004- 2006; MoHS Health Information System database; Project reports for TB/Leprosy Programme; Data on public, private clinics and hospitals from DPI; and data on household expenditure on health in Sierra Leone 2003/04 (MICS).

Primary data were collected using NHA questionnaires adapted from the standard NHA questionnaires. Seven types of questionnaires were developed, viz: MOHS, government institutions and other line ministries; local council questionnaire; employers' questionnaire; NGO/FBO survey questionnaire; donor survey questionnaire; health insurance survey questionnaire; and provider survey questionnaire.

The Questionnaire adaptation was done at a 5-day residential workshop attended by all members of NHA Task Force. The questionnaires were later revised on the basis of feedback from a one week pre-testing exercise conducted in the Western Area by the NHA enumerators.

The sampling frame for all the seven types of respondent Agencies to which the questionnaire was to be administered was developed. For insurance, Providers (Public Sector), local councils, Parastatals, Donors and NGOs, where sample sizes were comparatively small, a complete coverage of all institutions was attempted.

The survey questionnaire was administered to a total of 177 Agencies/Institutions, comprising: 16 Donors, 11 Ministries, 19 Local Councils, 36 Private Employers, 55 Providers, 1 Insurance Company, 20 Parastatals and 36 NGOs. No information was collected on Traditional Healers, drug stores and other clinics that are not legally registered with the Ministry of Health and Sanitation.

In the collection of the data, a total of 46 enumerators were deployed with the supervision of members of the Sierra Leone National Health Accounts (NHA) Task Force. The Task Force Members were from the MOHS, Ministry of Finance, Statistics Sierra Leone, WHO, *Fourah* Bay College, *Njala* University and DFID. Enumerators were mainly accounting students from the Universities and Monitoring and Evaluation Officers of the Ministry of Health and Sanitation.

Enumerators (research assistants) filled out the questionnaires covering government ministries, local councils, employers, insurance companies and health providers, while the NGO and donor questionnaires were filled mainly by the organizations themselves with the enumerators and supervisors providing clarifications when needed.

For each institution that was part of the survey, the survey coordinator sent the relevant questionnaire to the head of agency, with a letter explaining the purpose of the survey. Research Assistants were assigned to each institution in which data was collected. During these follow-up visits the Research Assistants provided further guidance on the completion of the questionnaire to the respondent and in most cases even helped to complete the questionnaires.

Out-of-pocket spending was estimated from data collected by Statistics Sierra Leone in the 2003 household expenditure tracing survey. This was analyzed and extrapolated for 2004, 2005 and 2006.

After checking for completeness of the questionnaires filled by various organizations, the data were entered, cleaned and preliminary analysis done using Excel software. This data was then entered into dummy matrix tables and analyzed using Excel software.

2.2.2 Limitations of the NHA study

The following are some of the main limitations of the 2007 NHA study:

- The questionnaires used for data collection did not adequately categorize expenditure into specific functions (e.g. outpatient curative care, outpatient preventative care) which meant that tables FA x F and P x F could not be populated and analyzed as originally intended.
- The data collection period overlapped with the second round run-off presidential elections in Sierra Leone. As a result of tensions and political activism, research assistants were often faced with closed offices and missing or distracted personnel.
- Disaggregation of Government expenditure on health into Primary, Secondary and Tertiary Health care, was made difficult by the fact that information on salaries and allowances for health care personnel was available but not in this disaggregated form.
- Since there is currently no accurate information available on the number of private companies in operation in Sierra Leone, the number of companies that re-registered with the office of the Administrator and Registrar General in 2007 was used as an estimate for the three years.
- Due to oversight in the sampling phase, no information was collected on private clinics, though private hospitals were included.

- Information on household expenditure on health was taken from the Sierra Leone Integrated Household Survey (SLIHS) which was conducted between April 2003 and November 2004. Since no household expenditure data was available for 2005 and 2006, it was assumed that expenditure patterns did not change significantly, and after adjusting for inflation in each year the SLIHS data was considered a reasonable approximation.

3. Results

3.1 Health Financing by Sources

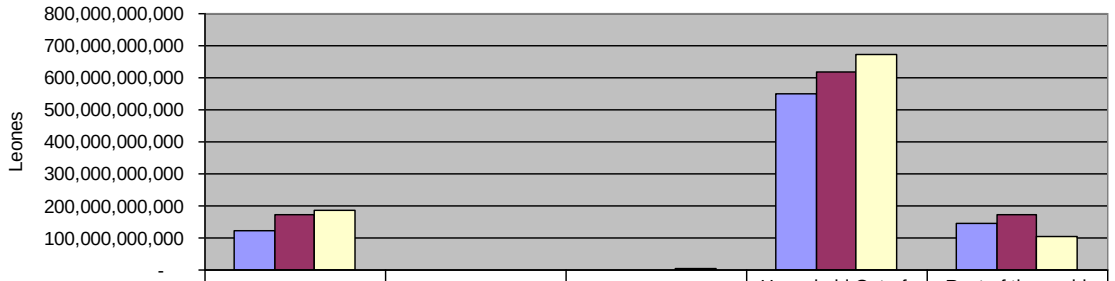
3.1.1 Total health expenditure and per capita total health expenditure

The total health expenditure (THE) was Leone (Le) 815.9 billion in 2004; Le966.8 billion in 2005; and Le968.4 billion in 2006. The exchange rate of Leone per US Dollar was 2701.3 in 2004; 2889.6 in 2005; and 2961.7 in 2006. Total expenditure on health as a percentage of GDP in the Sierra Leone was 28.58% in 2004, 27.48% in 2005 and 22.85% in 2006.

The per capita THE was derived using census population estimates (4,976,871 in 2004; 5,094,500 in 2005; and 5,216,890 in 2006). That yielded a per capita THE of Le163,941 in year 2004; Le189,783 in year 2005; and Le185,636 in year 2006.

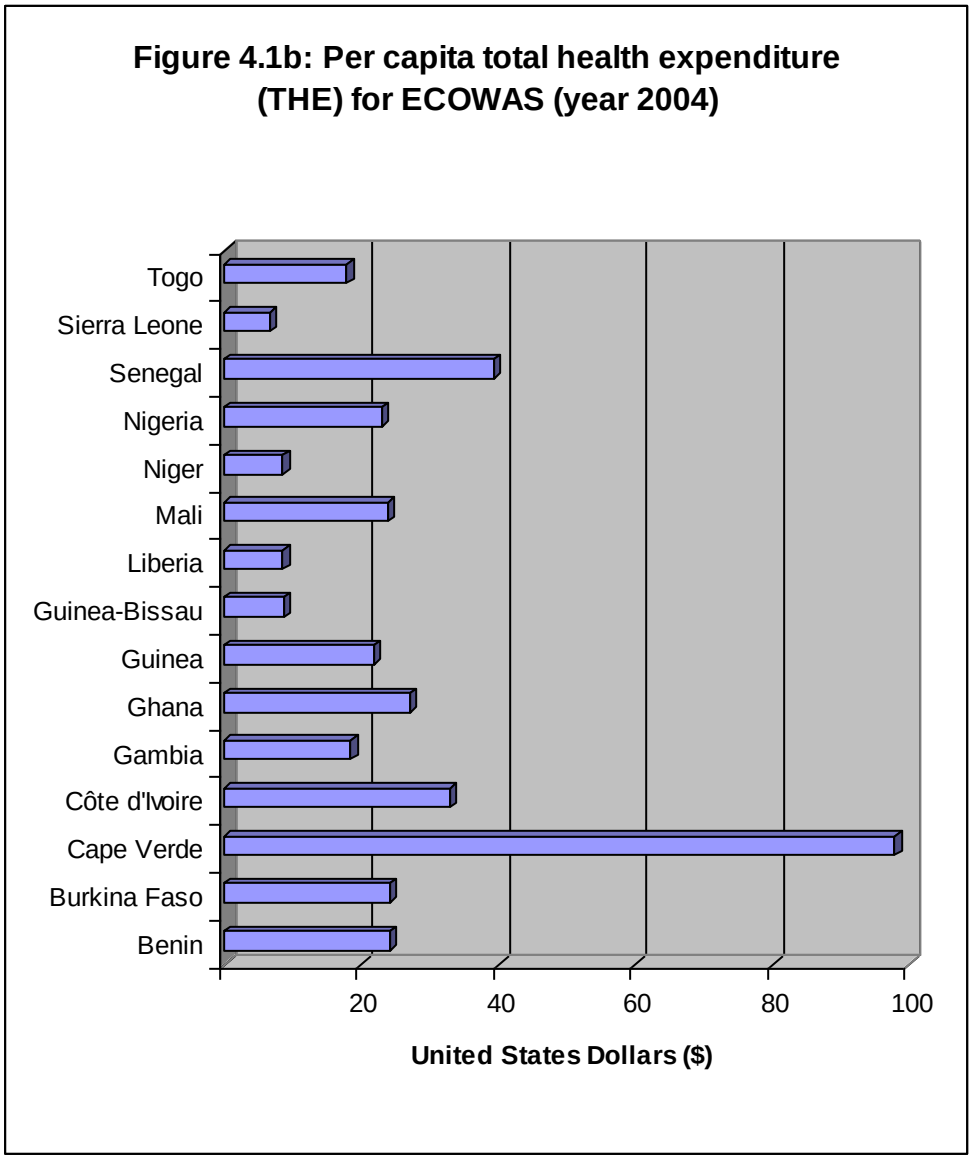
Figure 4.1a displays the total health expenditure (THE) by various sources, including the Ministry of Finance (MOF), parastatal funds, private employer funds, household funds, and the rest of the world (Donors). The figure shows that health funding from both the Government of Sierra Leone (GoSL) and the households has been increasing in a gradual but sustained manner.

Figure 4.1a: Health expenditure in Sierra Leone by Sources



	MoF	Parastatals	Private employer	Household Out-of-Pocket Payments	Rest of the world funds (Donors)
HEXP2004	121,183,128,340	547,760,669	1,478,336,420	547,756,702,361	144,945,238,498
HEXP2005	172,462,700,798	634,818,973	2,026,603,678	619,512,830,371	172,212,406,260
HEXP2006	186,814,651,824	597,292,004	4,104,742,170	670,684,590,159	106,240,543,451

Figure 4.1b shows the per capita THE for the 15 ECOWAS countries. This figure was generated using WHO NHA estimates for 2004 (WHO 2006). According to those estimates the per capita THE for Sierra Leone was the lowest.



3.2 Total health expenditure by source

There are broadly five sources of health financing in the Sierra Leone, namely: government, household out-of-pocket payments (OOPs), parastatals, private employers and donors (rest of the world). This subsection provides a distribution THE by each of those sources.

Figure 4.1C shows a breakdown of heath financing by source in Sierra Leone for year 2004. Out of the THE of Le815.9 billion in 2004, 14.85% came from government (Ministry of Finance), 0.07% from parastatals, 0.18% from private employers, 67.13% from household OOPs, and 17.76% from the rest of the world (donors).

