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Yemen National Health Accounts: Estimate for 2003

June 2006

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National Health Accounts Team,
Republic of Yemen

Partners for Health Reform*plus*

The Republic of Yemen
Ministry of Public Health & Population
Leading Yemen to Better Health, Safety and Well Being

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Mission

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- *Implementation of appropriate health system reform.*
- *Generation of new financing for health care, as well as more effective use of existing funds.*
- *Design and implementation of health information systems for disease surveillance.*
- *Delivery of quality services by health workers.*
- *Availability and appropriate use of health commodities.*

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Abstract

The 2003 Yemen National Health Accounts (NHA) is the second round of NHA estimates completed by the NHA team of Ministry of Public Health and Population of the Republic of Yemen. While it builds upon the first round NHA estimates carried out for 1998, it has adapted to the Yemeni context the NHA methodology prescribed in the Guide to Producing National Health Accounts, with application for low-income and middle income countries (World Health Organization et al. 2003). The 2003 NHA estimates benefit from the Public Health Expenditure Review for 1999 through 2003 that was completed in 2005, and from results of the 2004 Census. But there has not been an updated household survey since 1998 that would have provided more accurate data that the extrapolated (interim) estimates made for 2003 household spending. The findings of the NHA estimates for 2003 are that total health spending for health by Yemen for 2003 amounted to YR 117.3 billion, or US$ 639 million. This spending averaged YR 6,128, or US$ 33.40, per capita. Government spending on health was the equivalent of about 4.9 percent of total government spending. Total health spending comprised about 5.6 percent of gross domestic product. As original sources of funds for health, household out-of-pocket (OOP) spending on health accounted for 60 percent of the total, government spending accounted for 32 percent of the total, and the rest of the world (donors) accounted for the remaining 8 percent of the total spent on health. The 2003 NHA estimates have filled in some of the gaps in the 1998 NHA estimates. Most notable is the significant increase in the estimate of OOP household spending on overseas treatment, which for 2003 was estimated, according to a survey, to be almost half of total OOP household spending. It is expected that the household survey planned for 2006 will provide more precise and reliable data on household spending for the third round of NHA estimates.

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Acronyms

GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
MoF	Ministry of Finance
MoPHP	Ministry of Public Health and Population
NGO	Nongovernmental Organization
NHA	National Health Accounts
OOP	Out-of-pocket
PER	Public Expenditure Review
PHR*plus*	Partners for Health Reform*plus*
PRS	Poverty Reduction Strategy
USAID	United States Agency for International Development
WHO	World Health Organization
YR	Yemeni Rial

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Executive Summary

Background

The 2003 Yemen National Health Accounts (NHA) builds upon the prior NHA estimations carried out in 1998. The key difference between the two rounds of NHA is that the 2003 estimations are in accordance with the internationally accepted methodology which has standardized the NHA exercises for all countries. The results from this round of NHA highlight the nature and amount of financial flows to and within the Yemeni health system, including transactions between its key players – financing sources, financing agents,[1] and health care providers. NHA estimates the total resource envelope for health care and determines how it is used.

Methodology

In the absence of national household health care utilization and expenditure, this NHA estimate for 2003 has relied upon interim estimation methods for household spending, which constitute only rough approximations that are based largely on assumptions about growth in spending, modified by any new data that have become available. These estimates will be updated when the next household survey (based on the 2004 Census results) is undertaken in 2006. These interim estimates were aided by sample surveys of cost recovery at selected hospitals and health centers undertaken by the Yemen NHA team during 2005. In addition, secondary data such as the executed government budgets were used for public sector estimates. A brief survey of donors was conducted to establish estimates for external assistance. The 2003 NHA estimate does not provide, however, a comprehensive view of spending in the private sector, nor a functional or line item breakdown of spending, which will be estimated in the next round. Given the paucity of data, the NHA methodology prescribed in the *Guide to Producing National Health Accounts, with application for low-income and middle income countries* (Producer's Guide) has been adapted to suit the Yemeni context.

