Rwanda National Health Accounts 2003

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Ministry of Health
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Table of contents

ACRONYMS AND ABBREVIATIONS 6

AKNOWLEDGMENTS 8

EXECUTIVE SUMMARY 9

1. INTRODUCTION 17

1.1. The NHA Concept 17
1.2. Development of Rwanda's NHA 17
1.3. Policy Objectives 18
1.4. Organization of the Report 19

2. BACKGROUND 20

2.1. Overview of Rwanda 20
2.2. Regional Comparative Analysis of Basic Indicators on Development and Health Status 20
2.3. The Rwandan Health System 21
2.3.1. Health System Mission 21
2.3.2. Health Sector Strategy 21
2.3.3. Organization of the Health Care System 22
2.3.3.1. Public Sector 22
2.3.3.2. Government-Assisted Health Facilities 23
2.3.3.3. Private Sector 23
2.3.3.4. Traditional Medicine 23
2.3.3.5. The Global situation of Malaria 24
2.3.3.6. Malaria control in Africa 24
2.3.3.7. Malaria control in Rwanda 24

3. METHODOLOGY 26

3.1. Overview of Approach 26
3.2. Secondary Data Collection 26
3.3. Primary Data Collection 27
3.3.1. Survey Instrument Development 27
3.3.2. Sampling Approach 27
3.3.3. Survey administration 27
3.3.4. Testing 28
3.3.5. Data processing 28
3.4. Data Entry and Analysis 28
3.4.1. Donors and NGOs 28
3.4.2. Parastatal and Private employers 29
3.4.3. Insurance 30
3.4.4. Providers 30
3.4.4.1. District Hospitals 31
3.4.4.2. Health Centers 32
3.4.4.3. Private Clinics 32
3.4.4.4. Private pharmacies 33
3.4.4.5. Adjusting CHUK, KFH and Ndera Neuro-Psychiatric Hospital 33
3.5. Malaria Subanalysis 34
3.5.1. Expenditures on malaria: "targeted" versus "untargeted" expenditures 34
3.5.2. Estimation of expenditures on malaria preventive commodities 34
3.5.3. Primary data collection 35
3.5.4. Analysis of household data for malaria expenditures 35

4. GENERAL NHA FINDINGS 39

4.1. Summary Statistics for Rwanda NHA 39
4.2. Overview of Health Care Financing in Rwanda 40
4.3. Flow of Funds for General Health Care, by NHA Dimensions 42
4.3.1. Financing Sources 42

4.3.1.1. Financing Sources to Functions [FS x HC] 42
4.3.2. Financing Agents 45
4.3.2.1. Financing Sources to Financing Agents [FS x HF] 47
4.3.3. Health Providers 50
4.3.3.1. Financing Agents to Providers [HF x HP] 52
4.3.4. Health Functions 54
4.3.4.1. Providers to Functions [HP x HC] 54
4.3.4.2. Financing Agents to Functions [HF x HC] 55
4.4. Special Section: Household Out of pocket Spending 56
4.5. Summary 58

5. MALARIA SUBANALYSIS 60

5.1. Introduction 60
5.1.1. Background to Malaria in Rwanda 60
5.5.3.1. Prevalence 60
5.5.3.2. Strategic Plan to fight Malaria 62
5.2. Overview of Malaria Subanalysis Findings 62
5.3. Policy Purpose of Malaria Subanalysis 64
5.4. Concept and Scope of the Malaria Subanalysis 64
5.5. Flow of Funds for Malaria: by NHA Dimensions 64
5.5.1. Financing Sources 64
5.5.2. FS x HC End uses of financing sources contributions 66
5.5.3. Financing Agents 67
5.5.3.3. Financing Sources to Financing Agents [FS x HF] 68
5.5.4. Health Providers 68
5.5.4.1. Financing Agents to Providers [HF x HP] 69
5.5.5. Health Functions 71
5.5.5.1. Providers to Functions: [HP x HC] 72
5.5.5.2. Financing Agents to Functions: [HF x HC] 72
5.6. Analysis of the PNILP strategic plan in the context of the NHA 2003 73
5.7. Special Section: Additional Analysis of HH Malaria Spending 74
5.8. Functional Objects of Payment 75
5.9. Sources of Funds 75
5.10. Summary 77

6. CONCLUSION 78

6.1. Concluding Remarks 78
6.2. Next Steps 79

Annex A: General NHA Tables 2003 80

Annex B: Malaria Subanalysis Tables 2003 85

B.1. Situation analysis 86
B.1.1. The stratification of malaria and factors in favor 86
B.1.2. Vectors and malaria parasites 86
B.1.3. The anti malarial fight in Rwanda 87
B.2. Package of Health Services and malaria treatment 89
B.2.1. Complementary Package of Activities for District Hospitals 89
B.2.2. CPA for National Referral Hospitals 89
B.3. Supply and Distribution of Drugs 89

Annex C: General NHA Tables 2002 97

Annex D: Comparing Expenditure Estimates on HIV/AIDS in 2002 and on Malaria in 2003 102

Annex E: Bibliography 104

List of Tables

Table 1: Statistics from 1998 to 2003 10
Table 2: Summary of Malaria Subanalysis Findings, 2003 14
Table 3: East and Central Africa basic development indicators in 2003 21
Table 4: Weighting to all donors that contribute to health 28
Table 5: Weighting to all NGOs that contribute to health 29
Table 6: Adjusting of parastatal employer contribution to financing agents 29
Table 7: Adjusting of private employer contribution to financing agents 30
Table 8: Health Revenue of Insurance Companies in RWF 30
Table 9: Hospital weighting 31
Table 10: Adjusting to districts hospitals by functions 31
Table 11: Adjusting to HC by functions 32
Table 12: Adjusting private clinics 32
Table 13: Private clinics Expenditures on Functions 32
Table 14: Adjusting private pharmacies 33
Table 15: Private clinics Expenditures on Functions 33
Table 16: Adjusting CHUB 33
Table 17: Illustrative FS x HF table when donated commodities are sold to public providers 35
Table 18: Illustrative HF x HP table when donated commodities are sold to public providers 35
Table 19: Distribution of provider types 37
Table 20: Annual number of events, 2003 - 2004 37
Table 21: Inpatient and Outpatient visits to hospitals and health centers, 2003 37
Table 22: Inpatient Average costs per visit or admission, 2005 (at 2005 prices) 38
Table 23: Total national out-of-pocket spending, 2003 (at 2005 prices) 38
Table 24: Statistics from 1998 to 2003 39
Table 25: Cross-Country Comparison of Key Overall Health Expenditure Indicators 41
Table 26: Expenditures by different financing sources, 1998 - 2003 (RWF) 42
Table 27: Relative expenditures on different functions by financing sources 42
Table 28: Absolute contributions by Financing Sources, 2003 45
Table 29: Financing agents by size and share, 2003 45
Table 30: Distribution among financing agents in 1998, 2000, 2002 and 2003 46
Table 31: Flows from Financing Sources to Financing Agents 2003 50
Table 32: Top five provider categories by $THE_{general}$ share, 2003 50
Table 33: Comparison of Spending at Providers between 1998 and 2003 52
Table 34: Flows from Financing Agents to Providers 2003 53
Table 35: Functions by Providers 2003 shares 54
Table 36: Functions by Providers 2002 shares 55
Table 37: Flows from Financing Agents to Functions 2003 56
Table 38: HH OOP distribution to providers 1998, 2000, 2002 and 2003 [in %] 57
Table 39: Key HF as % of total household spending 57
Table 40: Summary of Malaria Subanalysis Findings, 2003 63
Table 41: Malaria flows from Financing Sources to Financing Agents 2003 68
Table 42: Flows from Financing Agents to Providers 2003 70
Table 43: Spending on Prevention vs Curative Care 71
Table 44: Distribution of the strategic plan and 2003 NHA targeted funds by functions 73
Table 45: Type of Care for Malaria Patients, by Expenditure Quintile 74
Table 46: Type of Care for Malaria Patients, by Age 75
Table 47: Functional Object of Payment 75
Table 48: Source of Funds 76
Table 49: Percent of patients who borrowed funds, by cost of care and income 76

List of Figures

Figure 1: Financiers of overall health care functions 11
Figure 2: Financiers of malaria functions 15
Figure 3: Statistics from 1998 to 2003 40
Figure 4: Financiers of overall health care functions 43
Figure 5: Split of Financing Sources 45
Figure 6: Breakdown of donor funds to financing agents 47
Figure 7: Sources of MoH funds from 2000-2003 47
Figure 8: Sources of DSGAS and decentralized entity funds from 2000- 2003 48
Figure 9: Sources of Insurance from 2000-2003 49
Figure 10: Providers of Overall health in 2002 51
Figure 11: Providers of overall health 2003 51
Figure 12: Malaria prevalence across Health Districts in Rwanda 61
Figure 13: The FS distribution 65
Figure 14: The big picture of resource flows for health- and malaria's role 66
Figure 15: Financiers of malaria functions 67
Figure 16: Distribution of financing agents for malaria and general NHA 67
Figure 17: Distribution of providers: malaria and general NHA 69
Figure 18: Distribution of functions: malaria and general NHA 72

ACRONYMS AND ABBREVIATIONS

AGCD	**A**dministration **G**énérale de la **C**oopération au **D**éveloppement [Belgian Administration for Development Cooperation]
AIDS	**A**quired **I**mmuno **D**eficiency **S**yndrome
AQ/SP	**A**dequate Clinical and Parasito Logical Responses
BCC	**B**ehavior **C**hange **C**ommunication
BNR	**B**anque **N**ationale du **R**wanda [National Bank of Rwanda]
BUFMAR	**Bu**reau des **F**ormations **M**édicales **A**gréées au **R**wanda [Office of Certified Medical Facilities of Rwanda]
CAMERWA	**C**entrale d'**A**chat des **M**édicaments **E**ssentiels au **Rwa**nda [National Medical Stores of Rwanda]
CEPEX	**Ce**ntral **P**ublic Investments and **Ex**ternal Finance Bureau
CHUK	**C**entre **H**ospitalier **U**niversitaire de **K**igali [University Hospital Center of Kigali]
COGEAR	**C**ompagnie **G**énérale d'**A**ssurance et de **R**éassurance [General Company for Insurance and Re-Insurance]
CORAR	**C**ompagnie **R**wandaise d'**A**ssurance et de **R**éassurance [Rwandan Company for Insurance and Re-Insurance]
CNTS	**C**entre **N**ational de **T**ransfusion **S**anguine [National Blood-Transfusion Center]
CSR	**C**aisse **S**ociale du **R**wanda [Social Security Fund]
CTB	**C**oopération **T**echnique **B**elge [Belgium Technical Cooperation]
DEA	**D**iplôme des **E**tudes **A**pprofondies [Advanced Studies Degree]
DGCD	**D**irection **G**énérale de la **C**oopération au **D**éveloppement [Directorate-General for Development Cooperation]
DHS	**D**emographic **H**ealth **S**urvey
DMS	**D**evelopment & **M**anagement **S**olutions [Consulting Firm]
DRG	**D**iagnosis **R**elated **G**rouping
DS	**D**istrict de **S**anté [Health District]
DSGAS	**D**épartment de la **S**anté, **G**enre et **A**ffaires **S**ociales [Department of Health, Gender, and Social Affairs (Provincial level)]
FARG	**F**onds National pour l'**A**ssistance aux **R**escapés du **G**énocide [Genocide Survivors Fund]
FOSA	**F**ormation **S**anitaire [Health Facility]
FS	**F**inancing **S**ources
GDP	**G**ross **D**omestic **P**roduct
GF	**G**lobal **F**und
GFATM	**G**lobal **F**und to fight **A**IDS, **T**uberculoses and **M**alaria
GoR	**G**overnment **o**f **R**wanda
Gov't	**G**overnment
HBM	**H**ome-**B**ased **M**anagement Care
HD	**H**ealth **D**istrict
HF	**H**ealth **F**unctions
HC	**H**ealth **C**are Functions [Financing Agent]
HH	**H**ouse**h**old
HIS	**H**ealth **I**nformation **S**ystem
HIV	**H**uman **I**mmuno-deficiency **V**irus
HP	**H**ealth **P**roviders
IEC	**I**nformation, **E**ducation and **C**ommunication
IMF	**I**nternational **M**onetary **F**und
IP	**I**n **P**atient
IPT	**I**ntermittent **P**resumptive **T**reatment
ITN	**I**nsecticide **T**reated **N**et
KFH	**K**ing **F**ayçal **H**ospital
LLIN	**L**ength-**L**asting **I**nsecticidal **N**ets
LLIM	**L**ong **L**asting **I**mpregnated **M**osquito nets
MDG	**M**illennium **D**evelopment **G**oals
MAP	**M**ultisectoral **A**IDS **P**roject

MII	**M**oustiquaire **I**mprégné d'**I**nsecticide [Impregnated Insecticide Mosquito nets]
MINECOFIN	**Min**istry of **Fin**ance **and Eco**nomic Planning
MINISANTE	**Mini**stère de la **Santé** [Ministry of Health]
MoF	**M**inistry **o**f **F**inance and Economic Planning
MoH	**M**inistry **o**f **H**ealth
NGO	**N**on-**G**overnmental **O**rganization
NHA	**N**ational **H**ealth **A**ccounts
NHE	**N**ational **H**ealth **E**xpenditure
NPISH	**N**on-**P**rofit **I**nstitutions **S**erving **H**ouseholds
NSK	**N**ot **S**pecified by any **K**ind
OECD	**O**rganization for **E**conomic **C**ooperation and **D**evelopment
OOP	**O**ut-**o**f-**p**ocket
OP	**O**ut **P**atient
PEPFAR	**P**resident's **E**mergency **P**lan **f**or **A**IDS **R**elief
PH	**P**ublic **H**ealth
PHR*plus*	**P**artners for **H**ealth **R**eform***plus***
PLWHA	**P**erson **l**iving **w**ith **H**IV **A**IDS
PNILP	**P**rogramme **N**ational **I**ntégré de **L**utte contre le **P**aludisme [National Integrated Program for Fight against Malaria]
PSI	**P**opulation **S**ervices **I**nternational
RAMA	La **R**wandaise d'**A**ssurance **Ma**ladie [Rwanda Health Insurance Scheme]
RGPH	**R**ecensement **G**énéral de la **P**opulation et de l'**H**abitat [General Census of Population and Habitat]
ROW	**R**est **o**f the **W**orld [Donors]
RWF	**R**wandan **F**ranc
SC	**S**teering **C**ommittee
SFB	**S**chool of **F**inance and **B**anking
SIS	**S**ystème d'**I**nformations **S**anitaires [Health Information System]
SNR	**S**ervice **N**ational de **R**ecensement [National Census Service]
SONARWA	**So**ciété **N**ationale d'**A**ssurances du **Rwa**nda [National Insurance Company of Rwanda]
SORAS	**S**ociété **R**wandaise d'**A**ssurance [Rwanda Insurance Company]
SPSS	**S**tatistical **P**ackage for the **S**ocial **S**ciences
SSF	**S**ocial **S**ecurity **F**unds
TBA	**T**raditional **B**irth **A**ttendance
THE	**T**otal **H**ealth **E**xpenditures
UNDP	**U**nited **N**ations **D**evelopment **P**rogram
UNICEF	**U**nited **N**ations **C**hildren's **F**und
USAID	**U**nited **S**tates **A**gency for **I**nternational **D**evelopment
WHO	**W**orld **H**ealth **O**rganization
WHOPES	**W**orld **H**ealth **O**rganization **P**esticides **E**valuation **S**cheme

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EXECUTIVE SUMMARY

Background

The 2003 Rwanda National Health Accounts [NHA] builds upon previous NHA estimations[1] and describes public, private and donor financial flows for overall health care and, for the first time, for malaria (referred to as a malaria subanalysis). The approach used is in accordance with internationally accepted norms for tracking health expenditures. For both general (or overall)- and malaria health care spending, the 2003 exercise details financial transactions between financing sources (e.g. donors, Government treasury), financing agents[2] (e.g. Ministry of Health, NGOs), providers (e.g. public health centers), and associated functions[3] (e.g. inpatient curative care). In a nutshell, NHA sets out to determine the sources and uses of health funds.

Its purpose is to help the Government, development partners, the private sector, and other stakeholders evaluate the current state of health care financing so that they may develop informed policies concerning resource allocation and use.

Methodology

The process of NHA estimation required the assembly of a number of primary and secondary data sources. Attempts were first made to identify secondary data (e.g. Government executed budgets), or existing reports, and where missing, primary data (e.g. donor, NGO [Non-Governmental Organization], insurance, and employer surveys) was collected to fill in the gaps. For each expenditure transaction, every effort was made to validate the estimate from more than one data source.

General health financial flows were then classified and analyzed in accordance with the *Guide to Producing National Health Accounts; with special application for low-income and middle-income* countries (commonly referred to as the *Producers' Guide*[4]). Because this was the first time the malaria subanalysis was being implemented, the Rwanda NHA team adapted the NHA classification framework to the malaria health care context.

General Health Findings

Findings from the general NHA exercise are summarized below and compared to previous year NHA estimates.

[1] That have been estimated for the years 1998, 2000, 2002
[2] Entities that receive funds from sources to pay providers- often described as having programmatic control over resource allocation
[3] Health services or products rendered
[4] Published by World Health Organization, World Bank, and the United States Agency for International Development. 2003

Table 1: Statistics from 1998 to 2003

	1998*	2000*	2002*	2003
Total population**	7,883,000	7,691,783	8,128,553	8,388,667
Exchange Rate US$ 1=RWF [Rwandan franc] [5]	317	393	475	539
Total real GDP [Gross Domestic Product][6]	RWF 725,318,635,894 (US$ 2,288,071,407)	RWF 799,207,248,018 (US$ 2,033,606,229)	RWF 876,501,557,967 (US$ 1,845,266,438)	RWF 950,141,000,000 (US$ 1,764,454,307)
Total GoR [Government of Rwanda] expenditure and net lending[7]	RWF 134,838,672,638 (US$ 425,358,589)	RWF 170,441,676,104 (US$ 433,693,832)	RWF 145,030,183,930 (US$ 305,326,703)	RWF 191,400,000,000 (US$ 355,438,355)
Total Health Expenditures [$THE_{general}$], per NHA	RWF 36,374,128,720 (US$ 114,744,886)	RWF 32,317,379,197 (US$ 82,232,517)	RWF 35,777,590,105 (US$ 75,321,242)	RWF 62,945,881,810 (US$ 116,893,316)
$THE_{general}$ [Total Health Expenditures] per capita	RWF 4,615 (US$ 14.56)	RWF 4,202 (US$ 10.69)	RWF 4,401 (US$ 9.27)	RWF 7,503.7 (US$ 13.93)
$THE_{general}$ as % of nominal GDP	5%	4%	4%	6.62%
GoR health expenditure as % of GoR total expenditure	2.5%	4.7%	6.1%	9%
Financing sources distribution as % of $THE_{general}$				
Public (including public firms)	10%	18%	25%	32%
Private	40%	30%	42%	25%
Donor	50%	52%	33%	42%
Other	0%	0%	0%	1%
Households				
Household spending as % of $THE_{general}$	33%	26%	31%	20%
Out-of-pocket spending as % of $THE_{general}$	32.5%	25%	25%	17%
Out-of-pocket spending per capita	RWF 1,506 (US$4.75)	RWF 1,041 (US$ 2.65)	RWF 1,086 (US$ 2.29)	RWF 1,305 (US$ 2.42)
Provider distribution as % of $THE_{general}$***				
Public facilities	66%	39%	55.6%	53%
Government-assisted not-for-profit facilities	10%	40%	24.8%	23%
Private facilities	24%	21%	19.6%	24%

* All RWF amounts for 1998, 2000 and 2002 are in constant 2003 RWF to facilitate comparison across years (the same has been done for the US $ amounts). The Consumer Price Index was used for the conversion (87.09 for 1998, 88.30 for 2000 and 93.07 for 2002). Source for CPI data: Ministry of Finance and Economic Planning and International Monetary Fund.

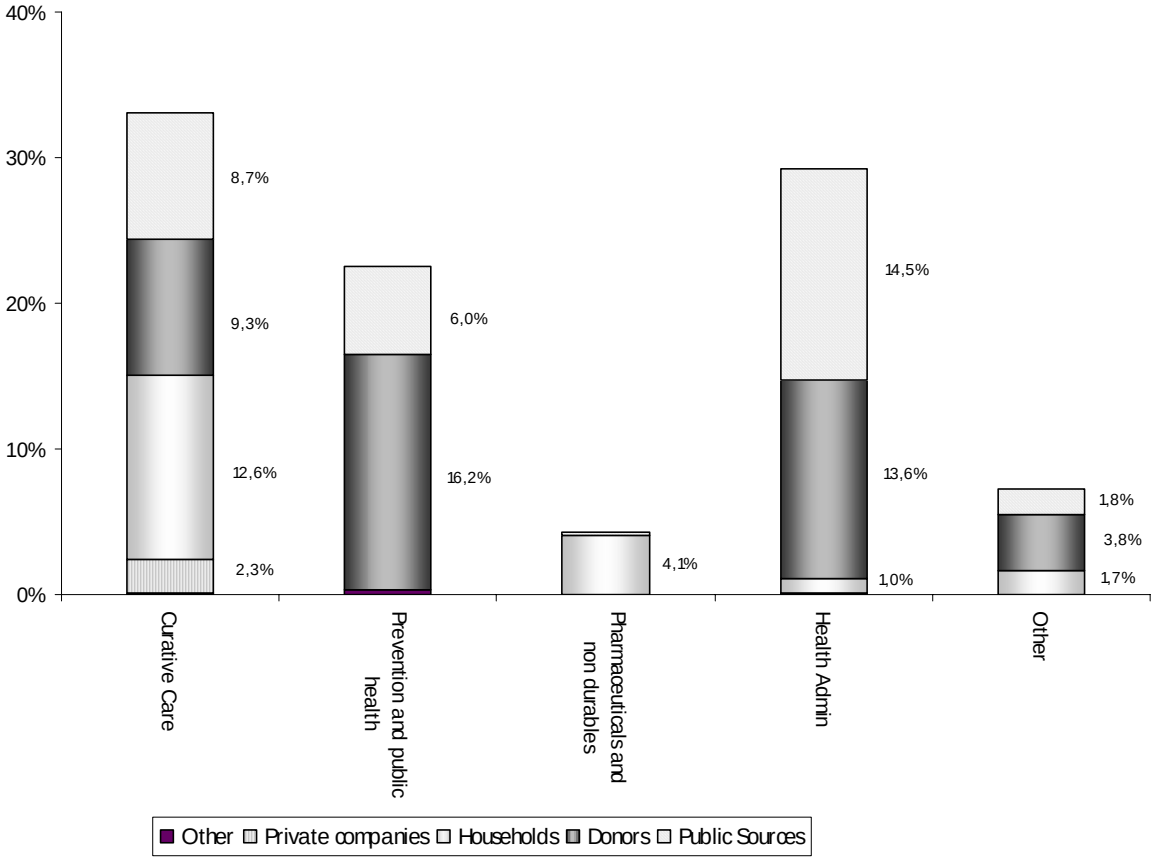
** The 1988 population figure is based on the 1992 census; the 2000 and 2002 figures are based on the 2002 census and 2003 figure is estimated from Census 2002 at a growth rate of 3.2%. Due to the genocide and subsequent repatriation, it is difficult to determine precise population trends for Rwanda during the 1990's.

*** For time comparison purposes, provider expenditures have been broken down into the three categories used in 1998. Although greater disaggregation is available for years 2000, 2002, and 2003 (see Annex A), they have been aggregated into the categories used for the 1998 estimation, namely public, Gov-assisted not-for-profit, and private. This has been done by dividing 1) 'public health program provision' category between public and Gov. assisted not-for-profit (based on HF [Health Function] contributions), 2) 'general administration' between public and private (based on HF contributions), and 3) 'other' between public and private (based on HF contributions). Furthermore, expenditures on 'traditional healers' and 'independent pharmacies' were allocated to private facilities.

Figure 1 below traces the flow of funds from their end uses back to their funding sources.

[5] The exchange was derived from an unweighted average of monthly official exchange rates from the BNR
[6] From BNR official statistics, see www.bnr.rw
[7] From Annual economic report, MINECOFIN, 2003

Figure 1: Financiers of overall health care functions



Principal findings of the general NHA estimation are as follows:

- **There has been a sizeable increase in total health care funding:** Between 2002 and 2003, total health expenditure ($THE_{general}$) has risen from RWF 35.8bn [US$ 75.3 m][8] to RWF 62.9bn [US$ 116.9m] — largely due to increases in donor and Government contributions. This translates to a shift from 4.1% of the GDP in 2002 to 6.6% of the GDP in 2003, which makes Rwanda one of the leading contributors to health in comparison to other countries in the region — a sizeable shift from its earlier ranking in 2000 (4.0% of GDP) as the country with one of the lowest health shares of GDP. Moreover, with 6.6% of the GDP spent on health, Rwanda moves closer to the average of OECD [Organization for Economic Cooperation and Development] countries that spend approximately 8.4% of their GDP on health care.[9]
- **Government contribution to health has risen significantly, nearing the goals of the Abuja declaration:** Government investment in health as a share of overall government spending has increased from 6.1% in 2002 to 9% in 2003. The goals of the Abuja declaration state that Governments should spend 15% of their funds on health by the year 2015.
- **Expenditures by donors and the public sector rose sharply:** Donor spending increased by 129% (to RWF 27.1bn [US$ 50.3m]) and the public sector by 125% (to RWF 20.1bn [US$ 37.3m]). This has resulted in donors now serving as the leading contributor of health resources (at 43% of $THE_{general}$), followed by public sources (at 32%), and lastly private sector, namely households at (25%). This constitutes a significant shift from the year before, where the private sector, principally households, served as the leading financier of

[8] All figures are scaled to 2003 prices
[9] Latest estimate available for is for 2003. www.oecd.org

health care. The increase in donor funding is primarily due to the surge in large grants such as the Global Fund, PEPFAR [President's Emergency Plan for AIDS Relief] etc.

- **Donor and Government funds are largely spent on public health programs and administration leaving households to finance the majority of curative care (medical care) costs:** Despite the large increase in health sector funding from donors and Government, these types of expenditures are leaning more towards public health programmes and administration and not for curative care. With lower subsidization for curative care, households are paying close to half of all curative care expenditures
- **NGOs have the most programmatic control over how health care funds are allocated:** The NHA findings show that NGOs, as opposed to the Government, manage the largest share of health care expenditures (accounting for 27% of $THE_{general}$). This questions the role of the Ministry of Health as steward of the health sector. Careful coordination (such as through the cluster working groups) of all the various financing sources and -agents is warranted to ensure progress towards health system and strategic plan goals and to avoid duplicative efforts
- **Insurance coverage is weak:** Households still prefer to spend most of their funds directly at the provider, via OOP [Out-of-pocket] mechanisms (88%), rather than through risk protection mechanisms. Even firms offering health coverage for employees chose to do so through direct contracts with the provider or through employee reimbursements, rather than through insurance mechanisms. Even though there has been increased donor and Government funding for health care, households have not reduced their OOP spending, suggesting that their health needs are not fully served.
- **Decentralization of the Government is rebounding:** Larger transfers of Central Government revenue to the DSGAS [Department of Health, Gender, and Social Affairs (Provincial level)] and health district can be observed from 2000 (where 0% of DSGAS funds came from central government revenue) to 2002 (where 53% of DSGAS funds came from the central level), but this still does not exceed 1998 levels. The increased share of funding given to the DSGAS and HD [Health District] is largely due to Central Government transfers rather than donor transfers, which are increasingly channeled through NGOs rather than decentralized Government entities. Strong involvement by decentralized entities and the targeted population will be important to ensure that the increased funding from donors and Government has maximum impact. Further tracking of financial indicators is needed to monitor the progress and effect of decentralization.

Concluding remarks of general NHA findings

The increase in total health care funding is encouraging. However, while the increase in donor contributions is a welcome development, steps must be taken to consider the sustainability of such funds, particularly the predictability of such high donor levels of funding. Should donor financing be dramatically reduced in the future for whatever reason, the Government, but more likely households, may shoulder the financing gap or leave it unfilled (implying that households would suffer from reduced access to health care). In addition to the overall amounts contributed for health care, it is critical to examine how these funds are being spent. The NHA exercise shows that donor and Government funds are spent largely for public health programs and administration purposes rather than curative care. This has resulted in households bearing the largest share of curative care expenditures. Moreover in 2003, protection from risk continued to be an issue for the population, which largely spends its funds as direct out-of-pocket payments and not through insurance schemes. Subsequent NHA exercises should show a larger role of insurance reflecting the scale-up of mutuelles in the country and should serve as a tool to evaluate the success of this policy initiative. The NHA 2003 findings also show the increasing role of NGOs in managing health care funds, which question the stewardship role of the Ministry of Health. While this development shifts the administrative burden away from the Ministry of Health, careful coordination of all the major financing agents is warranted to ensure that health sector goals are met and to avoid duplicative efforts.

Malaria findings

Malaria is the leading cause of morbidity and mortality in Rwanda, particularly among children under five and pregnant women. More than half of consultations in health facilities are due to malaria. Given the significant burden placed on the population by the disease, the Government is keen to control, prevent, and treat malaria in the population. In order to ensure that adequate financial resources are made available for such health interventions, the Government requires information on the current state of affairs with respect to malaria financing; such data was captured in the 2003 NHA malaria subanalysis. It is anticipated that such an expenditure assessment can point to funding gaps and help inform the resource allocation process.

Findings from the NHA malaria subanalysis are summarized below.

Table 2: Summary of Malaria Subanalysis Findings, 2003

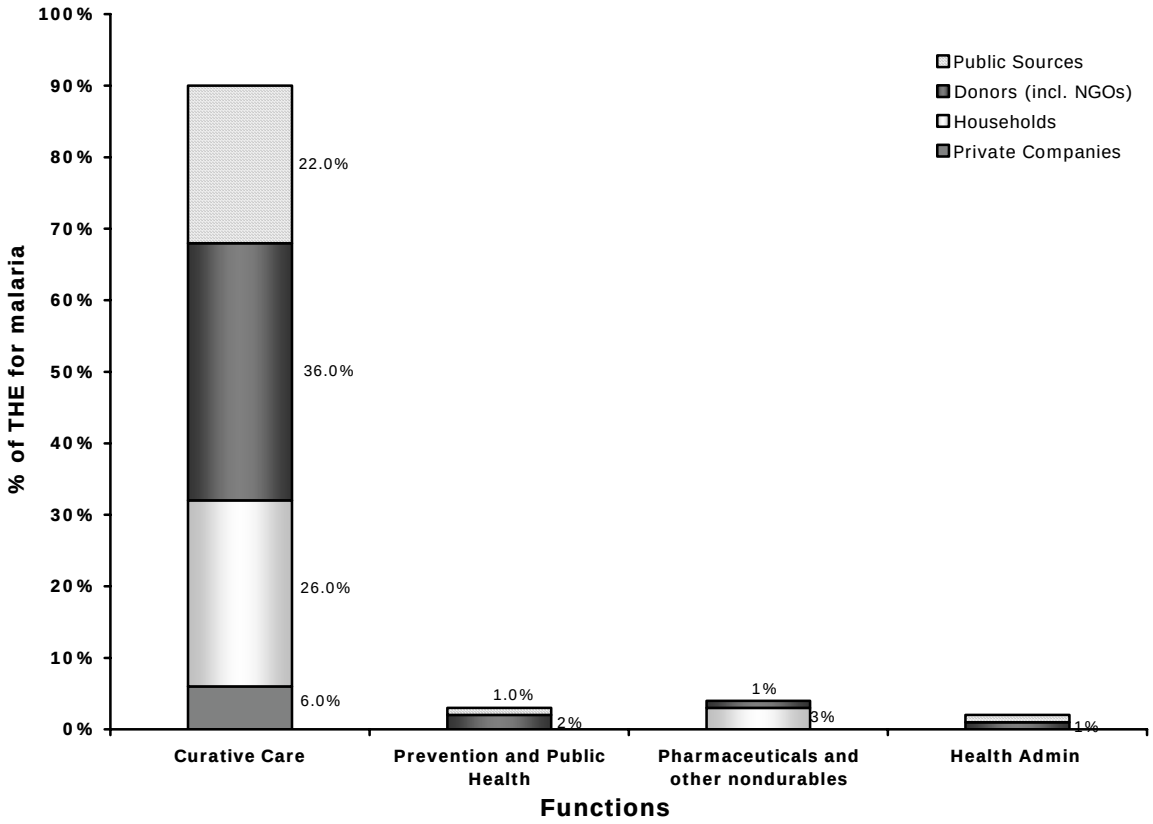
Indicators	**2003**
% of deaths attributed to malaria	26%
Share of all cases due to malaria	40%
Adult share of malaria cases	67.50%
Child share of malaria cases	32.50%
THE for malaria subanalysis ($THE_{malaria}$)	RWF 11,063,633,463 (US $20,545,662)
% of total health $expenditures_{general}$ allocated to malaria	17.58%
Malaria spending per inhabitant	RWF 1,319 (US$2.45)
Malaria OOP spending per inhabitant	RWF 359 (US$0.67)
Total Malaria spending as % of GDP (in current prices)	1%
Government spending on malaria as a % of total Government spending on overall health - 12%	
Donor spending on malaria as a % of donor spending on overall health—16%	
Financing sources of malaria care (as a % of $THE_{malaria}$)	
Public	24%
Private	37%
-Of which households account for	-29% (of $THE_{malaria}$)
Donors	38%
Other	1%
Providers of malaria care	
Public providers	63%
- Public hospitals	-22%
- Public health centers	-41%
Private providers	14%
- Private for-profit hospitals	-3%
- Private for-profit health centers	-11%
Government-assisted not-for profit providers	15%
- Government-assisted not-for-profit hospitals	-5%
- Government-assisted not-for-profit health centers	-9%
Private pharmacies	4%
Traditional Healers	0%
Provision and administration of public health programs	4%
Malaria spending by NHA functions (in %)	
Preventive and public health programs	3%
Curative care**:	91%
- Inpatient	-48%
- Outpatient	-43%
Administration	2%
Pharmaceuticals, nondurables and durables purchased at independent pharmacies/shops	4%
Breakdown of spending on Prevention vs Curative care (according to stakeholder categories)	
Overall spent on Prevention (% of THE for malaria)	**12%**
Prevention and public health programs	3%
ITNs	6%
Repellants	3%
Overall spent on Curative (% of THE for Malaria)	**86%**
Inpatient***	48%
Outpatient***	37%
Pharmaceuticals purchased at independent pharmacies	2%

** Note, embedded within the NHA "curative care" category is "preventive services" that may be delivered as part of an IP or OP service (e.g. bed nets).