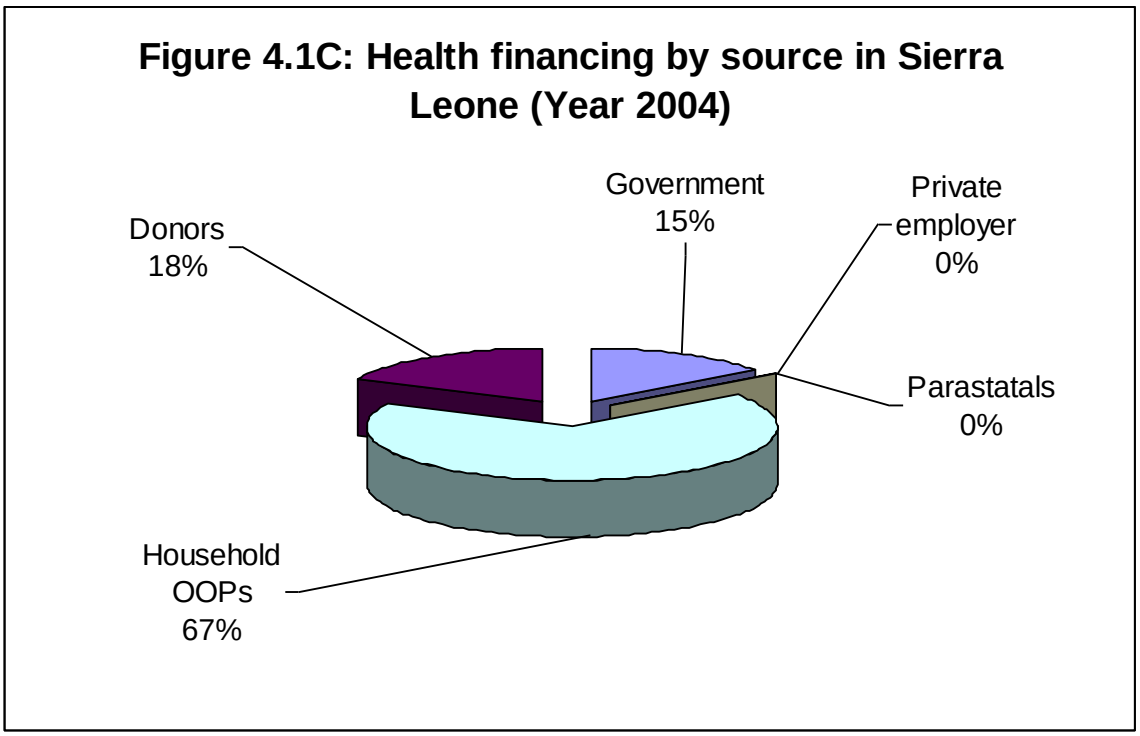


Figure 4.1D below presents an analysis of heath financing by source in Sierra Leone for year 2005. During that year THE was Le966.8 billion, of which 17.84% came from government (Ministry of Finance), 0.07% from parastatals, 0.21% from private employers, 64.08% from household OOPs, and 17.81% from the rest of the world (donors).

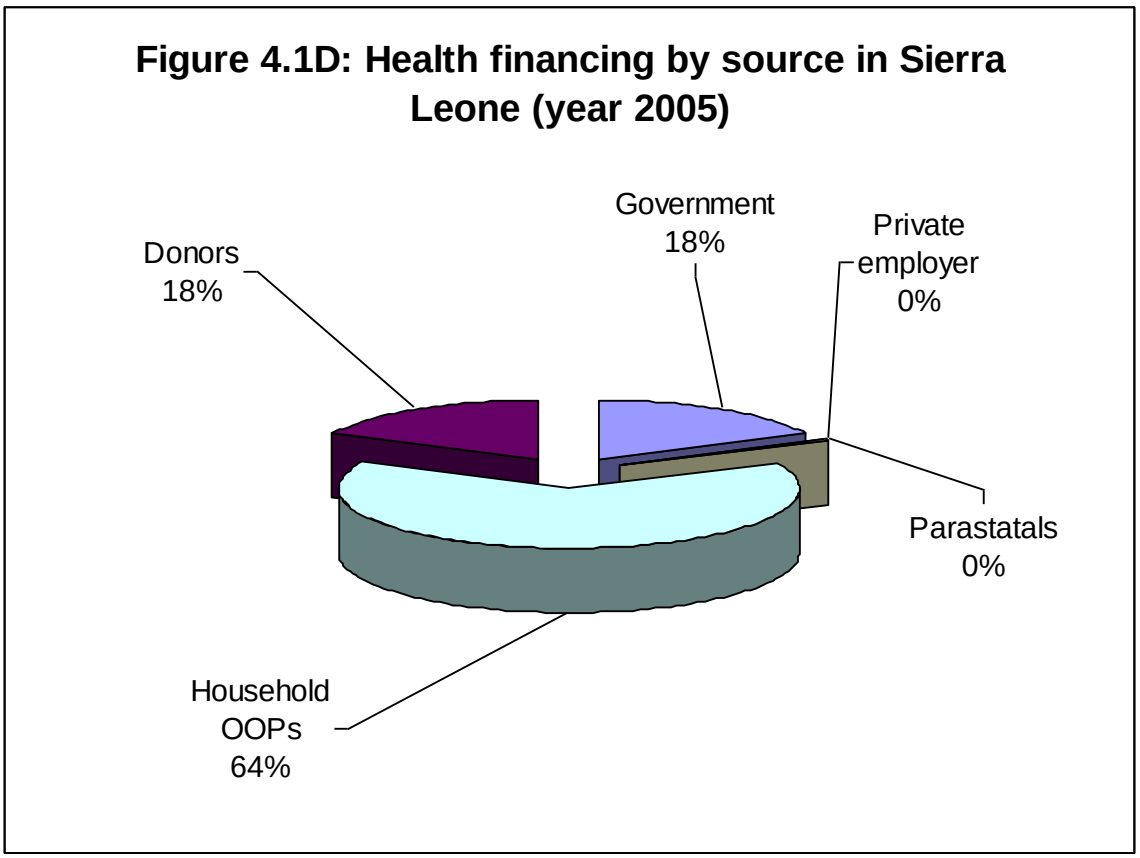
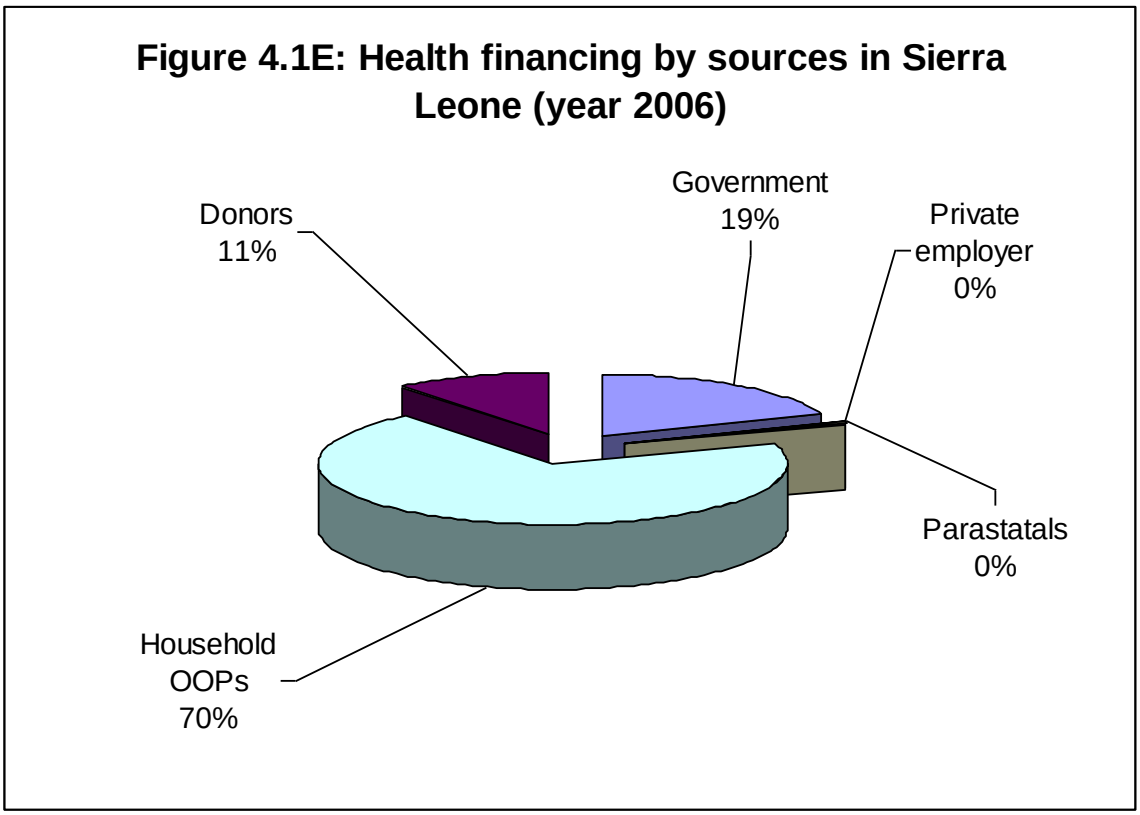


Figure 4.1E below shows itemization of heath financing by sources in Sierra Leone for year 2006. In 2006 THE was Le968.4 billion, of which 19.29% came from government (Ministry of Finance), 0.06% from parastatals, 0.42% from private employers, 69.25% from household OOPs, and 10.97% from the rest of the word (donors).



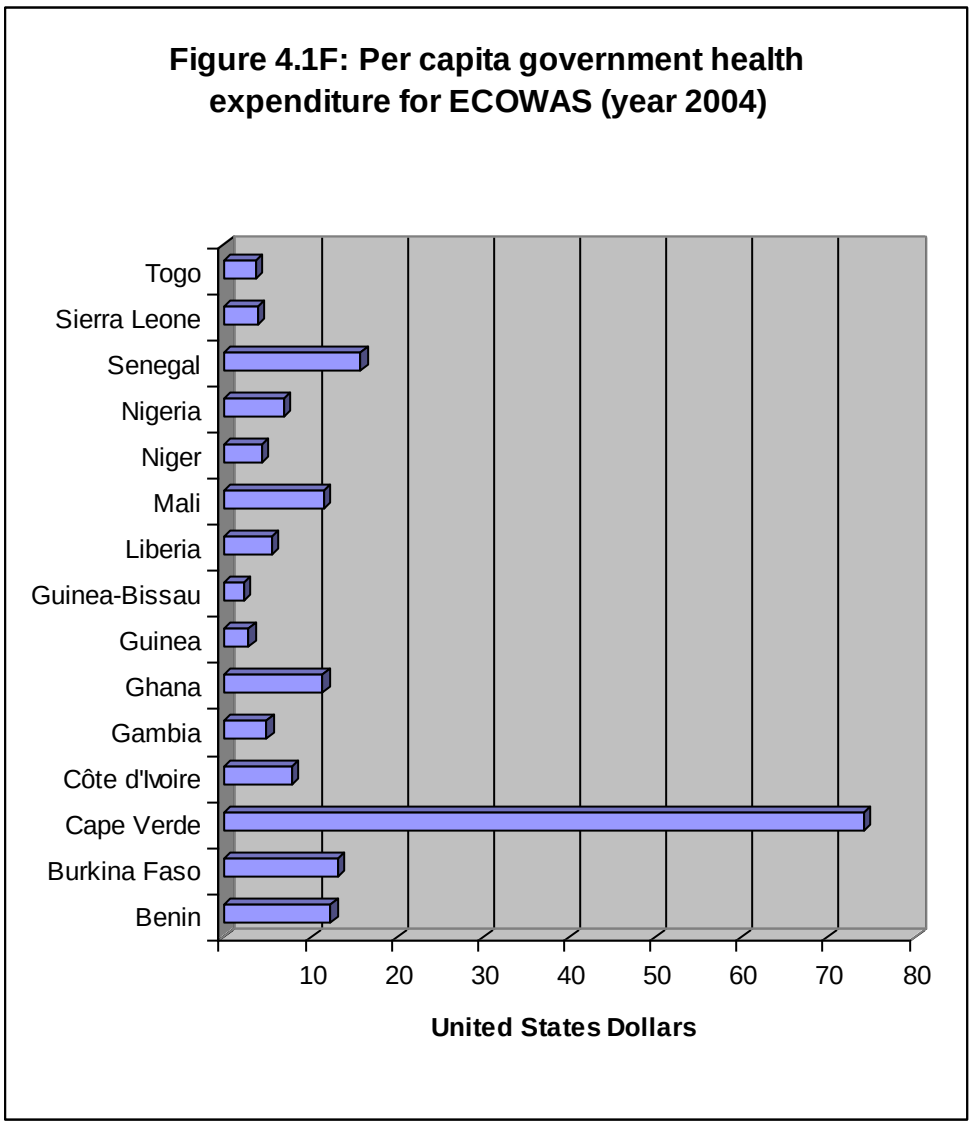
It is clear that majority of health funds came from the households out-of-pocket payments. There is evidence from the above pie charts that the donor funding as a percentage of THE decreased between years 2005 and 2006. On the other hand, the funding from the Government of Sierra Leone grew from about 15% of THE in 2004 to 19% of THE in 2006. The funding from parastatals and private employers remained fairly insignificant.