NHA Findings

Total health spending in Yemen for 2003 amounted to YR (Yemeni rials) 117.3 billion, or US$ 639 million. This spending averaged YR 6,128, or US$ 33.40, per capita. Government spending on health was the equivalent of about 4.9 percent of total government spending. Total health spending comprised about 5.6 percent of gross domestic product (GDP). As original sources of funds for health, household out-of-pocket spending on health accounted for 60 percent of the total, government spending accounted for 32 percent of the total, and the rest of the world (donors) accounted for the remaining 8 percent of the total spent on health. Table ES.1 summarizes the data.

[1] Entities that receive funds from sources to pay providers, often described as having programmatic control over resource allocation.

Table ES-1: Public Spending on Health Related to Macroeconomic Statistics, Republic of Yemen, 1998 and 2003

Indicator	1998 NHA		2003 NHA		1998-2003	
	TOTALS	%	TOTALS	%	Cum.%	Yrly Avg. %
Population (millions)	16.367		19.136		17%	2.9%
Gross Domestic Product, nominal (at mkt prices, YR millions)	844,240		2,081,640		147%	19.8%
GDP, real (at 1990 prices, YR millions))	202,389		245,405		21%	3.9%
GDP per capita, nominal, YR	51,583		110,149		114%	16.4%
GDP per capita, real, YR	12,366		12,985		5%	1.0%
Exchange rate (US$1.00 = YR___)	135.9		183.5		35%	6.2%
GDP per capita, nominal, US$	$380		$600		58%	9.6%
Consumer price index (1990 = 100)	784		1,240		58%	9.6%
Health price index (1999 = 100)	91		127		40%	6.9%
Health Expenditures by Original Source of Funding						
Public, YR millions	14,458	35%	37,759	32%		
Nonpublic, YR millions	23,670	57%	70,536	60%		
Rest of the World, YR millions	3,166	8%	8,974	8%		
TOTAL, YR millions	41,294	100%	117,270	100%		
Public health spending per capita, YR	883		1,973			
Public health spending per capita, US$	$6.50		$10.76			
Nonpublic health spending per capita, YR	1,446		3,686			
Nonpublic health spending per capita, US$	$10.64		$20.09			
Foreign aid health spending per capita, YR	193		469			
Foreign aid health spending per capita, US$	$1.42		$2.56			
TOTAL health spending per capita, YR	2,523		6,128			
TOTAL health spending per capita, US$	$18.57		$33.40			
TOTAL government expenditures, YR millions	256,100		777,087			
Proportion of govt. spending on health	5.6%		4.9%			
As % of GDP						
Public	1.7%		1.8%			
Nonpublic	2.8%		3.4%			
Rest of the world	0.4%		0.4%			
TOTAL	4.9%		5.6%			

Notes:
1998 NHA estimates from Table 1, page 8, of report (Ministry of Public Health and Population 2000), with US dollar figures converted to YR using 1998 exchange rate; 1998 per capita and % of GDP data differ from those in report because of changes in (1) population estimates for 1998, and (2) GDP estimates for 1998.
Cumulative and average percentage increases in NHA estimates are not calculated because the estimates are not strictly comparable.
Source for macroeconomic data, exchange rates, and price indices: Central Statistical Organization, Republic of Yemen.

Additional findings from Yemen's 2003 NHA estimates are as follows:

- **A modest increase in health care expenditures relative to GDP since 1998**: Even though health expenditures in absolute terms have gone up since 1998, from YR 41,294 million to YR 117,270 million, in relative terms, as a proportion of GDP, the increase is from 4.9 percent to 5.6 percent.[2] While total health expenditures increased significantly, so did the population (2.9 percent yearly) and the GDP (only slightly faster) during the same period. The growth in real GDP per capita per year averaged only 1 percent yearly during this period.

- **Government is spending relatively less on health care as compared to 1998**: Even though total spending by the government increased from YR 14.4 billion to YR 37.8 billion in 2003, the proportion of government budget spent on health declined from 5.6 percent to 4.9 percent.

- **Households finance more than half of the health care spending**: Nearly 60 percent of health care is financed by households, raising equity and access issues. Government contribution is 29 percent, with donors contributing 8 percent.