*** For purposes of reorganization based on stakeholder categories, the malaria preventive services have been extracted from IP and OP spending and included under "overall spent on prevention."

In terms of the end uses of financiers' funds, figure 2 below illustrates the flows:

Figure 2: Financiers of malaria functions



The major findings of the malaria subanalysis can be described as follows:

- **THE on malaria represents 18% of total health expenditures, amounting to RWF 1,319** [US$ 2.45] **per capita:** In view of the high levels of morbidity and mortality associated with the disease, this should be evaluated in terms of funding needs for the disease.
- **The principal financiers for malaria health care are donors (38%), followed by households (29%), and lastly public sources (24%):** Although donors finance a significant portion of malaria services, households finance close to a third of the malaria resource envelope, significantly more than what is contributed by public sources.
- **As a means for channeling funds, NGOs are preferred by donors and DSGAS and Health district by the Government**: Over half of donor malaria funds and over a third of government malaria resources are channeled through NGOs and DSGAS respectively. This highlights the need for close coordination in health sector decentralization.
- **Principal functional spending on malaria is for curative care:** If broken down according to stakeholder categories of curative and prevention activities, 86% of $THE_{malaria}$ is spent on curative care and 12% on prevention Donors, followed by households, and then the Government finance curative care.
- **Malaria is particularly a burden for the poor and is associated with high vulnerability:** household data shows that treatment of malaria is strongly associated with socioeconomic status. The richest quintiles are twice as likely as the poorest quintile to use hospitals, clinics, or health centres when suffering from malaria. The poor, by contrast, are more likely to see traditional healers (TH); in fact, of those who reported seeing TH, all were in the poorest quintile. In addition, 20% of the richest quintile self-medicates and this rate doubles at the poorer income levels. These findings highlight disparities with respect to

accessing care. The vulnerability of the population becomes clear when looking at the high drug cost of treatment and the low insurance coverage for the disease, which is even less developed than for general health.

- **Spending on malaria bed nets largely comes from the households.** Most expenditures on insecticide treated nets come from households (73%), whilst the Government[10] subsidizes 13% and NGOs 14%.
- **Malaria as a priority for donors is not rising.** Only 16 percent of 2003 donor health funds (US$ 2.4m [RWF 1,29b]) were used for malaria care and prevention. In 2005[11], this share decreased to 3 percent (US$ 1.6m [RWF 0.86b] when scaled to 2003 prices), representing a sizeable drop in absolute and relative terms.

Conclusions regarding the malaria sub analysis are:

Spending for malaria by all principal financiers is largely for curative care services, with very little being spent on malaria public health programs (this is contrary to what was seen for overall health care). The leading financiers of malaria health care are donors (38%), followed by households (29%) and then Government (24%). Despite not being the leading financier of malaria services, the financial burden on households to pay for care is nevertheless heavy, particularly for the poorer income levels. Households spend more than the Government for medical care on malaria. Moreover, households spend more on bed nets than that contributed by the Government and NGOs. Closer investigation of household out-of-pocket spending reveals that access to treatment is strongly dependent on socio-economic status. Finally, despite the advent of the Global Fund and other large donor malaria grants, comparisons to preliminary 2005 data collected by the MoH Department of Planning show that there has been a significant shift in donor resources away from malaria in both absolute and relative terms (between 2003 and 2005).

[10] Government in this context is at the financing agent level. Thus, it includes donor transfers to the Government.
[11] Based on preliminary findings from a donor-mapping database conducted by the Department of Health, Ministry of Health.

1. INTRODUCTION

1.1. THE NHA CONCEPT

National Health Accounts [NHA] is an internationally recognized framework that measures and tracks total – public, private (including household), and donor – health care expenditures in a country. It does so by offering a transparent and consistent way of describing health expenditures in terms of financing sources and end uses.

NHA involve the compilation of available data, the commissioning of primary data collection to fill any gaps, and the analysis and presentation of the data in a user-friendly form as per the norms described in the *Guide to Producing National Health Accounts; with special application for low-income and middle-income countries* (commonly referred to as the *Producers' Guide*[12]). Four main NHA tables are produced to track the flow of health funds from one health care dimension to another, e.g.:

- From financing sources [FS], such as the Ministry of Finance, (the originators of health funds) to financing agents [HF], such as the MoH (entities which receive funds from sources and use them to pay providers; typically financing agents have programmatic control over how funds are allocated)
- From financing agents to health providers [HP], such as public hospitals (entities that deliver health care services)
- From financing agents to functions [HC], such as inpatient curative care or prevention programs (namely the health service or product that is rendered); and finally
- From providers to functions

An NHA estimation allows for fiscal transparency of a country's health system. The primary objective of NHA is to serve as a policy tool – that is, to improve the capacity of Governments to manage their health system by providing expenditure information to contribute to evidence-based health policymaking. It also allows a country to compare its findings to those of other countries in its region and socioeconomic rank. In addition, NHA help donors to determine how to best support national health systems. In addition to looking at an overall health system (General NHA), NHA can be used to do specialized expenditure reviews of disease-specific services (e.g. Malaria) or intervention clusters (e.g. Reproductive Health). These "subanalyses" use the same tabular format as the general NHA exercise.

1.2. DEVELOPMENT OF RWANDA'S NHA

The aftermath of the Rwandan genocide was characterized by a lack of professionally organized data, especially in the health sector. Such data is vital to evaluate the magnitude of needs and areas of priority interventions; thus, the first NHA exercise, conducted in 1999 (estimating 1998 health and HIV/AIDS expenditures), was warmly welcomed by Rwandan authorities. It was carried out by the Ministry of Health in conjunction with the United States Agency for International Development [USAID]-funded Partners for Health Reform (PHR) project. The resulting report, published in 2000, was well received by the Government of Rwanda (GoR). The MoH used the report's findings, which showed a low Government fiscal contribution to health care, to lobby and ultimately attain additional financing from the Government budget – as evidenced by the increased share of total GoR expenditure on health, from 2.5 to 6.1 percent, between 1998 and 2002. Moreover, the 1998 NHA report captured a period in Rwandan history that saw the change from the relief and rehabilitation phase (following the war) to a general development phase.

In 2003, the MoH NHA team, with support from USAID/PHR*plus*,[13] set out to estimate 2002 and 2000 health expenditures in a bid to compose a time series set of NHA data valuable for trend

[12] Published by World Health Organization, World Bank, and the United States Agency for International Development. 2003
[13] The follow-on project to PHR.

analysis. In addition, the Government, at that time committed to institutionalizing the NHA process so that expenditure data is produced on a regular basis. This entailed the creation of a NHA Steering Committee, comprised of key stakeholders from the public and private sectors. To address key policy issues of the time, the 2002 and 2000 NHA exercises conducted specialized reviews (or subanalyses) of HIV/AIDS and RH expenditures.

In 2004, a fourth set of NHA estimates was commissioned for the year 2003. In addition to documenting resource flows through the overall health system, this round includes a malaria subanalysis. Malaria is the greatest cause of morbidity and mortality in Rwanda and in light of a funding surge for other diseases, especially HIV/AIDS, policymakers wanted to assess if malaria needs were being adequately addressed and financed. Thus, the targets for the Rwanda NHA 2003 can be outlined as follows:

- General NHA (which tracks overall health spending)
  - As with previous NHA studies, the 2003 NHA exercise aims to provide greater insight into the state of the Rwandan health system and to draw out specific policy implications. The GoR has incorporated previous NHA findings into the national statistics table and it expects that general NHAs will continue to play a key role in providing much needed input in health care policymaking. Time series analysis is becoming increasingly important as more NHAs are completed and allows comparisons between the years.
- Malaria subanalysis
  - A special feature of NHA in Rwanda has been the adaptation of the NHA framework to study malaria expenditures. This is incorporated as a vital component of the 2003 exercise; and
  - Findings from the malaria subanalysis will inform the MoH as it designs and implements targeted policy interventions that improve the financing of prevention activities and increase access to basic health care services for people suffering from malaria.

In addition to serving national interests, the Rwanda malaria subanalysis marks the first time that such a review has been conducted in Africa. Lessons-learned from the subanalysis will be incorporated into an international set of standard guidelines for conducting malaria subanalyses. These Guidelines are being developed with support from the Roll Back Malaria [RBM] Partnership Resource and Finance working group, the World Health Organization [WHO], and the USAID/PHR*plus* project.

All stages of data collection, analysis, and report writing for NHA 2003 took place between November 2004 and January 2006.

1.3. Policy Objectives

The Rwanda NHA 2003 exercise aimed to document comprehensively resource flows in the overall health care system with a view to enhancing the Government policymaking process. Specific objectives included the following:

- Assist policymakers in setting health care policy priorities;
- Contribute to the improvement of the health system performance and management;
- Identify areas in the Rwandan health system where equity in the distribution of care can be improved;
- Compile relevant descriptive statistics for the health system in Rwanda;
- Enable the tracking of health expenditure trends useful for health care monitoring and evaluation purposes;
- Institutionalize the NHA process through the involvement of local players in all facets of the process including additional training and technical development initiatives;
- Identify current gaps in information on the sources and uses of funding for malaria-related activities in Rwanda; and

- Provide baseline data for malaria resource flows so that future subanalyses can help monitor the impact of funds disbursed by new donor mechanisms such as the Global Fund [GF] to fight Malaria, Tuberculosis, and AIDS.

1.4. Organization of the Report

This report presents the findings of Rwanda's third NHA exercise for fiscal year 2003. While the report uses NHA 2002 data for comparative analysis of results, the focus of the report remains on those discussions and policy conclusions that can be drawn from the NHA 2003 exercise. The report is divided into five main sections as follows:

- The background section looks at the socioeconomic and political environment in Rwanda;
- The methodology section focuses on the NHA implementation process, namely key data sources, data collection methods, sampling approaches, analysis and report writing;
- Two sections dealing with the analysis of the results for general NHA and malaria subanalysis; and
- The conclusion summarizes major findings, next steps and ways in which the NHA exercise addressed the policy objectives described above.

2. BACKGROUND

2.1. Overview of Rwanda

Rwanda is a small landlocked country of Central Africa bordering Uganda, Burundi, Tanzania, and the Democratic Republic of Congo. The population of Rwanda was estimated at 8,162,715 inhabitants in 2002[14]. Population density is very high, standing at 322 inhabitants per km², compared to the 27 inhabitants per km² on average in sub-Saharan Africa[15]. The population is young: 49% are younger than 15 and 60% less than 20 years old. More than 90% of Rwandan live in rural areas, of food crops (sweet potatoes, cassavas, sorghum), of bovine breeding and the export of coffee and tea. In 2002, Kigali city counted had a population of 608,141 inhabitants. Put aside the cities and the centers of trade, there are few villages in Rwanda, the population is living in a dispersed way throughout the national territory.

Rwanda was deeply marked by the events of 1990-1994. This period upset the fragile economy, impoverishing the population, and decreasing external investments. The last human development report of the UNDP [United Nations Development Program] ranks Rwanda 158th out of 173 studied countries, that is to say in the group of the countries with weak human development; life expectancy is estimated at 43 years. The poor health status of the population is marked by the combination of high levels of under 5 mortality rate (196/1,000 births), a high maternal mortality ratio (1,071 deaths for 100,000 live births) and a high level of fertility among women of reproductive age (5.8 children per woman).

Economically, GDP per capita in 2003 was estimated at approximately US$ 210 [RWF 113,083]. A significant divide existed between the rural population (GDP/capita of US$ 105 [RWF 56,541]) and the urban population (GDP/capita of US$ 1,569 [RWF 844,891]). The agricultural sector, which accounts for 91% of employment, contributes approximately 41% of GDP, the of public services sector 39% and the industrial sector 20%. The population below the poverty line passed from 53% in 1993 to 60% in 2002[16]. Social indicators presented a severe deterioration since 1994 and are particularly alarming.

2.2. Regional Comparative Analysis of Basic Indicators on Development and Health Status

As outlined above, Rwanda is one of the poorest countries of the world; more than 60% of the population lives in extreme poverty. The majority of health indicators show a sizeable difference between the rich and the poor. Malaria, acute respiratory infections, physical trauma, diarrhoeal diseases and malnutrition comprise the major causes of morbidity and mortality.

[14] MINECOFIN/SNR. RGPH. Rwanda: 16 – August 30, 2002, Report/ratio on the preliminary results, Kigali, February 2003, 44p.
[15] This figure makes of Rwanda the highly populated country in Africa.
[16] DGCD/Belgium: Strategic Note Rwanda, December 2002, 55p.

Table 3: East and Central Africa basic development indicators in 2003

Indicators	Rwanda*	Zimbabwe	Kenya	Uganda	Tanzania	Malawi	Zambia	Ethiopia
Population in million (2003)	8.8	12.9	32.7	26.9	36.9	12.3	11.3	73.8
GDP Index [2003]	0.42	0.53	0.39	045	0.30	0.30	0.36	0.33
GDP per capita [PPP US$, 2003]	1268	2443	1037	1457	621	605	877	711
Percentage of the population below poverty line (US$/day)	51.7	56.1	22.8	-	19.9	41.7	63.7	26.3
Infant mortality rates per 1000 births (2003)	118	78	79	81	104	112	102	112
Under Five mortality rates per 1000 births (2003)	203	126	123	140	165	178	182	169
Maternal mortality rates per 100.000 live births (1985-2003)	1.100	1.100	1.000	880	1.500	1.800	730	870
Literacy rates (2000)	64.0	90.0	73.6	68.9	69.4	64.1	67.9	41.5
Life expectancy at birth (2003)	43.9	36.9	47.2	47.3	45.9	39.7	37.5	47.6

Source: Rapport mondial sur le développement humain, PNUD, 2005, 385 pages

*For comparative purposes, the Rwanda estimates presented in this table are taken from UNDP. Note, some of these estimates may differ from the official government values reported elsewhere in the report.

2.3. The Rwandan Health System

2.3.1. Health System Mission

The mission of the health sector, as formulated in the 2004 Health Sector Policy, forms part of the global vision of the Government of Rwanda that aims to increase the wellbeing of the population by increasing production and reducing poverty in an environment of good governance. In this context, the specific mission of the health sector is to assure and promote the health status of the Rwandan population by providing quality curative, preventive, rehabilitative and promotional services.

It is recognized by the Government of Rwanda and its partners that the fulfillment of this mission is dependent on a number of factors: first, resources need to be mobilized, distributed equitably and managed efficiently to ensure that those with the greatest health needs have accessibility to health care services. Secondly, the dependency of the health sector on external funding needs to be reduced to ensure sustainability of the system. This is to be achieved through an increase of the Government contribution to the health sector (aimed at 15%) that puts its expenditures in line with the Abuja declaration of 2001. Thirdly, to maximize the impact of services rendered, it is necessary to increase the participation of individuals and communities in preserving their own health and to assist with the management and running of health services.

2.3.2. Health Sector Strategy

The 2005-2009 Health Sector Strategy is based on seven major goals: (i) to ensure the availability of human resources, (ii) to ensure the availability of quality drugs, vaccines and consumables, (iii) to expand geographical accessibility to health services, (iv) to improve the financial accessibility to health services, (v) to improve the quality of and demand for services in the control of disease, (vi) to improve national referral hospitals and research and treatment institutions and (vii) to reinforce institutional capacity.

These goals are a combination of “horizontal” goals affecting all parts of the health system, such as the quality and availability of human resources. Achieving goal number 5 entails a series twelve “vertical” targeted health interventions. These interventions are malaria, HIV/AIDS and sexually transmitted infections, tuberculosis, epidemic and disaster prevention, the Integrated Management of Childhood Illnesses, the Expanded Programme on Immunization, reproductive health, nutrition, mental health, blindness and physical handicap, environmental health and Information, Communication and Education.

Among the goals and targeted health interventions, a number of priority activities have been identified due to their potential impact on desired outcomes: 1) the introduction of measures to retain personnel working in curative services and to improve the quality of human resources in this field, 2) the expansion of community based health insurance schemes, also known as “Mutuelles de Santé”, to include all Rwandans not insured in a formal health insurance scheme, 3) the extension of performance based contracting mechanisms at health centers and district hospitals to the national level.

The institutional environment to implement the above strategies responds to the existing situation, the mission, and vision for the country in general and for the sector in particular. To coordinate the activities of development partners and the Government, a cluster system with technical working groups has been put in place, which supports the Government in technical issues, donor coordination and in the progression towards a sector wide approach. To respond to the objective of bringing health services closer to the population, the Government is decentralizing its structures and budgets: a larger share of the Ministry’s human resources are being placed at the district, which is also in line with the increasing share of the health budget being allocated to this level.

2.3.3. Organization of the Health Care System

2.3.3.1. Public Sector

Organization of the health system in Rwanda

Since the 1980s, the Government of Rwanda has adopted primary health care as the key strategy for improving the health of its population. In February 1995, the Ministry of Health began implementing reforms in the health sector according to the Lusaka declaration, which were later adopted by the Government of National Unity in March 1996. The declared goal of this policy was to contribute to the well being of the population by providing quality health services that were acceptable and accessible to the majority of people and provided with their participation. The policy was based upon three main strategies: (1) the decentralization of the health system using the health district as the basic operational unit of the system, (2) the development of the primary health care system through its eight core components, and (3) the reinforcement of community participation in the management and financing of services.

Administrative decentralization reforms had an impact on the institutional framework, obliging the health sector to carry out readjustments. The adopted strategy refers to health system decentralization, primary health care development, and community participation. The implementation of the health sector policy is articulated around a pyramidal hierarchy on three levels:

(1) **The central level** is composed of the services of the Ministry. In 2003, it was organized into six departments: Epidemiology and Public Hygiene, Health care, Planning, Human resources and financial management, Pharmacy and the department of nursing and midwifery. The central level contains three reference hospitals and three main programs to control AIDS, Malaria and Tuberculosis. The main role of central level is to prepare policies and strategies, provide monitoring, evaluation and regulation

(2) **The intermediate level** was composed of the department of Health, Gender and Social Affairs (DSGAS). This level was one among six others at the provincial level and had two divisions: One for the coordination of Health Districts and another one for Gender and Social Affairs. The team was coordinated by a medical doctor to guarantee the implementation of health activities at district level. This level implemented policies and deals with management and allocation to Government providers, while ensuring the equitable distribution and efficient use of resources

(3) **The peripheral level** is the health district, the operational unit of the health system, which covers the medical facilities of its catchments areas. The HD is managed by a board (ECD), under the responsibility of a Medical doctor who is based at the administrative district office (BAD). The Health district is comprised of a district hospital and other medical facilities such

as health centers, dispensaries, health posts. Forty percent of them are faith –based but not for profit. The district hospital ensures the most qualified care in comparison that offered at health centers; in so doing, the district hospital carries out integrated supervision to health centers. The health center is the first level of contact with the population from its catchments areas. It supervises health workers, TBAs [Traditional Birth Attendance] and all health providers at community level. Within the framework of decentralization, the health facilities depend administratively on the administrative district and technically on the HD. The Ministry of Health defines a Minimum Package of Activities for the health center and a Complementary Package of Activities for the district hospital.

In total, Rwanda has three reference hospitals (Butare and Kigali Teaching Hospitals and The Neuro-Psychiatric Hospital of Ndera)[17], 12 DSGAS, 40 DS [Health district], 33 district hospitals and 369 health centers including dispensaries and health posts.

The GoR's has defined key characteristics of health care and -services: for health care, they include continuity, integration, social awareness, and relevance; for health services, they include decentralization, continuous provision, flexibility, and efficiency.

Concerning the management of drugs and supplies, a pharmaceutical policy is under development. A system of pre-qualification is set up for the selection of suppliers and manufacturers. The central purchasing of essential Drugs of Rwanda [CAMERWA] ensures the procurement of medical supplies on the basis of a list of essential drugs which is revised every two years. Not for profit organizations have their own purchasing agency (BUFMAR: Office of Certified Medical Facilities of Rwanda), which is competitive in price to CAMERWA.

2.3.3.2. Government-Assisted Health Facilities

As mentioned earlier, 40% of health facilities are under the supervision and the management of Faith-Based Organizations, mainly from Catholic and Protestant churches. A memorandum of understanding between the Government and these organisations has been endorsed.

Government assisted health facilities fulfill all the functions of publicly owned facilities (as defined by the Ministry of Health) and have official management structures. They are fully integrated into the structure of the health district. The not-for-profit sector adheres to a convention, and this formal agreement determines the respective obligations and rights of those working in the sector. Local partnership between NGOs, churches, private providers of health and the public sector are to be encouraged to ensure coordinated and integrated planning.

2.3.3.3. Private Sector

The private sector is not yet very developed in rural areas. This sector is found throughout the main cities such as Kigali, Butare, Ruhengeri and Gisenyi. The GoR is strengthening its relationship with the private sector. Collaboration is based on (1) greater participation of the private sector in the provision of services to the entire population, (2) improved accessibility of this sector to facilities offered by the GoR, (3) improved supervision of the sector, particularly in terms of health information, and (4) a reinforcement of the Directorate in charge within the Ministry of Health. A formal agreement detailing the nature of cooperation between the Ministry of Health and the private sector has been established to ensure good collaboration.

2.3.3.4. Traditional Medicine

Rwanda's health sector has undergone a fundamental transition in the last century where in the time before colonization, health care consisted of traditional African healing methods.

Up to now, the Government recognizes that a large portion of the population continue to use traditional medical services. A legal framework determines how traditional medical services operate

[17]The Neuro-Psychiatric hospital of Ndera beside Kigali is an entity of national reference for mental health while the hospital King Fayçal which is a medical facility with a private statute, which has to provide a higher level of medical services than the national reference hospitals.

alongside health services within the district. Collaboration with the Butare Institute for Scientific and Technological Research ensures the rational development of traditional health care in the country.

2.3.3.5. The Global situation of Malaria

Malaria is a parasitic disease potentially fatal in the intertropical zones, due to a protozoon "Plasmodium" transmitted to humans by bites of female "Anopheles" mosquitoes. It is a major problem of public health in the world and particularly in sub-Saharan Africa. Each year, 300 to 500 million cases are recorded in the world with one to two million deaths. More than 80% of the cases and more than 90% of the deaths occur in Africa. Thus, it is necessary to take into account the enormous socio-economic losses in endemic countries (loss US$ dollars 3.6 billion [RWF 1939 b] per annum and a reduction of 1.3 point of percentage of the growth of GDP [Source: www.rbm.who.int]) and finally school absenteeism. Malaria is aggravated by poverty, a cause of inequality and a big challenge to economic development.

People of all ages and both genders suffer from the disease, but the consequences of malaria are most serious in pregnant women and children under five. Among pregnant women, malaria causes severe anemia, abortions and low-weight of birth. Young children are at risk of developing anemia, delays in mental and physical growth, and death.

2.3.3.6. Malaria control in Africa

In October 1998, WHO, UNICEF [United Nations Children's Fund], UNDP and the World Bank launched the world initiative "Roll Back Malaria" [RBM][18]. This initiative is aimed at fighting against malaria in Africa as a contribution to the total socio-economic development of Africa. Its objectives are to reduce specific mortality related to malaria to 50% of current levels by 2010, to 30% by 2015 and to 20% by 2025. By 2030, malaria should thus cease being a major cause of morbidity, mortality and socio-economic losses in Africa.

Current strategies in the fight against malaria are: (1) fast access to effective treatment; (2) promotion of the use of the impregnated insecticide mosquito nets; (3) prevention and treatment of malaria among pregnant women and (4) detection and the response to the epidemics.

In April 2000, the Summit of the African Heads of States and Governments in Abuja (Nigeria) developed malaria targets for the year 2005, namely:

- At least 60% of the children under 5 and of the pregnant women will have access to the most effective preventive measures
- At least 60% of the children with malaria will have suitable access to a treatment within 24 hours

The creation of the Global Fund to fight against AIDS, tuberculosis and malaria[19] came to give a second additional hope to African countries.

2.3.3.7. Malaria control in Rwanda

Malaria has been the leading cause of morbidity and mortality in Rwanda for more than 10 years:

1. Over half of consultations in health facilities were due to malaria (between 1995 and 2003)
2. The incidence rate increased from 3.5% in 1982 to more than 48.2% in 2003
3. In district hospitals, 50% of all deaths in 1998 and 59.9% in 2003 were due to malaria

Epidemiologically, 57% of population is at endemic risk, 21% at the epidemic risk, and 22% at the negligible risk (WHO/afro 2002).[20]

In 2003, there were 1,321,432 cases of malaria in health centers, among which 32.5% were children of less than 5 years.

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[18] In English Roll *Back Malaria* [RBM]

[19] In *Total* English *Fund to fight AIDS, Tuberculosis and Malaria* (GFATM [Global Fund to fight AIDS, Tuberculoses and Malaria])

[20] 1.The endemic risk is the area where population (2-9 years): Parasitological index and the spleen index are under 50%; 2. Epidemic risk same age Parasitological index and the spleen index between 10 and 50%; 3.Negligible risk for the same group of age: the parameters are below 10%

In terms of hospitalizations, 128,962 cases were recorded, among which 33.8% children under 5. Of a total of 1,434 deaths reported for health centre inpatients younger than five years, 39% were attributable to malaria.

In District hospitals, 45,090 inpatient cases were recorded, of which 44% are were for children under the age of 5. The total number of cases at health centers is around 1,366,522 of which 2,564 were fatal.

The Rwandan fight against malaria is based on the strengthening of prevention measures and the improvement of the case management. It is built on the multisectoral approach of « Roll Back Malaria ». The approach consists of: (i) rapid diagnosis and treatment of cases, (ii) increasing the protection of individuals and communities using preventative methods (impregnated mosquito nets, intermittent presumptive chemo-prophylaxis treatment for pregnant mothers, management of the environment, including vector control), (iii) making decision based on evidence, monitoring, community sensitization and adapted interventions, (iv) targeted research and (v) coordinated activities aimed at reinforcing existing health services.

3. METHODOLOGY

3.1. Overview of Approach

The Rwanda NHA 2003 exercise used the methodology and estimation techniques espoused in the 'Producers Guide[21]' and built upon previous national health accounts initiatives. This round of NHA employed a number of primary and secondary data collection approaches. Primary data collection entailed the administering of questionnaires to donors, NGOs, employers (private, public) and insurances (CSR [Social Security], RAMA, Mutuelles de Santé). Data for pharmacies and private practitioners was extrapolated from NHA 2002 estimates. Out-of-pocket spending was estimated from what was reported at facilities, secondary sources, and extrapolated 2002 data. For public entities, data was obtained from the 2003 Health Information System data [HIS] of the MoH Unit of Planning and Research and from statistical and accounting records of the Centre Hospitalier Universitaire de Kigali [CHUK] and of Ndera Neuro-Psychiatric Hospital were used. For the malaria subanalysis, household spending data was derived from a household survey conducted as part of PNILP's malaria economic impact study.

It should be noted that some adjustments were made to Rwanda's 2003 NHA scope to include traditional healers, surveillance and monitoring, and donor administration. Moreover, in order to take into account the Malaria subanalysis, relevant NHA sub-functions were inserted within the general NHA classification. Other changes in this year's NHA exercise included the reclassification of FARG [Genocide Survivors Fund] as a public social security fund, whilst it was previously reported under private insurance. This change was instituted by the team as it was felt that FARG's inclusion in the private sector mislead and exaggerated the role of private insurance in Rwanda.

Objectives of Data Collection

The main objectives of data collection were to inform 2003 general NHA estimation and malaria NHA estimation. Specifically, the NHA team set out to complete the following tasks:

- To collect primary data on health care expenditure where accurate secondary data was not available
- To pilot the collection of expenditure data from all relevant actors for the first ever NHA malaria sub-analysis

3.2. Secondary Data Collection

For some financing agents and providers, data were available from secondary sources:

- 2003 executed budget (for both recurrent and development) of the MoH and other ministries (provided by the Ministry of Finance and Economic Planning)
- The MoH HIS database
- Statistical and accounting records of public and agree hospitals as well as health centers. The only private hospital, King Fayçal Hospital [KFH] supplied information from its records
- 2003 MoH Annual Report
- PNILP Strategic Plan 2005-2010
- Plan regarding the fight against the Malaria Epidemics 2005-2010
- Report on donors contributions by MINECOFIN, CEPEX [Central Public Investments and External Finance Bureau]
- BNR report of exchange rate
- 2003 PNILP annual expenditure report

[21] Guide to producing national health accounts: with special applications for low-income and middle-income countries. World Health Organization, World Bank, United States Agency for International Development, 2003.

- Data on traditional healers by MoH, private clinics and traditional healers associations' desk
- List of private clinics by MoH, private clinics and traditional healers associations' desk
- PSI data
- Data from 2002 Socio-economic impact HH survey
- Cost study on health services in Rwanda carried out by Public Health School on behalf of the MoH
- Burden of disease in Rwanda/ESA region
- MoF executed budget (recurrent), annual report of the Ministry of Health for 2003
- 2003 CAMERWA expenditures data
- Privatization status by MINECOFIN, Privatization Secretariat

3.3. Primary Data Collection

3.3.1. Survey Instrument Development

For the main general health expenditure questions, the 2002 questionnaires were revised and updated following feedback from pre-tests. In addition, specific questions were included for malaria spending estimates. Considerable energy was spent on developing malaria-specific classifications for services provided. The questionnaires targeted donors, NGOs, insurance schemes, and employers. Additionally, a few provider questionnaires were circulated to those large hospitals for which expenditure information was not readily available in Government executed budgets. Also, from the socioeconomic impact study of malaria, the NHA team had access to household survey data on malaria.

Whilst the questionnaires provided the information needed to analyze general health expenditure and specific expenditure on malaria, the task could have been accelerated if the questionnaire-and data structure had been more closely adapted to the final outputs sought. This experience leads the technical team to recommend that, if possible, questionnaires, data entry screens and analysis frames be developed together if possible. This should especially be useful when a large number of entities has to be analyzed, or the data to be collected is very comprehensive or complex.

3.3.2. Sampling Approach

Sampling of entities was based on previous work for the 2002 NHA. For insurance, donors and NGOs, where sample sizes were comparatively small, a complete coverage of all institutions was attempted. Missing responses were imputed using a weighting system that estimates the relative size of entities in its category and scales the data captured in questionnaires to an imputed total. More specifically, entities were classed in quintiles relative to the largest entity (e.g. if the largest NGO spent a share of 25% of all NGO expenditures, then quintiles would have been from 0-5%, 5-10%, etc.). The number of entities captured in each quintile (n) was compared with the total number entities estimated to be in that quintile (N), and all values were then scaled by (N/n) to estimate total expenditures for all entities in that quintile. An example of this approach is shown in section 3.4.1.

In the case of private employers and parastatals, where the number of entities is large, complete survey coverage could not be attempted. Thus, a sample was chosen based on previous work, as structured information with regards to the ″universe″ of employers and parastatals that contribute to health (or are large enough to provide health coverage for employees) in Rwanda is not publicly available. This lack of information posed a challenge in subsequent analysis and was resolved using estimation techniques.

3.3.3. Survey administration

The 2003 NHA survey was conducted by the technical team comprising of MoH staff and School of Finance and Banking SFB lecturers. After explaining the questionnaire to the respondent, the survey

administrator left the questionnaire with the respondent for him/her to fill out. The filled questionnaire was later obtained by the survey administrator in a number of ways: a) the administrator personally went and retrieved the questionnaire from the respondent, b) the questionnaire was mailed or emailed back, c) the questionnaire was dropped off at the Ministry of Health by the respondent. Every effort was made to facilitate and encourage complete reporting of expenditures in the questionnaires.

3.3.4. Testing

Prior to finalization, each survey instrument was pre-tested. Two typical entities were chosen for testing. The objective of the pre-test was to determine if the questionnaires were 1) understandable and feasible for the respondent, 2) to evaluate the questionnaire translation, and 3) estimate the time necessary for completion. Questionnaires were then adapted based on the feedback of respondents and translations were finalized.

3.3.5. Data processing

Data collected in questionnaires was entered into SPSS [Statistical Package for the Social Sciences] using predefined data entry screens. Following data entry, the data sets were checked for errors and cleaned.

3.4. Data Entry and Analysis

Data analysis took place from the 5th to 16th December 2005, following data entry. Data was edited and reviewed to verify the consistency of questionnaires answered. For this, it was necessary to contact some of the respondents. If respondents could not be contacted or questions had likely been misunderstood, relevant individuals were sought for data triangulation. At times telephone calls were sufficient to clarify ambiguous data.

3.4.1. Donors and NGOs

The NHA 2003 survey used different questionnaires administered to a sample of 15 donors (that is 75% of total number of donors operating in health sector) and a sample of 31 NGOs (that is 76% of total number of NGOs operating in health sector). Sample entities were grouped in strata using quintiles developed based upon their estimated share of health donor/NGO financing[22] The weighting factor was computed as a percentage of the total number of surveyed donors/NGOs over the universe in the respective strata. To get the weighted amount, we divided the weighting factor by the disbursed amount.

Table 4: Weighting to all donors that contribute to health

Strata	Quintile 1 (0%-7%)	Quintile 2 (7.1%-14%)	Quintile 3 (14.1%-21%)	Quintile 4 (21.1%-28%)	Quintile 5 (28.1%-35%)
Total # in quintiles	17	1	1	-	1
Fraction	0.2	0.2	0.2	0.2	0.2
# surveyed	13	0	1	0	1
Percentage	15%	0%	20%	20%	20%
Scaling factor	76%	0%	100%	0%	100%

Quintile 1 represents donors whose total share in health donor financing is equal or less than 7%, Quintile 2 represents donors whose total donor financing share comprises between 7.1% and 14%; Quintile 3 represents donors whose total donor financing share comprises between 14.1% and 21%; Quintile 4 represents donors whose total donor financing share comprises between 21.1% and 28%; Quintile 5 represents donors whose total donor financing share comprises between 28.1% and 35%. The weighting factor is the percentage of total number of surveyed donors over the universe in the respective quintile.

[22] The estimated shares were developed from CEPEX report on donors contributions

Table 5: Weighting to all NGOs that contribute to health

Strata	Quintile 1 (0%-4.5%)	Quintile 2 (4.5%-9%)	Quintile 3 (9%-13.5%)	Quintile 4 (13.5%-18%)	Quintile 5 (18%-22.5%)
Total # in quintiles	35	3	1	1	1
Fraction	0.2	0.2	0.2	0.2	0.2
# surveyed	25	3	1	1	1
Percentage	20%	20%	20%	20%	20%
Scaling factor	71%	100%	100%	100%	100%

Similar to the donor table, quintile 1 represents NGOs which spent between 0%-4.5% of the NGO total on health, quintile 2 represents NGOs which spent between 4.5%-9%; quintile 3 contains those in the 9%-13.5% bracket, etc. The weighting factor is the inverse of the percentage of total number of surveyed donors over the universe in the respective quintile.