3.3 Government Health Expenditure on Health (GGHE)

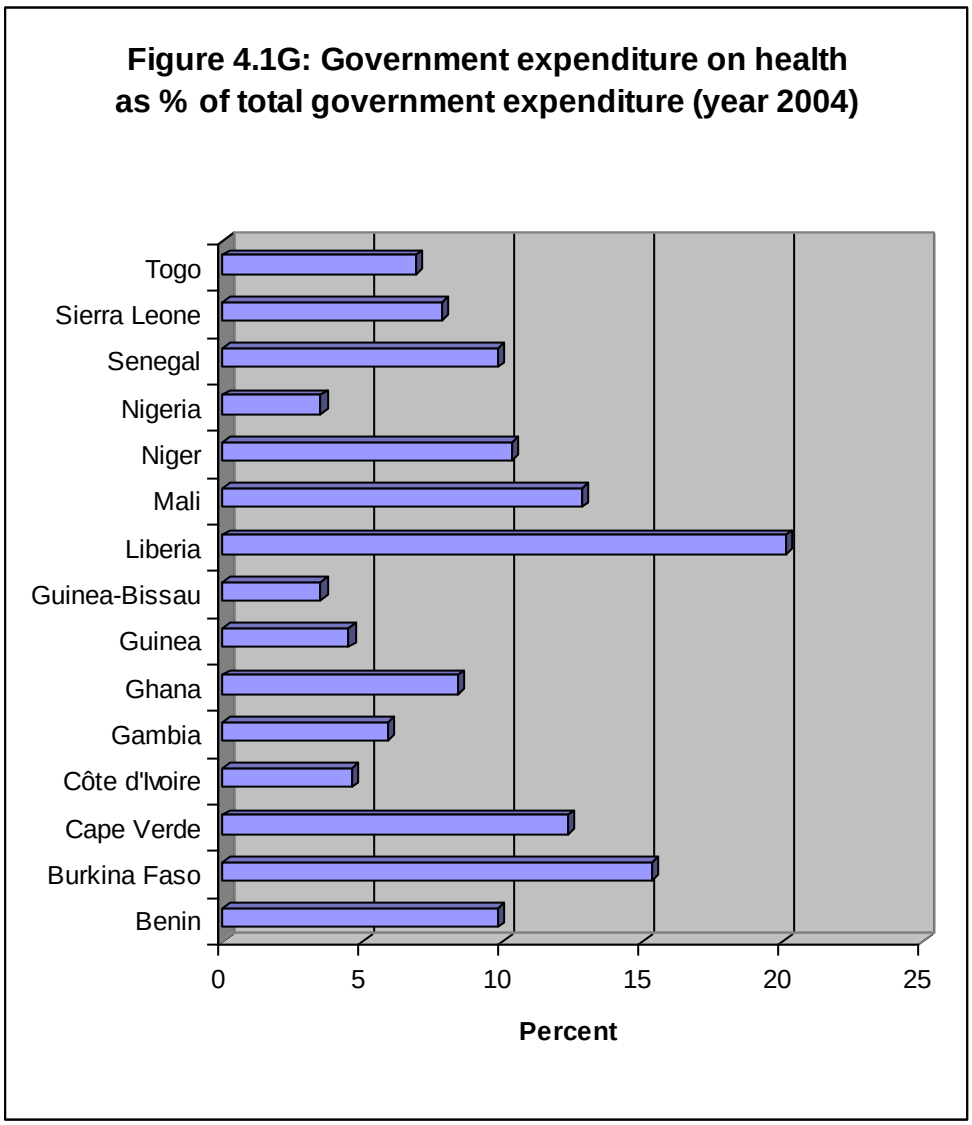
GGHE includes health expenditure at all levels (and ministries) of government, including the expenditure of public corporations. In the Sierra Leone GGHE consists of funding from MOF and parastatals. The total GGHE was Le121.7 billion (14.9% of THE) in year 2004; Le173.1 billion (17.9% of THE) in 2005; and Le187.4 billion (19.4% of THE) in 2006.

During the three years, the majority of GGHE came from MOF and a relatively small amount from parastatals. The per capita GGHE for Sierra Leone was Le24,459 in 2004, Le33,977 in 2005 and Le35,924 in 2006.

Figure 4.1F portrays the per capita government expenditure on health in the ECOWAS for year 2004. The WHO Commission for Macroeconomics and Health (CMH) recommended that governments should spend at least US$34 per person per year on health. During the years under consideration, it was only Cape Verde that met the CMH recommendation. The per capita GGHE was less than US$10 in Cote D'Ivoire, Gambia, Guinea, Guinea-Bissau, Liberia, Niger, Nigeria, Sierra Leone and Togo. According to the current NHA study, the per capita GGHE for Sierra Leone was US$9.05 in 2004, US$11.76 in 2005 and US$12.16 in 2006.

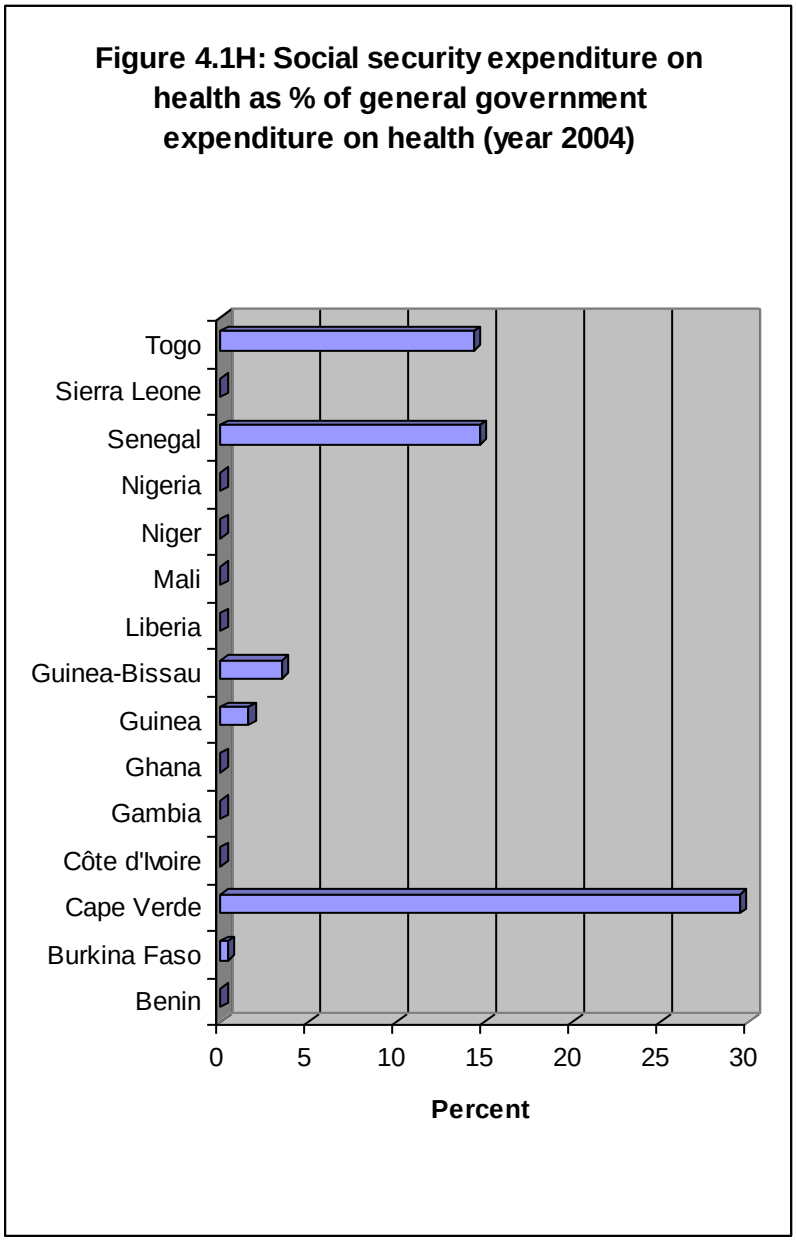


Sierra Leone government expenditure on health as a percentage of total government expenditure was 16% in year 2004, 21% in 2005 and 20% in 2006. Figure 4.1G below shows the GGHE as a percentage of total government expenditure. In the Abuja Declaration, Heads of States and Governments of the African Union set a target of allocating at least 15% of their annual budget to the improvement of the health sector (Organization of African Unity 2001). In 2004 Cote D'Ivoire, Guinea, Guinea-Bissau, and Nigeria spent less than 5% of their total government expenditure on health. According to the World Health Report (WHO 2006) it was only Burkina Faso and Liberia that had met the Heads of State target as at the end of year 2004. The current NHA study indicates that Sierra Leone had met the Abuja target as at the end of 2004.



Social security spending on health: National health accounts guidelines define social security schemes as "social insurance schemes covering the community as a whole or large sections of the community that are imposed and controlled by government units. They generally involve compulsory contributions by employees or employers or both, and the terms on which benefits are paid to recipients are determined by government units. The schemes cover a wide variety of programmes, providing benefits in cash or in kind for old age, invalidity or death, survivors, sickness and maternity, work injury, unemployment, family allowance, health care, etc. There is usually no link between the amount of the contribution paid by an individual and the risk to which that individual is exposed" [p.302] (WHO 2003).

In Benin, Cote D'Ivoire, Ghana, Liberia, Mali, Niger, Nigeria, and Sierra Leone social security did not contribute to the general government expenditure on health. In the remaining six ECOWAS countries social security contributed to health spending. Social security spending on health constituted over 14% of GGEH in Cape Verde, Senegal and Togo.