- **High expenditures on overseas treatment**: Twenty-nine percent of total health care expenditures are spent on overseas treatment, which constitutes almost half of household spending. Nearly half of expenditures (47 percent) incurred by private employers also contributed to overseas treatment.

- **Donor funding is geared mainly toward capital projects**: Approximately 80 percent of donor funding is for capital projects. The remainder is accounted for by subsidies to the recurrent costs of two Saudi hospitals.

Policy Implications

1. There appears to be considerable lack of transparency in the accounting and information systems providing data to the Ministry of Finance, especially now that decentralization has given decision-making authority to lower levels of government.

2. The 2003 NHA estimates reconfirmed a conclusion of the 1998 NHA estimates that the health care system is highly fragmented and complex, with funds flowing from multiple sources through multiple channels with little or no coordination from the center. The Ministry of Public Health and Population (MoPHP) does not exercise adequate control over the investment budget. Many investment projects are initiated on a promise from the MoPHP that, once facilities completed and equipped, they will be staffed. Then when they are completed and equipped, there is insufficient staff and insufficient operating budget for the facilities already built and equipped. This phenomenon can be expected to get worse under decentralization, which is causing lower levels of government to take decisions to construct facilities without the knowledge or consent of the central authorities.

[2] The 1998 NHA estimates relative to population and to GDP have changed since the report on that first round because there have been statistical adjustments made since then to both population and GDP figures for 1998 by the Central Statistical Organization, Republic of Yemen.

3. Results reveal an excessive emphasis on capital investment projects, and a relative lack of attention to the needs for operating budgets, and to the ongoing needs for repair and maintenance budgets. During the interim (between 1998 and 2003), there was a brief relative de-emphasis, only to be followed by a resurgence of capital spending in 2003.

1. Introduction

National Health Accounts (NHA) has been a collaborative effort supported around the world by the United States Agency for International Development (USAID), the World Health Organization (WHO), the European Union, and the World Bank for the past ten years. This global tool, designed for health sector policymakers and managers, provides a framework for measuring total (public, private, and donor) national health expenditures. Its goal is to provide valuable information for improving health system performance at the policy level. It can also assist in the monitoring and evaluation of the efficiency and effectiveness of resources spent on health care interventions.

This report of the Yemen NHA estimates for the calendar year 2003 presents and discusses the flows of funds to and within the health sector in Yemen. It comprises three major parts: public sector fund and facilities, private sector funds and facilities, and donor activities in the health sector. It is the second round of NHA estimates for Yemen, and follows the first NHA estimates completed several years ago for calendar year 1998 (Ministry of Public Health and Population [MoPHP] 2000). For public sector spending, this estimate for 2003 relies largely upon the estimates of government health expenditures completed recently for the years 1999 through 2003 (Fairbank 2006).

Since the first round estimate of NHA in Yemen for 1998, there has not been a follow-up nationwide household survey that could provide a sound basis for a more recent estimate of private and household spending on health. Therefore, this NHA estimate for 2003 has relied upon interim estimation methods for household spending, which constitute only rough approximations that are based largely on assumptions about growth in spending, modified by new data that have become available. These estimates will be updated when another nationwide household survey (based on the 2004 Census results) is undertaken in 2006. These interim estimates were aided by sample surveys of cost recovery at selected hospitals and health centers undertaken by the Yemen NHA team during 2005.

This report is divided into six parts. The following **Section 2** gives relevant background information on Yemen's health sector. **Section 3** describes the methodologies used to develop these NHA estimates and discusses the important changes in approach and methods that have occurred since the last NHA estimates for 1998. **Section 4** highlights NHA results at the national level. **Section 5** provides NHA results at the sector level. **Section 6** highlights the policy implications of NHA results, and **Section 7** gives recommendations for next steps toward institutionalizing NHA in Yemen.

2. The Yemen Health Sector

2.1 Background

Yemen's health system is still in the early stages of development, and is trying—using extremely limited resources—to address a long list of serious health problems among its people and a wide array of service delivery gaps. Despite a number of setbacks experienced during the 1990s, there has been progress in improving both population health status and in improving its health care delivery system. There is reason to believe that the Health Sector Reform Strategy initiated in 1998 will lead to better management of the system and improvements in some of the key indicators.