3.4.2. Parastatal and Private employers

In 2003, 163 companies were registered in the Rwandan Private Sector Federation and employed 139,592 temporary and permanent staff. The number of parastatal employees covered by the survey (n) stands at 8,454 and it was assumed that all parastatal employees (21,410) have access to medical benefits, whilst only 10.14% (11,989) of private employees are assumed to have access to medical benefits other than social security benefits. However, all 118,182 formal sector employees received social security benefits since company contribution to the Social Security Fund is compulsory in Rwanda. Therefore, two different ratios have been used to generalize the survey data to national-level estimates: one for the SSF [Social Security Funds] and another one for other health benefits. Thus the number of employees covered by other medical benefits is 33,399, which represents 24% of all permanent formal sector employees in Rwanda.

Tables 5 and 6 below detail the estimation techniques used in this context.

Table 6: Adjusting of parastatal employer contribution to financing agents in RWF

	Social Security Fund [CSR]	Private Employer Insurance Programme	Parastatal firms and Corporations (other than health insurance)	Not specified by kind	Total
Survey total	191,905,439	158,152,162	438,689,111	2,022,526	**790,769,237**
Weighted average	n/N= 39%				
Weighted to national level	**486,001,907**	**400,521,490**	**1,110,983,335**	**5,122,062**	**2,002,628,795**

Table 7: Adjusting of private employer contribution to financing agents in RWF

	Social Security Fund [CSR]	Private Employer Insurance Programme	Private firms and Corporations (other than health insurance)	Not specified by kind	Total
Survey total	122,328,496	-	373,111,518	-	**495,440,014**
Weighted average	Ratios for other health benefits: n/N=26% Ratios for SSF: n'/N'=3%				
Weighted to national level	**4,583,718,731**	-	**1,418,332,085**	-	**6,002,050,817**

3.4.3. Insurance

The private insurance survey covered three community based prepaid risk-pooling plans (Mutuelles) of Bungwe Health Center, Mugonero Health Center and Kabutare Health Center, one health insurance housed in King Fayçal hospital and one private insurance SONARWA [National Insurance Company of Rwanda] which covers accident risk. We then weighted to the national level to take into account COGEAR [General Company for Insurance and Re-Insurance], SORAS [Rwanda Insurance Company] and CORAR [Rwandan Company for Insurance and Re-Insurance] by adjusting the survey total with the assumption that the collected amount represented 78% of the private insurance total. For social insurances (RAMA, FARG, CSR) all entities were surveyed.

Table 8: Health Revenue of Insurance Companies in RWF

Revenue Sources by Line of Business	Private Insurances	RAMA	FARG	CSR Health Revenue	Total Revenue
Premium spent by MoF [Ministry of Finance] for Government social initiatives		2,287,919,839	4,291,736,355		6,579,656,194
Premium spent by public firms	52,679,615	686,812,091		926,157,553	926,157,553
Premium spent by private firms	122,919,103			515,120,934	515,120,934
Other premium from NSK [Not Specified by Any Kind]	26,290,319			250,075	250,075
Premium received from households	176,120,838				176,120,838
Total insurance revenue RWF	**378,009,876**	**2,974,731,930**	**4,291,736,355**	**1,441,528,562**	**9,086,006,723**

3.4.4. Providers

For issues of consistency, the same assumptions were used to split expenditures by providers or by functions throughout the entire data analysis process. In general the following ratios were computed based data from the Health Information System; the split of expenditure between hospitals and health centers was estimated at 53.14% and 46.86% respectively.

Within hospitals, the expenditure split between public- and agree entities was estimated at 81% and 19% respectively. The shares of 64% versus 36% were used for public- and agree health centers. To adjust expenditure by functions, the following ratios were applied:

- At public and agree hospitals, 36% of expenditures were attributed to OP while 64% were attributed to IP [In patient]
- For district hospitals, 31% OP and 69% IP were used

- For referral hospitals or private hospitals (King Fayçal Hospital): 39% OP and 61% IP
- For public and agree health centers OP represented 77% and IP 23%
- For private clinics we assumed that private clinics offer OP care only; this was concluded following interviews conducted with physicians

To arrive at an estimation of the universe of public- and referral hospitals, we weighted them by slotting them into one of four different categories according to hospital size; small district hospitals we allocated a weight of 1, big district hospitals a weight of 5, referral hospitals (KFH and Butare University hospital) the value 10 and CHUK the value of 20.

We then estimated the universe of public hospitals by multiplying the number of hospitals in each category by their weight. This index (N) was put against the collected weights for those hospitals (n).

Table 9: Hospital weighting

Public Hospitals	**Unweighted N**	**Weight**	**Weighted N**	**Reported n**
Small District hospitals	25	1	25	21
Big District hospitals	7	5	35	25
Referral	2	10	20	10
CHUK	1	20	20	20
Total			**100**	**76**
Public hospitals	Number in universe			
District hospital	32			
Referral	2 (Excludes Ndera hospital [which is classified as a mental health])			
CHUK	1			

3.4.4.1. District Hospitals

Table 10: Adjusting to districts hospitals by functions in RWF

		Public	**Agree**	**Total**
Drugs *	Inpatient	233,941,809	111,345,222	345,986,697
	Outpatient	73,059,146	50,828,610	123,188,090
	S/Total Drugs	***307,000,956***	***162,173,832***	***469,174,787***
Other *	Inpatient	395,247,265	339,005,162	746,611,160
	Outpatient	123,434,232	154,754,382	265,829,882
	S/Total Other	***518,681,497***	***493,759,544***	***1,012,441,042***
Curative **	Inpatient	166,763,558	72,638,346	239,401,904
	Outpatient	52,079,631	33,159,089	85,238,720
	S/Total Curative	***218,843,189***	***105,797,435***	***324,640,624***
	Grand Total	**1,044,525,642**	**761,730,811**	**1,806,256,453**

* For drugs and other adjusted to national level data reported from 2003 SIS [Health Information System] were split between in patient and outpatient according to SIS ratios (76% for IP and 24% for OP for public hospitals and 69% for IP and 31% for OP agree hospitals)

** For Curative care, scaled amounts (IP and OP) were calculated by using total reported hospital amounts (IP and OP) which were adjusted to completion reporting rates and then weighted to national level by using a ratio of total number of hospitals to reported number of agree or public hospitals according to the case.

3.4.4.2. Health Centers

Table 11: Adjusting to HC by functions in RWF

		Total	Public	Agree
Drugs *	Inpatient	210,250,305	94,946,184	109,289,529
	Outpatient	733,525,455	366,294,951	345,388,465
	S/Total Drugs	***943,775,760***	***461,241,135***	***454,677,994***
Other *	Inpatient	70,364,900	25,071,004	45,527,584
	Outpatient	245,490,466	97,067,985	144,395,860
	S/Total Other	***315,855,367***	***122,138,989***	***189,923,444***
Curative **	Inpatient	113,032,541	49,937,268	61,140,808
	Outpatient	394,350,180	192,846,279	193,416,497
	S/Total Curative	***507,382,720***	***242,783,548***	***254,557,305***
	Grand Total	**1,767,013,847**	**826,163,672**	**899,158,743**

* For drugs and other adjusted to national level data reported from 2003 SIS were split between in patient and outpatient according to SIS ratios (20% for IP and 80% for OP for public Health Centers and 24% for IP and 76% for OP agree Health Centers and 19% for IP and 81% OP for private)

** For Curative care, scaled amounts (IP and OP) were calculated by using total reported Health Centers amounts (IP and OP) which were adjusted to completion reporting rates and then weighted to national level by using a ratio of total number of Health Centers to reported number of agree or public and or private.

3.4.4.3. Private Clinics

There was no survey for private clinics for 2003 NHA, data were extrapolated, based on 2002 findings by adjusting for inflation and according to the total number in the universe in 2003 and assuming the same rate of increase in expenditures as by public health centers.

Table 12: Adjusting private clinics in RWF

RAMA	Private Insurance Enterprises	Private HH [Household] OOP	Private firms and Corporations	NSK
*12,007,500	*1,585,113	*663,033,181	*142,564,620	*9,108,473
Adjusted for inflation: (2003 index 100 / 2002 index 93.7) = 1.074445				
12,901,396	1,703,116	712,392,534	153,177,811	9,786,551
Weighted to national level in 2003: n/N in 2003 = 0.39939				
32,302,731	4,264,291	1,783,700,392	383,529,174	24,503,731
Adjusted for public health center increase: Rate of public health center increase = 1.87				
60,406,107	7,974,225	3,335,519,732	717,199,556	45,821,977

*2002 Private clinics data.

Table 13: Private clinics Expenditures on Functions in RWF

Inpatient curative care	Outpatient curative care	Not specified by kind
*58,976,828	*576,927,393	*192,394,666
Adjusted for inflation: (2003 index 100 / 2002 index 93.7) = 1.074445		
63,367,344	619,876,621	206,717,443
Weighted to national level in 2003: n/N in 2003 = 0.39939		
158,660,220	1,552,057,494	517,582,605
Adjusted for public health center increase: Rate of public health center increase = 1.87		
296,694,612	2,902,347,514	967,879,472

* 2002 Private clinics data.

3.4.4.4. Private pharmacies

There was no survey for private pharmacies for 2003 NHA, data were extrapolated, based on 2002 findings by adjusting for inflation and according to the total number in the universe in 2003 and assuming the same rate of increase in expenditures as by public health centers.

Table 14: Adjusting private pharmacies in RWF

Private households' out-of-pocket payment
*933,257,115
Adjusted for inflation: (2003 index 100/2002 index 93.7) = 1.074445
1,002,733,227
Weighted to national level in 2003: n/N in 2003 = (169/436)= 39%
2,586,933,060
Adjusted for public health center increase: Rate of public health center increase = 1.87
4,837,564,822

*2002 Private pharmacies data.

Table 15: Private clinics Expenditures on Functions in RWF

OP	Pharmaceuticals and other medical non durables	Therapeutic appliances and other medical durables	NSK
*432,000	*887,960,820	*537,540	*44,326,755
Adjusted for inflation : (2003 index 100 / 2002 index 93.7) = 1.074445			
464,160	954,064,860	577,557	47,626,650
Weighted to national level in 2003: n/N in 2003 = (169/436)= 39%			
1,197,478	2,461,374,432	1,490,029	122,871,121
Adjusted for public health center increase: Rate of public health center increase = 1.87			
2,239,284	4,602,770,188	2,786,354	229,768,996

*2002 Private pharmacies data.

3.4.4.5. Adjusting CHUK, KFH and Ndera Neuro-Psychiatric Hospital

Survey data were collected from CHUK and KFH mini-hospital survey questionnaires. This information was triangulated with reported data from various sources: Government executed budget 2003 and donor survey 2003. The total survey was then adjusted to equal total expenditure. As for Ndera Psychiatric Hospital survey data was assessed from Ndera annual report, which was of good quality.

Adjusting CHUK, KFH and Ndera Neuro-Psychiatriac Hospital expenditures by functions, adjusted expenditures were split between IP and OP based on ratios computed according to the Study on Costs of Health Services in Rwanda report (Etude sur les coûts des soins de santé au Rwanda) by the School of Public Health on behalf of the MoH and WHO. Estimation of variables and fixed costs of CHUK and KFH hospital services concluded to the following ratios 39% for OP and 61% for IP and for Ndera hospital 8% for OP and 92% IP.

Table 16: Adjusting CHUB in RWF

	IP	OP	Total
CHUK	314,453,148	197,685,529	512,138,677
Weighted Average	Bed ratio b'n CHUB and CHUK =400/511	IP ratio divided by 2 = 200/511	
CHUB	246,147,278	77,372,027	323,519,305

As CHUB did not returned the mini-hospital survey questionnaire, IP was estimated by determining average expenditure per bed at CHUK and multiplying by number of beds at CHUB

NHA team estimated OP by multiplying bed ratio between CHUB and CHUK against total CHUK OP expenditure and divided in half as OP visits are much lower in number at CHUB.

3.5. Malaria Subanalysis

3.5.1. Expenditures on malaria: "targeted" versus "untargeted" expenditures

As with other disease-specific subanalyses, survey respondents are usually only able to report targeted spending. This includes household out-of-pocket spending on malaria as well as programmatic expenditures incurred by donors, NGOs, and PNILP. However, this is not encompassing of all actual expenditures incurred for malaria health care; rather, there are also 'non-targeted' expenditures. These expenditures refer to indirect spending on malaria like, for example, materials or pharmaceuticals given to a health centre and used in the fight against malaria, but not showing up explicitly in malaria related budgets. For these types of expenditures, non-market providers may use their general revenue (contributed by various financing agents for all health services rendered by the provider) to pay for malaria-related services. Generally speaking, such information is not readily disaggregated in the information systems of most middle- and low- income countries that do not pay providers on the basis of diagnosis related groupings [DRGs].[23]

To estimate non-targeted expenditure amount in Rwanda, a combination of cost and use data was used in the following manner (illustrative for outpatient care):

$$\frac{\text{Unit cost to deliver outpatient care for malaria at a given provider} \times \text{Number of outpatient visits for malaria at a given provider}}{\text{Unit cost to deliver outpatient care for general health at a given provider} \times \text{Number of outpatient visits for general health at a given provider}} = \text{Y \% of overall OP expenditures that are used for malaria}$$

The derived percentage is then applied to general provider expenditure for outpatient care. To determine which financing agents contribute to non-targeted spending for malaria, the same ratios of contributors for general health services at the provider can be used for the malaria subanalysis. These estimates were made separately for different types of facilities, namely health centers, district hospitals and referral hospitals. Similarly, to trace the non-targeted spending back to the financing source level, the same proportional breakdown found in the general FS x HF table can be applied to those financing agents that contribute to non-earmarked spending.

3.5.2. Estimation of expenditures on malaria preventive commodities

Critical to the malaria subanalysis is the measurement of spending on preventative commodities, such as ITNs, mosquito repellants and so forth. Because the household survey for malaria included only households that had at least one malaria episode, this survey was not useful for estimating total expenditure on preventive commodities. In these cases, price times utilization was used to estimate expenditures.[24]

[23] Non-targeted spending can be more easily determined in countries where providers are reimbursed according to diagnosis related groups-DRGs (Australian Institute of Health and Welfare, 2005). DRGs comprise a classification system used to group hospital patients according to their medical diagnosis and their use of hospital resources (Kielhorn, Graf von der Schulenburg, 2000).

[24] Although not ideal for curative care expenditures, multiplying cost [price] and use estimates is not a limitation for deriving commodity expenditures because there is usually no variability in the services rendered when commodities are purchased/obtained. This is the case because cost equals price in market goods. This is true not only of commodities but also of market services.

Another issue faced with respect to commodities was the purchasing and reselling of a commodity multiple times. In Rwanda the following situation was observed. The numbers used below are merely for illustrative purposes:

Donors give US$ 100 [RWF 53,849] for the purchase of bed nets. The Ministry of Health procures the nets for US$ 100 and then sells them to its providers for US$ 60 [RWF 32,309]. The US$ 60 are stored in the Ministry's bank account and used for the following year's purchase of various malaria-related products and program needs. Therefore, US$ 40 [RWF 21,540] is the amount actually subsidized by donors to facilities. Households then buy the nets from the facilities for US$ 70 [RWF 37,694]. Therefore, a profit of US$ 10 [RWF 5,388] is made by the provider, who is entitled to use the profit as it sees fit (as part of cost-recovery initiatives). Should the value of US$ 100 for the nets themselves be counted? Or perhaps the full US$ 170 [RWF 91,543] amount that includes the total contributions made by both the donors and the households?

Critical to the approach taken was an assessment of the end uses of donor monies that were not used for ITNs that year as well as the HH OOP revenue (generated from the sale of bed nets). Regarding the amount retained in the Ministry's bank account, since this amount is channeled back into the health care system the following year, the team chose to exclude it from this year's accounts and included in the following year's accounts. Therefore, donors are described as giving US$ 40 [RWF 21,540] to the MoH (which is actually spent that year). With respect to the HH OOP revenue raised by the hospital, since these funds were retained at the facility level for health care use, presumably that year, they are treated in accordance with the PG i.e. "if the (user) fees are retained as additional resources by providers, i.e. supplement ministry of health spending they do not need to be subtracted from the Ministry total" (p.142 in the PG). See Table 17 and Table 18.

Table 17: Illustrative FS x HF table when donated commodities are sold to public providers

FS x HF	FS.2.2 Households	FS.3 Rest of the World (Donors)	Total
HF. 1.1.1.1 MoH		40	**40**
HF 2.3 Households Out-of-pocket	70		**70**
Total	**70**	**40**	**110**

Table 18: Illustrative HF x HP table when donated commodities are sold to public providers

HF x HP	HF 1.1.1.1 MoH	HF 2.3 Households OOP	Total
HP.3.4.5.1 Public health centers*	40	70	**110**
Total	**40**	**70**	**110**

*Just for illustration purposes, this matrix assumes all Government nets are transferred to only public health centers.

3.5.3. Primary data collection

All NHA questionnaires administered to entities regarding overall health expenditures also contained a section on malaria-specific expenditures. These sections largely followed the structures of the general health expenditure sections, but were adjusted for malaria-specific services, as described in section 3.3.1. Apart from these differences, the same logic of weighting the sample and scaling it up for missing responses was used as in the general health expenditure section.

3.5.4. Analysis of household data for malaria expenditures

Methods

These estimates are formed by combining the out-of-pocket spending experience of 1,401 malaria patients surveyed between 19 July and 3 August, 2005 with national estimates of visits to public and agree hospitals and health centers in calendar year 2003. We used the survey to estimate

a) The distribution of visits between public and private providers (including chemists dispensing to self-medicating patients), and

b) The average cost per visit at each provider type, for outpatient and (where appropriate) inpatient care.

We used official data on the reported incidence of malaria to estimate the total numbers of such visits. Both data sources required adjustment before they could be used for estimates.

Official data

A few health centers failed to send reports of their malaria cases. Completion rates ranged from 48% in one district to 100% (in most). The average was 98%. We divided reported malaria cases in each district by the district's completion rate to form an adjusted estimate of actual cases. This had negligible effect on the final estimates, as the completion rates were nearly 100%. If we had evidence of some other source of systematic omission, we might further adjust these figures.

Survey

Survey data were collected from a complex stratified and clustered sample design. The net effect of the design was to give some patients a much higher chance of being included in the sample than others. In one district, a single survey response represented 137 members of the total population; in another, a single response represented 6,437 people. Choice of providers and average spending differed significantly among districts. Consequently, simple averages computed without considering the sample design would be strongly biased.

We corrected for this by assigning to each response a weight equal to one over the individual's probability of being included in the sample.

a) The 40 health districts in Rwanda were divided into three groups of 13, 13, and 14. Two were sampled from each group, so the sampling fraction of health districts was either 2/13 or 2/14
b) Each of the six sampled districts had between five and 18 health centers, from which two were selected. Sampling fractions at this stage ranged from 2/5 to 2/18
c) Further samples were drawn within the catchments area of each health center, but we were unable to obtain details about this stage of sampling, so we treated the responses within districts as simple random samples. We knew the number of sampled malaria cases who reported visits to public and agree facilities in each district, and the total number of such visits in each district reported in official records. We used the ratio of these two numbers to estimate the sampling fraction of malaria cases within each district.

We combined these three sampling probabilities and multiplied the resulting number by a constant selected so that the sample estimate of visits to public and agree providers equaled the official report. This provided our sample weights.

The sample design had two other features that we incorporated in our analysis. It was stratified, so that two districts came from areas of high prevalence, two from low prevalence, and two from intermediate areas. This stratification improved the precision of the estimates slightly. However, only two health districts were selected in each stratum, yielding a sample with only six primary sampling units. This clustering greatly reduces the precision of the estimates. The net result for a typical statistic is that the estimate has about the same precision as would be obtained with a simple random sample about ¼ as large.

Results

More than half of all patients with malaria seek treatment from a public or semi-public provider (Table 19). About a third self-medicate. The rest do nothing (7%) or seek care from private physicians (3%), herbalists (3.5%) and other sources (1%).

Table 19: Distribution of provider types

Facility	Sample estimates		
	Observations	Estimated Proportion	Standard Error
Do nothing	100	6.9%	0.4%
Self-medication with medicines purchased from the pharmacy	351	32.9%	6.5%
Sorcerer	1	0.0%	0.0%
Healer	63	3.5%	0.9%
Private	55	2.8%	0.3%
Public and Semi public		*52.7%*	
Agree	80	2.9%	2.0%
Public	732	49.8%	4.7%
Other	12	1.2%	0.2%
All malaria cases	1,394	100.0%	

Source: HH Survey, 2005

Official records show that malaria patients made 1.19 million visits to public and semi-public providers in calendar year 2003. After adjusting for under-reporting, we estimate the number of such visits at 1.22 million. According to the survey, this is 52.7% of all patients, so the total number of events (including those who were ill but took no action) was estimated at 2.3 million. We applied the distribution in Table 19 to this total to estimate the number of events shown in Table 20.

Table 20: Annual number of events, 2003 - 2004

Facility	2003	2004
Do nothing	159,721	161,644
Self-medication with medicines purchased from the pharmacy	759,681	768,829
Sorcerer	141	143
Healer	81,010	81,985
Private	65,264	66,050
Public and Semi public	1,217,796	1,232,460
Agree	66,560	67,362
Public	1,151,236	1,165,098
Other	27,259	27,587
All malaria cases	2,310,874	2,338,700

Source: HH Survey, 2005

According to the survey, 14% of patients visiting public facilities are admitted, as are 10% of those visiting private providers (Table 21).

Table 21: Inpatient and Outpatient visits to hospitals and health centers, 2003

	Total visits	Admitted	Inpatient	Outpatient
Private	65,264	10.4%	6,788	58,476
Public and Semi public	1,217,796			
Agree	66,560	9.6%	6,417	60,143
Public	1,151,236	14.0%	161,562	989,674

Source: HH Survey, 2005

An episode of outpatient treatment at private facilities cost approximately RWF 3,000 [US$ 5.5711] in 2005, about three times as much as in public and semipublic hospitals and health centers. The unit cost of hospital stays is about equal in the public and private sectors (Warning: the data include only 8 private hospital admissions and 41 private outpatient visits; estimates based on these numbers have large standard errors).

Table 22: Inpatient Average costs per visit or admission, 2005 (at 2005 prices)

	Average unit cost in RWF	
	Inpatient	**Outpatient or other**
Do nothing		
Self-medication with medicines purchased from the pharmacy		387.34
Sorcerer		
Healer		37.08
Private	8,635.96	3,021.63
Public and Semi public		
Agree	4,188.89	1,111.01
Public	7,249.29	904.95
Other		168.75

Applying the unit costs (Table 22) to the number of events (Table 21) produces the estimated national totals for malaria care shown in Table 23. (These totals are estimated in 2005 currency; divide by 1 + plus the inflation rate for earlier years.) Standard errors for most numbers in Table 23 are in the range of 15 to 20 percent of the estimate, so that a 90% confidence interval would be the estimate plus or minus approximately 30 to 40 percent.

Table 23: Total national out-of-pocket spending, 2003 (at 2005 prices)

	National total expenditure in RWF		
	Inpatient	**Outpatient**	**Other**
Do nothing			
Self-medication with medicines purchased from the pharmacy			294,251,533
Sorcerer			
Healer			3,004,015
Private	58,622,389	176,691,463	
Public and Semi public			
Agree	26,878,691	66,819,913	
Public	1,171,209,643	895,605,593	
Other		4,599,925	

4. GENERAL NHA FINDINGS

4.1. Summary Statistics for Rwanda NHA

This chapter examines the expenditure patterns for overall health care (otherwise referred to as 'general NHA') in Rwanda for the year 2003. The findings are based on a series of four standard NHA tables shown in Annex A. Comparisons to previous NHA estimations facilitate trend series analyses. It should be noted that all timeseries comparisons of absolute amounts in this report have been adjusted to constant 2003 RWF.

Table 24: Statistics from 1998 to 2003

	1998*	2000*	2002*	2003
Total population**	7,883,000	7,691,783	8,128,553	8,388,667
Exchange Rate US$ 1=RWF[25]	317	393	475	539
Total real GDP[26]	RWF 725,318,635,894 (US$ 2,288,071,407)	RWF 799,207,248,018 (US$ 2,033,606,229)	RWF 876,501,557,967 (US$ 1,845,266,438)	RWF 950,141,000,000 (US$ 1,764,454,307)
Total GoR expenditure and net lending[27]	RWF 134,838,672,638 (US$ 425,358,589)	RWF 170,441,676,104 (US$ 433,693,832)	RWF 145,030,183,930 (US$ 305,326,703)	RWF 191,400,000,000 (US$ 355,438,355)
Total Health Expenditures [$THE_{general}$], per NHA	RWF 36,374,128,720 (US$ 114,744,886)	RWF 32,317,379,197 (US$ 82,232,517)	RWF 35,777,590,105 (US$ 75,321,242)	RWF 62,945,881,810 (US$ 116,893,316)
$THE_{general}$ per capita	RWF 4,615 (US$ 14.56)	RWF 4,202 (US$ 10.69)	RWF 4,401 (US$ 9.27)	RWF 7,503.7 (US$ 13.93)
$THE_{general}$ as % of nominal GDP	5%	4%	4%	6.62%
GoR health expenditure as % of GoR total expenditure	2.5%	4.7%	6.1%	9%
Financing sources distribution as % of $THE_{general}$				
Public (including public firms)	10%	18%	25%	32%
Private	40%	30%	42%	25%
Donor	50%	52%	33%	42%
Other	0%	0%	0%	1%
Households				
Household spending as % of $THE_{general}$	33%	26%	31%	20%
Out-of-pocket spending as % of $THE_{general}$	32.5%	25%	25%	17%
Out-of-pocket spending per capita	RWF 1,506 (US$4.75)	RWF 1,041 (US$ 2.65)	RWF 1,086 (US$ 2.29)	RWF 1,305 (US$ 2.42)
Provider distribution as % of $THE_{general}$***				
Public facilities				
Government-assisted not-for-profit facilities	66%	39%	55.6%	53%
Private facilities	10%	40%	24.8%	23%
	24%	21%	19.6%	24%

* All RWF amounts for 1998, 2000 and 2002 are in constant 2003 RWF to facilitate comparison across years (the same has been done for the US $ amounts). The Consumer Price Index was used for the conversion (87.09 for 1998, 88.30 for 2000 and 93.07 for 2002). Source for CPI data: Ministry of Finance and Economic Planning and International Monetary Fund [IMF].

** The 1988 population figure is based on the 1992 census; the 2000 and 2002 figures are based on the 2002 census and 2003 figure is estimated from Census 2002 at a growth rate of 3.2%. Due to the genocide and subsequent repatriation, it is difficult to determine precise population trends for Rwanda during the 1990's.

*** For time comparison purposes, provider expenditures have been broken down into the three categories used in 1998. Although greater disaggregation is available for years 2000, 2002, and 2003 (see Annex A), they have been aggregated into public, Gov-assisted not-for-profit, and private. This has been done by dividing 1) 'public health program provision' category between public and Gov. assisted not-for-profit (based on HF contributions), 2) 'general administration' between public and private (based on HF contributions), and 3) 'other' between public and private (based on HF contributions). Furthermore, expenditures on 'traditional healers' and 'independent pharmacies' were allocated to private facilities.

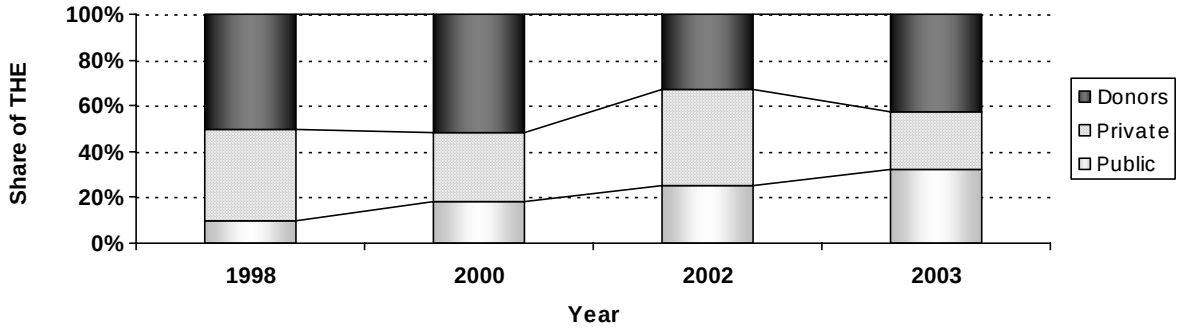
[25] The exchange was derived from an unweighted average of monthly official exchange rates from the BNR
[26] From BNR official statistics, see www.bnr.rw
[27] From Annual economic report, MINECOFIN, 2003

4.2. Overview of Health Care Financing in Rwanda

2003 saw dramatic changes in the structures of health care financing as well as an enormous increase in the size of the resource envelope for health care. Whilst $THE_{general}$ stood at RWF 35.8bn [US$ 75.3m] in 2002, the amount nearly doubled to RWF 62.9bn [US$ 116.9m] in 2003. This marked the dramatic reversal of a trend, which saw the $THE_{general}$ fall in real terms and as a share of GDP from the middle of the 1990s till 2000, before stabilizing at 4% of GDP in 2002. In 2003, $THE_{general}$ rose to 6.6% of GDP, marking a strong increase in share in a time of solid economic growth. Accordingly, per capita health expenditure grew from RWF 4,401 [US$ 9.3] to RWF 7,503 [US$ 13.93].

In view of this dramatic increase in funding to the health sector, the relative composition of financing sources has changed substantially: whilst in 2002, the private sector, largely households, had contributed the most to health, its share fell from 42% to 25%, despite the fact that its absolute contribution increased by 23% in real terms from RWF 14.9bn [US$ 27.7m] to RWF 18.4bn [US$ 34.2m]. Most notably, donor financing more than doubled and rose by 118%; Central Government revenue rose by similar proportions, namely 99%.

Figure 3: Statistics from 1998 to 2003



Looking at the above developments, it is noteworthy that the increase in donor and public expenditure was additional to the private sector's contribution, as, in real terms, the private sector's contribution rose and was only reduced in relative terms by the enormous increases in the other two.

Furthermore, 2003 marked substantial progress towards the goals of the Abuja declaration, which requires Governments to invest 15% of their expenditures in the health sector. Whilst Rwanda, with 9% of Government expenditures in 2003 (up from 6.1% in 2002), still is far from reaching this goal, the year on year increase is very encouraging, especially in view that the Government health budget continued this trend up to the time of report writing.

The question arises as to the reasons behind the dramatic increases in public and donor spending. The main cause for this is the increase in targeted disease related funds, which increased dramatically with the introduction of PEPFAR, the Global Fund, MAP [Multisectoral AIDS Project] and other programmes to Rwanda. Such funds have continued to rise, leading to combined donor and Government budgets of US$ 114.4m [RWF 61,603m] in 2005[28], a figure that is in itself close to the $THE_{general}$ of 2003.

The above mentioned increase in real terms of private, largely household, spending despite the surge in donor and public funds opens up two possible avenues for interpretation: either, health needs of the population are still underserved so that, despite the increases in donor and public funding, households cannot afford to reduce spending since their needs are still unmet. Alternatively, the possibility exists that the increases in donor and public expenditures do not benefit the population as much as the monetary increase suggests, but that they rather represent a suboptimal allocation of funding. Indeed, as will be seen later, the tracing of funds from their sources to end uses show that donor and Government funding has largely been committed to

[28] MoH Department of Planning preliminary findings of a 2005 Donor mapping survey.

programmatic (such as that on public health programs, IEC, community health programs etc.) and administrative expenditures, leaving households to finance close to half of all curative care (or medical services). Resource allocation choices warrant further consideration in view of the scale and scope of funds entering the country and the country's limited capacity for absorption.

Regional comparisons of $THE_{general}$ as a share of GDP and of the split between Government (including donors) and private sector financing agents can be seen in Table 25 below. The levels of expenditures and their composition vary quite considerably, from 4.3% of GDP in Kenya and Tanzania to 7.4% in Malawi. Rwanda, within three years, has moved from being a country with of the countries lowest shares of GDP to one of the highest; it is currently only exceeded by Malawi and Uganda. Both these countries have a much lower Government share of expenditures, with 44.2% and 28.3% respectively. This highlights the prominent Government and donor role in the Rwandan health sector, which however is also a source of concern, particularly with respect to sustainability implications. For example, should donor funds dramatically decrease in the future, possibly the Government, but more likely households, would shoulder the financing burden. If HH were needed to fill in the gap, what would is likely occur is a decrease in health care utilization. Thus, clarity should be sought as to the predictability of donor funding. However, data from the NHA 2002 report and the donor mapping analysis for 2005 show that the share of expenditures by Government and donors is strongly driven by targeted disease funds, and here particularly HIV/AIDS. For example, of combined donor and Government budgets of US$ 114.4m [RWF 61,603m] in 2005, 57% are dedicated to targeted disease interventions. Of this sum, 73% were dedicated to HIV/AIDS, bringing budgets for this disease intervention to US$ 47.8m [RWF 25,740m]. Since the DHS+[29] [Demographic Health Survey] survey preliminary results suggest that the prevalence of HIV/AIDS in the country stands at 3% of the population, the total number of people benefiting from HIV/AIDS related funds in terms of curative care is likely to be low.

Table 25: Cross-Country Comparison of Key Overall Health Expenditure Indicators

East and Southern Africa

Country	$THE_{general}$ [% of GDP]	Government [% of $THE_{general}$]	Private [% of $THE_{general}$]
Ethiopia	5.9 %	58.4%	41.6%
Kenya	4.3%	38.7%	61.3%
Malawi	7.4%	44.2%	55.8%
Mozambique	4.7%	61.7%	38.3%
Rwanda 2003	6.6%	52.7%	47.3%
Rwanda 2002	4.1%	51.2%	48.8%
Rwanda 2000	4.0%	63.9%	36.1%
Tanzania	4.3%	55.4%	44.6%
Uganda	7.1%	28.3%	71.7%
Zambia	5.4%	51.4%	48.6%

* Source: Rwanda estimates derived from respective NHA reports. Other countries estimates derived from www.who.int/nha/country (which imputes these indicators from the latest country NHA reports)

** Note that Government and private shares in this table are reported in terms of financing agents and not at the financing source level for purposes of comparison to WHO data for peer countries. Financing agents are entities that receive funding from financing sources to pay for health care activities. Consequently, "Government" in this case includes donor contributions channeled through the Government.

[29] Rwanda Demographic and Health Survey 2005. Preliminary Report. October 2005. Institut National de la Statistique, MINECOFIN, Commision Nationale de lutte contre le Sida, Centre de Traitement et de Recherche sur le Sida, Laboratoire National de référence, Measure DS, ORC Macro.