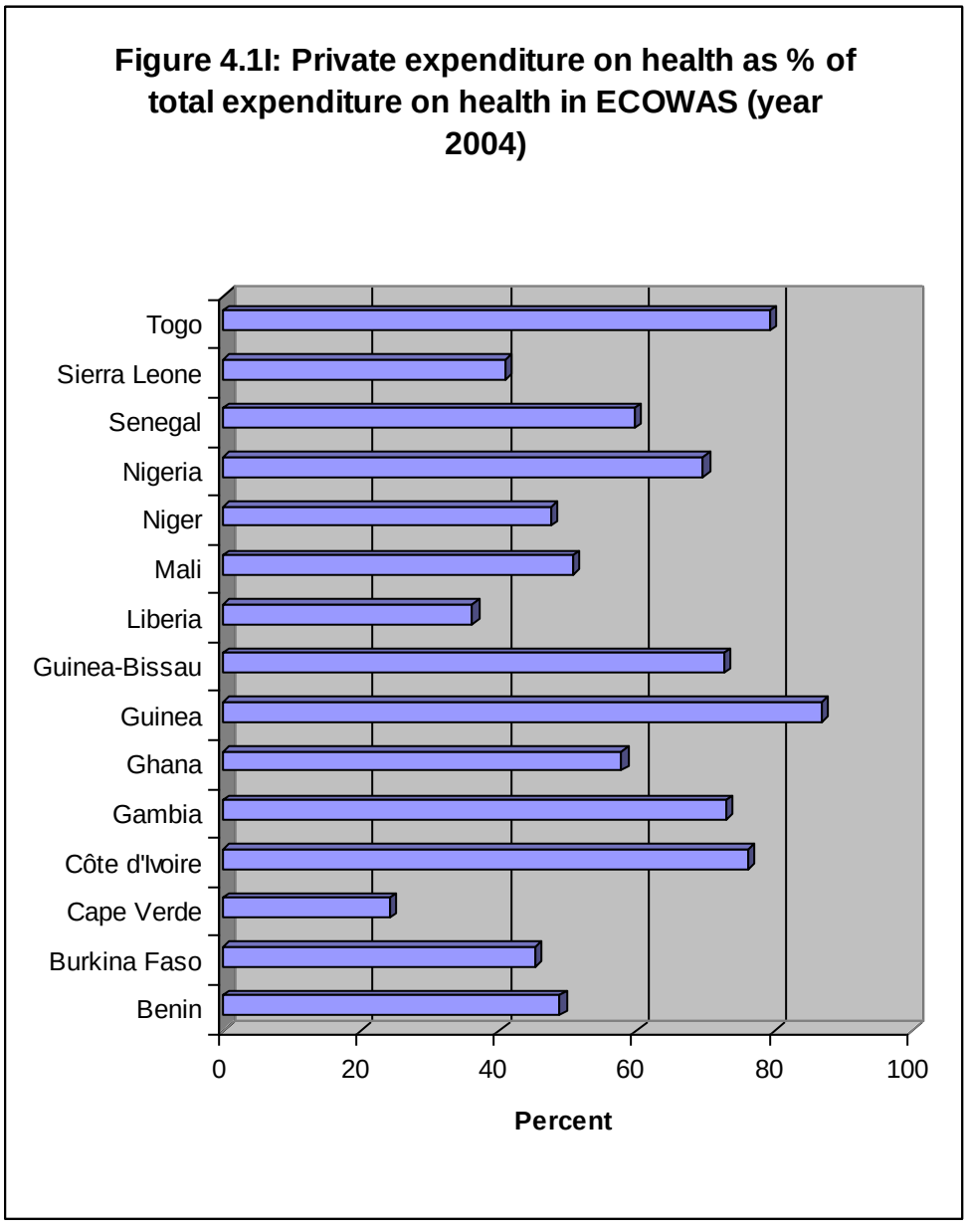
3.4 Private expenditure on health

Private health financing includes spending by private insurance, private households' out-of-pocket payment (Oops), non-profit institutions (other than social insurance), and private firms and employers (WHO 2003). Private financing for health comes from personal out-of-pocket payments made directly to various providers (e.g. public health facilities, private practitioners, private pharmacists, traditional healers), prepayments to private insurance and indirect payments for health services by employers (firms) and local charitable groups.

The total private health expenditure on health in Sierra Leone was Le549.2 billion in year 2004; Le621.5 billion in year 2005; and Le674.8 billion in year 2006. Private spending constituted 67.3% of the THE in 2004, 64.3% in 2005 and 69.7% in 2006. These figures are higher than the estimates contained in the World Health Report 2006 (*3*). Private expenditure on health as a percentage of THE has not changed much over the three years. This

source consists of primarily household out-of-pocket payments and private employer funds. The per capita private health expenditure was Le110,357 in year 2004, Le122,002 in year 2005 and Le129,347 in 2006.

Figure 4.2I shows private spending on health as a percentage of the total expenditure on health for ECOWAS countries. This figure was generated from the NHA estimated contained in the World Heath Report 2006 (WHO 2006). This report shows that the private health spending for Sierra Leone appears to have been under estimated in the World Health Report 2006.

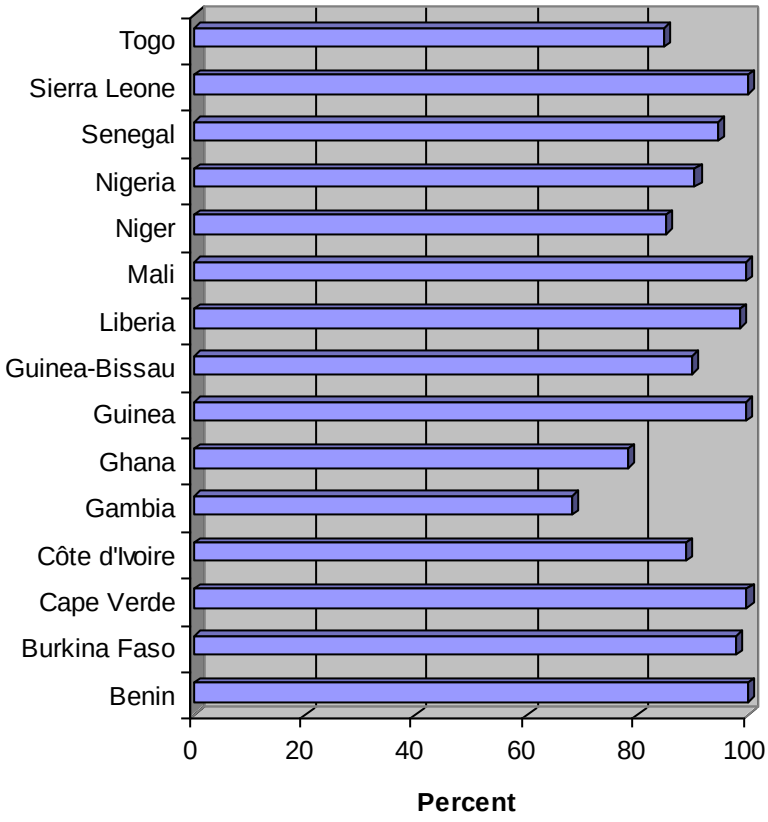


In 2004, out of a total private health expenditure in Sierra Leone of Le 549.2 billion, 99.73% came from household funds and 0.27% from private employers funds. In 2005 the private expenditure on health was Le621.5 billion; 99.67% came from household funds and 0.33% from private employer funds. In 2006 the

private health expenditure on health was Le674.8 billion; 99.39% came from household funds and 0.61% from private employer funds.

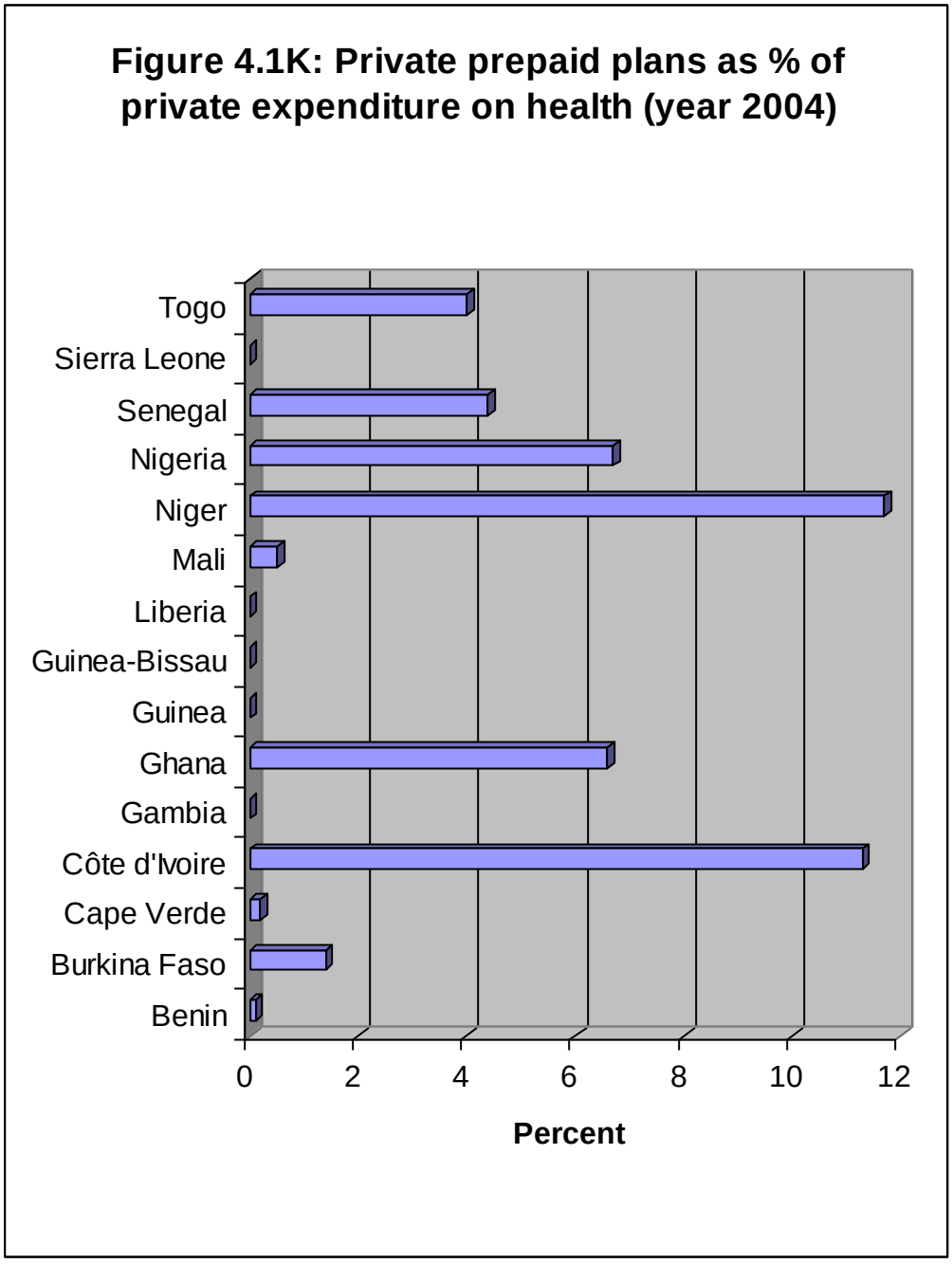
Out-of-pocket payments (OOPs): In 2004 household OOPs constituted 99.73% of the private health expenditure; 99.67% in 2005; and 99.39% in 2006. It is evident that the households, through direct out-of-pocket expenditures at the point of service consumption, make a significant contribution to the private health expenditure in the Sierra Leone. Figure 4.2J shows OOPs on health as a percentage of private expenditure on health for ECOWAS. Except for Gambia and Ghana, household OOPs accounted for over 80% of private expenditure on health in other ECOWAS countries.