4.3. Flow of Funds for General Health Care, by NHA Dimensions

4.3.1. Financing Sources

Financing sources are the originators of health funds. As noted in section 4.2, the three main financing sources in Rwanda are public (Central Government, districts, parastatal organizations and other public funds), private, in which household expenditures dominate, and donor agencies, classed under the "rest of world".

Whilst donor contributions have varied considerably during this time, it seemed that, up to 2002, public expenditures compensated for the continued reduction of donor funds[30]. However, Table 26 shows that 2003 saw a dramatic reversal of this trend when both public and donor expenditures more than doubled in real terms (as stated earlier, this reversal is due to the surge of disease-targeted (particularly HIV/AIDS) funds). Interestingly, too, household expenditures increased from a low point in 2000 despite the increased expenditures from public and donor sources. This is indicative of households need to finance curative (or medical) care services that were not the major focus of donor and Government financing efforts.

Table 26: Expenditures by different financing sources, 1998 - 2003[31] (RWF)

$THE_{general}$	**1998**	**2000**	**2002**	**2003**
Public	RWF 3,637,412,872	RWF 5,817,128,255	RWF 8,944,397,526	20,142,682,179
Private	RWF 14,549,651,488	RWF 9,695,213,759	RWF 15,026,587,844	15,736,470,453
Donor	RWF 18,187,064,360	RWF 16,805,037,182	RWF 11,806,604,735	27,066,729,178
Total	**RWF 36,374,128,720**	**RWF 32,317,379,197**	**RWF 35,777,590,105**	**62,945,881,810**

The variability of donor funding, which more than doubled from 2002 to 2003, puts into question the sustainability as well as the predictability of future funding and should pose a concern for the Government.

4.3.1.1. Financing Sources to Functions [FS x HC]

Table 27: Relative expenditures on different functions by financing sources

	Function						
Financing Source	**Curative care**	**Prevention and Public Health**	**Pharmaceuticals and other non durables**	**Health Admin**	**Other**	**Total**	**Share of $THE_{general}$**
Donors(incl. NGOs)	22%	37%	1%	31%	9%	100%	43%
Public Sources (including parastatals)	28%	19%	2%	46%	6%	100%	32%
Households	64%	2%	21%	5%	9%	100%	20%
Private companies	69%	5%	7%	16%	4%	100%	3%
Other	22%	40%	1%	25%	12%	100%	2%
Total	**33%**	**24%**	**5%**	**30%**	**8%**	**100%**	**100%**

* Note: "pharmaceuticals and other non durables" refer to those purchased at independent pharmacies not affiliated with hospitals and health centers. Pharmaceutical consumption within hospitals and health centers are embedded in the curative care share.

[30] During the reconstructive efforts following the war, donor funds were sizeable - financing almost entire Government sectors. The period from 1998-2002 marks donor withdrawal of support as reconstructive efforts were completed. However, upon arrival of the HIV/AIDS epidemic, donor support began to steadily increase in 2003 to address this particular issue.

[31] The 1998, 2000 and 2002 figures are scaled to 2003 prices.

Figure 4: Financiers of overall health care functions

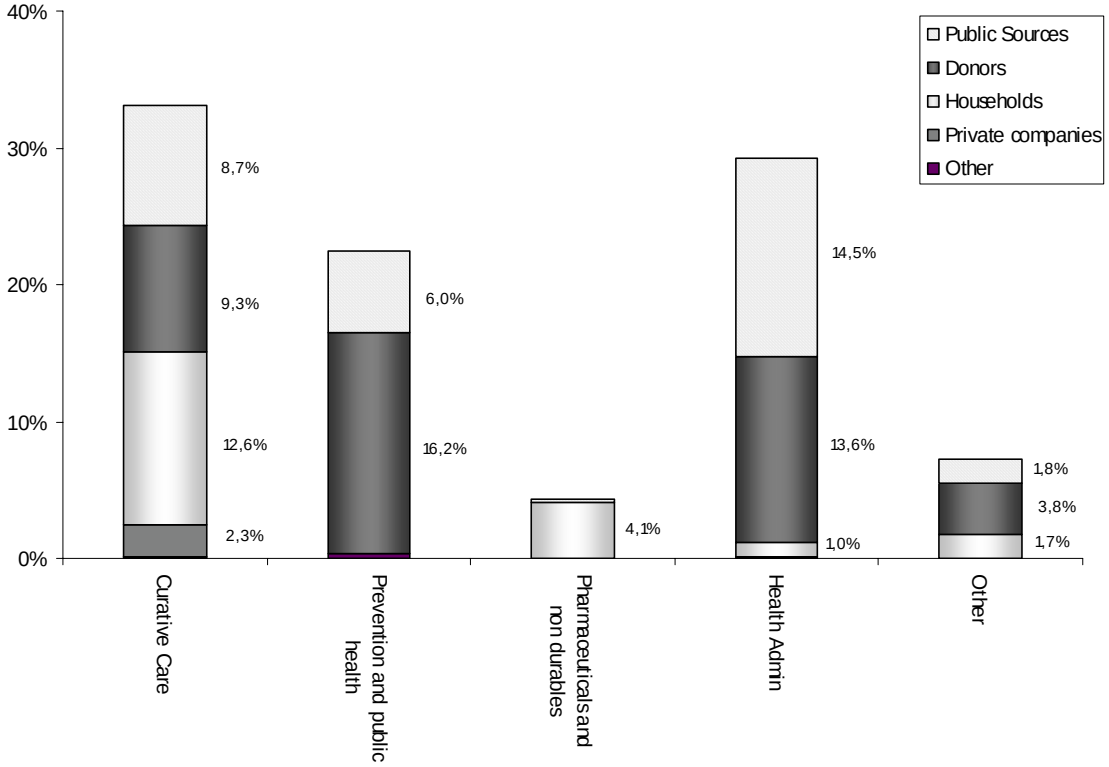


Table 27 and figure 4 above outline the functions that were ultimately financed by the different sources. The following points can be noted in this respect:

- The majority of Donor funds are targeted for prevention and public health programs (37%), followed by administration (31%). Overall, donor financing accounts for 69 percent of all programmatic expenditures and 45% of all central level administration spending in Rwanda.
- Public sources show a slightly different financing pattern, largely spending their resources on central level health administration (46%), followed by curative care (28%), and then prevention and public health programs (19%). Overall, public spending accounts for close to half of all health administration expenditures (48%) in Rwanda, an issue that is being addressed by the Government through its decentralization efforts.
- Despite the contributions of the Government and donors, households exhibit by far the highest share of funds dedicated to care and pharmaceuticals at private pharmacies/shops: for them, the share stands at 43 percent of total curative and pharmaceutical expenditures. As mentioned earlier, although there has been sizeable strides made by the Government and donors in terms of increasing their investments in health, these investments are largely spent on programmatic and administrative costs, which is leaving households to shoulder close to half of all medical care (or curative) expenses.
- Private companies offer their employees principally curative care coverage (69% of all private company spending on health). Overall, however private company spending accounts for a small proportion (2.3%) of total curative care and health administrative (0.5%) expenses.

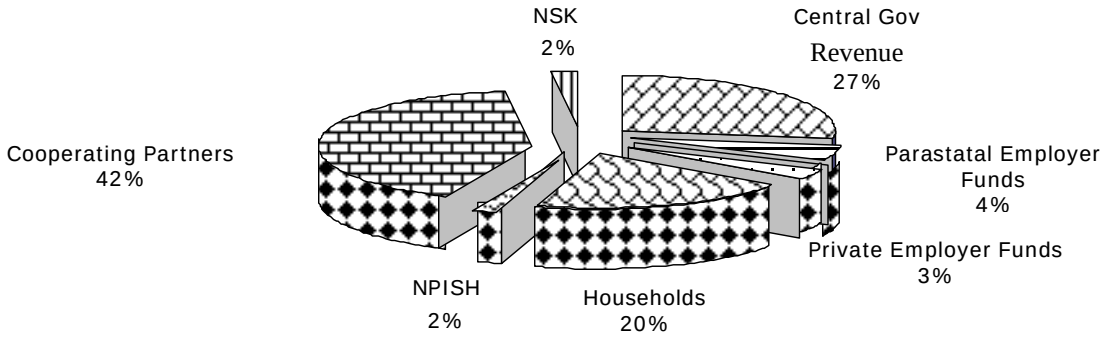
In due course, it will be useful to monitor the evolution of the functional split of financing sources to respond to Government's concern about the effectiveness of donor and NGO expenditures in the country. To determine this, indicators should be developed, perhaps integrated within the routine data collection efforts of the health information system, to determine the desired split of functional expenditures.

Table 28: Absolute contributions by Financing Sources, 2003 [In RWF]

FS 1.1.1. Central Gov Revenue	FS 2.11. Parastatal Employer Funds	FS 2.1.2. Private Employer Funds	FS 2.2. Households	FS 2.3. NPISH*	FS 3. Cooperating Partners	NSK
17,170,811,477	2,781,754,656	2,056,372,122	12,433,618,551	1,140,439,205	26,154,421,301	1,208,464,498
27%	4%	3%	20%	2%	42%	2%

*Non-Profit Institutions Serving Households

Figure 5: Split of Financing Sources



4.3.2. Financing Agents

Financing agents are entities that receive funds from financing sources to pay providers for health care functions. More than intermediaries, financing agents are considered to have programmatic control over how health funds are allocated. Public health funds were mostly channeled through public financing agents. These are the Ministry of Health, DSGAS and health districts, other Ministries, FARG, the Social Security Fund, RAMA and public firms. Private financing agents, accordingly, managed private funds. These agents are: private insurance enterprises such as Mutuelles, COGEAR and SONARWA, private household out of pocket expenditure, NGOs and private firms. Donors figured as financing agents at times, albeit in a much smaller role than as financing sources.[32]

Table 29: Financing agents by size and share, 2003

Financing Agent	RWF 2003	%
NPISH (Implementing agencies)	16,935,723,246	27%
MoH (MINISANTE)	12,558,505,425	20%
Private household out of pocket payments	10,950,114,948	17%
DSGAS + Health districts	5,407,231,526	9%
Rest of World	4,715,104,546	7%
FARG	4,291,736,355	7%
Public Employer insurance program - RAMA (Rwanda medical insurance)	2,974,731,930	5%
Social Security Fund (CSR-Caisse Sociale du Rwanda)	1,441,528,562	2%
Private firms and corporations (other than health insurance)	1,418,332,085	2%
Parastatals	1,110,983,335	2%
Other Ministries	699,733,117	1%
Private Insurance Enterprises (other than social insurance), Mutuelles, COGEAR, SONARWA etc	378,009,876	1%

[32] Note, when donors, households private companies are featured as financing agents, this is largely to represents direct transfers of funds from the financing source to the provider.

Table 30: Distribution among financing agents in 1998, 2000, 2002 and 2003

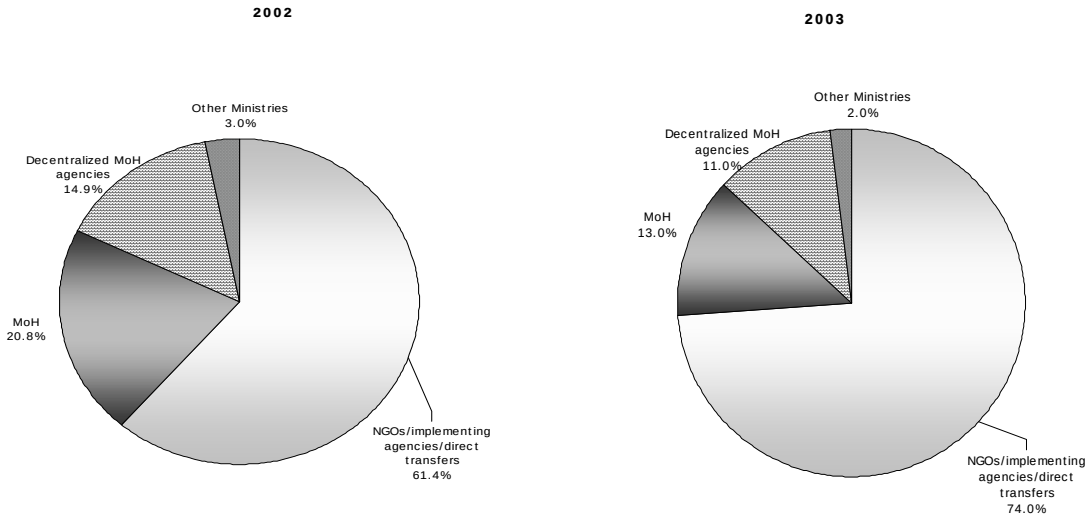
Financing Agent [HF]	1998	2000	2002	2003
NPISH (Implementing agencies)	1%	32%	19%	27%
MoH (MINISANTE)	19%	20%	17%	20%
Private household out of pocket payments	33%	25%	25%	17%
DSGAS + Health districts	16%	6%	8%	9%
FARG	0%	0%	0%	7%
Rest of World	22%	6%	2%	7%
Public Employer insurance program - RAMA (Rwanda medical insurance)	0%	0%	15%	5%
Social Security Fund (CSR-Caisse Sociale*)	0%	3%	5%	2%
Parastatals	1%	0%	0%	2%
Private firms and corporations (other than health insurance)	7%	3%	3%	2%
Other Ministries	2%	1%	3%	1%
Private Insurance Enterprises (other than social insurance)- Mutuelles, COGEAR, SONARWA etc	0%	4%	4%	1%
Not specified by any kind	0%	0%	0%	0%

The main findings concerning financing agents are as follows:

- NGOs have become the biggest financing agent with 27% as share of $THE_{general}$ (Table 30). Indeed as shown in figure 6, donors are increasingly channeling their resources through NGOs, which received 61% of donor funding in 2002 and 74% in 2003. With NGOs receiving the majority of health funds from financiers, the role of the Government as steward over the health sector is questioned. As financing agents, NGOs in 2003 (a trend that 2005, based on preliminary donor mapping results) had the most programmatic control over how funds were allocated. In the interest of meeting health system goals and to avoid duplicative efforts, close coordination by the Government persists in and its partners of all financing agent activities is crucial. As stated earlier, given the burden of financing on households to pay for curative care services, perhaps greater encouragement could be given for financing agents to allocate their funds to medical care in addition to public health programs[33]
- Household out of pocket expenditure is decreasing in relative importance as a financing agent, which is unsurprising given the strong increases in donor and Government funding and the relative stability of household spending. Nevertheless, households do account for close to half of all curative care spending
- Decentralized entities managed less than 50% of what the Ministry of Health managed (9% vs. 20%), despite the Government's effort to decentralize.

[33] In particular, the role of the population and of decentralized institutions should be emphasized in the formulation of programmes

Figure 6: Breakdown of donor funds to financing agents

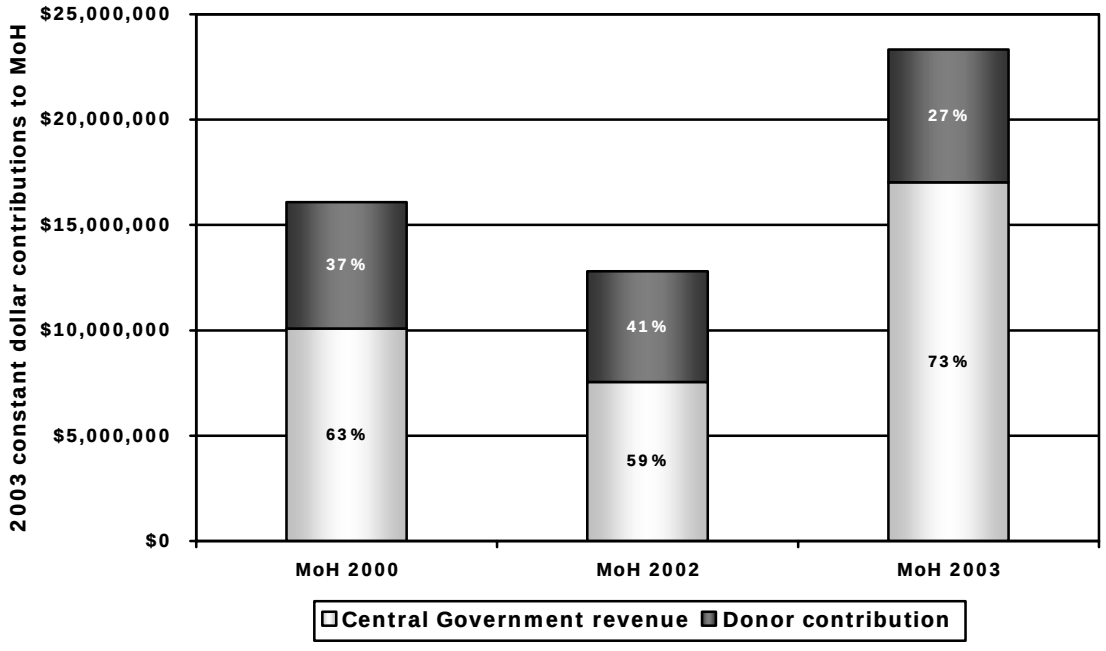


4.3.2.1. Financing Sources to Financing Agents [FS x HF]

Looking at the sources that financing agents draw their funds from reveals a number of interesting dynamics.

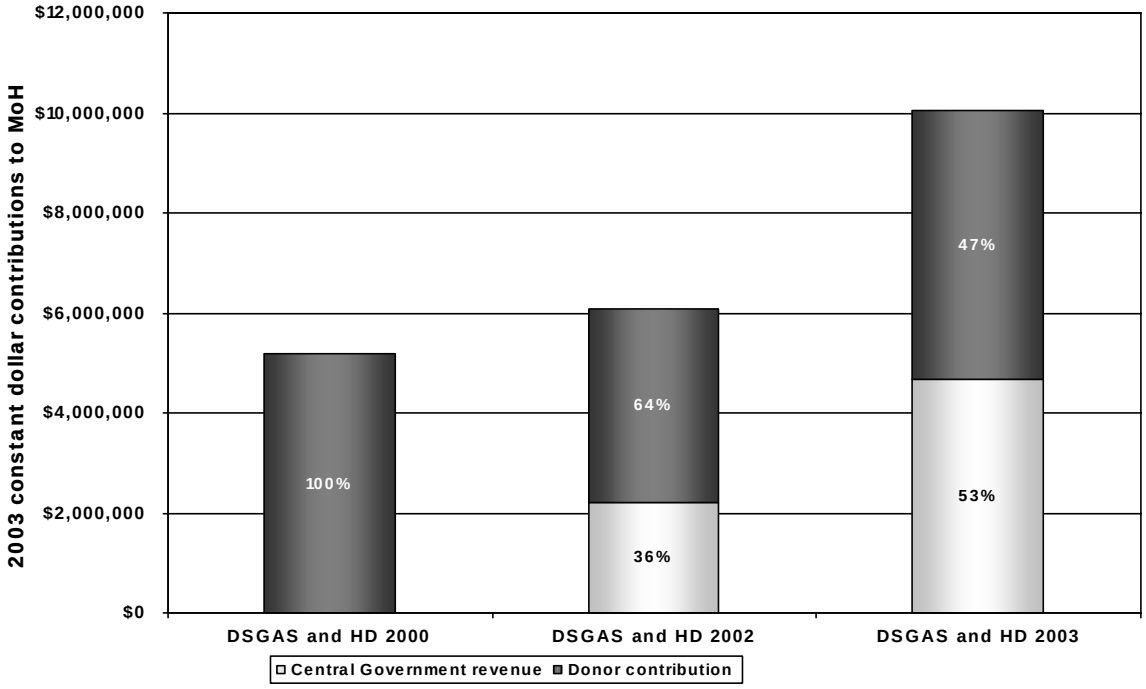
MoH spending doubled in 2003 when compared to previous years, most likely reflecting the Government's political will, based on informed decisions making, to put more funds into the health sector (see figure 7). In absolute terms, MoH spending almost doubled from 2002 to 2003 largely due to the sizeable increase (by 2.25 fold) in funding by Central Government revenue. Donor contribution to the MoH also increased, but at a lower rate.

Figure 7: Sources of MoH funds from 2000-2003



With respect to decentralized Government entities, as shown in Figure 8, between 2000 and 2003, funding levels (in real terms) have almost doubled[34]. Moreover, while donors were the main financier of DSGAS and HD in 2000, in 2003 we see the donor share decreasing while the Central Government contribution increasing to 53 percent of all DSGAS and HD expenditures. These figures serve as a useful benchmark for future years and may help the Government to monitor the progress of its decentralization process.

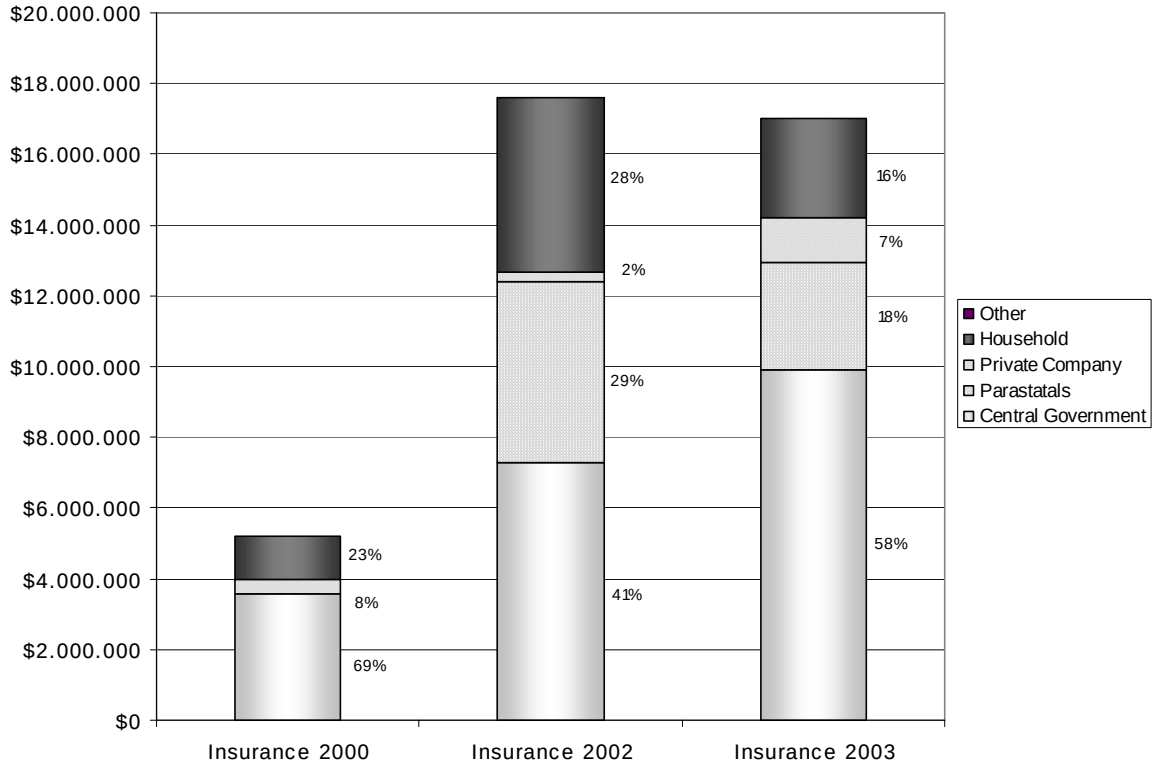
Figure 8: Sources of DSGAS and decentralized entity funds from 2000- 2003



The other major financing agents that receive funds from multiple sources are insurance schemes. As shown in Figure 9, expenditures by insurance schemes/programs increased in real terms by three-fold sine 2000. In addition, the number of contributors has steadily increased, with the largest in 2003 being the Government, followed by parastatal companies, then households and finally private companies. However, this increasing insurance expenditure has not lead households to reduce their out of pocket expenditures. This is most likely due to the fact that insurance organizations only cover a small part of the population and thus do not necessarily impact the overall level of household expenditure. Indeed, only 12% of household expenditures went towards insurance mechanisms (the rest for out-of-pocket spending), which implies that the population as a whole is mostly unprotected against the negative effects of illness. This puts forward the case for the Government's initiative to introduce Mutuelles de Santé on the national level. If this introduction is successful, one should see a dramatic fall in household out of pocket expenditures in future years whilst contributions to insurance schemes should increase substantially.

[34] But are still just below 1998 levels (in real terms)

Figure 9: Sources of Insurance from 2000-2003



The private sector share of insurance is rising continuously, as RAMA was not open to private sector employees in previous years.

Lastly in terms of insurance (see table 31), the weakness of the insurance industry is reflected by the high share of health expenditures that private companies manage themselves: whilst RWF 640m [US$ 1.19m] or 31% of their expenditures go to insurance schemes, RWF 1.4bn [US$ 2.6m], or 69%, are managed by private companies through contracts with providers and employee reimbursements. Again, we would expect a higher share of expenditures to go to health insurance if the insurance industry were stronger in the country.

When analyzing NGOs (see table 31), we see that they are relatively seldomly self financed (e.g. having received funds from another NGO); only 8% of their expenditures are covered by this. The biggest share of their funding comes from the "Rest of World", e.g. Cooperating Partners.

These Cooperating partners channel most their funds (56% of their expenditure) through NGOs, compared with 26% that are channeled through Government and 18% they manage themselves. As shown earlier, this is illustrative of a growing trend of donor funds moving to NGOs as financing agents as opposed to the Government.

The relative expenditures of different agents are summarized in Table 31 below:

Table 31: Flows from Financing Sources to Financing Agents 2003

Financing Source [FS]									
Code	**Financing Agent [HF]**	FS.1 Public Funds	FS.2 Private Funds				FS.3	FS.nsk	
		FS.1.1.1 Central Gov Revenue	FS.2.1.1 Parastatal Employer Funds	FS.2.1.2 Private Employer Funds	FS.2.2 Households	FS .2.3 NPISH *(Local implementing agencies)*	Cooperating Partners (Rest of the World)	Not specified by any kind	**Row Total**
HF.1.1.1.1	MoH (MINISANTE)	15%					5%		20%
HF.1.1.2	DSGAS + Health districts	4%					5%		9%
HF.1.1.1.2	Other Ministries						1%		1%
HF.1.3	FARG	7%							7%
HF.1.2	Social Security Fund (CSR-Caisse Sociale*)		2%	1%					2%
HF.2.1.	Public Employer insurance program - RAMA (Rwanda medical insurance)	2%	1%		2%				5%
HF.2.5.1	Parastatals		2%						2%
HF.2.2	Private Insurance Enterprises *(other than social insurance)- Mutuelles, COGEAR, SONARWA etc*								1%
HF.2.3.	Private household out of pocket payments				17%				17%
HF.2.4	NPISH (Implementing agencies)					2%	23%	2%	27%
HF.2.5	Private firms and corporations (other than health insurance)			2%					2%
HF.3	Rest of World						8%		8%
HF.nsk	Not specified by any kind								
	Column Total [$THE_{general}$]	**27%**	**4%**	**3%**	**20%**	**2%**	**42%**	**2%**	**100%**

4.3.3. Health Providers

The provision of health services in Rwanda was not affected dramatically in its composition, despite the fact that $THE_{general}$ roughly doubled in real terms between the years. The five main providers of health care in 2003 were, in terms of share of $THE_{general}$:

Table 32: Top five provider categories by $THE_{general}$ share, 2003

Code	**Description**	**2002**	**2003**
HP.6	General health administration and insurance (central level)	23%	27%
HP.5	Provision and administration of public health programmes	27%	25%
HP3.4.5.1	Public Health Centers	7%	11%
HP.1.1.1	Public Hospitals	14%	11%
HP.1.1.2.2	Private Hospitals for Profit	3%	6%

These five provider types, which together cover more than 80% of $THE_{general}$, have increased their share of $THE_{general}$ between the years by about 6%. The fact that general health administration and insurance and the provision and administration of public health programmes increased slightly in share appears in line with the observed increased in donor and Government spending, both of which seem likely to be leaning towards public health aspects. It is further noteworthy that public health centers have seen a particularly strong increase in share, whilst the decrease in share of public hospitals is reversed by the increased in private for profit hospitals. Together, these two types of institutions have retained a similar share of $THE_{general}$ to that of 2002.

Figure 10: Providers of Overall health in 2002

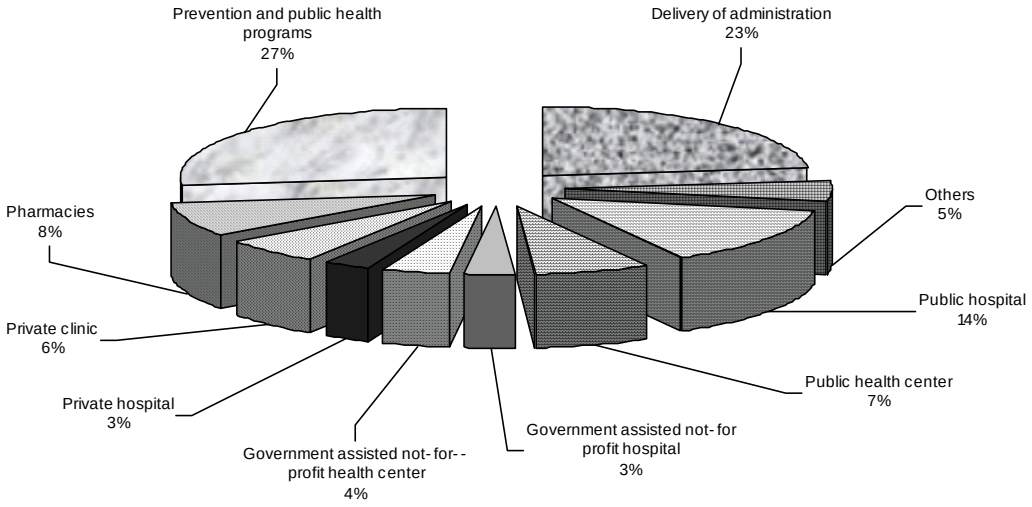
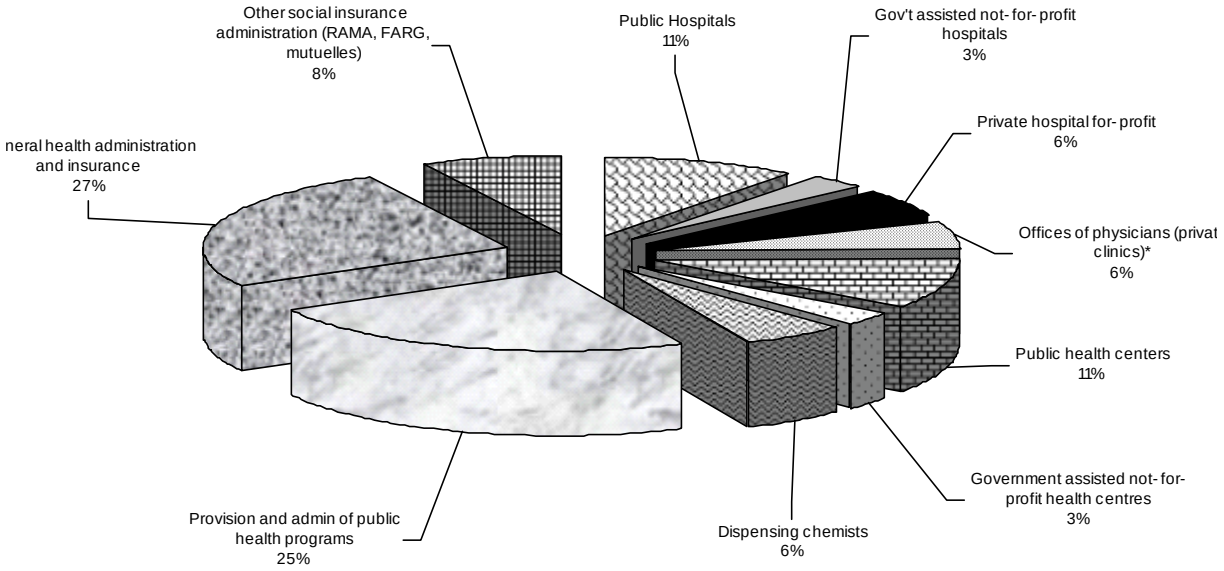


Figure 11: Providers of overall health 2003



The main providers of health care are summarized in the Table 33 below:

Table 33: Comparison of Spending at Providers between 1998 and 2003

Provider	**1998 % of $THE_{general}$**	**2000 % of $THE_{general}$**	**2002 % of $THE_{general}$**	**2003 % of $THE_{general}$**
Public hospital	16%	12%	15%	11%
Public health center	6%	7%	7%	11%
Government assisted not for profit hospital	5%	3%	3%	3%
Government assisted not for profit health center	5%	4%	4%	3%
Private hospital	9%	3%	3%	6%
Private clinic	2%	4%	6%	6%
Pharmacies	24%	11%	8%	6%
Provision of public health	14%	42%	26%	25%
Administration	14%	9%	23%	27%
Other providers	4%	5%	5%	2%
Treatment abroad	1%			
Total	**100%**	**100%**	**100%**	**100%**

4.3.3.1. Financing Agents to Providers [HF x HP]

As noted in section 4.3.2, the most striking increase in terms of financing agents is with implementing agencies, which tripled their expenditures in absolute terms and whose share of $THE_{general}$ went up from 19% (as shown in Table 30) to 27% from 2002 to 2003. Strikingly, this increase in expenditure lay especially with public and agree hospitals and health centers, which received hardly any funds from implementing agencies in 2002 and which now received RWF 6.7bn [US$ 12.4m][35]. Again, this observation is consistent with the increase in targeted disease interventions through programmes like PEPFAR, as these are, mostly, implemented by international NGOs.

Similarly, expenditures by donors, summarized under “rest of world” now contain larger expenditures on administration and interventions. Their increased importance as financing agents directly involved in activities is reflected by their increased share of $THE_{general}$; it went up from 2% in 2002 to 7% in 2003.

The Ministry of Health increased its expenditures and share of $THE_{general}$ as a financing agent, as would have been expected by the Central Government’s more prominent role as a financing source. The most important increases in its expenditures lay in the area of general health administration and insurance and King Fayçal hospital, the sole private for profit hospital in the country; whilst the former increased more than fivefold to RWF 4.6bn [US$ 8.5m], the latter more than quadrupled to RWF 1.8bn [US$ 3.3m].

[35] This development is very encouraging, since it increases the share of funds that are likely to benefit the population directly.

Table 34: Flows from Financing Agents to Providers 2003

Financing Agent

		HF.A Public Sector											HF.3 ROW	
		HF.1.1.1.1	HF.1.1.2	HF.1.1.1.2	HF.1.3	HF.1.2	HF.2.1.	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	
	Provider	MoH (MINISANTE)	DSGAS + Health districts	Other Ministries	FARG	Social Security Fund (CSR-Caisse Sociale*)	Public Employer insurance program - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)- Mutuelles, COGEAR, SONARWA etc	Private household out of pocket payments	NPISH (Implementing agencies)	Private firms and corporations (other than health insurance)	Rest of World [ROW]	**Row Total**
HP.1.1.1	PublicHospitals	2%								3%	4%		1%	**11%**
HP.1.1.2.1	Gov't [Government] assisted not-for-profit hospitals									1%	1%			**3%**
HP.1.1.2.2	Privatehospital for-profit	3%								3%				**7%**
HP.1.2	Mental health & substance abuse hospitals													
HP.3.1	Offices of physicians (private clinics)*						1%			3%		2%		**6%**
HP.3.3	Offices of other health practitioners (traditional healers)									1%				**1%**
HP.3.4.5.1	Public health centers		5%							1%	5%			**12%**
HP.3.4.5.2	Government assisted not-for-profit health centers									1%	1%			**3%**
HP.3.5	Medical and diagnostic laboratories													
HP.3.9.2	Blood banks (CNTS transfusion)													
HP.4.1	Dispensing chemists						1%			4%				**6%**
HP.5	Provision and admin of public health programs	7%		1%							17%		1%	**26%**
HP.6	*General health administration and insurance*	8%			6%	2%	3%						5%	**23%**
HP.6.1	Government administration of health					2%							2%	**4%**
HP.6.3	Other social insurance administration (RAMA, FARG, mutuelles)				6%		3%							**9%**
HP 6.9	Other administration												3%	**3%**
HP.nsk	Providers not specified by any kind													**1%**
	Column Total $THE_{general}$	**21%**	**5%**	**1%**	**7%**	**2%**	**5%**	**2%**	**1%**	**18%**	**28%**	**2%**	**8%**	**100%**

Other dramatic changes include the public employer insurance programme, RAMA, which decreased expenditures from RWF 5.3bn [US$ 9.8m] in 2002 to RWF 2.9bn [US$ 5.4m]. It is believed that this decrease was caused by a decrease in administration costs, whilst transfers to hospitals and health centers increased. According to RAMA's management, this dramatic decrease was caused by the fact that the scheme started up in 2002 and thus incurred large one-off expenditures.

Lastly, and equally importantly, FARG, the genocide survivors' fund has now been classed in the public sector, whilst it was previously registered in the private sector. Despite its removal from financing agent category HF.2.2, private insurance enterprises, these enterprises maintained a similar level of expenditures as in 2002. FARG is an important financing agent at 7% of $THE_{general}$, however the largest proportion of its expenditures is in the area of administration and insurance.

4.3.4. Health Functions

4.3.4.1. Providers to Functions [HP x HC]

When examining how providers spend their resources, we can see that hospitals incur twice as much on inpatient care as outpatient care (up from almost equal shares in 2002). Clinics and health centers largely spend on outpatient care; although it should be noted that public and agree health centers also invest significantly on inpatient services (more so than in 2002) - approximately 45% of health center spending is on inpatient care..

When examined from the functional perspective, we can see in Table 35 below that the share of outpatient expenditures has dropped significantly. When investigating this more closely, it can be observed that virtually identical amounts (RWF 3.8bn [US$ 7.1m] each) are spent at private clinics and at health centers (public and agree) combined. These two types make up 69% of outpatient care expenditures, with the remainder mainly being spent at hospitals. With respect to inpatient care, 67% of expenditures on this service occur at public and agree hospitals. These numbers hold a disconcerting message for policy makers and donors: about half of outpatient care, which represents the most frequently consumed type of service in the country, is outside the domain of intervention of the public sector and donors. When looking at the choice made by users of outpatient services, we see that RWF 1.1bn [US$ 0.0020bn] of the RWF 3.8bn [US$ 0.0071bn] is spent by private corporations. Since these represent a very small but relatively wealthy part of the population, one may suppose that this choice is related to the perceived or actual difference in quality of services received at private and public institutions. This suggests a dynamic and qualitatively strong private sector. However, this observation must be made with care, as large subsidies are being paid to KFH. Given the already substantial expenditure of households and firms on private sector health services, the stimulation and support of the private sector may be a strategy to pursue more vigorously in the future, but it will be important to ensure that such policies do benefit all parts of the population.

Table 35: Functions by Providers 2003 shares

		HP.1.1.1 + HP.1.1.2.1	HP.1.1.2.2	HP.3.1	HP.3.4.5.1 + HP.3.4.5.2	HP.4.1	HP.5	HP.6.1	HP.6.3	HP 6.9
	Function	Public Hospitals + Gov't assisted not-for-profit hospitals	Private hospital for-profit	Offices of physicians (private clinics)*	Public health centers + Government assisted not-for-profit health centers	Dispensing chemists	Provision and admin of public health programs	Government administration of health	Other social insurance admin. (RAMA, FARG, mutuelles)	Other administration (e.g. donors, NGOs, private insurance)
HC.1.1	In patient curative care	**8%**	2%		5%					
HC.1.3	Out patient curative care	4%	1%	**6%**	**6.1%**					
HC.5.1.1 +HC5.1.2	Pharmaceuticals					5%				
HC.6	*Prevention and administration of public health programmes*	1%			2%		**16%**	3%		
HC.7	Health administration and insurance						7%	**12%**	**9%**	3%
HC.nsk	Not specified by kind		3%							

Table 36: Functions by Providers 2002 shares

		HP.1.1.1+HP.1.1.2.1	HP.1.1.2.2	HP.3.1	HP.3.4.5.1+HP.3.4.5.2	HP.3.5	HP.4.1	HP.5	HP.6
	Function	Public Hospitals + Gov't assisted not-for-profit hospitals	Private hospital for-profit	Offices of physicians (private clinics)*	Public health centers + Government assisted not-for-profit health centers	Medical and diagnostic laboratories	Dispensing chemists	Provision and admin of public health programs	General health administration and insurance
HC.1.1	In patient curative care	10%	2%	1%	1%				
HC.1.3	Out patient curative care	8%	2%	6%	9%				
HC.5.1.1+HC5.1.2	Pharmaceuticals						8%		
HC.6	Prevention and administration of public health programmes							**26%**	
HC.7	Health administration and insurance								**23%**
HC.nsk	Not specified by kind								

4.3.4.2. Financing Agents to Functions [HF x HC]

Looking at the structure of flows from financing agents to functions, a few points may be added to our previous analyses on financing sources and–agents:

Firstly, neither Central Government nor NGOs or donors act as the leading financing agents for curative care. The Government (namely MoH) contributes 22%, NGOs 13%, and donors (as financing agents) 4%. The main financing agent for curative care is ultimately household out-of-pocket spending, which accounts for 41% of expenditures. These low shares of expenditures towards treatment of the population by Government and partners can be seen as disconcerting: either these organizations do spend on curative care but are unable to track their expenditures, which would imply a weaknesses in conceptualization, management and reporting, or targeting of work of these institutions; or, if reported correctly and as reflected by the NHA findings, it may be the case that targeting is biased towards programmatic spending and central-level administration.

Table 37: Flows from Financing Agents to Functions 2003

Financing Agent

Function		HF.A Public Sector							HF.B Private Sector				HF.3 RoW	
		HF.1.1.1.1	HF.1.1.2	HF.1.1.1.2	HF.1.3	HF.1.2	HF.2.1.	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	
		MoH (MINISANTE)	DSGAS + Health districts	Other Ministries	FARG	Social Security Fund (CSR- (Caisse Sociale*)	Public Employer insurance program - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)- Mutuelles, COGEAR, SONARWA etc	Private household out of pocket payments	NPISH (Implementing agencies)	Private firms and corporations (other than health insurance)	Rest of World	Row Total
HC.1.1	In patient curative care	2%	4%							5%	2%		1%	16%
HC.1.3	Out patient curative care	1%	1%		1%		1%	1%		7%	3%	2%		18%
HC.5.1.1+ HC5.1.2	Pharmaceuticals						1%			4%				5%
HC.5.1.3+ HC5.2	Other medical non durables and durables													
HC.6	*Prevention and administration of public health programmes*	8%									12%		3%	24%
HC.6.1	Maternal and child care, family planning and counseling	1%									1%			2%
HC.6.3	Prevention of communicable disease (e.g., HIV/AIDS, malaria)	2%									8%			11%
HC6.4	Prevention of noncommunicable diseases													
HC 6.6	Training within public health programs										3%		1%	4%
HC 6.9	All other mscellaneous public health services	4%											0%	4%
HC.7	*Health administration and insurance*	7%	4%		6%	2%	3%				6%			30%
HC.7.1.1	General Gov't administration of health (except social security)	7%	4%											10%
HC.7.1.2	Admin, operation and support of social security funds (CSR, RAMA)					2%	3%							5%
HC.7.3	Other administration				6%						6%		3%	15%
HCR.1	Capital formation for health care provider institutions			1%							3%			4%
HC.nsk	Not specified by kind	2%								2%				4%
	Column Total THE$_{general}$	**20%**	**9%**	**1%**	**7%**	**2%**	**5%**	**2%**	**1%**	**17%**	**27%**	**2%**	**7%**	**100%**

4.4. Special Section: Household Out of pocket Spending

In 2003, Households represented 80% of private funds contribution to health (RWF 12.4bn [US$ 23.0m] out of RWF 15.6bn [US$ 29.0m]), with other private funds such as private employer funds and NGOs contributing the remaining 20%. Table 38 shows that HH OOP changed substantially in composition, with relative shares at private pharmacies and public health centers dropping in favor of the private sector hospital, King Fayçal. Note, the true expenditures on pharmaceuticals by households are likely to be higher than the level recorded in Table 38 below. This is caused by the fact that pharmaceutical expenditures at hospitals, health centers, and clinics are embedded within the total expenditure amount reported at these facilities. Also, it is revealing that in 2000, after the closure of the SUREMED insurance scheme and that of King Fayçal hospital, out of pocket expenditures on medication peaked as a share of expenditures, suggesting that this type of expenditure is a priority for households, even in times of lacking insurance protection. Thus, the out of pocket expenditures by households on pharmaceuticals should be of concern to the Government; the vulnerability that appears in the expenditure patterns may affect in particular the poorest part of the population.

It can also be seen that the private sector, namely private hospitals and clinics, are gaining in OOP expenditure share. This can be due to increased subsidization of services as public facilities or

increased utilization at private facilities due to perceived or actual quality differences between the private and the public sector. If the latter is the case, this suggests, on the surface, that the private health sector is very dynamic and should be encouraged by the Government to take a more important role in the provision of health care to the population. However, this statement has to be qualified by the large flows of public funds to King Fayçal hospital, which effectively mean a subsidization of running cost by the Government.

Table 38: HH OOP distribution to providers 1998, 2000, 2002 and 2003 [in %]

Providers	**1998**	**2000**	**2002**	**2003**
Public hospitals	13%	20%	20%	17%
Gov't assisted not-for-profit hospitals	4%	4%	5%	7%
Private for-profit hospitals	9%	6%	2%	16%
Mental health and substance abuse hospitals	0%	0%	0.5%	1%
Offices of physicians (private clinics)	5%	10%	20%	17%
Traditional healers	31%	N/A*	N/A*	3%
Public health centers	17%	12%	15%	8%
Government assisted not-for-profit health centers	0%	6%	8%	8%
Dispensing chemists	21%	42%	29%	24%
Total OOP	**100%**	**100%**	**100%**	**100%**

*Note: for 2000 and 2002, traditional healer expenditures were not estimated. Although in 1998, an estimate was provided for traditional healers, this was based on the assumption (and not actual reported expenditure) that spending at THs was equivalent to that spent at public health centers.

Table 39 investigates the relative expenditures on financing agents from households as a financing source. Whilst in 1998 almost all funds went directly to out of pocket expenditures, there has been an increase in share of funding for insurance schemes. This has, however, mostly been limited to formal sector insurance (RAMA), whilst the contribution level to mutuelles is still relatively low. The fact that close to 90% of expenditures still are out of pocket point to a low level of protection against risk.

Table 39: Key HF as % of total household spending

Key HF as % of total household spending	**1998**	**2000**	**2002**	**2003**
Total OOP as a % of total HH	99.8%	94.3%	79.1%	88.1%
HH contributions to RAMA as % of total HH	0.0%	0.0%	11.9%	9.2%
HH contributions to private insurance, mutuelles as % of total HH	0.2%	2.1%	3.7%	1.4%
Other	0%	3.6%	5.3%	1.3%
Total HH expenditure	**100.0%**	**100.0%**	**100.0%**	**100.0%**

4.5. SUMMARY

The key findings of the general NHA analysis can be summarized as follows:

- **There has been a sizeable increase in total health care funding:** Between 2002 and 2003, total health expenditure ($THE_{general}$) has risen from RWF 35.8bn [US$ 75.3m][36] to RWF 62.9bn [US$ 116.8m] — largely due to increases in donor and Government contributions. This translates to a shift from 4.1% of the GDP in 2002 to 6.6% of the GDP in 2003, which makes Rwanda one of the leading contributors to health in comparison to other countries in the region — a sizeable shift from its earlier ranking in 2000 (4.0% of GDP) as the country with one of the lowest health shares of GDP. Moreover, with 6.6% of the GDP spent on health, Rwanda moves closer to the average of OECD [Organization for Economic Cooperation and Development] countries that spend approximately 8.4% of their GDP on health care.[37]
- **Government contribution to health has risen significantly, nearing the goals of the Abuja declaration:** Government investment in health as a share of overall Government spending has increased from 6.1% in 2002 to 9% in 2003. The goals of the Abuja declaration state that Governments should spend 15% of their funds on health by the year 2015.
- **Expenditures by donors and the public sector rose sharply**: Donor spending increased by 129% (to RWF 27.1bn [US$ 50.3m]) and the public sector by 125% (to RWF 20.1bn [US$ 37.3m]). This has resulted in donors now serving as the leading contributor of health resources (at 43% of $THE_{general}$), followed by public sources (at 32%), and lastly private sector, namely households at (25%). This constitutes a significant shift from the year before, where the private sector, principally households, served as the leading financier of health care. The increase in donor funding is primarily due to the surge in large grants such as the Global Fund, PEPFAR [President's Emergency Plan for AIDS Relief] etc.
- **Donor and Government funds are largely spent on public health programs and administration leaving households to finance the majority of curative care (medical care) costs:** Despite the large increase in health sector funding from donors and Government, these types of expenditures are leaning more towards public health programmes and administration and not for curative care. With lower subsidization for curative care, households are paying close to half of all curative care expenditures
- **NGOs have the most programmatic control over how health care funds are allocated**: The NHA findings show that NGOs, as opposed to the Government, manage the largest share of health care expenditures (accounting for 27% of $THE_{general}$). This questions the role of the Ministry of Health as steward of the health sector. Careful coordination (such as through the cluster working groups) of all the various financing sources and -agents is warranted to ensure progress towards health system and strategic plan goals and to avoid duplicative efforts
- **Insurance coverage is weak**: Households still prefer to spend most of their funds directly at the provider, via OOP [Out-of-pocket] mechanisms (88%), rather than through risk protection mechanisms. Even firms offering health coverage for employees chose to do so through direct contracts with the provider or through employee reimbursements, rather than through insurance mechanisms. Even though there has been increased donor and Government funding for health care, households have not reduced their OOP spending, suggesting that their health needs are not fully served.
- **Decentralization of the Government is rebounding**: Larger transfers of Central Government revenue to the DSGAS [Department of Health, Gender, and Social Affairs (Provincial level)] and health district can be observed from 2000 (where 0% of DSGAS funds came from central government revenue) to 2002 (where 53% of DSGAS funds came from the central level), but this still does not exceed 1998 levels. The increased share of

[36] All figures are scaled to 2003 prices
[37] Latest estimate available for is for 2003. www.oecd.org

funding given to the DSGAS and HD [Health District] is largely due to Central Government transfers rather than donor transfers, which are increasingly channeled through NGOs rather than decentralized Government entities. Strong involvement by decentralized entities and the targeted population will be important to ensure that the increased funding from donors and Government has maximum impact. Further tracking of financial indicators is needed to monitor the progress and effect of decentralization.

5. MALARIA SUBANALYSIS

5.1. INTRODUCTION

Similar to the HIV/AIDS and reproductive health subanalysis in the 2002 NHA, the 2003 version contains a disease subanalysis. For the first time, the financial flows in the field of malaria will be investigated following the structures of the NHA tables (see Annex B for the full set of NHA malaria tables). For this, a set of functional classifications was developed by the NHA team and employed to collect primary data from actors in the health sector. The approach drew from and informed the drafting process concerning a set of international guidelines on conducting malaria subanalyses.[38]

This subsection should provide valuable insight into the structures and relative burdens associated with malaria and will aim to develop actionable recommendations, which may then be considered by Government and its partners in policy deliberations.

5.1.1. Background to Malaria in Rwanda

Malaria is the leading cause of morbidity and mortality in Rwanda, particularly among children under 5 (who accounted for 33% of all cases in 2002) and pregnant women. More than half of consultations in health facilities are due to malaria, principally caused by P. falciparum. Adults account for 67.5% of malaria cases. The incidence rate was recorded at 48.2% in 2003. A synopsis on the malaria situation in Rwanda is provided below. For a more detailed description please see Annex B [B.1. to B.3.]

5.5.3.1. Prevalence

Epidemiologically, 57% of the population is at endemic risk, 21% at epidemic risk, and 22% at negligible risk (WHO/Afro 2002).[39] In Rwanda, malaria is endemic in the plains. On high plateaus, it appears rather in epidemic form[40]. The inhabitants of these areas of high altitude have little immunization against malaria and are strongly predisposed to epidemics. The distribution of malaria prevalence across health districts is shown in Figure 12.[41] In 2003, a high prevalence rate was observed at Kabutare health district where one out of two persons consulted for presumed malaria (50% of the population), The second place is occupied by Kabgayi health district where one person out of four has consulted for the same reason mentioned above. These health districts are located in endemic areas. Murunda health district has the lowest reported number of cases. This health district along with others like Gisenyi and Ruhengeri are located in zones at epidemic risk. It should be noted that within the same district however, one can find some disparities and micro stratification due to differences in soil occupancy, climate, and population.

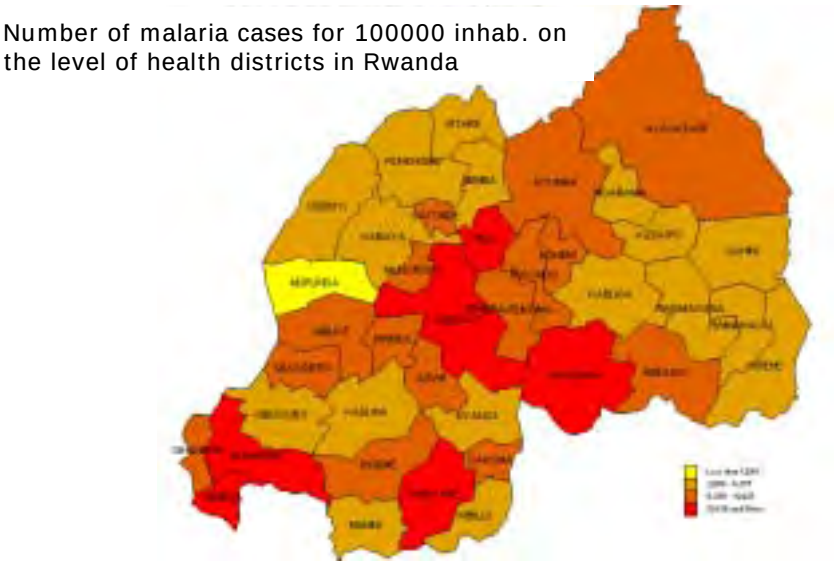
[38] The drafting team for the Guidelines was supported by USAID/PHR*plus*, WHO, and the Roll Back Malaria Finance and Resources working group.

[39] 1.The endemic risk is the area where population (2-9 years): Parasitological index and the spleen index are under 50%; 2. Epidemic risk same age Parasitological index and the spleen index between 10 and 50%; 3.Negligible risk for the same group of age: the parameters are below 10%.

[40] Vermylen Mr. Répartition of the anophèles of the Republic of Rwanda and the Republic of Burundi. *Rivista di Malariologica*, 1967, 46 (1-2-3): 122-125 & Ivorra Cano V Paludisme in *Health and Diseases in Rwanda*, AGCD Brussels, pp 427-447.

[41] These prevalence rates are determined using data from curative services in health centers. It should be noted that in all likelihood, these figures are under estimated because utilization rates of curative services are low and it is not easy to estimate how many people are suffering from malaria or fever at the community level.

Figure 12: Malaria prevalence across Health Districts in Rwanda



To address the problem of malaria, the Government in 1989 set up "The Integrated National Programme to Fight against Malaria" (PNILP). The strategies and activities of this program area centered on

1) **malaria case management:** This is based on early and adequate diagnosis, an early and correct treatment, training and supervision of personnel, and follow-up of the effectiveness of drugs. Because resistance to chloroquine exceeds 40%, beginning in 2002 the government has begun recommending a combination of AQ/SP (Amodiaquinine/sulfadoxine-pyrimethanine) for the treatment of simple cases of malaria. Combinations based on artemisnin, which are the most effective solution, are also considered in spite of their high cost for the country. Quinine is used for severe or complicated cases.
2) **Prevention**: This relates to the use of impregnated insecticide mosquito nets, intra-domiciliary insecticide pulverization (in epidemic risk zones), and the destruction of larval lodgings. Two channels are used for the distribution of mosquito nets: through a) public health facilities and through b) Population Services International Rwanda (PSI) for the private sector. ITNs are also promoted among pregnant women during antenatal visits (for a price of RWF 200 (0.37 US$), with a subsidy from UNICEF. After therapeutic failures with chloroquine, chemoprophylaxis for pregnant women no longer exists and the broad application of IPT (Intermittent preventive treatment) is still being studies.
3) **Epidemiological monitoring**: Monitoring is focused on zones under epidemic risk, by collecting and analyzing data from health facilities and from five sentinel sites. There are twenty health districts regarded as being under an epidemic risk; they are distributed in the provinces of Byumba (1HD), Cyangugu (4HD), Gikongoro (2 HD), Gisenyi (3 HD), Gitarama (1 HD), Kibuye (4 HD), Kigali-Ngali (1 HD) and Ruhengeri (4 HD).
4) **IEC and community mobilization**: This effort targets politico-administrative authorities and vulnerable groups. Messages in Kinyarwanda are diffused through various channels (e.g. radio, television, and newspapers). Efforts are being made to reinforce IEC particularly at the rural community level.

5) **Operational research:** Activities in this program area are weak [42] and would benefit from further research and intervention in paludology. [43]

5.5.3.2. Strategic Plan to fight Malaria

In 2003, the Strategic Plan "Roll Back Malaria 2004-2010" was drafted. [44] Specific objectives aim, by the year 2010, to 1) reduce by 50% the specific mortality rate due to malaria, 2) reduce the rate of lethality among inpatients for malaria and the crude death rate in under five children, and 3) reduce by 30% the morbidity rate due to malaria. To meet these objectives, the following outputs have been identified:

- At least 80% of people with malaria will have access to a rapid treatment, adequate and accessible within 24 hours after the appearance of symptoms
- At least 80% of pregnant women and children under five years to sleep under impregnated mosquito nets
- At least 80% of pregnant women to have access to a chemoprophylaxis or an intermittent preventive treatment
- At least 80 % of simple cases of malaria received in health facilities to be dealt with in accordance to the national policy
- At least 90 % of severe cases of malaria received in health facilities to be dealt with in accordance with the national policy

A basic minimum package of activities is offered involving national referral hospitals, district hospitals, and health centers. Further description on this package as well as details on the supply and distribution of drugs is offered in Annex B [B.1. to B.3.]

5.2. Overview of Malaria Subanalysis Findings

Table 40 below gives a short overview, in quantitative terms, of the main findings of the malaria sub analysis. More detailed analyses are conducted in the following sections.

[42] Fall IS. Analyze situation for the fight against malaria within the framework of the initiative "Roll Back Malaria" with Rwanda, October 2003, 59p.
[43] Manga L., Mise in accelerated work of the fight against malaria in Africa in 1997. Mission support to the national programme of fight against malaria in Rwanda. Final report/ratio, 1997, 22p.
[44] MINISANTE, Strategic plan "Roll back malaria in Rwanda 2004-2010", November 2003, 57p.

Table 40: Summary of Malaria Subanalysis Findings, 2003

Indicators	**2003**
% of deaths attributed to malaria	26%
Share of all cases due to malaria	40%
Adult share of malaria cases	67.50%
Child share of malaria cases	32.50%
THE for malaria subanalysis ($THE_{malaria}$)	RWF 11,063,633,463 (US $20,545,662)
% of total health $expenditures_{general}$ allocated to malaria	17.58%
Malaria spending per inhabitant	RWF 1,319 (US$2.45)
Malaria OOP spending per inhabitant	RWF 359 (US$0.67)
Total Malaria spending as % of GDP (in current prices)	1%
Government spending on malaria as a % of total Government spending on overall health - 12%	
Donor spending on malaria as a % of donor spending on overall health—16%	
Financing sources of malaria care (as a % of $THE_{malaria}$)	
Public	24%
Private	37%
-Of which households account for	-29% (of $THE_{malaria}$)
Donors	38%
Other	1%
Providers of malaria care	
Public providers	63%
- Public hospitals	-22%
- Public health centers	-41%
Private providers	14%
- Private for-profit hospitals	-3%
- Private for-profit health centers	-11%
Government-assisted not-for profit providers	15%
- Government-assisted not-for-profit hospitals	-5%
- Government-assisted not-for-profit health centers	-9%
Private pharmacies	4%
Traditional Healers	0%
Provision and administration of public health programs	4%
Malaria spending by NHA functions (in %)	
Preventive and public health programs	3%
Curative care**:	91%
- Inpatient	-48%
- Outpatient	-43%
Administration	2%
Pharmaceuticals, nondurables and durables purchased at independent pharmacies/shops	4%
Breakdown of spending on Prevention vs Curative care (according to stakeholder categories)	
Overall spent on Prevention (% of THE for malaria)	**12%**
Prevention and public health programs	3%
ITNs	6%
Repellants	3%
Overall spent on Curative (% of THE for Malaria)	**86%**
Inpatient***	48%
Outpatient***	37%
Pharmaceuticals purchased at independent pharmacies	2%

5.3. Policy Purpose of Malaria Subanalysis

In terms of policy, the uses of the malaria subanalysis are fourfold:

Firstly, the subanalysis should provide, for the first time, a comprehensive overview of resources committed to fighting the disease. This should help policy makers, development partners and civil society stakeholders to gain a better understanding of the state of malaria prevention, treatment and control in the country.

Secondly, the subanalysis should help identify the relative priority malaria takes in the health system, in comparison to other targeted disease interventions such as HIV/AIDS and tuberculosis. Understanding these different intervention areas better should aid evaluation, prioritization and planning of future interventions.

Thirdly, the subanalysis should act as an advocacy tool, supporting policy makers in their justification for evidence-based policy choices in a data driven manner.

Fourthly, it should serve as a means to compare the PNILP strategic plan with the existing state of affairs.

5.4. Concept and Scope of the Malaria Subanalysis

The malaria subanalysis mirrors the structure of the general health part. Thus, all key tables, including financing sources, financing agents, providers, and functions are reproduced specifically for expenditures on malaria. To achieve this, a combination of primary and secondary data sources was employed, be it in a "targeted" way, e.g. where funds are explicitly given to fight malaria, or in an "untargeted" manner, e.g. where funds end up being used to fight the disease but were not necessarily earmarked to do so. Details of the estimation approach can be found in the methodology section.

Two separate sets of tables were created, one tracking only explicitly targeted funds (shown in Annex B), and another set estimating the total expenditures on malaria, even through untargeted means (also shown in Annex B). This then allowed a comparison on two levels: firstly between general health expenditures and malaria expenditures and between targeted and untargeted expenditures, e.g. the identification of the level of targeting of funds for malaria.

The malaria subanalysis was enhanced by a separate section on out of pocket expenditures and utilization by households; this data was derived from analysis of the household survey on malaria conducted as part of the PNILP and School of Public Health's study on the socioeconomic impact of malaria. Close scrutiny of household spending and health care use is especially important in view of the high level of vulnerability and the extensive involvement of households as financing sources in the fight against the disease.

5.5. Flow of Funds for Malaria: by NHA Dimensions

5.5.1. Financing Sources

In 2003, total malaria health expenditure was RWF 11.1bn [US$ 20.6m] and represented 18% of THE for general health care. Similar to overall health care, the three main malaria funding sources were donors (38%), private (37%), and public sources (24%). Private sources were mainly comprised of household contributions (29% of $THE_{malaria}$)-: this represents a higher share of expenditures from private sources when compared with the general NHA, where households generate 20% of THE. The Central Government itself contributed 50% of what donors put into the fight against the disease (RWF 2.14bn [US$ 4.0m] versus RWF 4.31bn [US$ 8.0m]).

Figure 13: The FS distribution

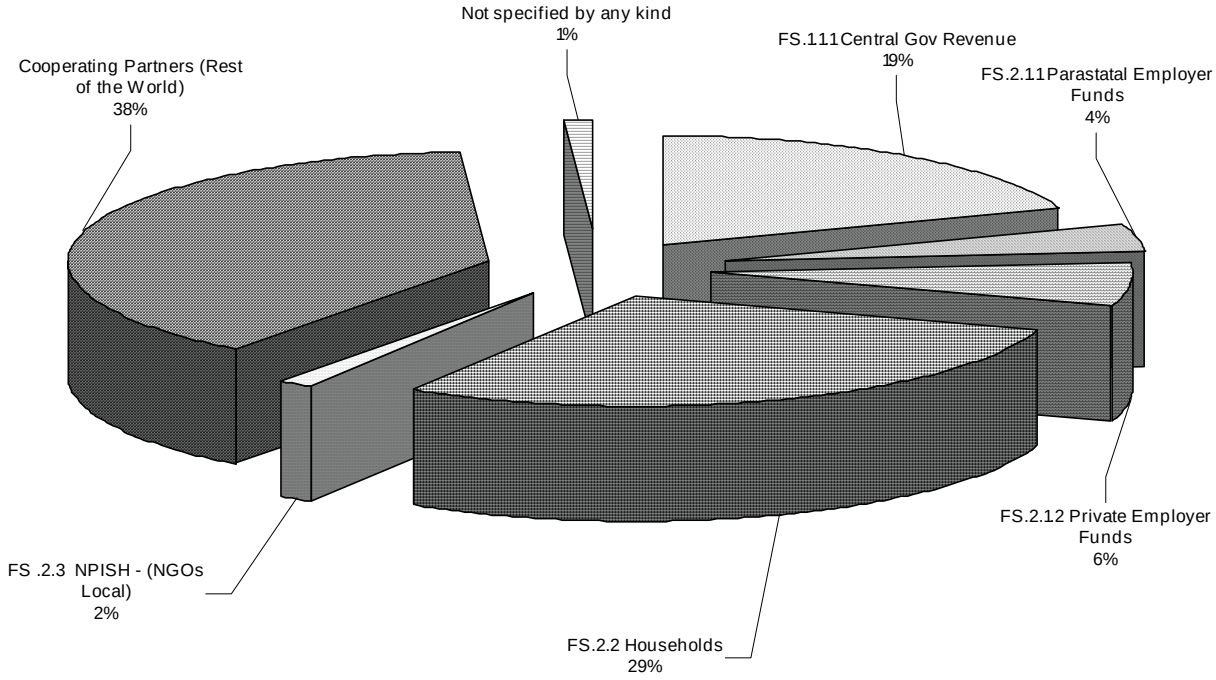


Figure 14 below summarizes the relative contributions of financing sources for malaria in comparison with their shares for the general NHA. Only 16% of donor health financing goes to malaria, the largest cause of morbidity (67.8%) and mortality (responsible for 56.6% of fatalities at hospitals[45]) in Rwanda, while it was found that in 2002, a sizeable 33% of donor funding was targeted on HIV/AIDS (a number likely to increase in 2003 with the advent of Global Fund etc). In terms of public contributions, approximately 13% of all public health funds (including parastatals) went to malaria. A sizeable 26% of private health funds (principally from households) were used for malaria services.

When looking at malaria funding, we can distinguish between "targeted" funding, e.g. funding that is expressly dedicated to the fight against malaria, and "untargeted" funding, e.g. monies that are spent on malaria related activities but were either not explicitly dedicated to the task. Approximately 42 percent of malaria related expenditures were actually targeted (NGO, Government, and donor programs on malaria; household out-of-pocket spending for malaria medical services). To estimate non-targeted spending (e.g. proportion of doctors' salaries spent ultimately on treating malaria patients) a combination of malaria costing data and utilization rates was used. Please see the methodology chapter for further details.[46]

As many of the health sector goals target specific gains in disease area, for future monitoring purposes, it seems important that financial tracking systems be improved to capture targeted and non-targeted spending on malaria and perhaps other diseases. This can be achieved with a number of different instruments, such as a Public Expenditure Review for Government and improved accounting systems at private institutions or donors.

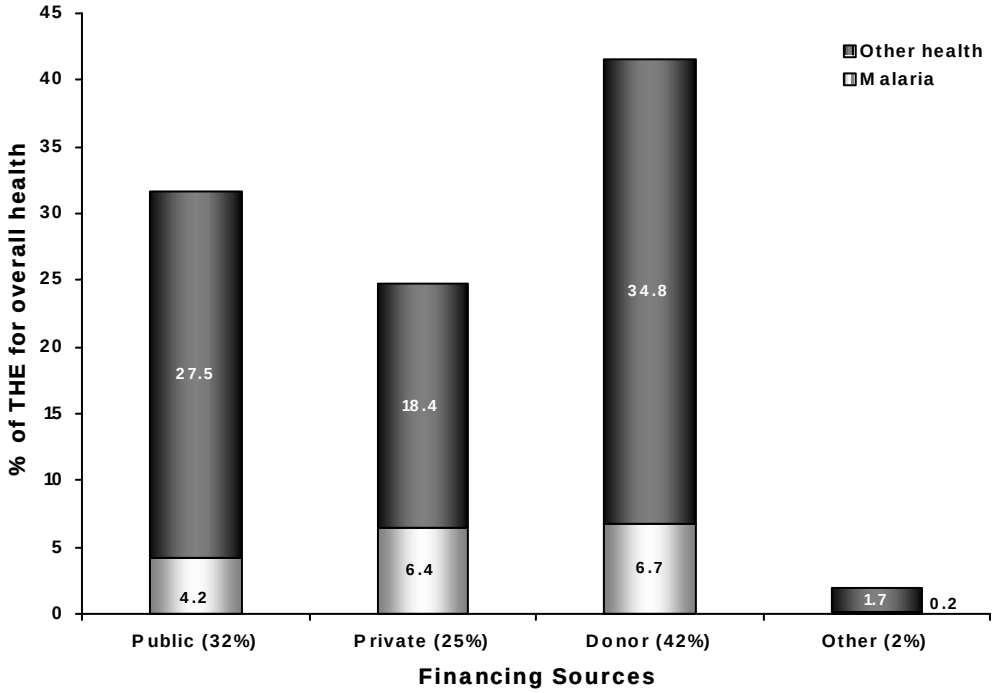
[45] PNILP 2003

[46] Non-targeted spending can be more easily determined in countries where providers are reimbursed according to diagnosis related groups-DRGs (Australian Institute of Health and Welfare, 2005). DRGs comprise a classification system used to group hospital patients according to their medical diagnosis and their use of hospital resources (Kielhorn, Graf von der Schulenburg, 2000). Such level of detail may not be present in the patient records of low-income countries and in lieu of complex and sometimes costly studies (such as those that track time-motion), these Guidelines suggest applying a specified percentage to overall provider expenditures.