Figure 4.1J: Out-of-pocket expenditures as % of private health expenditure (year 2004)



Private prepaid plans: Figure 4.1K presents private prepaid plans (which are voluntary in nature) as a percentage of private expenditure on health. Apparently, the Sierra Leone, Guinea, Guinea-Bissau, Liberia and

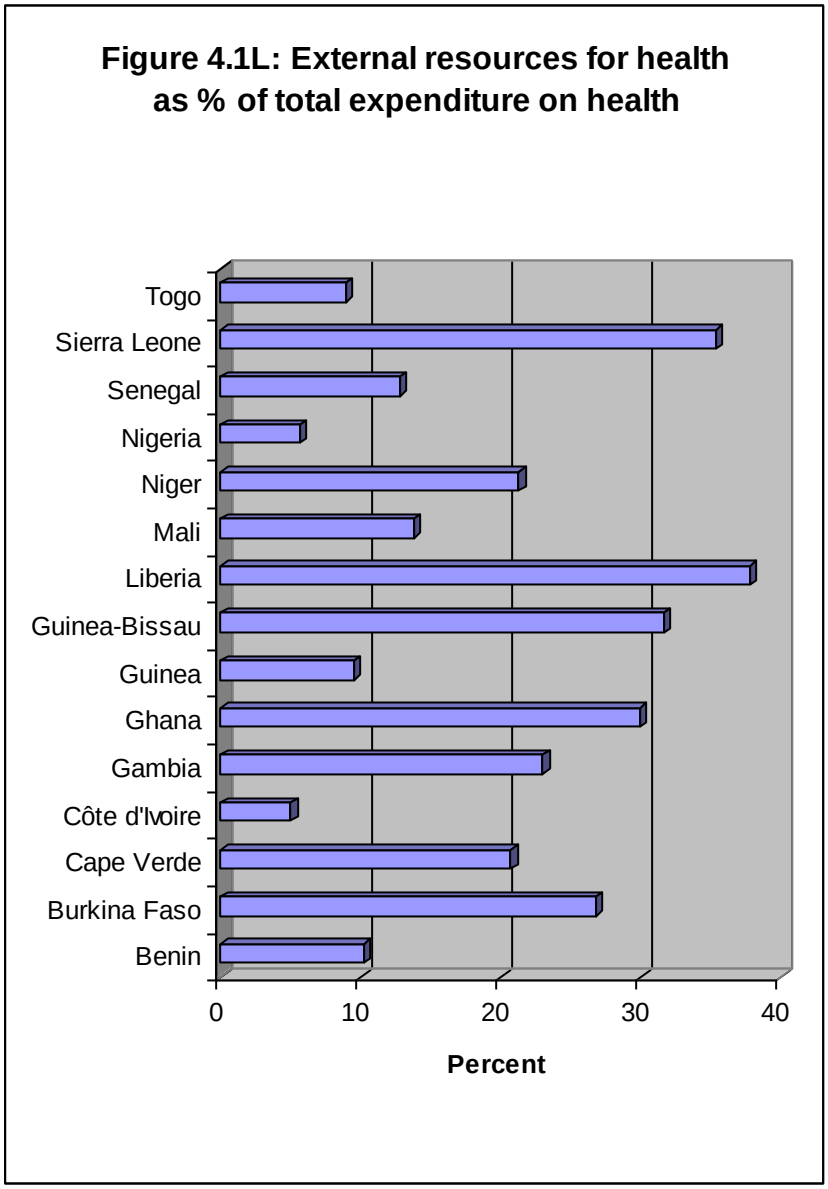
Sierra Leone health systems did not receive any funding from prepaid plans. In contrast, the private prepaid plans accounted for more than 10% of private expenditure on health in Cote D'Ivoire and Niger.



Based on the findings of the Sierra Leone Integrated Household Survey (SLIHS 2003/04), the purchase of medical supplies constitutes 68.4% of OOP on health care, i.e. Le353.4 billion. About LE115.4 billion was spent on outpatient curative care, Le5.6 billion on outpatient preventive care and 41.9 billion on inpatient care. Combining all these statistics, the data reveal that per capita OOP on health was Le110,060, Le121,604 and Le128,560 for the years 2004, 2005 and 2006 respectively.

External financing: External resources for health consist of mainly of grants from multilateral and bilateral aid donors and international nongovernmental organisations (e.g. Global Fund for AIDS, Tuberculosis and Malaria). Donors made a contribution of Le144,945,238,498 to health in 2004 (17.76%); Le172,212,406,260 (17.81%) in 2005; and Le106,240,543,450 (10.97% of THE) in 2006.

Figure 4.1L shows external resources for health as a percentage of total expenditure on health. The figure has been generated from the World Health Report 2006. Donors contribute more than 20% of THE in 8 (53%) ECOWAS. Evidence from the current NHA study reveals that donor contribution to THE in Sierra Leone was lower than reported in the World Health Report 2006 (WHO 2006).

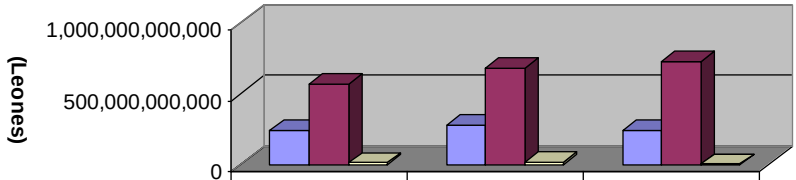


3.5 Health Financing by Financing Agents

There were three categories of financing agents, namely: government (public), private, and external. Figure 4.2a depicts the distribution of funds between public, private and external financing agents. Clearly the private financing agents absorbed the majority of health financing over the three year period. It is also noteworthy that

the funds going into the public health financing agents remained constant between year 2004 and 2005 and then started declining thereafter.

Figure 4.2a: Health funds received by public, private & external health financing agents in Sierra Leone

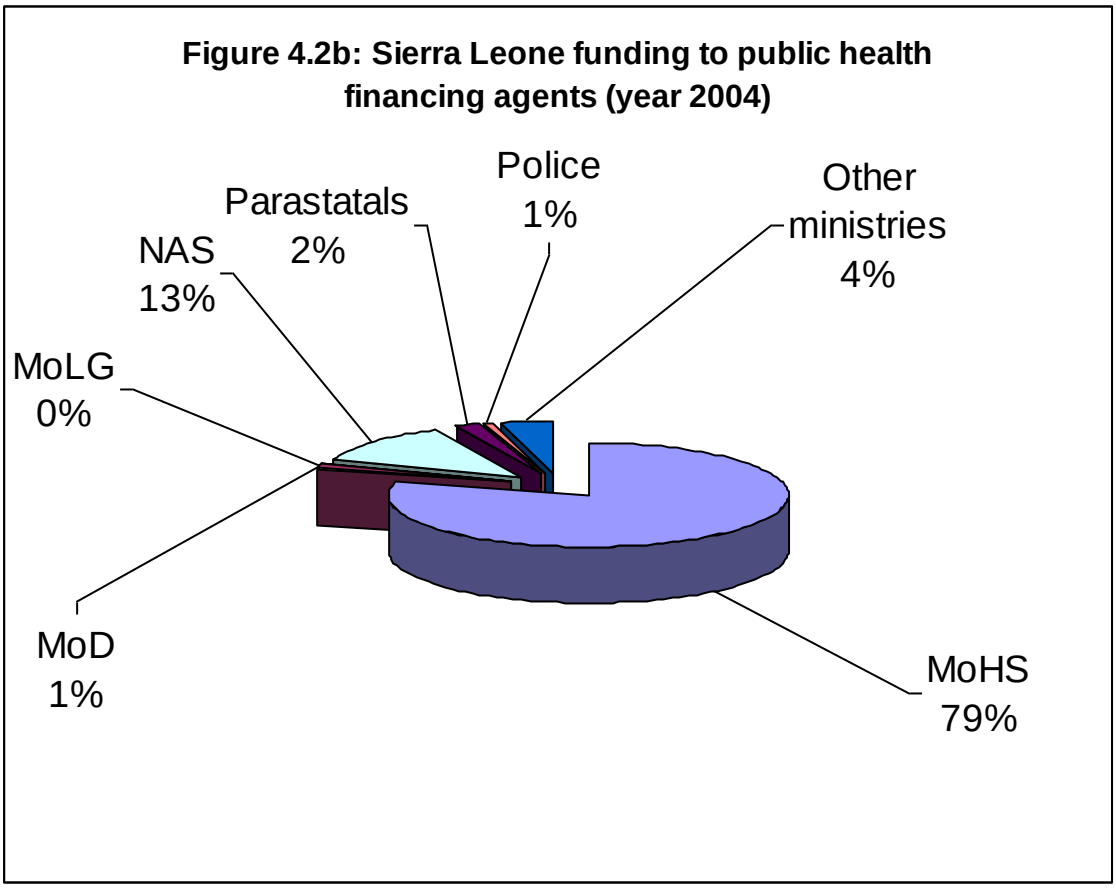


	Year 2004	Year 2005	Year 2006
Public/Government	237,878,672,801	276,571,842,362	240,535,842,407
Private agents	564,587,427,888	674,269,160,848	720,997,840,234
External	13,445,065,599	16,008,356,870	5,392,384,191

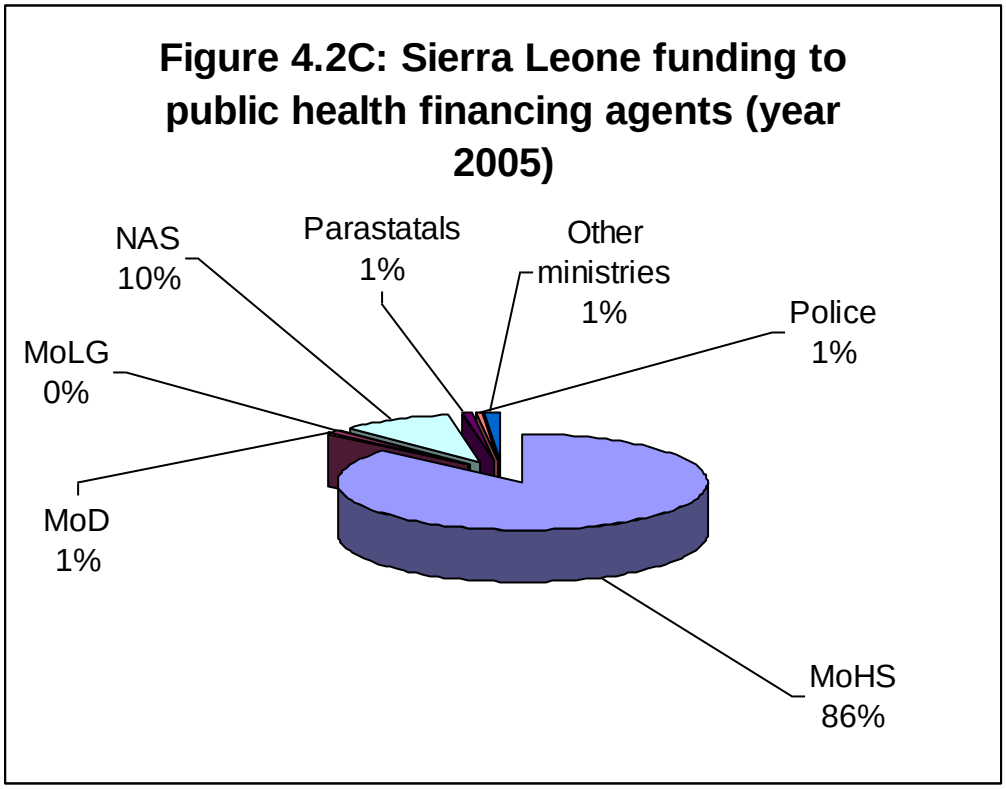
3.5.1 Public health financing agents

The public financing agents consisted of MoHS, MoEST, MoD, MoDEP, MoSWG, MoLG, MoF, Police, Other Ministries, National AIDS Secretariat (NAS) and parastatals. In 2004 the public financing agents received Le 237,878,672,801; of which 78.86% went to MoHS, 1.44% to MoD, 0.17% to MoLG, 0.77% to Police, 4.14% to Other Ministries, 12.66% to NAS and 1.96% to parastatals *(See Figure 4.2b)*.