Further information can be added from the mapping of donor and Government budgets for 2005[47]: based on self-reported information by donors and the Government, only US$ 1.8m [RWF 969m] of targeted funds could be identified, of which the Global Fund was the biggest donor with US$ 1.3m [RWF 700m], followed by the WHO with US$ 350,000 [RWF 188,471,500]. Targeted Government funds amounted to US$ 105,000 [RWF 56,541,450]; however, it must be noted that for this exercise, the Central Government budget was used and not information from the PNILP, which would most likely have been able to provide more extensive information on target malaria funds.

Scaling these figures to 2003 prices, we observe that, in 2005, the equivalent of US$ 1.6m [RWF 862m] of targeted donor funding could be identified, compared with US$ 2.4m [RWF 1,292m] in 2003. This constitutes a sizeable dope in absolute and relative funding between the years. It thus remains likely that a large share of the burden related to malaria continues to be borne by households.

Figure 14: The big picture of resource flows for health - and malaria's role

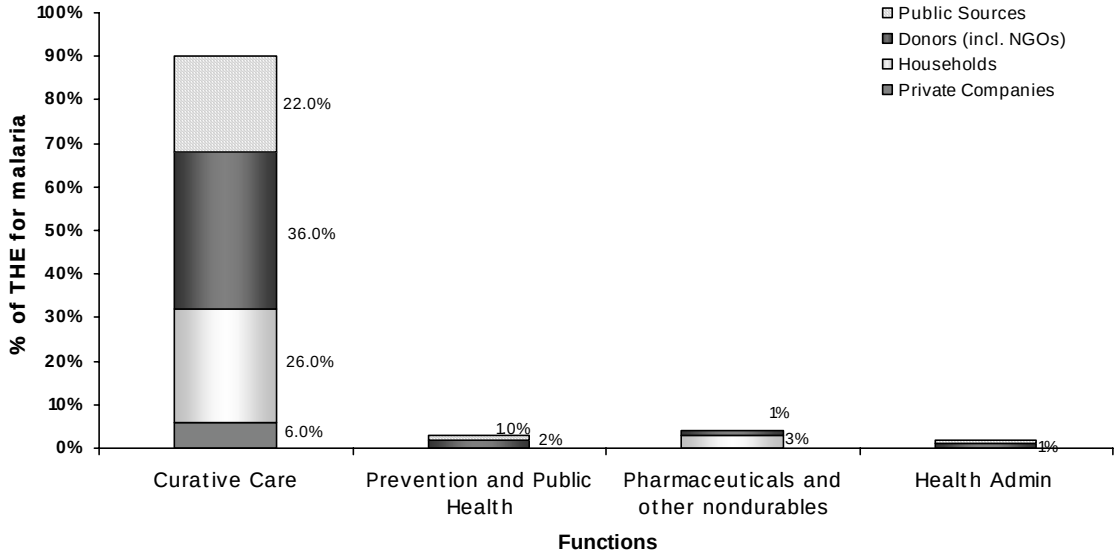


5.5.2. FS x HC End uses of financing sources contributions

Figure 15 below shows the ultimate functional use of sources' funds. Contrary to that seen for general health, households are not the largest financier of medical care services for malaria. Rather, Donors (including NGOs as financing sources) contribute the largest proportion of funds for these services (approximately 36 percent of the $THE_{malaria}$ and 39 percent of all curative care expenditures. This is followed by the household contribution (at 26% of $THE_{malaria}$) and then public sources (at 22% of $THE_{malaria}$). Also, overall resources for malaria are largely targeted towards curative care (approximately 91%) rather than preventive and public health programs[48] (approximately 3%); the contrary was seen with respect to HIV/AIDS in 2002.

[47] Based on preliminary 2005 survey data collected by the MoH Department of Health
[48] Note: this is only referring to programmatic spending. Other prevention services rendered as part of an outpatient visit (e.g. dispensing of ITNs in a hospital) would be included in curative care expenditures.

Figure 15: Financiers of malaria functions

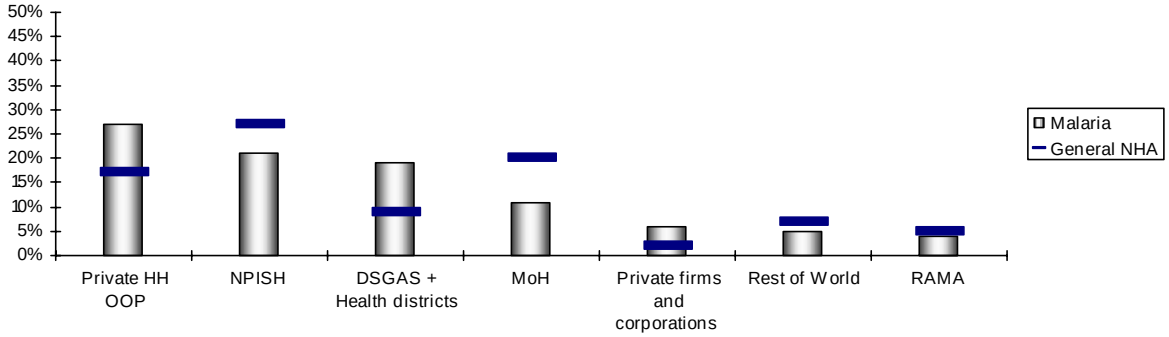


5.5.3. Financing Agents

Financing agents for malaria are those institutions or actors that receive funds from financing sources and have programmatic control over how money is allocated for malaria related activities. In terms of their contribution (as seen in FS x HF table of Annex B – Table B-1), OOP payments are the largest (27% of $THE_{malaria}$), followed by NGOs (21%), then DSGAS and HD at 19%, and finally the MoH (at 11%). Taken together, the Government (including MoH, DSGAS, and HD) manages the largest share of malaria funds and hence is the larger determinant of resource allocation compared to NGOs.

When investigating the financing agents for malaria, it is also informative to examine the share spent by each type of financing agent, and to compare this percentage to the agent's share of expenditures on general health. Figure 16 illustrates the differing situations between both types of expenditures: whilst households play a much more important role in financing malaria related health expenditures (particularly for curative care), both the roles of donors and Central Government are reduced overall, principally, as we will see, due to the relatively low contribution of prevention programs. (But the figure 15 above shows that donors and Central Government play an increased role in curative care for malaria in comparison to their role for general health care).

Figure 16: Distribution of financing agents for malaria and general NHA



For overall health care, NGOs are the leading financing agents (accounting for 27% of $THE_{general}$). As mentioned earlier, with respect to malaria, it is the Government that is the leading financing agent

followed by NGOs (which account for 21% of $THE_{malaria}$). In particular, the role of the DSGAS and HD are more pronounced for malaria-related care than for overall health care. Funds from the DSGAS and Health districts represent 9% of the THE for general NHA 19% of the THE for malaria; they lead other Government entities in managing malaria funds and they allocate malaria resources to public and agree health facilities, which deal with the bigger number of malaria vulnerable and poor population groups. Also, from a policy perspective these decentralized entities are pivotal to the ongoing decentralization process and to the promotion of "Mutuelle" insurance schemes in which households pay contributions in return for access to basic health care services.

Private firms and Public firms each contribute 2% of the THE for general NHA and in terms of malaria contributions, they provide 6% and 3% respectively. A small amount of 1% of the THE for general NHA and 1% of the THE for malaria is is channeled through private insurance enterprises. This illustrates that at least in 2002, there was a relatively weak role of "mutuelles" in financing malaria-related activities. Lastly other ministries provide 1% of the THE for general NHA of which nothing was specifically targeted for malaria.

5.5.3.3. Financing Sources to Financing Agents [FS x HF]

How are the financier funds being channeled through the malaria health care infrastructure? Within the public sector, there is an emphasis on channeling funds to decentralized entities (such as the DSGAS). The other major financiers, namely donors, transfer the majority of their funds (approximately 58%) to NGOs (and donor direct transfers), with the remainder given to the MoH (10% of donor funds) and DSGAS (32% of donor funds). Looking at households, we note that insurance protection for malaria is even less developed than it is for general health: 94% of expenditures financed by households are out of pocket, compared with 88% in the case of general health

Table 41: Malaria flows from Financing Sources to Financing Agents 2003

Financing Source [FS]									
		FS.1 Public Funds	FS.2 Private Funds				FS.3	FS.nsk	
Code	**Financing Agent [HF]**	FS.1.1.1 Central Gov Revenue	FS.2.1.1 Parastatal Employer Funds	FS.2.1.2 Private Employer Funds	FS.2.2 Households	FS .2.3 NPISH - *(NGOs Local)*	Cooperating Partners (Rest of the World)	Not specified by any kind	**Row Total**
HF. 1.1.1.1	MoH (MINISANTE) including PNILP	7%	-	-	-	-	4%	-	**11%**
HF.1.1.2	DSGAS + districts	7%	-	-	-	-	12%	-	**19%**
HF.1.3	FARG	3%	-	-	-	-	-	-	**3%**
HF.1.2	Social Security Fund (CSR-Caisse Sociale)	-	-	-	-	-	-	-	**-**
HF.2.1.1	Gov't Employees insurance programs– RAMA (Rwanda medical insurance)	1%	1%	-	1%	-	-	-	**4%**
HF.2.5.1	Parastatals	-	3%	-	-	-	-	-	**3%**
HF.2.2	Private Insurance Enterprises *(other than social insurance)*	-	-	-	-	-	-	-	**1%**
HF.2.3.	Private household out of pocket payments	-	-	-	27%	-	-	-	**27%**
HF.2.4	NPISH (other than social insurance)	1%	-	-	-	2%	17%	1%	**21%**
HF.2.5	Private firms and corporations (other than health insurance)	-	-	6%	-	-	-	-	**6%**
HF.3	Rest of World	-	-	-	-	-	5%	-	**5%**
HF.nsk	Not specified by any kind	-	-	-	-	-	-	-	**-**
	Column Total [$THE_{malaria}$]	**19%**	**4%**	**6%**	**29%**	**2%**	**38%**	**1%**	**100%**

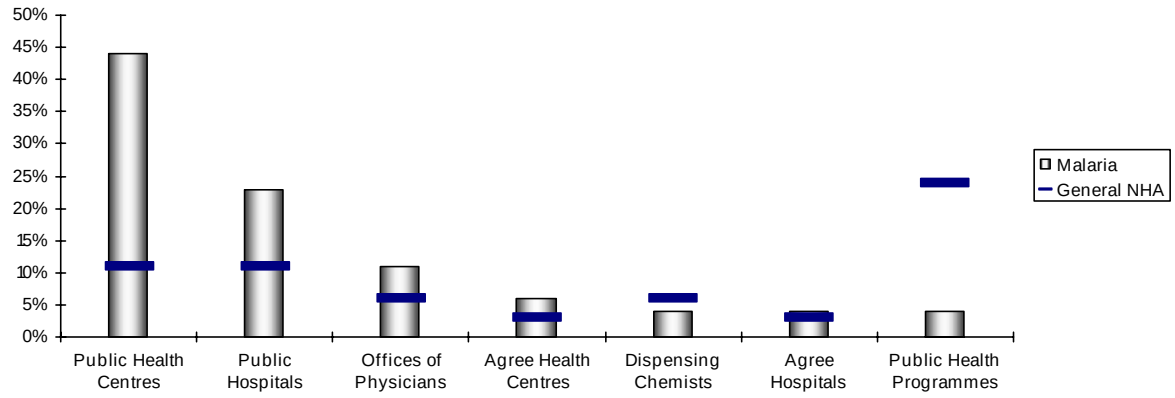
5.5.4. Health Providers

When analyzing the provision of malaria related services, we note striking differences in the structure of providers when compared to general health. We note that public- and agree health

centers and -hospitals taken together receive 77% of funds dedicated to fighting malaria, compared to 28% for general health. Hand in hand with this overwhelming share spent at public institutions goes a much reduced share of expenditures related to public health programmes and administration. This information is summarized in Figure 17.

The messages that can be drawn from this are the following: firstly, we find few public health programmes, especially from NGOs. Whilst for the general health sector, NGOs administer 63% of health programme funds, for malaria health care they contribute 24%, which is a a much smaller share (4% of $THE_{malaria}$ versus 24% of $THE_{general}$). Again citing the experience that many targeted disease interventions are implemented through the donor – NGO channel, this may mean that malaria does not receive the same attention (particularly for programmatic care) as do other diseases, at least not through dedicated implementing agencies.

Figure 17: Distribution of providers: malaria and general NHA



5.5.4.1. Financing Agents to Providers [HF x HP]

Investigating the flow of funds from financing agents to providers, we note that central Government tends to fund interventions at hospitals, whilst districts and DSGASs tend to finance interventions at health centers. This reflects the structure of Government funding, which, to date, has little or no funds flowing directly from Central Government to health centers, but always through decentralized Government administration.

Funds flowing from NGOs to providers are more focused on public structures than on their own public health programmes, as we observed earlier. It suggests that these NGOs are less active in terms of public health program implementation than for other major interventions, such as HIV/AIDS.

RAMA, on the other hand, spends the largest share of its malaria related funds at private physicians, and another significant proportion at public health centers.

Table 42: Flows from Financing Agents to Providers 2003

Financing Agent													
	HF.A Public Sector						HF.B Non Public						
	HF. 1.1.1.1	HF.1.1.2	HF.1.3	HF.1.2	HF.2.1.1	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Provider	MoH (MINISANTE) including PNILP	DSGAS + districts	FARG	Social Security Fund (CSR-Caisse Sociale)	Gov't Employees insurance programs - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)	Private household out of pocket payments	NPISH (other than social insurance)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
Public Hospitals	5%	-	1%	-	1%	-	-	6%	4%	-	4%	-	**22%**
Gov't assisted Not-for-profit hospitals	1%	-	-	-	-	-	-	1%	2%	-	-	-	**5%**
Private hospital for-profit	1%	-	-	-	-	-	-	1%	-	-	-	-	**3%**
Mental health & substance abuse hospitals	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Offices of physicians (private clinics)	-	-	-	-	2%	3%	-	1%	-	6%	-	-	**11%**
Offices of other health practitioners (incl Traditional healers	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Public health centers	1%	19%	1%	-	1%	-	-	9%	9%	-	-	-	**41%**
Private not-for-profit health centers	-	-	1%	-	-	-	-	5%	3%	-	-	-	**9%**
Dispensing chemists	-	-	-	-	-	-	-	3%	1%	-	-	-	**4%**
Provision and admin of public health programs	2%	-	-	-	-	-	-	-	1%	-	1%	-	**4%**
Providers not specified by any kind	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Column Total [$THE_{malaria}$]	**11%**	**19%**	**3%**	**-**	**4%**	**3%**	**1%**	**27%**	**21%**	**6%**	**5%**	**-**	**100%**

5.5.5. Health Functions

One of the innovations developed for the malaria subanalysis is the classification of health services, or functions. Using the experience of members of the National Malaria Programme (PNILP), the team classified the most important types of activities and materials that are being used in the fight against malaria.

In terms of the NHA classification scheme, spending for malaria health care is largely for curative care (91%) of which 48% is for inpatient and 43% for outpatient services. Programmatic spending (on prevention and public health programs) as mentioned earlier is not as strong, representing only 3% of all malaria health care spending. Although many regional studies suggest that expenditures on self-medication at pharmacies/shops would be anticipated to be high, this NHA (which marks the first time that actual expenditures on malaria have been tracked in Africa) exercise finds that in 2003, such expenses only accounted for 4 percent of overall spending on Malaria. Moreover, it had been anticipated that household out-of-pocket expenditures would account for the largest financing agent; however, this NHA exercise has shown that while substantial, OOP spending accounts for 27 % of $THE_{malaria-}$ entirely spent on curative care and some for the purchase of pharmaceuticals at independent shops/pharmacies. It should be noted that due to the NHA format, expenditures on preventive commodities delivered as part of curative care services are embedded within this category and not within "prevention and public health programs."

From a stakeholder view, expenditure on prevention (including preventive activities that occur as part of IP and OP consultations.) versus curative care can be broken down as follows (see Table 43). Approximately 12% for preventive activities and 86% for curative care/treatment services. The rest is spent on administration. Although the prevention share has increased slightly with this breakdown, it is still relatively small in comparison to that spent on treatment for malaria.

Table 43: Spending on Prevention vs Curative Care

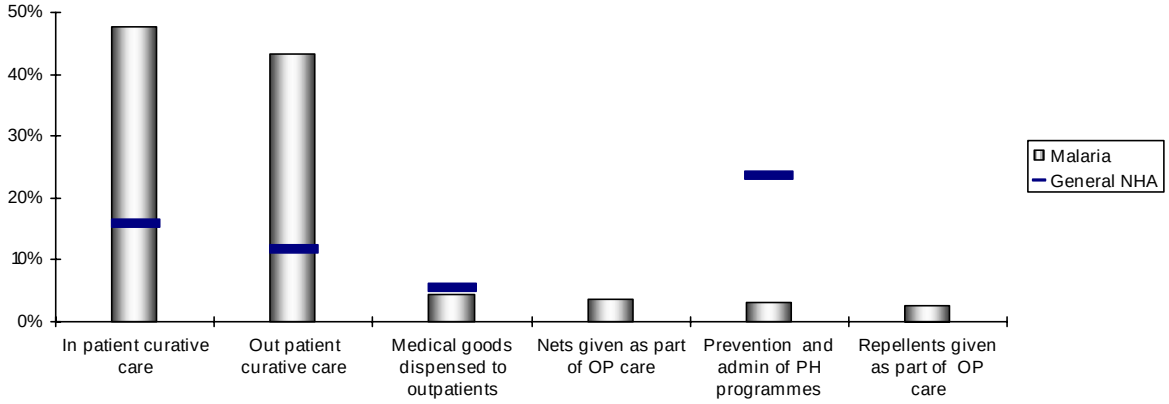
Breakdown of spending on Prevention vs Curative care	
Overall spent on Prevention (% of THE for malaria)	**12%**
Prevention programs	3%
ITNs	6%
Repellants*	3%
Overall spent on Curative (% of THE for Malaria)	**86%**
Inpatient	48%
Outpatient	37%
Pharmaceuticals purchased at independent pharmacies	2%

* Refers to repellants used to impregnate nets.

Similar to the dominance of public providers of health care, we see that in patient and out patient care dominate the set of services provided. Third in importance is the provision of medical goods to out patients, which includes anti-malarial drugs. Fourth in line are insecticide treated nets given as part of outpatient care.

On the flip side, we see that there is a very low share of public health programmes; whilst we noted that this suggests a lower involvement of NGOs in the field, it suggests a general weakness in terms of prevention, as only 7% of public sector spending goes towards this type of activity, and overall, only 3% of expenditures are dedicated to prevention activities. This is in line with reactions from the PNILP team, who stated that sensitization and prevention was not a strong area of activities in that year.

Figure 18: Distribution of functions: malaria and general NHA



5.5.5.1. Providers to Functions: [HP x HC]

In the Rwandan health system, about 80% of all curative consultations take place at health centers; the majority of these consultations are out patient consultations. These types of consultations are also much cheaper, on average, than in patient consultations, as a study by the School of Public Health has shown. Public hospitals, on the other hand, have a higher share of in patient consultations. Thus, it is not surprising that at public hospitals, most funds (80%) go towards in patient treatment. At public health centers, on the other hand, only 54% of funds are dedicated to in patient treatment, and 45% go towards out patient treatment.

Only half the amount spent at public entities was spent at dispensing chemists on insecticide treated nets (RWF 219m [US$ 0.4067m] versus RWF 411m [US$ 0.7632m]).

Whilst repellents (used to impregnate nets) still made up a significant part of expenditures, with RWF 290m [US$ 0.5385m] spent at public- and agree hospitals and –health centers, and RWF 90m [US$ 0.1671m] at dispensing chemists, other prevention components in the fight against malaria received very little attention: only RWF 62m [US$ 0.1151m] were spent on surveillance and monitoring of the disease, and no funding at all could be detected for vector management.

In total, only 9% of expenditures go to non treatment categories, outlining the lack of prevention activities and the relatively small involvement of NGOs and donors in the sector. In case of a higher involvement of NGOs and donors, we would have expected to detect more public health programmes and possibly a higher share of prevention activities in the sector.

5.5.5.2. Financing Agents to Functions: [HF x HC]

Household out of pocket expenditure, one of the major financing agents for malaria at RWF 3bn [US$ 5.6m], is mostly dedicated, not surprisingly, to treatment categories, with a larger share being dedicated to out patient treatment than to in patient treatment (RWF 1.5bn [US$ 2.8m] versus RWF 1.1bn [US$ 2.0m]). Similar expenditure patterns exist for RAMA, NGOs and private firms. Given the fact that overall, more funds are dedicated to in patient treatment, it becomes apparent that the Government, through the Ministry of Health and DSGAS and districts spent much higher amounts on in patient treatment. Whilst this funding benefits a much smaller number of people than funding dedicated to out patient treatment, it more likely benefits grave cases of malaria, which may pose a bigger threat to households than those treated in out patient consultations.

Examination of spending on preventive malaria commodities (regardless of where they are dispensed whether during health center consultation or at a shop) shows that ITN expenditure (RWF 630.2m or US$ 1.2m) is double that spent on repellants. In terms of who pays for ITNs at the financing agent level, 73% is financed by OOP payments, 14% by NGOs, and 13% by the

government.[49] The low government share is not surprising as no new ITNs were actually purchased in 2003; only existing stock was distributed. In terms of repellants, a different pattern is observed: NGOs are the leading financing agents (accounting for 62% of all repellant expenditures), followed by the government at 27% and OOP payments accounting for 10%. Thus, in both cases the government did not play the leading role paying for preventive commodities. Similarly with respect to prevention programs for malaria, the government (at the financing agent level) played a secondary role accounting for 25% of programmatic expenditures. NGOs and donors contributed the largest share (75%) of program funds.

5.6. ANALYSIS OF THE PNILP STRATEGIC PLAN IN THE CONTEXT OF THE NHA 2003

Table 44: Distribution of the strategic plan and 2003 NHA targeted funds by functions

Code	Functions	2003 in RWF	2003 in US$	% distribution of 2003 NHA malaria targeted funds	Strategic plan (2005-2010)	[50]1-year stra. plan	% distribution of the strategic plan
HC.1.1	IP curative care				21,313,459	3,552,243	19%
HC.1.3	0P curative care	369,610,967	687,444	59%	26,274,611	4,379,102	24%
HC.1.3.1	Repellants given as part of OP care	104,076,692	193,573	17%			0%
HC.1.3.2	Nets given as part of OP care	84,801,150	157,723	14%	17,474,339	2,912,390	16%
HC.5.2.5	ITNs (medical durable)			0%	11,649,559	1,941,593	11%
HC.6	Prevention and administration of public health programs	88,030,557	163,729	14%			0%
HC.6.3	Prevention of communicable diseases (malaria)	42,094,104	78,291	7%			0%
HC.6.3.2	IEC			0%	2,474,580	412,430	2%
HC.6.3.5	Drugs for communities			0%	7,290,112	1,215,019	7%
HC.6.3.6	Surveillance and monitoring for malaria	42,094,104	78,291	7%	4,400,945	733,491	4%
HC.6.6	Training within public health for malaria	45,936,453	85,438	7%	7,880,584	1,313,431	7%
HC.7.1.1	General Gov't administration of health (except social security)	170,271,439	316,690	27%	11,444,931	1,907,489	10%
$THE_{malaria}$		**627,912,963**	**1,167,863**	**100%**	**110,203,120**	**18,367,187**	**100%**

The above table shows the breakdown of actual Government expenditures by functions in comparison to the original intended targets of the PNILP (derived from PNILP's 6-year strategic plan). [51]

In terms of targeted funds only, beginning with curative care, although PNILP had intended to spend 19 percent of its 2003 funds for inpatient care, in reality nothing was spent. The analysis of the distribution of funds by functions of the PNILP's 6-year strategic plan and 2003 NHA targeted funds shows that in 2003 PNILP did not commit any funds to IP curative care whilst the majority of its spending, 59%, was dedicated to OP curative care. Just above 30% were dedicated to repellents and ITNs. The second biggest single expenditure item, however, is general administration with 27% of expenditures. This compares with a planned share of 10% in the 6 year strategic plan, although this is based on a much bigger total.

[49] Please see the methodology chapter for a detailed description of how expenditures on commodities were captured.
[50] Obtained by assuming that the 6-year strategic plan (2005-2010) is linearly distributed across from 2005 to 2010.

[51] Note: With respect to "Distribution of the strategic plan and 2003 NHA targeted funds by functions" table, it is not convenient to breakdown by PNILP categories in the same table as 2003 PNLP expenditures and the strategic plan have different categories.

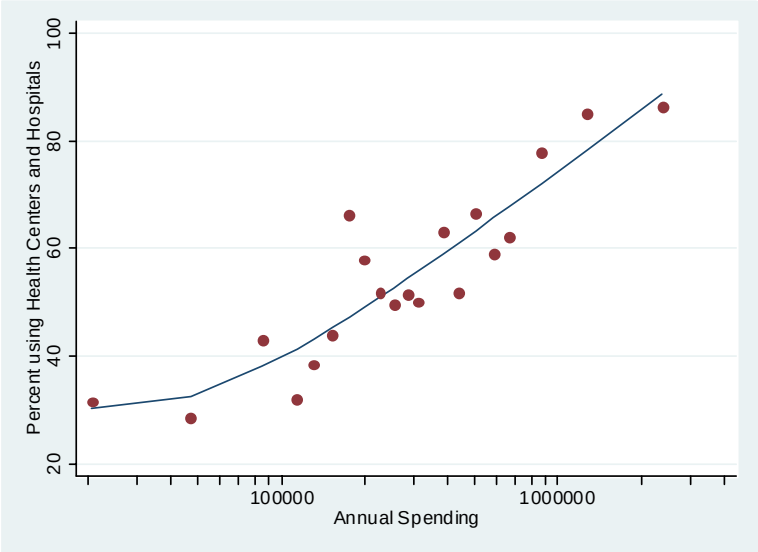
Although ITN [Insecticide Treated Net] distribution tripled between 2002 and 2003 (269, 210 in 2003 and 88,010 in 2002)[52], no new ITNs were purchased during the year, only existing stock of repellants and ITNs was distributed. As for the strategic plan, 16% of malaria financing is expected to be used to buy repellants and nets given as part of OP care and 7% to be spent on malaria drugs for communities as part of a new strategy to combat malaria using home based management of fever/malaria. Lastly, the plan provides for 24% to be spent on OP and 19% on IP curative care.

Using imputed yearly expenditures derived from the 6 year Strategic Plan and comparing them with 2003 NHA targeted funds allows us to make some comments:

- There appears to be a risk related to the child health MDG [Millennium Development Goals] goals if spending continues in the same pattern as it did in 2003: lack of expenditure on ITNs and preventive measures may impact child morbidity and mortality, as 74% of morbidity for under 5 year old is related to malaria
- If funding is to be increased in line with the PNILP strategic plan, then funding would exceed current spending of targeted funds by factor 15; concerns about the absorptive capacity of the institution should be addressed
- With 2% of yearly expenditures, IEC budgets are only half the relative size than they are in HIV sector: in 2005, donors and Government budget US$ 2.0m [RWF 1,077m] for IEC and BCC, which represented 4% of HIV/AIDS related expenditures.

5.7. Special Section: Additional Analysis of HH Malaria Spending

Income[53] largely determines the type of care a malaria patient receives. One in seven of the lowest income Rwandans (14%) receives no treatment at all when he or she has malaria (Table 45). In contrast, only three percent of patients whose households are in the highest 20% of the income distribution go untreated. Another 11 percent of the two poorest quintiles use "Other" providers, a category consisting of traditional healers, herbalists, and "other." No one else uses these.



About one in five (19%) of the richest quintile self-medicates. The rate is twice as high (36 to 38 percent) at all other income levels. Economic barriers to care are most visible in utilization of health centers, clinics, and hospitals. The richest fifth is twice as likely as the poorest fifth to use a hospital, clinic, or health center.

Table 45: Type of Care for Malaria Patients, by Expenditure Quintile

	Type of Care				
Expenditure quintile	**Untreated**	**Self-medication**	**Health Centers and Hospitals**	**Other**	**Total**
Lowest	14	37	37	11	100
-	9	38	42	11	100
Middle	5	36	55	3	100
-	5	38	56	1	100
Highest	3	19	77	2	100

[52] 2003 MoH annual report
[53] In this discussion, income is measured by estimated by estimated annual expenditures for 19 items, including savings and agricultural business expenses, but excluding the imputed cost of food produced by the household.

Source: HH Survey, 2005

Young children receive higher levels of care than older children or adults (Table 46). Only three percent receive no treatment, and two-thirds are seen at a clinic, health center, or hospital. Reliance on "other" forms of care is largely limited to patients over the age of 50 years.

Table 46: Type of Care for Malaria Patients, by Age

Age	Type of Care				
	Untreated	Self-medication	Health Centers and Hospitals	Other	Total
Under 5	3	26	66	5	100
5 to 14	8	34	54	4	100
15 to 50	8	33	57	3	100
Over 50	6	39	41	13	100

We examined the effects of urban and rural residence, and of gender, on types of care provided, and found no significant differences associated with either one. We also examined in detail the type of provider (for those who had treatment beyond self-medication), and found that it was largely unrelated to place of residence, age, or income. However, men are slightly more likely to obtain care at a hospital (12% of those who receive care beyond self-medication) than are women (5%).

5.8. Functional Objects of Payment

Medication constitutes the largest single line item in out of pocket spending for both those who received inpatient care and outpatient care (Table 47). The actual cost of medication delivered in inpatient care was about five times as high as the cost for outpatients. For patients admitted to a hospital or health center for an overnight stay, occupancy charges (for a median stay of 6 days) were one-third of the total cost. All other items were about the same for inpatient and outpatient care. We looked for differences among urban and rural residents, men and women, and patients of different ages and incomes, but we found none. Anecdotal evidence suggests that part of the reason that drug expenditures are so high may lie with the financing mechanisms of the health sector: to date health centers receive little funding from Central Government and have to adhere to fixed treatment prices. Thus, to finance their functioning, health centers tend to raise prices for drugs or may even over prescribe.

Table 47: Functional Object of Payment

	Percent of total cost [a]		Median Cost [b]	
	Outpatient	Inpatient	Outpatient	Inpatient
Occupancy (bed) Charge	**NA**	**32%**		**3,500**
Consultation Fee	8%	3%	200	200
Laboratory Fees	12%	2%	200	300
Total Cost of Medication at hospital/health center/clinic	57%	54%	800	4,300
Registration Charge	21%	8%	180	200
Medication Purchased after discharge	1%	0%	1,100	760

a Includes those who did not pay
b Excludes those who did not pay

Source: HH Survey, 2005

5.9. Sources of Funds

Most (78%) of the costs of care come from patients' own funds (Table 48). Nearly all patients (97%) who self-medicate pay all the costs from their own funds, but 80% of those who visit clinics, health centers, and hospitals also pay entirely from their own funds. (Table not shown) Insurance provides most of the remaining funds (16% of the total). Barrowing money and selling assets are rare. Three percent of the funds (one percent of patients) come from borrowed money.

Table 48: Source of Funds

Source of Funds	Percent of total cost
Has paid from his/her own pocket/account	78%
Has paid through insurer refunds	16%
Has paid by a loan granted by relative/friend/bank	3%
Has paid through the sale of his/her assets	2%
Has paid through a credit payable to the FOSA [Health Facility]	1%
Other means of payment for health care services	1%

Source: HH Survey, 2005

Whether patients borrowed money depends primarily on the cost of care (Table 49). Patients who spent more than the median were significantly more likely to borrow than those who spent less. Patients with incomes below the median and spending above the median were most likely to borrow, while those with higher incomes and lower costs never borrowed. Other factors (such as location, age, and sex) are not related to the need to borrow money, or to access to other sources of funds.

Table 49: Percent of patients who borrowed funds, by cost of care and income

	Out of pocket spending	
Annual Income	Below median	Above median
Below median	0.5%	2.5%
Above median	0.0%	1.9%

Source: HH Survey, 2005

5.10. SUMMARY

From the analysis of malaria related expenditures, the main findings are:

- **THE on malaria represents 18% of total health expenditures, amounting to RWF 1,319** [US$ 2.45] **per capita:** In view of the high levels of morbidity and mortality associated with the disease, this should be evaluated in terms of funding needs for the disease.
- **The principal financiers for malaria health care are donors (38%), followed by households (29%), and lastly public sources (24%):** Although donors finance a significant portion of malaria services, households finance close to a third of the malaria resource envelope, significantly more than what is contributed by public sources.
- **As a means for channeling funds, NGOs are preferred by donors and DSGAS and Health district by the Government**: Over half of donor malaria funds and over a third of government malaria resources are channeled through NGOs and DSGAS respectively. This highlights the need for close coordination in health sector decentralization.
- **Principal functional spending on malaria is for curative care:** If broken down according to stakeholder categories of curative and prevention activities, 86% of $THE_{malaria}$ is spent on curative care and 12% on prevention Donors, followed by households, and then the Government finance curative care.
- **Malaria is particularly a burden for the poor and is associated with high vulnerability:** household data shows that treatment of malaria is strongly associated with socioeconomic status. The richest quintiles are twice as likely as the poorest quintile to use hospitals, clinics, or health centres when suffering from malaria. The poor, by contrast, are more likely to see traditional healers (TH); in fact, of those who reported seeing TH, all were in the poorest quintile. In addition, 20% of the richest quintile self-medicates and this rate doubles at the poorer income levels. These findings highlight disparities with respect to accessing care. The vulnerability of the population becomes clear when looking at the high drug cost of treatment and the low insurance coverage for the disease, which is even less developed than for general health.
- **Spending on malaria bed nets largely comes from the households.** Most expenditures on insecticide treated nets come from households (73%), whilst the Government[54] subsidizes 13% and NGOs 14%.
- **Malaria as a priority for donors is not rising.** Only 16 percent of 2003 donor health funds (US$ 2.4m) were used for malaria care and prevention. In 2005[55], this share decreased to 3 percent (US$ 1.6m when scaled to 2003 prices), representing a sizeable drop in absolute and relative terms.