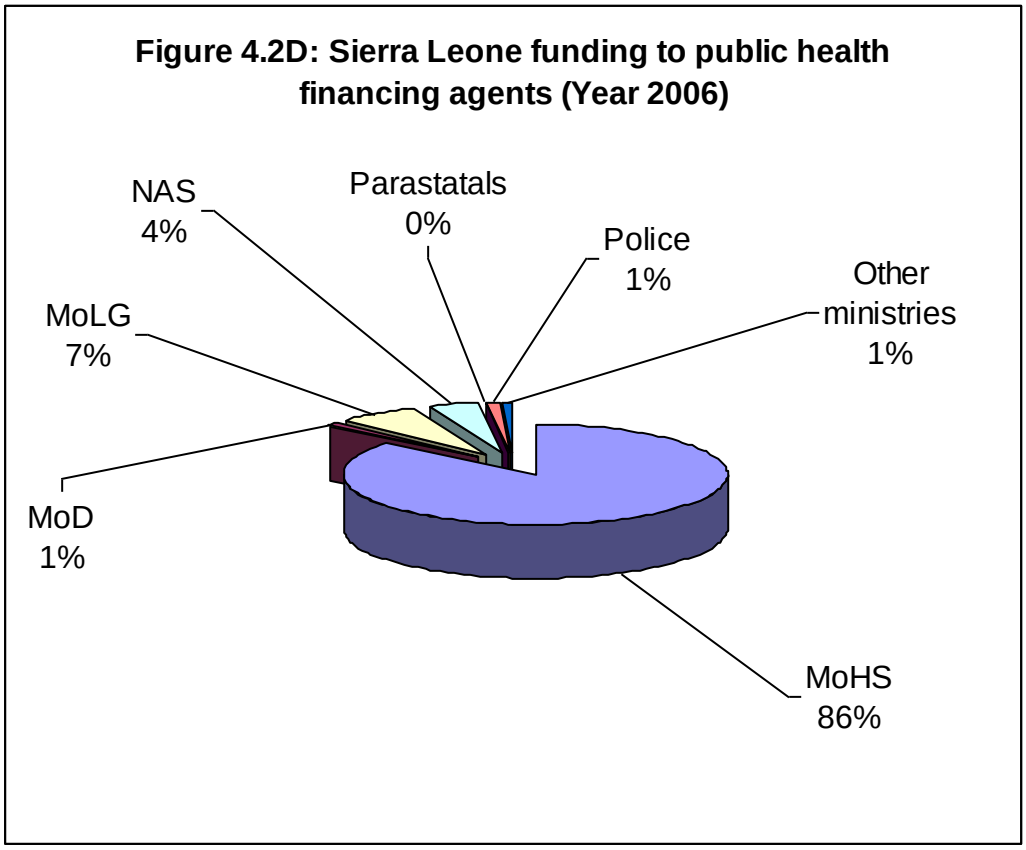
Figure 4.2b: Sierra Leone funding to public health financing agents (year 2004)



In 2005 the public financing agents received Le276,571,842,362; of which 86.49% went to MoHS, 1.06% to MoD, 0.04% to MoLG, 0.73% to Police, 1.26% to Other Ministries, 9.60% to NAS and 0.83% to parastatals *(See Figure 4.2c).*



In 2006 the public financing agents received Le242,051,595,183; of which 85.88% went to MoHS, 1.12% to MoD, 6.83% to MoLG, 0.92% to Police, 0.97% to Other Ministries, 4.28% to NAS and 0.00% to parastatals *(See Figure 4.2d).*



It is evident in Figures 4.2b to 4.2d that majority of health financing that went to the public health sector were spent by health service providers within the auspices of the Ministry of Health and Sanitation.

3.5.2 Private health financing agents

The private financing agents included private insurance, household out-of-pocket payments, non-governmental organizations, and private firms. Figure 4.2E portrays Sierra Leone's funding to the private health financing agents in year 2004. Ninety-seven percent of funds received by private health financing agents were administered by households; 2.62% by NGOs; and 0.36% by private insurance.

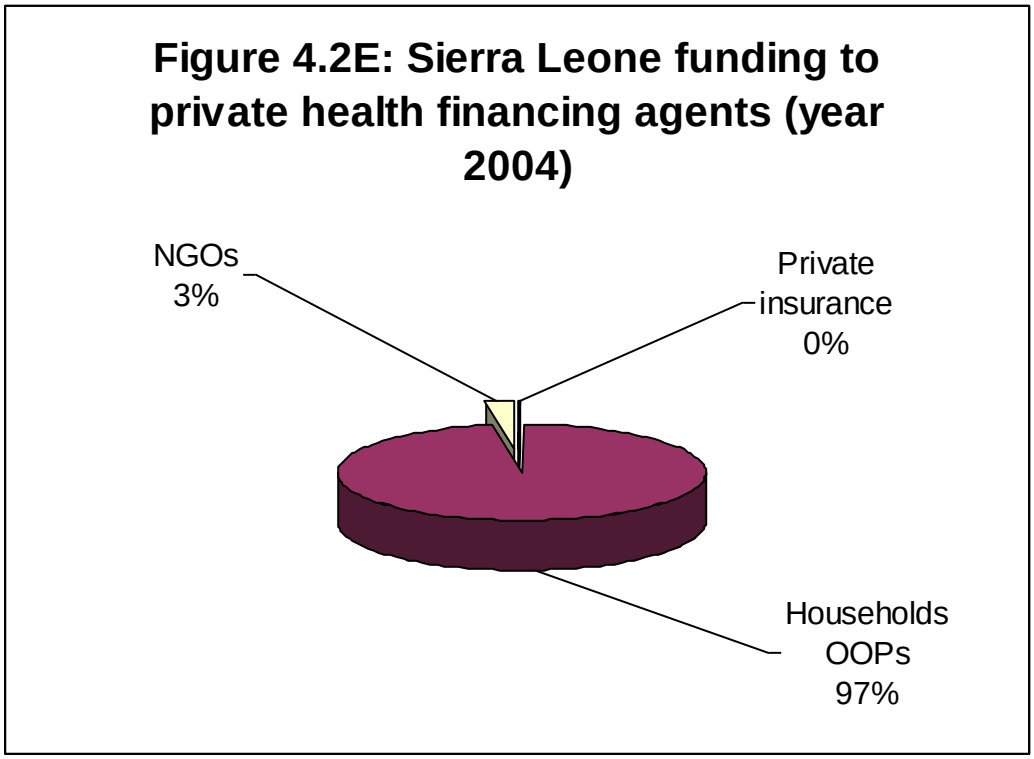


Figure 4.2F presents Sierra Leone's funding to the private health financing agents in year 2005. Approximately ninety-two percent of funds received by private health financing agents were administered by households; 7.73% by NGOs; and 0.39% by private insurance.

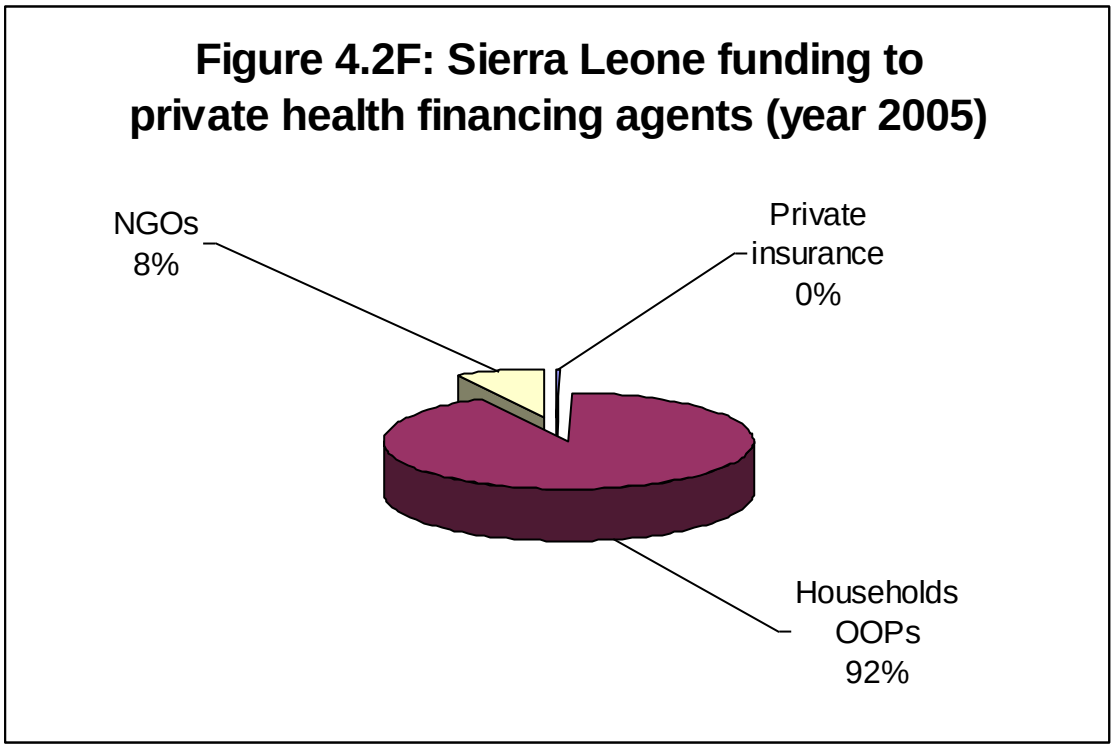
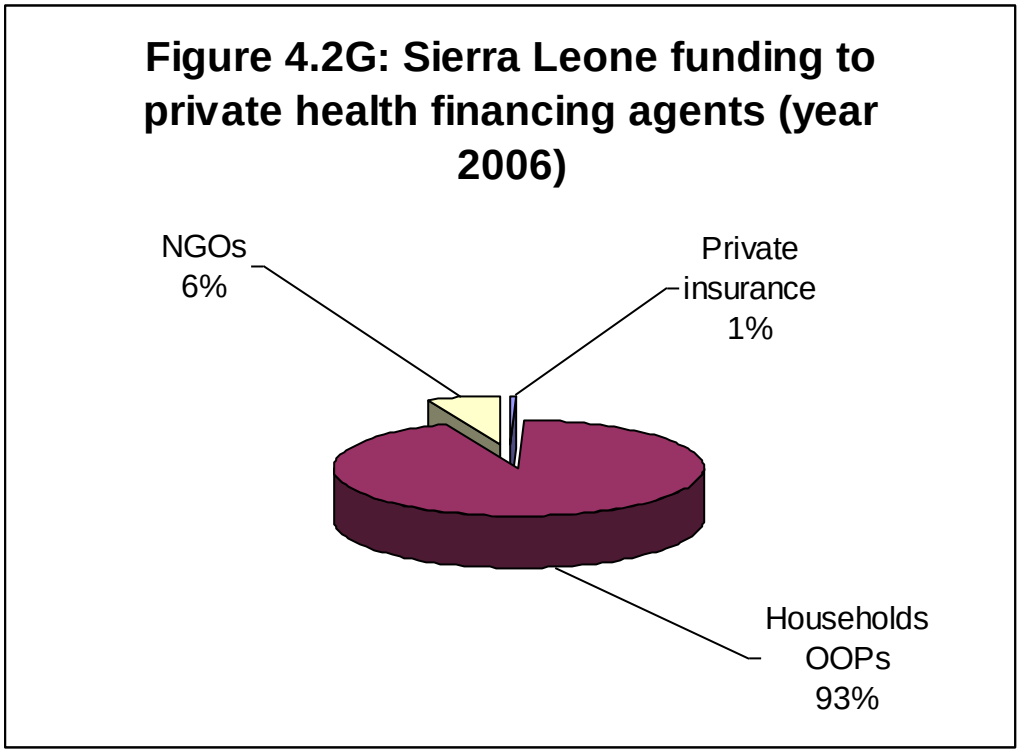