[54] Government in this context is at the financing agent level. Thus, it includes donor transfers to the government.
[55] Based on preliminary findings from a donor mapping database conducted by the Department of Health, Ministry of Health.

6. CONCLUSION

6.1. CONCLUDING REMARKS

The NHA for 2003 have revealed important developments and changes in the Rwandan health system and have yielded a number of key conclusions for the general health sector and the malaria sub analysis, which can be used productively by Government, development partners and stakeholders to improve evidence-based policy making, planning and implementation.

A big and important development is the evolution of Total Health Expenditure: it rose from 2002 to 2003 from RWF 35.7bn [US$ 75.3m] to RWF 62.9bn [US$ 116.8m], or by 76% in real terms. This very strong increase was mainly driven by the increases in financing by Government and development partners, which increased by 125% and 129% respectively. Households, on the other hand, maintained an almost constant financing level share but in real terms, their contribution went up by 4.7% in real terms. This is due to the targeting of donor and Government funds for public health programmatic expenditures and administration and not for curative care. Thus, this implies that households shoulder the burden of financing curative care and are indeed the single largest contributor to this service, accounting for close to half of all curative care spending. This point is important and ought to be explored further, particularly when determining future resource allocation decisions.

Another important set of conclusions can be derived from looking at the financing agent level: we observe that NGOs have, in the general health sector, become the most important financing agent with 27% of $THE_{general}$. This points to the increased importance of the donor – NGO channel in supplying funds to the health sector. Given the large share of funds and the number of actors in the field, Government has an important role in guiding these interventions and to encourage the participation of decentralized entities and the population.

The second observation derived from the financing agent level is the lack of protection against risk: households spend the vast majority of their funds out of pocket (88%) and have very little insurance coverage. This is of grave concern given the financial vulnerability of large parts of the population. This disconcerting observation is compounded by the fact that private companies also pay most of their expenditures out of pocket rather than using insurance. This highlights the importance of encouraging the development of an insurance sector not only at the community level, but also in the formal sector, where coverage remains low.

Lacking financial monitoring capacity amongst Government, the private sector and donors has become apparent in this study. For example, in the insurance sector, there was very little information available on the activities or interventions these institutions supported with their funds. Similarly, private companies, donors and even the Government were not always able to track their funding towards their end uses, which puts into question the effectiveness of financial reporting mechanisms. A drive to a more harmonized and transparent system of financial planning and monitoring is suggested here (of which NHA can be one tool).

Turning to the malaria sub-analysis, we note that malaria accounted for 18% of $THE_{general.}$ While donors are the biggest financier of malaria resources, of concern is that households finance close to a third of all malaria expenditures, more so than the Government. Household data further shows that the likelihood of treatment is strongly related to socio-economic status, and the predominant use of public facilities in the treatment of malaria suggests that the disease affects the poorer parts of the population more than wealthier parts. This, combined with the fact that households can rely even less on insurance than they can for general health, paints a picture of high risk and vulnerability threatening especially the poorer parts of the population. In terms of poverty reduction, a concerted drive towards improved malaria protection for poorer households appears desirable.

Apart from the burden of malaria resting disproportionately with households, the relative lack of financing prevention programs and other activities in the sector was a concern for 2003: not only were prevention activities other than the distribution of ITNs relatively poorly financed, but most of the financing of net purchases came from households, as net sales were apparently not extensively subsidized.

6.2. Next Steps

The analysis and conclusions have highlighted areas for consultation and action, based on the information used in this report. In order to support the institutionalization of the NHA process and the translation of findings into actions, it is suggested that the Government and its partners translate the findings of the report into actionable items that can be implemented and the success of which can be measured.

Government will also continue its drive to bring the NHA analyses up to date to increase their relevance for the policy making process, creating a growing body of health related data that can be used to take informed decisions and improve the quality of the policy making process.

Annex A: General NHA Tables 2003

Table A-1: General NHA 2003 – Financing Sources x Financing Agents [FS x HF] in RWF

Code	Financing Agent [HF]	FS.1 Public Funds	FS.2 Private Funds				FS.3	FS.nsk	Row Total
		FS.1.1.1 Central Gov Revenue	FS.2.1.1 Parastatal Employer Funds	FS.2.1.2 Private Employer Funds	FS.2.2 Households	FS .2.3 NPISH *(Local implementing agencies)*	Cooperating Partners (Rest of the World)	Not specified by any kind	
HF.1.1.1.1	MoH (MINISANTE)	9,171,925,425					3,386,580,000		12,558,505,425
HF.1.1.2	DSGAS + Health districts	2,516,159,506					2,891,072,020		5,407,231,526
HF.1.1.1.2	Other Ministries	210,453,117					489,280,000		699,733,117
HF.1.3	FARG	4,128,313,509			163,422,846				4,291,736,355
HF.1.2	Social Security Fund (CSR-Caisse Sociale*)		926,157,553	515,120,934				250,075	1,441,528,562
HF.2.1.	Public Employer insurance program - RAMA (Rwanda medical insurance)	1,143,959,920	686,812,091		1,143,959,920				2,974,731,930
HF.2.5.1	Parastatals		1,110,983,335						1,110,983,335
HF.2.2	Private Insurance Enterprises *(other than social insurance)- Mutuelles, COGEAR, SONARWA etc*		52,679,615	122,919,103	176,120,838			26,290,319	378,009,876
HF.2.3.	Private household out of pocket payments				10,950,114,948				10,950,114,948
HF.2.4	NPISH (Implementing agencies)					1,140,439,205	14,672,384,735	1,122,899,306	16,935,723,246
HF.2.5	Private firms and corporations (other than health insurance)			1,418,332,085					1,418,332,085
HF.3	Rest of World						4,715,104,546		4,715,104,546
HF.nsk	Not specified by any kind		5,122,062					59,024,797	64,146,859
	Column Total [$THE_{general}$]	17,170,811,477	2,781,754,656	2,056,372,122	12,433,618,551	1,140,439,205	26,154,421,301	1,208,464,498	**62,945,881,810**
HF.4	Financing Agents spending on Health Related Items						49,194,983		49,194,983
	Column Total [NHE: National Health Expenditure]]	17,170,811,477	2,781,754,656	2,056,372,122	12,433,618,551	1,140,439,205	26,203,616,284	1,208,464,498	**62,995,076,793**

Table A-2: General NHA 2003 – Financing Agents x Providers [HF x HP] in RWF

		HF.A Public Sector											HF.3 ROW	HF.nsk	
		HF.1.1.1.1	HF.1.1.2	HF.1.1.1.2	HF.1.3	HF.1.2	HF.2.1.	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Code	**Provider**	MoH (MINISANTE)	DSGAS + Health districts	Other Ministries	FARG	Social Security Fund (CSR-Caisse Sociale*)	Public Employer insurance program - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)- Mutuelles, COGEAR, SONARWA etc	Private household out of pocket payments	NPISH (Implementing agencies)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
HP.1.1.1	Public Hospitals	1,172,792,354	12,042,558		259,655,316	114,837,954	237,079,987	52,578,082	61,130,779	1,880,183,625	2,228,089,084	31,378,110	895,971,079		6,945,738,927
HP.1.1.2.1	Gov't assisted not-for-profit hospitals	275,099,441	2,824,797		60,906,803			10,008,014	1,270,570	761,730,811	687,868,161	8,722,400			1,808,430,998
HP.1.1.2.2	Private hospital for-profit	1,825,164,327						169,335,038	134,608,707	1,744,149,871		2,506,596		57,237,801	3,933,002,341
HP.1.2	Mental health & substance abuse hospitals	37,496,962								80,524,182			56,710,586	1,786,996	176,518,726
HP.3.1	Offices of physicians (private clinics)*						324,878,546	537,448,505		1,817,055,589		1,149,271,718			3,828,654,358
HP.3.3	Offices of other health practitioners (traditional healers)									305,839,746					305,839,746
HP.3.4.5.1	Public health centers	12,925,550	2,891,072,020		180,914,305		232,385,216	26,808,380	8,562,270	826,163,672	2,923,617,635	23,364,617	13,124,811		7,138,938,476
HP.3.4.5.2	Government assisted not-for-profit health centers	7,270,622			101,764,297			14,241,952	18,085,887	899,158,743	830,290,373	12,412,453			1,883,224,326
HP.3.5	Medical and diagnostic laboratories												83,248,593		83,248,593
HP.3.9.2	Blood banks (CNTS transfusion)	119,531,930													119,531,930
HP.4.1	Dispensing chemists	94,345,505				53,002,133	332,681,289	151,352,375		2,635,308,708	136,990,295	156,120,854			3,559,801,159
HP.5	Provision and admin of public health programs	4,360,576,913	749,997	699,733,117							10,062,545,637		834,262,674		15,957,868,338
HP.6	*General health administration and insurance*	*4,653,301,820*	*2,500,542,154*	-	*3,478,914,463*	*1,264,854,786*	*1,847,706,892*	-	*103,130,641*	-	*17,095,817*	-	*2,831,786,803*	-	*16,697,333,376*
HP.6.1	Government administration of health					1,264,854,786							1,081,404,863		2,346,259,649
HP.6.3	Other social insurance administration (RAMA, FARG, mutuelles)				3,478,914,463		1,847,706,892				17,095,817				5,343,717,172
HP 6.9	Other administration								103,130,641				1,750,381,940		1,853,512,581
HP.nsk	Providers not specified by any kind				209,581,172	8,833,689		149,210,989	51,221,022		49,226,245	34,555,338		5,122,062	507,750,517
	Column Total [THE$_{general}$]	12,558,505,425	5,407,231,526	699,733,117	4,291,736,355	1,441,528,562	2,974,731,930	1,110,983,335	378,009,876	10,950,114,948	16,935,723,246	1,418,332,085	4,715,104,546	64,146,859	**62,945,881,810**
	HF Totals From FS x HF Table	12,558,505,425	5,407,231,526	699,733,117	4,291,736,355	1,441,528,562	2,974,731,930	1,110,983,335	378,009,876	10,950,114,948	16,935,723,246	1,418,332,085	4,715,104,546	64,146,859	62,945,881,810
HP.8	*Providers of Health Related Services*										49,194,983				
HP.8.1	Research Institutions										49,194,983				49,194,983
HP.8.2	Education and training institutions														-
	Subtotal for health related	-	-	-	-	-	-	-	-	-	49,194,983	-	-	-	49,194,983
	Column Total [NHE]	12,558,505,425	5,407,231,526	699,733,117	4,291,736,355	1,441,528,562	2,974,731,930	1,110,983,335	378,009,876	10,950,114,948	16,984,918,230	1,418,332,085	4,715,104,546	64,146,859	**62,995,076,794**

Table A-3: General NHA 2003 – Financing Agents x Function [HF x HC] in RWF

		HF.A Public Sector							HF.B Private Sector				HF.3 RoW	HF.nsk	
		HF.1.1.1.1	HF.1.1.2	HF.1.1.1.2	HF.1.3	HF.1.2	HF.2.1.	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Code	**Function**	MoH (MINISANTE)	DSGAS + Health districts	Other Ministries	FARG	Social Security Fund (CSR-Caisse Sociale*)	Public Employer insurance program - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)- Mutuelles, COGEAR, SONARWA etc	Private household out of pocket payments	NPISH (Implementing agencies)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
HC.1.1	In patient curative care	1,529,189,068	2,235,640,563	-	270,175,834	82,329,980	205,179,791	302,002,040	132,800,877	2,875,231,997	1,259,709,816	69,977,414	908,401,249	18,967,753	9,889,606,382
HC.1.3	Out patient curative care	883,211,638	670,298,812	-	333,064,886	41,341,664	589,163,958	657,628,920	90,857,336	4,568,719,178	1,987,320,821	1,192,233,817	92,365,443	11,163,334	11,117,369,806
HC.5.1.1 + HC5.1.2	Pharmaceuticals	94,345,505	-	-	-	53,002,133	332,681,289	151,352,375	-	2,508,920,026	8,578,637	156,120,854	-	-	3,305,000,819
HC.5.1.3 + HC5.2	Other medical non durables and durables	-	-	-	-	-	-	-	-	-	-	-	83,248,593	-	83,248,593
HC.6	*Prevention and administration of public health programmes*	*4,953,440,500*	*184,177,533*	*245,443,117*	-	-	-	-	-	-	*7,768,186,219*	-	*1,643,956,460*	-	*14,795,203,829*
HC.6.1	Maternal and child care, family planning and counseling	671,008,000	184,177,533	-	-	-	-	-	-	-	434,661,812	-	59,252,457	-	1,349,099,802
HC.6.3	Prevention of communicable disease (e.g., HIV/AIDS, malaria)	1,498,223,670	-	45,443,117	-	-	-	-	-	-	4,832,220,076	-	298,206,939	-	6,874,093,802
HC6.4	Prevention of noncommunicable diseases	283,808,830	-	-	-	-	-	-	-	-	-	-	10,895,765	-	294,704,595
HC 6.6	Training within public health programs	-	-	-	-	-	-	-	-	-	2,077,860,934	-	429,141,540	-	2,507,002,474
HC 6.9	All other mscellaneous public health services	2,500,400,000	-	-	-	-	-	-	-	-	81,024,385	-	194,196,436	-	2,775,620,821
HC.7	*Health administration and insurance*	*4,147,718,365*	*2,317,114,618*	-	3,478,914,463	*1,264,854,786*	*1,847,706,892*	-	*103,130,641*	-	*3,800,450,529*	-	*1,965,286,878*	-	*18,925,177,172*
HC.7.1.1	General Gov't administration of health (except social security)	4,147,718,365	2,317,114,618	-	-	-	-	-	-	-	-	-	-	-	6,464,832,983
HC.7.1.2	Admin, operation and support of social security funds (CSR, RAMA)	-	-	-	-	1,264,854,786	1,847,706,892	-	-	-	-	-	214,904,939	-	3,327,466,617
HC.7.3	Other administration	-	-	-	3,478,914,463	-	-	-	103,130,641	-	3,800,450,529	-	1,750,381,940	-	9,132,877,572
HCR.1	Capital formation for health care provider institutions	5,766,387	-	454,290,000	-	-	-	-	-	-	2,078,667,821	-	21,845,923	274,809	2,560,844,940
HC.nsk	Not specified by kind	944,833,962	-	-	209,581,172	-	-	-	51,221,022	997,243,747	32,809,404	-	-	33,740,962	2,269,430,268
	Column Total [$THE_{general}$]	12,558,505,425	5,407,231,526	699,733,117	4,291,736,355	1,441,528,562	2,974,731,930	1,110,983,335	378,009,876	10,950,114,948	16,935,723,246	1,418,332,085	4,715,104,546	64,146,859	**62,945,881,810**
HCR.2	Education & Training	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HCR.3	Research & Development	-	-	-	-	-	-	-	-	-	49,194,983	-	-	-	49,194,983
	Sub total column	-	-	-	-	-	-	-	-	-	*49,194,983*	-	-	-	*49,194,983*
	Column Total [NHE]	12,558,505,425	5,407,231,526	699,733,117	4,291,736,355	1,441,528,562	2,974,731,930	1,110,983,335	378,009,876	10,950,114,948	6,984,918,230	1,418,332,085	4,715,104,546	64,146,859	**62,995,076,794**

Table A-4: General NHA 2003 – Providers x Function [HP x HC] in RWF

Code	Function	HP.1.1.1	HP.1.1.2.1	HP.1.1.2.2	HP.1.2	HP.3.1	HP.3.3	HP.3.4.5.1	HP.3.4.5.2	HP.3.5	HP.3.9.2	HP.4.1	HP.5	*HP.6*	HP.6.1	HP.6.3	HP 6.9	HP.nsk	**THE$_{general}$ Row Total**
		Public Hospitals	Gov't assisted not-for-profit hospitals	Private hospital for-profit	Mental health & substance abuse hospitals	Offices of physicians (private clinics)*	Offices of other health practitioners (traditional healers)	Public health centers	Government assisted not-for-profit health centers	Medical and diagnostic laboratories	Blood banks (CNTS transfusion)	Dispensing chemists	Provision and admin of public health programs	*General health administration and insurance*	Government administration of health	Other social insurance administration (RAMA, FARG, mutuelles)	Other administration (e.g.donors, NGOs, private insurance)	Providers not specified by any kind	
HC.1.1	In patient curative care	4,136,110,144	993,283,394	1,300,286,172	149,301,174	-	-	2,724,355,543	393,669,940	-	-	-	-	-	-	-	-	192,600,016	9,889,606,382
HC.1.3	Out patient curative care	1,633,447,154	609,970,841	819,440,169	12,455,244	3,828,654,358	305,839,746	2,584,347,205	1,265,189,079	-	-	1,219,871	56,806,139	-	-	-	-	-	11,117,369,806
HC.5.1.1 + HC5.1.2	Pharmaceuticals	-	-	-	-	-	-	-	-	-	-	3,305,000,819	-	-	-	-	-	-	3,305,000,819
HC.5.1.3 + HC5.2	Other medical non durables and durables	-	-	-	-	-	-	-	-	83,248,593	-	-	-	-	-	-	-	-	83,248,593
HC.6	*Prevention and administration of public health programmes*	*768,648,600*	*147,304,199*	-	-	-	-	*1,287,981,865*	*186,409,912*	-	*119,531,930*	*99,392,266*	*10,327,104,754*	*1,845,470,464*	*1,845,470,464*	-	-	*13,359,838*	*14,795,203,829*
HC.6.1	Maternal and child care, family planning and counseling	8,015,280	-	-	-	-	-	148,861,025	-	-	-	-	1,008,795,961	183,427,536	183,427,536	-	-	-	1,349,099,802
HC.6.3	Prevention of communicable disease (e.g., HIV/AIDS, malaria)	478,263,592	100,053,209	-	-	-	-	692,249,235	165,297,812	-	119,531,930	-	5,001,013,390	313,519,370	313,519,370	-	-	4,165,265	6,874,093,802
HC6.4	Prevention of noncommunicable diseases	-	-	-	-	-	-	-	-	-	-	-	27,585,900	267,118,695	267,118,695	-	-	-	294,704,595
HC 6.6	Training within public health programs	282,369,728	47,250,990	-	-	-	-	437,907,212	21,112,101	-	-	99,392,266	1,180,634,063	429,141,540	429,141,540	-	-	9,194,574	2,507,002,474
HC 6.9	All other mscellaneous public health services	-	-	-	-	-	-	8,964,393	-	-	-	-	2,766,656,428	-	-	-	-	-	2,775,620,821
HC.7	*Health administration and insurance*	-	-	-	-	-	-	-	-	-	-	-	*4,073,314,260*	*14,851,862,912*	*7,654,633,159*	*5,343,717,172*	*1,853,512,581*	-	*18,925,177,172*
HC.7.1.1	General Gov't administration of health (except social security)	-	-	-	-	-	-	-	-	-	-	-	75,054,610	6,389,778,373	6,389,778,373	-	-	-	6,464,832,983
HC.7.1.2	Admin, operation and support of social security funds (CSR, RAMA)	-	-	-	-	-	-	-	-	-	-	-	214,904,939	3,112,561,678	1,264,854,786	1,847,706,892	-	-	3,327,466,617
HC.7.3	Other administration	-	-	-	-	-	-	-	-	-	-	-	3,783,354,712	5,349,522,861	-	3,496,010,280	1,853,512,581	-	9,132,877,572
HCR.1	Capital formation for health care provider institutions	407,533,029	57,872,564	-	14,762,308	-	-	542,253,863	37,955,394	-	-	29,019,391	1,468,391,387	-	-	-	-	3,057,003	2,560,844,940
HC.nsk	Not specified by kind	-	-	1,813,276,000	-	-	-	-	-	-	-	125,168,811	32,251,798	-	-	-	-	298,733,659	2,269,430,268
	Column Total [THE$_{general}$]	**6,945,738,927**	**1,808,430,998**	**3,933,002,341**	**176,518,726**	**3,828,654,358**	**305,839,746**	**7,138,938,476**	**1,883,224,326**	**83,248,593**	**119,531,930**	**3,559,801,159**	**15,957,868,338**	***16,697,333,376***	**9,500,103,623**	**5,343,717,172**	**1,853,512,581**	**507,750,517**	**62,945,881,810**

Annex B: Malaria Subanalysis Tables 2003

B.1. Situation analysis

Extent of the problem

In Rwanda, malaria is endemic in the plains. On high plateaus, it appears rather in epidemic form[56]. Malaria is the principal cause of morbidity and mortality in Rwanda. The children of less than 5 years accounted for 33% of all the cases in 2002. With regard to severe malaria, more than 93,000 cases in hospitals within 1,198 deaths were recorded of which 34% were children of less than 5 years.

B.1.1. The stratification of malaria and factors in favor

The country is divided into four "natural malariologic areas" on the basis of altitude, climate, vectors and plasmodic indices[57].

(1) The first stratum extends from the Lake Kivu to the peak of the Congo-Nile between 1,460 m and 1,800 m of altitude; the plasmodic indices among children generally lie between 5 and 30%

(2) The second stratum is the North-South band with 160 km length and 20 to 50 km large, located at the East of the first layer between 1,800 m and 3,000 m of altitude. The plasmodic index is lower than 2% there

(3) The third stratum is at the level of the central plate at altitudes of 1,000 to 2,000 m. The plasmodic indices are very variable, starting from 10 to 50%. This zone is at the epidemic risk: many epidemics have been recorded between altitudes 1,675 and 1,860 m. The starting point of these epidemics is comprised of valleys which are endemic areas

(4) The fourth stratum covers the Eastern lower stage with the central plateau, at altitudes of 1,000 m to 1,500 m, where malaria prevails in an endemic way and seems to be stable.

In these four large strata, it is necessary to note the possibility of a micro-stratification because of the topographic variations and form of valleys[58]. Malaria is now observed in altitude and in other areas where the disease was not previously an important problem of public health. The inhabitants of these areas of high altitude have little immunization against malaria and are strongly predisposed to epidemics.

B.1.2. Vectors and malaria parasites

Twelve species of anopheles were identified in Rwanda including four principal vectors: Anopheles funestus, An. Gambiae, An.moucheti and An. Nili.[59]. In 2002, an WHO expert confirmed An. Gambiae and An. Funestus as being the principal vectors in three sentinel sites (Kigali, Butare and Umutara)[60]. The tests of sensitivity carried out in 2002 by the same expert showed an increase in the time of knock-down of An.gambiae to the deltametrin, thus suggesting a resistance of the kdr type to this pyrethrinoid used to impregnate the mosquito nets.

[56] Vermylen Mr. Répartition of the anophèles of the Republic of Rwanda and the Republic of Burundi. *Rivista di Malariologica*, 1967, 46 (1-2-3): 122-125 & Ivorra Cano V Paludisme in *Health and Diseases in Rwanda*, AGCD Brussels, pp 427-447.
[57] Meyus H, Lips M & Cauberch H, 1962. The current state of the problems of paludism of altitude in Ruanda-Urundi. *Belgian Ann. Ploughshare Med. Too.*>, 42 (5): 771-782.
[58] Rusanganwa A., 1999. *Epidemiologic Microstratification of paludism: Index plasmodisques and its determinants in two basic medical zones of Rwanda.* Work of end of studies of the DEA in sciences of health: specialization in statistical epidemiology, Université libre de Bruxelles.
[59] Vermylen Mr., 1967. Distribution of the anophèles of the Republic of Rwanda and the Republic of Burundi. *Rivista di Malariologica*, 46 (1-2-3): 122-125.
[60] Pond J. Etude of the dynamics of the transmission of paludism and evaluation of the sensitivity of the vectors to insecticides to Rwanda. Report/ratio of mission, WHO; déc. 2002, 22p.

Plasmodium falciparum is responsible for the majority of malaria cases[61]. The parasitologic resistance of P. falciparum to chloroquine exceeds 40%, which classifies Rwanda in zone 3 of chloroquino-resistance.

B.1.3. The anti malarial fight in Rwanda

In 1989, the Government set up "The Integrated National Programme to Fight against Malaria" (PNILP) whose strategies and activities are centered on malaria case management, prevention, epidemiological monitoring, IEC and Community mobilization and on operational research.

Case management

This strategy is based on an early and adequate diagnosis, an early and correct treatment, training, and supervision of personnel and the follow-up of the effectiveness of the drugs. Since the beginning of the year 2002, chloroquine has been abandoned because of the high rates of therapeutic failure to the profit of combination AQ/SP for the treatment of the simple cases of malaria[62.] This measurement would be only transitory since WHO advises to hold the SP only with the TPI[63]. Moreover, several authors propose to choose combinations based on artemisinin which will be the most effective solution and most durable[64], in spite of their high cost for the country. In Rwanda, combination AQ/SP exists in the form of blisters for three groups of age: the 5-10 years, 11-14 years and 15 years and more. It does not exist yet in blister for less than 5 years. Quinine is used for severe or complicated cases. The PNILP has set up a training scheme to recycle providers to this new approach at district level. Directives for them were also elaborated[65]. The problem is that all people interviewed in rural areas as in urban zones were complaining about side effects of AQ and tend to take SP alone.

To apprehend this problem of acceptability, the PNILP currently leads a double blind study on AQ versus a placebo. Moreover, five sentinel sites worked on monitoring of the sensitivity of P. falciparum to different antimalarials. At the moment, malaria case management at community level is not yet operational. However PNILP as well as the Ministry of Health envisaged a 7 year- strategic plan called RBM 2004-2010. Study trips were organized in 2003 in Kenya and Uganda to profit from the experiences of these countries as regards Community-Based Management of Malaria[66]. The PNILP plans to test the approach in 7 districts, thanks to the partners: Nyanza (UNICEF) and Kibilizi (Concern) in the province of Butare, Kabaya (UNICEF) in the province of Gisenyi, Gitwe (CTB [Belgium Technical Cooperation]/PNILP) in the province of Gitarama, Gahini (CTB/PNILP) in the province of Umutara, Kirehe (IRC) in the province of Kibungo, Kibogora (World Relief) in the province of Cyangugu.

Prevention of malaria

Prevention relates to the use of impregnated insecticide mosquito nets, intra-domiciliary insecticide pulverization and the destruction of larval lodgings. Two channels are used for the distribution of mosquito nets: the first channel is through health facilities and the second through PSI [Population Services International]/Rwanda, in the private sector. The promotion of ITNs among pregnant women attending antenatal visits at a price of RWF 200 [US$ 0.37]/MII, with subsidy from UNICEF. The use of long lasting impregnated mosquito nets is still being studied. Intra-domiciliary pulverization is reserved for the zones at epidemic risk. After therapeutic failures with chloroquine, chemoprophylaxis for pregnant women no longer exists and the broad application of TPI is still being studied.

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[61] Munyantore S., 1989. History of the antipaludic fight in Rwanda. *Rwandan Medical Review*, 21 (57): 14-28.
[62] PNILP. Report/ratio of the Workshop on the new therapeutic approach, November 2001, 16p.
[63] WHO. Position of WHO's Roll Back Malaria Department one malaria treatment policy, November 2003, 5p.
[64] Attaran A, Barnes K I, Curtis C *et al.* WHO, the Total Fund, and medical malpractice in malaria treatment. *Lancet* 2004; 363: 237-40 & Yamey G total Malaria researchers say fund is buying "useless drug". *BMJ*, November 2003, 327: 1188.
[65] MINISANTE. Directives of the new therapeutic approach of paludism in Rwanda, February 2003, 28p.
[66] Militis N, Muhozali M, Lwanga C Rapport of the study trip on the introduction of the Community model of catch en charge of paludism to Western Province/Kenya, August 2003, 8p.

Monitoring of epidemics

Monitoring is based on the monitoring of zones under epidemic risk, by means of collection and analysis of data from health facilities and from five sentinel sites[67]. The twenty HDs that are regarded as being under the epidemic risk distributed in the provinces of Byumba (1 HD), Cyangugu (4 HD), Gikongoro (2 HD), Gisenyi (3 HD), Gitarama (1 HD), Kibuye (4 HD), Kigali-Ngali (1 HD) and Ruhengeri (4 HD). Thus, only the provinces of Butare, Kibungo and Umutara, even where malaria is endemic, do not have any districts considered as being at the epidemic risk. In October 2003, the PNILP profited from support from an expert in medical entomology of the Institute of Tropical Medicine of Antwerp to develop a protocol on prevention of malarial epidemics[68].

The IEC and Community mobilization

This activity is ensured through sensitizing the public to the fighat against malaria by targeting politico-administrative authorities and the most vulnerable groups. Messages in Kinyarwanda are diffused through various channels like the local radio, television and newspapers and are reinforced during the African day to fight against malaria. However, the IEC is still insufficient and should be reinforced especially at rural Community level.

Operations research

Research is very weak in the health system[69]. To improve malaria control, the needs for research and intervention in paludology[70] are related to: biomedical fields (entomology, parasitology, private clinics, re-evaluation of the sensitivity of the plasmodies to antimalarials and the anopheles to pyrethrinoid) and to socio-anthropological issues (disease distribution, acceptability of mosquito nets...).

The strategic plan

Rwanda has drafted, in November 2003, its Strategic Plan **"**Roll back Malaria 2004-2010**"**[71]. The general objective of this plan is to reduce morbidity and mortality related to malaria in Rwanda. Like specific objectives, the strategic plan proposes by 2010 and compared to 2002, to reduce by 50% the specific mortality rate due to malaria, to reduce the rate of lethality among inpatients for malaria and the crude death rate in under five children; and to reduce by 30% the morbidity rate due to malaria.

The expected outputs are:

- At least 80% of people with malaria will have access to a rapid treatment, adequate and accessible within 24 hours after the appearance of symptoms
- At least 80% of pregnant women and children under five years to sleep under impregnated mosquito nets
- At least 80% of pregnant women to have access to a chemoprophylaxis or an intermittent preventive treatment
- At least 80 % of simple cases of malaria received in health facilities to be dealt with in accordance to the national policy
- At least 90 % of severe cases of malaria received in health facilities to be dealt with in accordance with the national policy

[67] An epidemic threshold was defined and corresponds to the double of three last years the monthly average.
[68] Coosemans M. & Hakizimana E., Mission report development of a prevention protocol of malaria epidemics, November 2003, 34p.
[69] Fall IS. Analyze situation for the fight against malaria within the framework of the initiative "Roll Back Malaria" with Rwanda, October 2003, 59p.
[70] Manga L., Mise in accelerated work of the fight against malaria in Africa in 1997. Mission support to the national programme of fight against malaria in Rwanda. Final report/ratio, 1997, 22p.
[71] MINISANTE, Strategic plan "Roll back malaria in Rwanda 2004-2010", November 2003, 57p.

B.2. Package of Health Services and malaria treatment

On the policy side, the above objectives are reflected in a number of packages of activities designed to fight malaria.

Minimum Package of Activities for the Peripheral Level

Currently, health policy does not recognize community level agents involved in the fight against malaria. Rather, at the peripheral level, services offered by health centers are sanctioned. The malaria minimum package of activities includes the following elements:

- Promotional activities, which include: communication for behavior change, Community participation, sensitizing people to adhere to health mutual insurance companies, rapid consultation, use of preventive methods including impregnated mosquito nets, home visits and promotion of hygiene and sanitation
- Preventive activities: promotion of impregnated materials and other preventive methods, the promotion of community participation to prevent malaria itself with fewer resources and monitoring and surveillance activities
- Curative activities such as outpatient care, inpatients services and transfers of complicated and severe cases

B.2.1. Complementary Package of Activities for District Hospitals

CPA for district hospitals included preventive and curative activities from health centers, but district hospitals emphasize more on treatment of severe cases from health centers. The additional activities are:

- Supervision of health centers
- Staff training on the standards and guides of case management and prevention
- Case management of simple and severe malaria in collaboration with central level and reference hospital, they develop standards and carry out operational researches.

B.2.2. CPA for National Referral Hospitals

There are not many differences between the level of District hospital and national reference hospitals with respect to malaria case management and control. Referral hospitals, in collaboration with the central level, prepare norms and guidelines for other structures and carry out operational research.

B.3. Supply and Distribution of Drugs

Drugs are imported based on the issuance of a visa and license by the Unit of pharmacy/Ministry of health. The Center for Essential Drugs Purchasing in Rwanda [CAMERWA] employs a system of pre qualification for the selection of the suppliers, manufacturers, and the products.

Quality control of drugs is done in Niger in collaboration with WHO. With each reception of product, a sample is done for quality control.

CAMERWA supplies health facilities on the basis of a list of essential drugs, which is revised every two years. Antimalarials on this list are: amodiaquine, sulfadoxine-pyrimethamin, Coartem (arthemether associated with lumefanthrin) and quinine. It should be noted however that Kigali University Hospital [CHUK] can directly make invitations to tender at the international level. CAMERWA also supplies private pharmacies which are in partnership with the health insurance [RAMA]. CAMERWA does not have yet a system of needs assessment for

health facilities, which is made even more difficult by the fact that the health facilities order the drugs that they want. Thus, it is difficult to base estimations of future needs on former purchase orders.

In competition with CAMERWA, there is another purchasing center for private not for profit organizations called BUFMAR. BUFMAR provides generic essential drugs as well as brand name drugs. In addition, BUFMAR targets public and private health facilities.

At the national level, there is an industry of production of drugs, LABOPHAR which manufactures a small quantity of essential drugs.