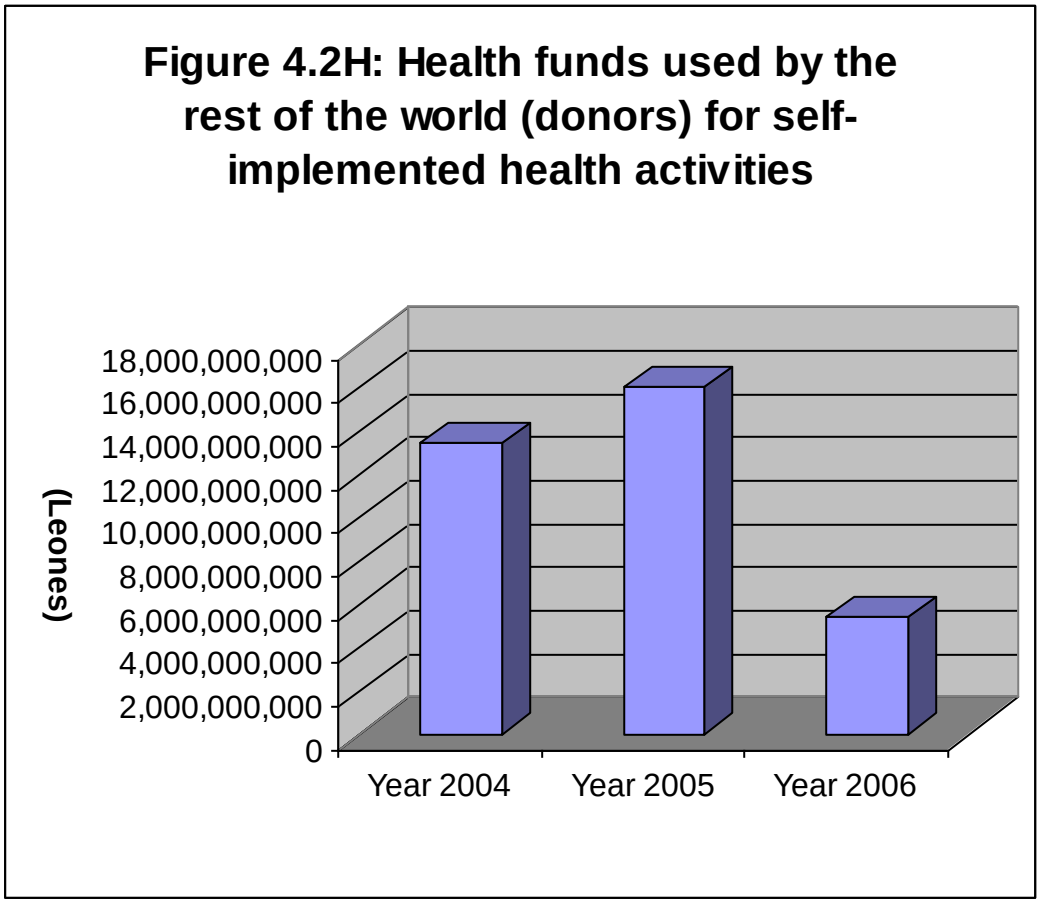
Figure 4.2G presents Sierra Leone's funding to the private health financing agents in year 2006. Ninety-three percent of funds received by private health financing agents were administered by households; 6.33% by NGOs; and 0.65% by private insurance.



Evidence contained in Figures 4.2E to 4.2G vividly shows that majority of the health funds received by private financing agents were used by households to purchase curative and preventive health services from various service providers in the Sierra Leone.

3.5.3 External financing agent

The external financing agent consisted of rest of the world (donors). Figure 4.2H below presents the total health funds used by the rest of the world entities operating within the Sierra Leone for self-implemented health activities. The trend has not been consistent across the three year period. Clearly, the rest of the world prefers to channel their funding through public and private financing agents to do the implementation.



3.6 Distribution of health funds from financing agents to providers

Figure 4.3A presents the distribution of health funds from financing agents to health service providers in 2004. Out of the total health expenditure of Le815911166289, approximately 66% was spent on hospitals, 12% on provision and administration of public health programmes, 10% on capital formation, 9% on institutions providing health related services, and 2% on the rest of the world.

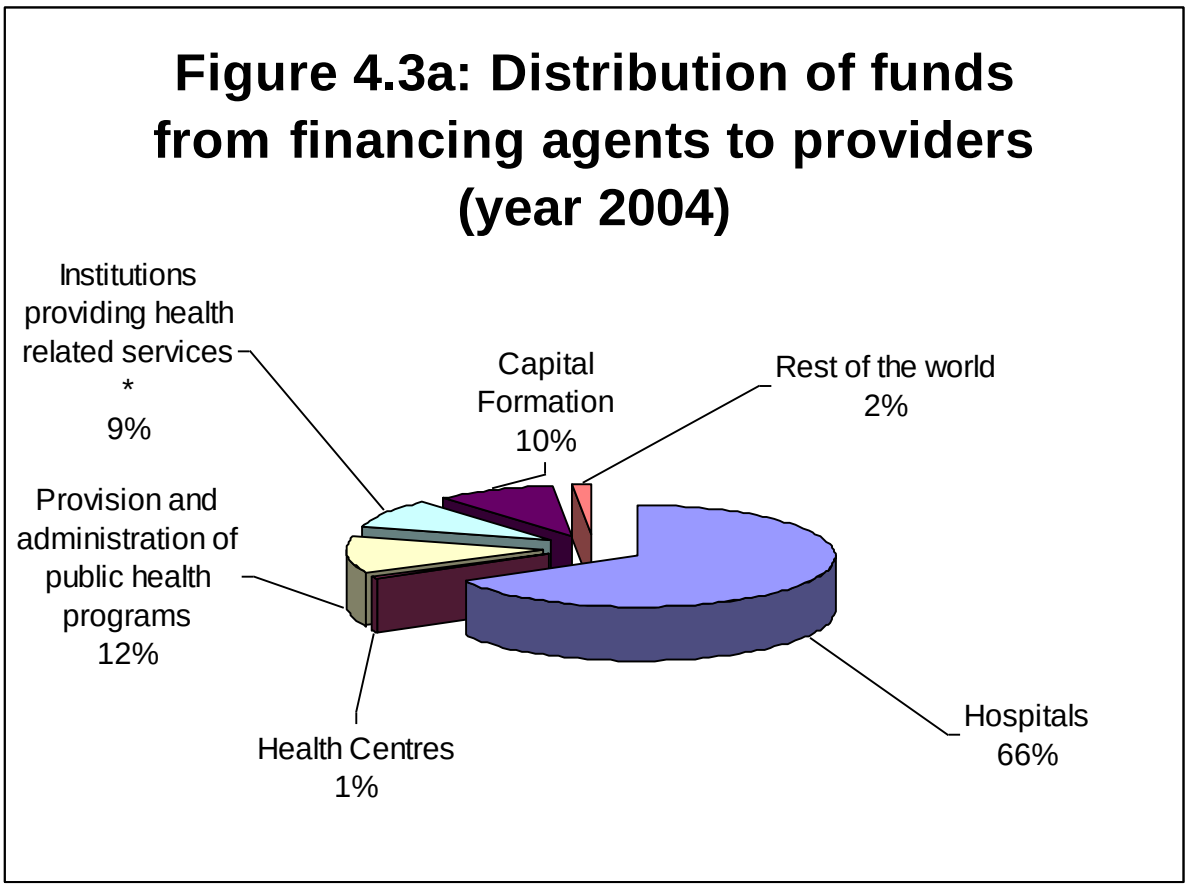


Figure 4.3B portrays the distribution of health funds from financing agents to health service providers in 2005. Out of the total health expenditure of Le966849360080, approximately 63% was spent on hospitals, 16% on provision and administration of public health programmes, 12% on institutions providing health related services, 6% on capital formation, and 1% on health centres.

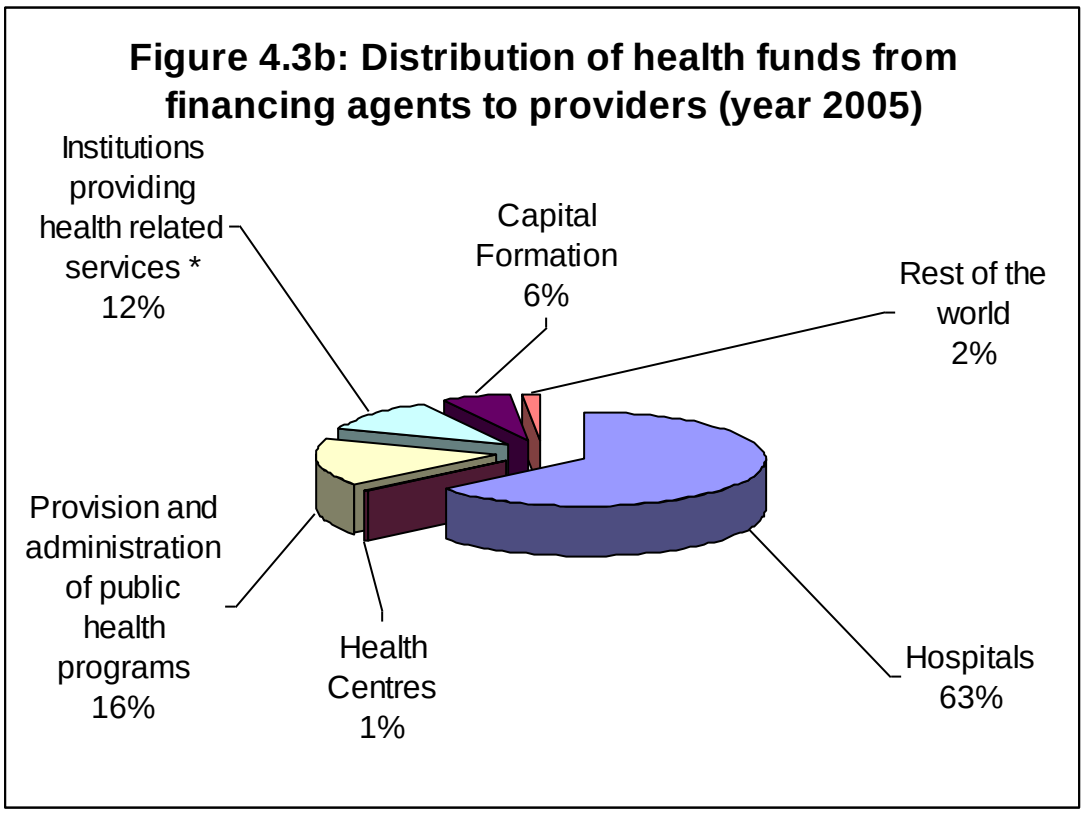
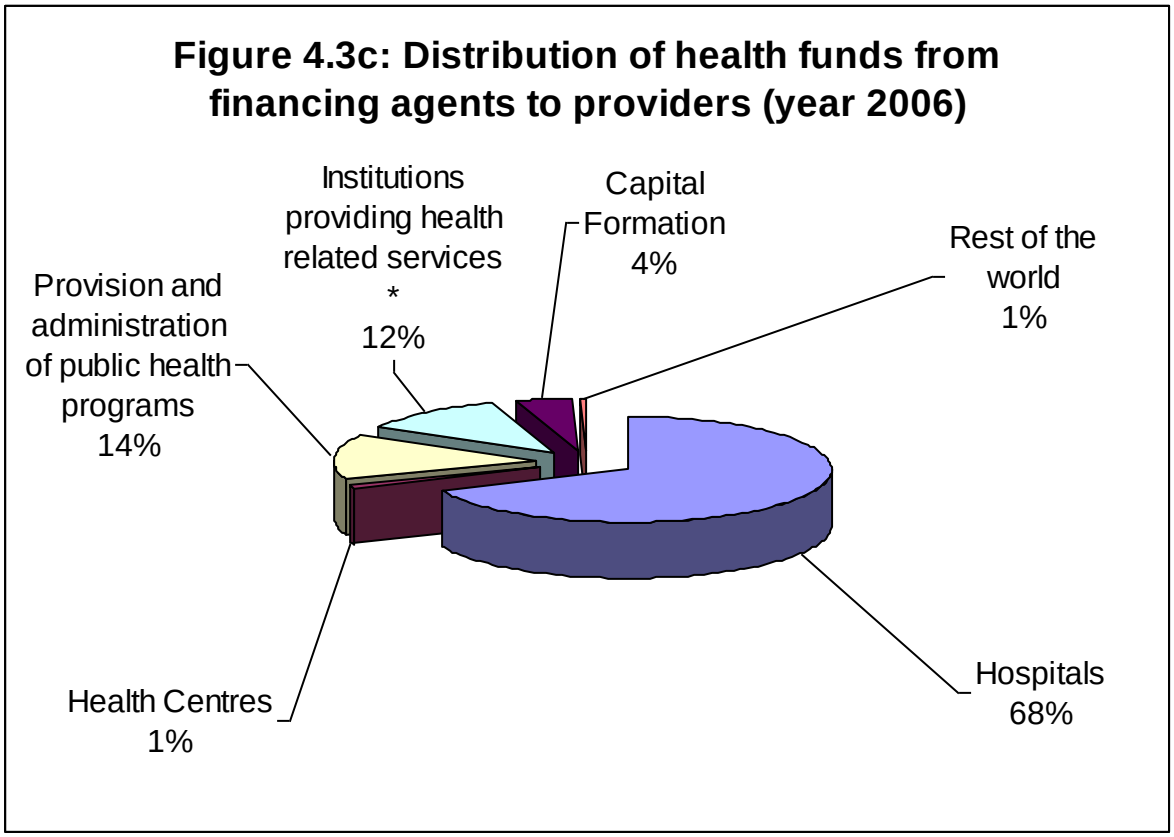


Figure 4.3C depicts the distribution of health funds from financing agents to health service providers in 2005. Out of the total health expenditure of Le968441819608, approximately 68% was spent on hospitals, 14% on provision and administration of public health programmes, 12% on institutions providing health related services, 4% on capital formation, 1% on health centres, and 1% on the rest of the world.



4. Discussions

4.1 Key findings

The study succeeded in addressing three of its four objectives: (i) to estimate the total health expenditure from public, private and donor sources; (ii) to determine the total health expenditure by financing agents; and (iii) to track the flow of funds from Financing Agents to providers. Due to highly aggregated health expenditures, it was not feasible to estimate the amounts of funds spent on various health system functions and inputs.

The total health expenditure (THE) was approximately Le 815,911,166,288 in 2004; Le 966,849,360,080 in 2005; and Le 968,441,819,608 in 2006.

The per capita total health expenditure was Le163,941 in 2004, Le189,783 in 2005 and Le185,636 in 2006.

The households, through direct out-of-pocket payments to health care providers, contributed 67.13% in 2004, 64.08% in 2005 and 69.25% in 2006 to the total health expenditure.

During the three years between 17.76% (year 2004) and 10.97% (year 2006) of the total health funding came from donors (international health development partners). The Government of Sierra Leone contribution grew from 15% in 2004 to 19% of the total health expenditure in 2006.

4.2 Policy-related suggestions

1. The GOSL has met the Abuja Heads of State target of allocating at least 15% of the national health budget to health. Notwithstanding the achievement of the Abuja target, most of the health funds is actually allocated salaries and capital formation (construction of health facilities, purchase of office equipment, etc), and less funds being allocated for the implementation of technical programmes. The per capita government health expenditure of US$8 per year is far below the US$34 recommended by the WHO Commission for Macroeconomics and Health (WHO, 2001). This finding implies that there is need to:

   - Continue advocating for increased health system funding from both national (specifically the government) and international sources.
   - Take the necessary steps to ensure that the approved health budget is fully executed.
   - Monitor multi-donor budgetary support to ensure that the shift from sectoral to general budgetary support does not decrease donor contribution to the health sector.
   - Leverage the priority disease programmes funding for overall system strengthening.

2. The fact that over 64% of the national health system funding came from household out-of-pocket expenditures implies that:

   - Some proportion households may be exposed to the risk of financial catastrophe and impoverishment. That proportion may be significant taking into account that 74.5% of the population in Sierra Leone live below income poverty line of US$2 per day (UNDP 2006). This finding implies that there is need: (i) to analyse the existing national household survey data to determine the percentage of households that are exposed to catastrophic health care expenditures; and (ii) to strengthen safety nets (exemption mechanisms) to protect the poor.

   - National health system is heavily dependent on household expenditures. Abolition of out-of-pocket payments (OOPs) without alternative funding may lead to a negative impact on its sustainability and performance. This implies that there is a need to: (i) undertake feasibility analysis of how to channel health funds through progressive/equitable tax-based and/or social health insurance prepaid mechanisms; and (ii) to develop prepaid mechanisms such as social health insurance, tax-based financing of health care, or some mixed mechanisms to achieve the universal coverage goal. Such systems allow people to access services when in need and protect the poor from financial catastrophe by reducing out-of-pocket spending.

3. Given that health resources are scarce, there is need to ensure that they are efficiently allocated and used to provide health services. There may be need for undertaking detailed studies to determine how efficiently current health resources are being used and to come up with practical policy interventions for improving their allocation and use.
4. The MOHS should consider developing a comprehensive health financing policy and health financing strategic plan with a roadmap of how the Government plans to realize the vision of universal coverage of health services and universal protection from potentially catastrophic and impoverishing health care expenditures. In the process of developing the national financing policy, it may be informative to refer to the WHO regional strategy for health financing for inspiration (WHO/AFRO 2006).

4.3 Recommendations for disseminating the first NHA report and institutionalizing NHA

Based on the experience gained in the process of conducting this first NHA study in Sierra Leone, the NHA Task Force (NHATF), would like to make the following recommendations:

1. Once the NHA report has been peer reviewed internally, it should be printed and disseminated widely among the line ministries and the stakeholders.

2. NHA should be institutionalised to ensure that it can be conducted on a regular and sustained basis. According to NHA guidelines (WHO, 2003), institutionalization is an ongoing process in which NHA activities, structures, and values become an integral and sustainable part of the government operations. With institutionalization, a department or unit is designated to house and oversee the collection of data, analysis, interpretation, reporting and dissemination of health expenditure data in a routine and systematic manner, with full support of the government. The complex process can take years and multiple estimates before it is integrated fully into the country's formal structure, but in order to ensure that NHA remains an effective policy tool in the future, institutionalization should be a goal from initiation of NHA. According to the NHA guidelines (WHO 2003) institutionalization process entails four steps:

    a. Creating demand among policy makers for institutionalization;
    b. Determining a location where NHA will be housed;
    c. Establishing standards for data collection and analysis;
    d. Institutionalizing data reporting requirements for all stakeholders (public, private and development partners)

In the process of institutionalizing NHA, it will be necessary to: (i) explore the possibility of integrating NHA data collection within the national health information management systems; (ii) reinforce the institutional and human capacities of the unit responsible for undertaking NHA; (iii) include questions on household out-pocket payments for health care in the national household survey data collection instruments routinely carried out by the Statistics Sierra Leone (SSL); and (iv) continually involve SSL in NHA activities.

3. There is need to revise the existing data collection instruments for use among sources, financing agents, health care providers (plus functions and inputs). Once the instruments for collecting data from health care providers (for tracking the flow of funds from various financing agents to providers and to functions and inputs) have been revised, they could be dispatched to the various service provision organizations and institutions for completion. That would facilitate the tracking of resources to providers, public health functions and health resources/inputs.

5. Conclusion

The NHA evidence contained in this document constitutes a realistic basis for developing a comprehensive health financing policy and a health financing strategic plan mapping out how the Government plans to realize the vision of universal coverage of health services and universal protection from potentially catastrophic and impoverishing health care expenditures in the long-term.

In order to facilitate the monitoring and evaluation of such policy documents once developed, it is important to institutionalize national health accounts. The latter will require boosting of the capacities in the Directorate of Policy and Planning.

Acknowledgements
We are very grateful to the Sierra Leone Ministry of Health and Sanitation for having granted permission to undertake the inaugural national health accounts study reported in this article. JMK, EZ and JN are thankful to Dr Alimata Diarra-Nama, former Director of the Division for Health Systems and Services Development at WHO/AFRO, for having approved their missions to provide NHA technical support to Sierra Leone. We owe profound gratitude the *Jehovah Jireh* for meeting all our needs in the entire process of conducting the study. This article contains the analysis and views of the authors only and does not represent the decisions or the stated policies of the institutions they work for.

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APPENDIX I: SUMMARY OF SIERRA LEONE NATIONAL HEALTH ACCOUNTS STATISTICS FOR YEARS 2004, 2005 & 2006

Table A: Total amounts of funds invested into health from various sources

Financing Sources	**Leones in year 2004**	**% of the Grand total**	**Leones in year 2005**	**% of the Grand total**	**Leones in year 2006**	**% of the Grand total**
MoF	121,183,128,340	14.9	172,462,700,798	17.8	186,814,651,824	19.3
Parastatal funds	547,760,669	0.1	634,818,973	0.1	597,292,004	0.1
Private employer funds	1,478,336,420	0.2	2,026,603,678	0.2	4,104,742,170	0.4
Household funds	547,756,702,361	67.1	619,512,830,371	64.1	670,684,590,159	69.3
Rest of the world funds (Donors)	144,945,238,498	17.8	172,212,406,260	17.8	106,240,543,451	11.0
GRAND TOTAL	***815,911,166,288***	***100***	**966,849,360,080**	**100**	**968,441,819,608**	**100**

Table B: Total amounts of health funds that flowed to various financing agents

Financing Agents	Leones in year 2004	% of the Grand Total	Leones in year 2005	% of the Grand Total	Leones in year 2006	% of the Grand Total
Government						
MoHS	187,582,860,901	22.99	239,196,954,586	24.74	207,881,797,931	21.47
MoEST	3,814,740,000	0.47	57,700,000	0.01	93,780,000	0.01
MoD	3,435,300,000	0.42	2,938,600,000	0.30	2,721,900,000	0.28
MoDEP	22,860,000	0.00	30,820,000	0.00	23,340,000	0.00
MoLG (District Councils)	398,383,967	0.05	1,317,965,280	0.14	16,527,570,380	1.71
MOSWG	147,390,000	0.02	101,200,000	0.01	100,100,000	0.01
National AIDS Secretariat	30,109,610,639	3.69	26,557,460,023	2.75	10,348,286,872	1.07
MOF	18,440,000	0.00	19,320,000	0.00	20,220,000	0.00
Parastatals	4,670,287,294	0.57	2,290,722,473	0.24	0	0.00
Police	1,827,960,000	0.22	2,010,820,000	0.21	2,226,300,000	0.23
Other ministries	5,850,840,000	0.72	2,050,280,000	0.21	2,108,300,000	0.22
PUBLIC TOTAL	***237,878,672,801***	***29.15***	***276,571,842,362***	***28.61***	***242,051,595,183***	***24.99***
Private insurance	2,026,097,089	0.25	2,661,422,651	0.28	4,702,034,174	0.49
Households Out-of-Pocket Payments	547,756,702,361	67.13	619,512,830,371	64.08	670,684,590,159	69.25
NGOs	14,804,628,438	1.81	52,094,907,826	5.39	45,611,215,901	4.71
PRIVATE TOTAL	***564,587,427,888***	***69.20***	***674,269,160,848***	***69.74***	***720,997,840,234***	***74.45***
Rest of the world (donors)	13,445,065,599	1.65	16,008,356,870	1.66	5,392,384,191	0.56
EXTERNAL TOTAL	***13,445,065,599***	***1.65***	***16,008,356,870***	***1.66***	***5,392,384,191***	***0.56***
GRAND TOTAL	**815,911,166,288**	**100.00**	**966,849,360,080**	**100.00**	**968,441,819,608**	**100.00**