Table B-1: Malaria 2003 Financing Sources x Financing Agents [FS x HF] in RWF

Malaria Subanalysis TARGETED and NONTARGETED FUNDS								3,218,776,256	
		Financing Source [FS]							
		FS.1 Public Funds	FS.2 Private Funds				FS.3	FS.nsk	
Code	**Financing Agent [HF]**	FS.1.1.1 Central Gov Revenue	FS.2.1.1 Parastatal Employer Funds	FS.2.1.2 Private Employer Funds	FS.2.2 Households	FS .2.3 NPISH - *(NGOs Local)*	Cooperating Partners (Rest of the World)	Not specified by any kind	**Row Total**
HF. 1.1.1.1	MoH (MINISANTE) including PNILP	783,145,903					438,664,614		1,221,810,517
HF.1.1.2	DSGAS + districts	792,353,094					1,337,678,246		2,130,031,341
HF.1.3	FARG	285,852,104			11,315,702				297,167,806
HF.1.2	Social Security Fund (CSR-Caisse Sociale)		29,818,929	16,585,034				8,052	46,412,014
HF.2.1.1	Gov't Employees insurance programs - RAMA (Rwanda medical insurance)	156,372,412	93,883,065		156,372,412				406,627,889
HF.2.5.1	Parastatals		354,715,533						354,715,533
HF.2.2	Private Insurance Enterprises *(other than social insurance)*		7,974,176	18,606,411	26,659,621			3,979,597	57,219,806
HF.2.3.	Private household out of pocket payments				3,009,246,545				3,009,246,545
HF.2.4	NPISH (other than social insurance)	120,270,811				170,801,935	1,902,734,288	130,220,694	2,324,027,728
HF.2.5	Private firms and corporations (other than health insurance)			649,767,283					649,767,283
HF.3	Rest of World						563,420,969		563,420,969
HF.nsk	Not specified by any kind		254,401					2,931,630	3,186,032
	Column Total [THE$_{malaria}$ 1]	**2,137,994,324**	**486,646,104**	**684,958,728**	**3,203,594,280**	**170,801,935**	**4,242,498,118**	**137,139,973**	**11,063,633,463**
HF.4	Financing Agents spending on Health Related Items					3,547,606	72,422,568	3,493,044	79,463,219
	Column Total [NHE]	**2,137,994,324**	**486,646,104**	**684,958,728**	**3,203,594,280**	**174,349,541**	**4,314,920,686**	**140,633,017**	**11,143,096,682**

Table B-2: Malaria 2003 Financing Agents x Providers [HF x HP] in RWF

Malaria Subanalysis TARGETED AND NONTARGETED FUNDS

		HF.A Public Sector						HF.B Non Public						
		HF. 1.1.1.1	HF.1.1.2	HF.1.3	HF.1.2	HF.2.1.1	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Code	**Provider**	MoH (MINISANTE) including PNILP	DSGAS + districts	FARG	Social Security Fund (CSR-Caisse Sociale)	Gov't Employees insurance programs - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)	Private household out of pocket payments	NPISH (other than social insurance)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
HP.1.1.1	Public Hospitals	547,625,314	4,867,026	104,940,273	46,412,014	95,816,404	21,249,549	24,706,140	743,744,341	461,618,404	12,681,533	482,009,120	-	2,432,941,378
HP.1.1.2.1	Gov't assisted not-for-profit hospitals	137,913,057	1,141,648	24,615,620	-	-	4,044,761	513,504	35,287,265	251,570,280	3,525,177	-	-	571,340,052
HP.1.1.2.2	Private hospital for-profit	133,146,705					18,851,744	14,985,728	132,415,858		279,055		3,182,574	302,861,665
HP.1.2	Mental health & substance abuse hospitals	72,545							155,789			109,717	3,457	341,509
HP.3.1	Offices of physicians (private clinics)*	-	-	-	-	173,020,614	286,229,028	-	149,456,781	-	612,067,804	-	-	1,220,774,227
HP.3.3	Offices of other health practitioners (incl Traditional healers								45,875,962					45,875,962
HP.3.4.5.1	Public health centers	99,396,005	2,124,022,666	107,271,625	-	137,790,871	15,895,805	6,290,558	1,406,338,982	1,010,808,928	13,853,854	-	-	4,499,997,206
HP.3.4.5.2	Private not-for-profit health centers	45,354,894	-	60,340,289	-	-	8,444,646	10,723,876	132,203,041	359,278,203	7,359,860	-	-	1,045,376,896
HP.4.1	Dispensing chemists	-	-	-	-	-	-	-	360,395,219	125,401,113	-	-	-	485,796,333
HP.5	Provision and admin of public health programs	258,301,996	-	-	-	-	-	-	-	110,836,779	-	81,302,131	-	450,440,907
HP.nsk	Providers not specified by any kind	-	-	-	-	-	-	-	3,373,306	4,514,022	-	-	-	7,887,328
	Column Total [THE$_{malaria}$ 1]	**1,221,810,517**	**2,130,031,341**	**297,167,806**	**46,412,014**	**406,627,889**	**354,715,533**	**57,219,806**	**3,009,246,545**	**2,324,027,728**	**649,767,283**	**563,420,969**	**3,186,032**	**11,063,633,463**
	HF Totals From FS x HF Table	1,221,810,517	2,130,031,341	297,167,806	46,412,014	406,627,889	354,715,533	57,219,806	3,009,246,545	2,324,027,728	649,767,283	563,420,969	3,186,032	11,063,633,463
HP.8	*Providers of Health Related Services*													-
HP.8.1	Research Institutions									52,682,579		26,780,640		79,463,219
HP.8.2	Education and training institutions													-
	Subtotal for health related	-	-	-		-	-	-	-	52,682,579	-	26,780,640	-	79,463,219
	Column Total [NHE]	**1,221,810,517**	**2,130,031,341**	**297,167,806**	**46,412,014**	**406,627,889**	**354,715,533**	**57,219,806**	**3,009,246,545**	**2,376,710,307**	**649,767,283**	**590,201,609**	**3,186,032**	**11,143,096,682**

Table B-3: Malaria 2003 Financing Agents x Function [HF x HC] in RWF

Malaria subanalysis TARGETED AND NONTARGETED FUNDS

		HF.A Public Sector					HB.2B Private sector						HF.3 ROW	
		HF. 1.1.1.1	HF.1.1.2	HF.1.3	HF.1.2	HF.2.1.1	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Code	**Provider**	MoH (MINISANTE) including PNILP	DSGAS + districts	FARG	Social Security Fund (CSR-Caisse Sociale)	Gov't Employees insurance programs - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)	Private household out of pocket payments	NPISH (other than social insurance)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
HC.1.1	In patient curative care	578,058,060	1,775,150,437	165,071,482	40,617,220	126,347,773	39,906,156	38,778,465	1,112,459,816	897,137,064	20,877,428	477,542,779	1,745,968	5,273,692,648
HC.1.3	Out patient curative care	385,450,461	354,880,904	132,096,324	5,794,794	280,280,116	314,809,376	18,441,341	1,536,391,510	1,114,029,170	628,889,856	4,576,059	1,440,064	4,777,079,974
HC.1.3.1	Repellants given as part of OP care	104,076,692	-	-	-	-	-	-	24,643,143	161,795,388	-	-	-	290,515,223
HC.1.3.2	Nets given as part of OP care	84,801,150	-	-	-	-	-	-	288,323,910	37,961,672	-	-	-	411,086,732
HC.5	Medical goods dispensed to outpatients (at retail pharmacies/shops)	-	-	-	-	-	-	-	360,395,219	125,401,113	-	-	-	485,796,333
HC. 5.1.1 + HC 5.1.2	Prescribed and over-the-counter medicines	-	-	-	-	-	-	-	176,589,172	-	-	-	-	176,589,172
HC.5.1.3.2	Mosquito repellants	-	-	-	-	-	-	-	14,472,957	75,597,263	-	-	-	90,070,220
HC.5.2.5.	ITNs (medical durable)	-	-	-	-	-	-	-	169,333,090	49,803,850	-	-	-	219,136,940
HC.6	Prevention and administration of public health programmes	88,030,557	-	-	-	-	-	-	-	184,106,380	-	81,302,131	-	353,439,068
HC.6.3	Prevention of communicable diseases (malaria)	42,094,104	-	-	-	-	-	-	-	135,137,406	-	81,302,131	-	258,533,641
HC.6.3.2	IEC	-	-	-	-	-	-	-	-	103,425,324	-	6,529,854	-	109,955,178
HC.6.3.3	Other malaria prevention and control activities (including sooprophylaxis, mosquito proofing of houses etc)	-	-	-	-	-	-	-	-	13,815,812	-	-	-	13,815,812
HC. 6.3.6	Surveillance and monitoring for Malaria	42,094,104	-	-	-	-	-	-	-	17,896,270	-	2,735,032	-	62,725,406
HC. 6.6	Training within public health for malaria	45,936,453	-	-	-	-	-	-	-	48,968,974	-	-	-	94,905,427
HC.7.1.1	General Gov't administration of health (except social security)	170,271,439	-	-	-	-	-	-	-	-	-	-	-	170,271,439
HC.7.3	Other administration	-	-	-	-	-	-	-	-	3,354,002	-	-	-	3,354,002
HC.nsk	Not specified by any other kind	-	-	-	-	-	-	-	-	-	-	-	-	-
HCR.1	Capital formation for health care provider institutions	-	-	-	-	-	-	-	-	-	-	-	-	-
	Column Total [THE$_{malaria}$ 1]	**1,221,810,517**	**2,130,031,341**	**297,167,806**	**46,412,014**	**406,627,889**	**354,715,533**	**57,219,806**	**3,009,246,545**	**2,324,027,728**	**649,767,283**	**563,420,969**	**3,186,032**	**11,063,633,463**
HCR.2	Education & Training	-	-	-	-	-	-	-	-	-	-	-	-	-
HCR.3	Research & Development	-	-	-	-	-	-	-	-	52,682,579	-	26,780,640	-	79,463,219
	Column Total [NHE]	**1,221,810,517**	**2,130,031,341**	**297,167,806**	**46,412,014**	**406,627,889**	**354,715,533**	**57,219,806**	**3,009,246,545**	**2,376,710,307**	**649,767,283**	**590,201,609**	**3,186,032**	**11,143,096,682**

Table B-4: Malaria 2003 Providers x Function [HP x HC] in RWF

Malaria subanalysis TARGETED AND NONTARGETED FUNDS

Code	Function	HP.1.1.1 Public Hospitals	HP.1.1.2.1 Gov't assisted not-for-profit hospitals	HP.1.1.2.2 Private hospital for-profit	HP.1.2 Mental health & substance abuse hospitals	HP.3.1 Offices of physicians (private clinics)*	HP.3.3 Offices of other health practitioners (incl Traditional healers	HP.3.4.5.1 Public health centers	HP.3.4.5.2 Private not-for-profit health centers	HP.4.1 Dispensing chemists	HP.5 Provision and admin of public health programs	HP.nsk Providers not specified by any kind	$THE_{malaria}$ Row Total
HC.1.1	In patient curative care	2,037,363,829	284,932,741	110,703,879	-	35,683,507	-	2,642,314,440	162,694,251	-	-	-	5,273,692,648
HC.1.3	Out patient curative care	497,997,902	162,410,670	192,157,786	341,509	1,185,090,720	45,875,962	2,227,453,635	461,010,559	-	-	4,741,231	4,777,079,974
HC.1.3.1	Repellants given as part of OP care	71,584,933	61,534,943	-	-	-	-	135,680,826	21,714,521	-	-	-	290,515,223
HC.1.3.2	Nets given as part of OP care	153,120,498	45,333,711	-	-	-	-	156,443,248	56,189,276	-	-	-	411,086,732
HC.5	Medical goods dispensed to outpatients (at retail pharmacies/shops)	-	-	-	-	-	-	-	-	485,796,333	-	-	485,796,333
HC. 5.1.1 + HC 5.1.2	Prescribed and over-the-counter medicines	-	-	-	-	-	-	-	-	176,589,172	-	-	176,589,172
HC.5.1.3.2	Mosquito repellants	-	-	-	-	-	-	-	-	90,070,220	-	-	90,070,220
HC.5.2.5.	ITNs (medical durable)	-	-	-	-	-	-	-	-	219,136,940	-	-	219,136,940
HC.6	Prevention and administration of public health programmes	10,308,387	11,267,901	-	-	-	-	51,901,217	-	-	278,492,467	1,469,097	353,439,068
HC.6.3	Prevention of communicable diseases (malaria)	8,839,290	11,267,901	-	-	-	-	38,679,346	-	-	199,747,104	-	258,533,641
HC.6.3.1	Integrated vector management	-	-	-	-	-	-	-	-	-	-	-	-
HC.6.3.2	IEC	7,049,388	11,267,901	-	-	-	-	32,416,065	-	-	59,221,825	-	109,955,178
HC.6.3.3	Other malaria prevention and control activities (including sooprophylaxis, mosquito proofing of houses etc)	-	-	-	-	-	-	-	-	-	13,815,812	-	13,815,812
HC. 6.3.6	Surveillance and monitoring for Malaria	1,789,902	-	-	-	-	-	6,263,281	-	-	54,672,222	-	62,725,406
HC. 6.6	Training within public health for malaria	1,469,097	-	-	-	-	-	13,221,871	-	-	78,745,363	1,469,097	94,905,427
HC.7	Health administration and health insurance	-	-	-	-	-	-	-	-	-	171,948,440	1,677,001	173,625,441
HC.7.1.1	General Gov't administration of health (except social security)	-	-	-	-	-	-	-	-	-	170,271,439	-	170,271,439
HC.7.3	Other administration	-	-	-	-	-	-	-	-	-	1,677,001	1,677,001	3,354,002
HC.nsk	Not specified by any other kind	-	-	-	-	-	-	-	-	-	-	-	-
HCR.1	Capital formation for health care provider institutions	-	-	-	-	-	-	-	-	-	-	-	-
	Column Total [$THE_{malaria}$]	**2,545,670,118**	**458,611,312**	**302,861,665**	**341,509**	**1,220,774,227**	**45,875,962**	**4,921,669,293**	**623,704,809**	**485,796,333**	**450,440,907**	**7,887,328**	**11,063,633,463**

Table B-5: Malaria 2003 Financing Sources to Financing Agents in RWF [Targeted Spending only]

Financing Source [FS]												
		FS.1 Public Funds			FS.2 Private Funds					FS.3	FS.nsk	
Code	**Financing Agent [HF]**	FS.1.1.1 Central Gov Revenue	FS.1.1.2 Regional and Municipal Govt. revenue	FS. 1.2 Other Public funds	FS.2.1.1 Parastatal Employer Funds	FS.2.1.2 Private Employer Funds	FS.2.2 Households	FS .2.3 NPISH - *(NGOs Local)*	FS.2.4 Other private funds	Cooperating Partners (Rest of the World)	Not specified by any kind	**Row Total**
HF. 1.1.1.1	MoH (MINISANTE) including PNILP	248,148,257								241,125,685		489,273,942
HF.1.1.2	DSGAS											0
HF.1.1.3	Health Districts											0
HF.1.1.1.2.	Other Ministries											0
HF.1.2	Social Security Fund (CSR-Caisse Sociale)											0
HF.2.1.1	Gov't Employees insurance programs - RAMA (Rwanda medical insurance)											0
HF.2.5.1	Parastatals											0
HF.2.1.3	Private Employer Insurance Programs											0
HF.2.2	Private Insurance Enterprises *(other than social insurance)*											0
HF.2.3.	Private household out of pocket payments						3,009,246,545					3,009,246,545
HF.2.4	NPISH (other than social insurance)	105,108,305						63,398,846		536,304,401	24,448,099	729,259,651
HF.2.5	Private firms and corporations (other than health insurance)											0
HF.3	Rest of World									81,411,849		81,411,849
	Column Total [$THE_{malaria}$ 1]	353,256,562	0	0	0	0	3,009,246,545	63,398,846	0	858,841,934	24,448,099	**4,309,191,987**

Table B-6: Malaria 2003 Financing Agents to Function in RWF [Targeted Spending only]

Financing Agent						
		HF. 1.1.1.1	HF.2.3.	HF.2.4	HF.3	
Code	**Function**	MoH (MINISANTE) including PNILP	Private household out of pocket payments	NPISH (other than social insurance)	Rest of World	**Row Total**
HC.1.1	In patient curative care		1,112,459,816.26	117,050,329.72		1,229,510,145.98
HC.1.3	Out patient curative care	**230,971,946.00**	**1,536,391,509.54**	**299,347,826.96**	**109,717.40**	**2,066,820,999.90**
HC.1.3.1	Repellants given as part of OP care	104,076,692.00	24,643,143.00	161,795,388.36		290,515,223.36
HC.1.3.2	Nets given as part of OP care	84,801,150.00	288,323,910.00	37,961,672.15		411,086,732.15
HC.5	Medical goods dispensed to outpatients (at retail pharmacies/shops)		**360,395,219.40**	**125,401,113.36**		**485,796,332.76**
HC. 5.1.1 +HC 5.1.2	Prescribed and over-the-counter medicines		176,589,172.40			176,589,172.40
HC.5.1.3.2	Mosquito repellants		14,472,957.00	75,597,263.36		90,070,220.36
HC.5.1.3.3	Domestic insecticies and mosquito coils					0.00
HC.5.2.5.	ITNs (medical durable)		169,333,090.00	49,803,850.00		219,136,940.00
HC.6	Prevention and administration of public health programmes	**88,030,557.00**		**184,106,379.56**	**81,302,131.49**	**353,439,068.05**
HC.6.3	Prevention of communicable diseases (malaria)	*42,094,104.00*		*135,137,405.73*	*81,302,131.49*	*258,533,641.22*
HC.6.3.2	IEC			103,425,324.10	6,529,854.01	109,955,178.11
HC.6.3.3	Other malaria prevention and control activities (including sooprophylaxis, mosquito proofing of houses etc)			13,815,812.11		13,815,812.11
HC. 6.3.6	Surveillance and monitoring for Malaria	42,094,104.00		17,896,269.52	2,735,032.13	62,725,405.66
HC. 6.6	Training within public health for malaria	45,936,453.00		48,968,973.83		94,905,426.83
HC.7	Health administration and health insurance	170,271,439.00		3,354,001.58		**173,625,440.58**
HC.7.1.1	General gov't administration of health (except social security)	170,271,439.00				170,271,439.00
HC.7.1.2	Admin, operation and support of social security funds (CSR, RAMA)					0.00
HC.7.3	Other administration			3,354,001.58		3,354,001.58
	Total [$THE_{malaria}$]	489,273,942	3,009,246,545	729,259,651	81,411,849	**4,309,191,987**

Annex C: General NHA Tables 2002

Table C-1: General NHA 2002 – Financing Sources x Financing Agents [FS x HF] in RWF

Code	Financing Agent [HF]	FS.1 Public Funds			FS.2 Private Funds					FS.3	FS.nsk	Row Total
		FS.1.1.1 Central Gov Revenue	FS.1.1.2 Regional and Municipal Govt. revenue	FS. 1.2 Other Public funds	FS.2.1.1 Parastatal Employer Funds	FS.2.1.2 Private Employer Funds	FS.2.2 Households	FS .2.3 NPISH *(Local implementing agencies)*	FS.2.4 Other private funds	Cooperating Partners (Rest of the World)	Not specified by any kind	
HF.1.1.1	MoH (MINISANTE)	3,340,325,193								2,319,033,469		5,659,358,662
HF.1.1.2	DSGAS (includes districts)	969,441,755								1,716,009,103		2,685,450,858
HF.1.1.3	Other Ministries	672,310,004								281,131,014		953,441,018
HF.1.2	Social Security Fund (CSR-Caisse Sociale*)	784,500,915			26,261,515	135,590,819	562,188,688					1,508,541,937
HF.2.1.	Employer insurance program - RAMA (Rwanda medical insurance)	1,234,429,823		199,990,425	2,244,815,114		1,234,429,823					4,913,665,184
HF.2.5.1	Parastatals				156,228,236							156,228,236
HF.2.2	Private Insurance Enterprises *(other than social insurance)- Mutuelles, FARG*	1,016,160,000					379,760,047				7,367,006	1,403,287,052
HF.2.3.	Private household out of pocket payments						8,219,695,966					8,219,695,966
HF.2.4	NPISH (Implementing agencies)									6,309,044,857		6,309,044,857
HF.2.5	Private firms and corporations (other than health insurance)					918,742,831						918,742,831
HF.3	Rest of World									507,662,742		507,662,742
HF.nsk	Not specified by any kind				8,581,658	22,345,604					32,156,505	63,083,767
	Column Total [$THE_{general}$]	**8,017,167,690**	**0**	**199,990,425**	**2,435,886,523**	**1,076,679,254**	**10,396,074,524**	**0**	**0**	**11,132,881,185**	**39,523,510**	**33,298,203,111**
HF.4	Financing Agents spending on Health Related Items									151,644,863		151,644,863
	Column Total [NHE]	**8,017,167,690**	**0**	**199,990,425**	**2,435,886,523**	**1,076,679,254**	**10,396,074,524**	**0**	**0**	**11,284,526,048**	**39,523,510**	**33,449,847,974**

Table C-2: General NHA 2002 – Financing Agents x Providers [HF x HP] in RWF

		HF.A Public Sector										HF.3 ROW	HF.nsk	
		HF.1.1.1	HF.1.1.2	HF.1.1.3	HF.1.2	HF.2.1.	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Code	**Provider**	MoH (MINISANTE)	DSGAS (includes districts)	Other Ministries	Social Security Fund (CSR-Caisse Sociale*)	Employer insurance program - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)- Mutuelles, FARG	Private household out of pocket payments	NPISH (Implementing agencies)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
HP.1.1.1	Public Hospitals	1,059,745,837	125,151,878	474,609,825	452,562,581	439,343,850	1,544,760	194,315,070	1,670,154,724	25,208,433	216,243,963	242,483,363	25,273,274	4,926,637,559
HP.1.1.2.1	Gov't assisted not-for-profit hospitals	25,685,190	10,718,786		150,854,194	205,715,229	1,165,346	40,174,810	424,416,656	19,250,884	14,995,118	41,504,002		934,480,215
HP.1.1.2.2	Private hospital for-profit	413,022,202				199,891,937	2,744,999	80,919,716	133,417,957		330,434,898			1,160,431,709
HP.1.2	Mental health & substance abuse hospitals	47,701,025						3,363,503	39,848,345			52,441,325	15,282,667	158,636,864
HP.3.1	Offices of physicians (private clinics)*					29,697,939	96,232,780	3,920,432	1,639,868,326		256,369,792		22,527,826	2,048,617,095
HP.3.2	Offices of dentists													-
HP.3.3	Offices of other health practitioners													-
HP.3.4.1	Family planning centers													-
HP.3.4.2	Outpatient mental health and substance abuse centers	500,000						86,655,614						87,155,614
HP.3.4.5.1	Public health centers	117,402,523	242,966,821	32,663,477	75,427,097	150,826,312	2,037,421	257,080,069	1,243,622,561	116,767,099	6,005,618	63,703,817		2,308,502,815
HP.3.4.5.2	Government assisted not-for-profit health centers	41,021,768	75,607,148		75,427,097	77,698,403	1,049,580	134,215,337	660,674,486	59,086,966	3,093,803	92,440,456		1,220,315,045
HP.3.5	Medical and diagnostic laboratories													-
HP.3.9.1	Ambulance services													-
HP.3.9.2	Blood banks (CNTS transfusion)	89,974,444												89,974,444
HP.3.9.9	All other ambulatory health care services													-
HP.4.1	Dispensing chemists	115,830,387					49,500,629	126,879,724	2,407,692,912		91,599,640			2,791,503,292
HP.5	Provision and admin of public health programs	2,636,739,363								6,088,731,475		15,089,779		8,740,560,617
HP.6	General health administration and insurance	**822,213,246**	**2,231,006,225**	**446,167,716**		**3,810,491,514**		**327,490,219**						7,637,368,920
HP.6.1	Government administration of health													-
HP.6.3	Other insurance administration (RAMA)													-
HP.nsk	Providers not specified by any kind	289,522,677			754,270,969		1,952,721	148,272,557			-			1,194,018,924
	Column Total [THE$_{general}$]	**5,659,358,662**	**2,685,450,858**	**953,441,018**	**1,508,541,937**	**4,913,665,184**	**156,228,236**	**1,403,287,052**	**8,219,695,966**	**6,309,044,857**	**918,742,831**	**507,662,742**	**63,083,767**	**33,298,203,111**
	HF Totals From FS x HF Table	5,659,358,662	2,685,450,858	953,441,018	1,508,541,937	4,913,665,184	156,228,236	1,403,287,052	8,219,695,966	6,309,044,857	918,742,831	507,662,742	63,083,767	33,298,203,111
HP.8	*Providers of Health Related Services*													
HP.8.1	Research Institutions													-
HP.8.2	Education and training institutions											151,644,863		151,644,863
	Subtotal for health related	-	-	-	-	-	-	-	-	-	-	151,644,863	-	151,644,863
	Column Total [NHE]	**5,659,358,662**	**2,685,450,858**	**953,441,018**	**1,508,541,937**	**4,913,665,184**	**156,228,236**	**1,403,287,052**	**8,219,695,966**	**6,309,044,857**	**918,742,831**	**659,307,605**	**63,083,767**	**33,449,847,974**

Table C-3: General NHA 2002 – Financing Agents x Functions [HF x HC] in RWF

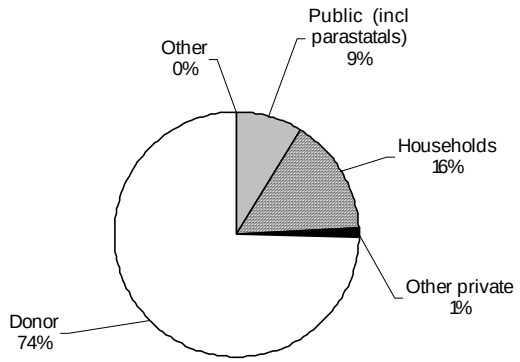
		HF.A Public Sector						HF.B Private Sector				HF.3 RoW	HF.nsk	
		HF.1.1.1	HF.1.1.2	HF.1.1.3	HF.1.2	HF.2.1.	HF.2.5.1	HF.2.2	HF.2.3.	HF.2.4	HF.2.5	HF.3	HF.nsk	
Code	**Function**	MoH (MINISANTE)	DSGAS (includes districts)	Other Ministries	Social Security Fund (CSR-Caisse Sociale*)	Employer insurance program - RAMA (Rwanda medical insurance)	Parastatals	Private Insurance Enterprises (other than social insurance)-Mutuelles, FARG	Private household out of pocket payments	NPISH (Implementing agencies)	Private firms and corporations (other than health insurance)	Rest of World	Not specified by any kind	**Row Total**
HC.1.1	In patient curative care	1,233,375,272	158,410,025	325,501,182	1,110,286,866	460,530,219	14,262,560	281,693,221	1,312,774,434	54,088,585	317,091,184	209,197,567	3,954,714	5,481,165,830
HC.1.3	Out patient curative care	760,039,755	296,034,608	181,772,120	398,255,071	642,643,452	92,465,047	518,867,690	4,499,352,208	142,061,294	510,052,008	282,071,322	33,475,740	8,357,090,315
HC.5.1.1 + HC5.1.2	Pharmaceuticals	115,830,387	-	-	-	-	14,602,685	126,879,724	2,290,833,831	-	91,599,640	-	-	2,639,746,268
HC.5.1.3 + HC5.2	Other medical non durables and durables	-	-	-	-	-	-	-	1,386,790	-	-	-	-	1,386,790
HC.6	Prevention and administration of public health programmes	**2,668,049,263**	-	-	-	-	-	-	-	**6,088,731,475**	-	**15,089,779**	-	**8,771,870,517**
HC.6.1	Maternal and child care, family planning and counseling	2,088,798,996	-	-	-	-	-	-	-	1,199,718,883	-	-	-	3,288,517,879
HC.6.3	Prevention of communicable disease (e.g., AIDS and STDs)	337,796,131	-	-	-	-	-	-	-	2,623,593,914	-	-	-	2,961,390,045
HC6.4	Prevention of noncommunicable diseases (e.g. malaria)	185,511,789	-	-	-	-	-	-	-	47,902,827	-	15,089,779	-	248,504,395
HC.7	Health administration and insurance	**822,213,246**	**2,231,006,225**	**446,167,716**	**-**	**3,810,491,514**	**-**	**327,490,219**	**-**	**-**	**-**	**-**	**-**	**7,637,368,920**
HC.7.1.1	General Gov't administration of health (except social security)	822,213,246	2,231,006,225	446,167,716	-	-	-	-	-	-	-	-	-	3,499,387,187
HC.7.1.2	Admin, operation and support of social security funds (CSR, RAMA)	-	-	-	-	3,810,491,514	-	-	-	-	-	-	-	3,810,491,514
HC.7.3	Other administration	-	-	-	-	-	-	327,490,219	-	-	-	-	-	327,490,219
HCR.2	Capital formation for health care provider institutions	58,664,544	-	-	-	-	-	-	-	16,044,565	-	-	-	74,709,109
HC.nsk	Not specified by kind	1,186,195	-	-	-	-	34,897,943	148,356,199	115,348,703	8,118,937	-	1,304,074	25,653,312	334,865,363
	Column Total [THEgeneral**]**	**5,659,358,662**	**2,685,450,858**	**953,441,018**	**1,508,541,937**	**4,913,665,184**	**156,228,236**	**1,403,287,052**	**8,219,695,966**	**6,309,044,857**	**918,742,831**	**507,662,742**	**63,083,767**	**33,298,203,111**
HCR.2	Education & Training	-	-	-	-	-	-	-	-	-	-	151,644,863	-	151,644,863
HCR.3	Research & Development	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sub total column	-	-	-	-	-	-	-	-	-	-	151,644,863	-	151,644,863
	Column Total [NHE]	**5,659,358,662**	**2,685,450,858**	**953,441,018**	**1,508,541,937**	**4,913,665,184**	**156,228,236**	**1,403,287,052**	**8,219,695,966**	**6,309,044,857**	**918,742,831**	**659,307,605**	**63,083,767**	**33,449,847,974**

Table C-4: General NHA 2002 – Providers x Functions [HP x HC] in RWF

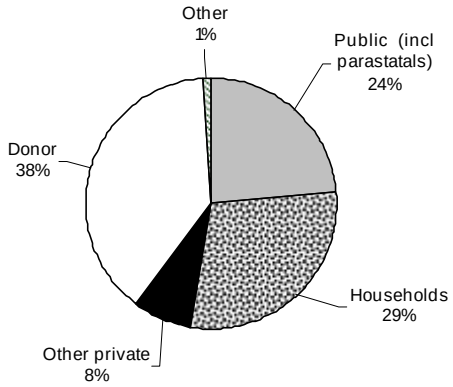
Code	Function	HP.1.1.1	HP.1.1.2.1	HP.1.1.2.2	HP.1.2	HP.3.1	HP.3.4.2	HP.3.4.5.1	HP.3.4.5.2	HP.3.9.2	HP.4.1	HP.5	HP.6	HP.nsk		HP.8	
		Public Hospitals	Gov't assisted not-for-profit hospitals	Private hospital for-profit	Mental health & substance abuse hospitals	Offices of physicians (private clinics)*	Outpatient mental health and substance abuse centers	Public health centers	Government assisted not-for-profit health centers	Blood banks (CNTS transfusion)	Dispensing chemists	Provision and admin of public health programs	General health administration and insurance	Providers not specified by any kind	THE general Row Total	Providers of Health Related Services	NHE Row Total
HC.1.1	In patient curative care	3,096,241,169	136,539,309	518,406,367	17,666,360	204,861,709	-	306,330,951	155,373,597	-	-	-	-	1,045,746,367	5,481,165,830		
HC.1.3	Out patient curative care	1,805,123,115	797,940,906	642,025,342	137,025,635	1,843,755,385	87,155,614	1,986,127,298	1,056,822,511	-	1,114,509	-	-	-	8,357,090,315		
HC.5.1.1 + HC5.1.2	Pharmaceuticals	-	-	-	-	-	-	-	-	-	2,639,746,268	-	-	-	2,639,746,268		
HC.5.1.3 + HC5.2	Other medical non durables and durables	-	-	-	-	-	-	-	-	-	1,386,790	-	-	-	1,386,790		
HC.6	Prevention and administration of public health programmes	-	-	-	-	-	-	-	-	**89,974,444**	-	**8,681,896,073**	-	-	**8,771,870,517**		
HC.6.1	Maternal and child care, family planning and counseling	-	-	-	-	-	-	-	-	-	-	3,288,517,879	-	-	3,288,517,879		
HC.6.3	Prevention of communicable disease (e.g., AIDS and STDs)	-	-	-	-	-	-	-	-	89,974,444	-	2,871,415,601	-	-	2,961,390,045		
HC6.4	Prevention of noncommunicable diseases (e.g. malaria)	-	-	-	-	-	-	-	-	-	-	248,504,395	-	-	248,504,395		
HC.7	Health administration and insurance	-	-	-	-	-	-	-	-	-	-	-	**7,637,368,920**	-	**7,637,368,920**		
HC.7.1.1	General Gov't administration of health (except social security)	-	-	-	-	-	-	-	-	-	-	-	3,499,387,187	-	3,499,387,187		
HC.7.1.2	Admin, operation and support of social security funds (CSR, RAMA)	-	-	-	-	-	-	-	-	-	-	-	3,810,491,514	-	3,810,491,514		
HC.7.3	Other administration	-	-	-	-	-	-	-	-	-	-	-	327,490,219	-	327,490,219		
HCR.2	Capital formation for health care provider institutions	-	-	-	-	-	-	16,044,565	-	-	-	58,664,544	-	-	74,709,109		
HC.nsk	Not specified by kind	25,273,274	-	-	3,944,869	-	-	-	8,118,937	-	149,255,725	-	-	148,272,557	334,865,363		
	Column Total [THE general]	**4,926,637,559**	**934,480,215**	**1,160,431,709**	**158,636,864**	**2,048,617,095**	**87,155,614**	**2,308,502,814**	**1,220,315,045**	**89,974,444**	**2,791,503,292**	**8,740,560,617**	**7,637,368,920**	**1,194,018,924**	**33,298,203,111**		
HCR.2	Education & Training															151,644,863	151,644,863
HCR.3	Research & Development															-	-
	Column Total [NHE]	**4,926,637,559**	**934,480,215**	**1,160,431,709**	**158,636,864**	**2,048,617,095**	**87,155,614**	**2,308,502,814**	**1,220,315,045**	**89,974,444**	**2,791,503,292**	**8,740,560,617**	**7,637,368,920**	**1,194,018,924**		**151,644,863**	**33,449,847,974**

Annex D: Comparing Expenditure Estimates on HIV/AIDS in 2002 and on Malaria in 2003

2002 Financing Sources for HIV/AIDS Health Spending



2003 Financing Sources for Malaria Health Spending



The figure above gives you an idea about the financing sources shares comparison between 2002 HIV/AIDS and 2003 Malaria Expenditure Estimates although they from two different but successive years.

Donors were more heavily implicated in HIV/AIDS financing with 74% in 2002 than they were represented in 2003 Malaria Health spending with 38% of THE for malaria. In general they are the biggest contributors for both diseases and under-finance the first killer disease in Rwanda.

The Central Government came at the third place with 9% of THE for HIV/AIDS and 24% of THE for malaria, however it did not balance that Donors' inequality in the diseases financing, despite its good will as the National Poverty Reduction of Rwanda priorities, focus on malaria at first instance.

The HH contribute 16% of THE for HIV/AIDS and 29% of THE for malaria and represent almost the whole private financing source as the remaining FS contributions to the diseases represented 1% of THE for HIV/AIDS and 9% of THE for malaria.

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