After a brief description of various measures of population health status in Yemen, this section introduces the health care delivery system with brief descriptions of the public and private sectors, including indicators of the physical and human resources that are available in each (to the extent such data are available).

2.1.1 Health Status Indicators

Yemen is still at an early stage in its epidemiological and demographic transition toward lower total fertility rates and towards a disease pattern less dominated by communicable diseases. Since 1992, the number of children born per woman has declined from 7.7 to 6.2, and the infant mortality rate declined from 103 to 75 live births.[3] Population growth continues to be among the highest in the world at 2.9 percent per year,[4] and the contraceptive prevalence rate is low at about 23 percent among married women of reproductive age. Communicable diseases such as malaria and tuberculosis continue to be prevalent, particularly in rural areas. In addition, diarrheal diseases, malnutrition, acute respiratory infections, and complications of pregnancy are also very commonly seen. Child malnutrition is reflected in the recent finding (2003) that 12 percent of children were recently found to be moderately or severely underweight for their height. There are wide regional disparities in health status indicators, and significant differences between urban and rural areas.

2.1.2 The Macroeconomic Context of Health Spending

While the Republic of Yemen is among the poorer countries of the Middle East, it has recently experienced economic growth due to extraction of recently discovered oil reserves. Since 1998, real growth in gross domestic product (GDP) has averaged about 4 percent annually, for a five-year growth rate of 21 percent. With the population growth rate being almost as high (about 17 percent for

[3] Data for 1992 are from: Central Statistical Office and Macro International (1998). Data for 2000 and after are from: Pan Arab Project for Family Health (2003).
[4] The estimate comes from the 2004 Census.

the five years), growth in real GDP per capita was barely positive for the period—averaging less than 1 percent annually. (See **Table 2.1** below for these data).

Table 2.1: Public Spending on Health Related Macroeconomic Statistics, Republic of Yemen, 1998 and 2003

Indicator	1998 NHA		2003 NHA		1998-2003	
	TOTALS	%	TOTALS	%	Cum.%	Yrly Avg. %
Population (millions)	16.367		19.136		17%	2.9%
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Cumulative and average percentage increases in NHA estimates are not calculated because the estimates are not strictly comparable.
Source for macroeconomic data, exchange rates, and price indices: Central Statistical Organization, Republic of Yemen.

The share of total spending by the Government of Yemen that is devoted to health declined modestly from 5.6 percent in 1998 to 4.9 percent in 2003 (**Table 2.1**). As a percentage of GDP, however, total nominal government health expenditures have been fairly steady—1.7 percent in 1998 and 1.8 percent in 2003. However, government health spending, including donor contributions, amounted to roughly one-quarter of the total spent on health, with most of the remaining spending having been done by private parties, mostly by households paying out-of-pocket (OOP) for drugs and medical care including overseas treatment.

2.2 The Health Services Delivery System: Public Sector

The MoPHP operates a four-tiered system of health care facilities, delivering primary health care in health centers and health units at the village and district levels, secondary care at rural (district) and governorate hospitals, and tertiary care at referral hospitals in Sana'a and Aden and other main cities. The latest data available from the MoPHP for 2002 are that there are 15 major hospitals[5] (averaging 337 beds each), 12 small governorate hospitals (averaging 88 beds each), 111 rural and district hospitals (averaging 25 beds each), 614 health centers, and 2,028 health units. However, since decentralization began to be implemented in 2001, the locus of responsibility for funding and operating many of these facilities has devolved to the local level—that is, to the local authorities in the 20 governorates and 366 districts. Moreover, there has been additional construction of facilities since 2002, some of which were sponsored by the MoPHP and some of which were sponsored by lower levels of government. As will be discussed later in this paper, the number of facilities that actually are fully equipped, staffed, and operating is not known, except that it is considerably lower than the number of facilities that have been built.

In addition to the above facilities, there are two autonomous tertiary care hospitals in Sana'a City (Al-Thawra and Al-Kuwait Hospitals) that receive budget allocations from the Ministry of Finance (MoF). Drugs and medical supplies for all MoPHP and local level facilities are provided through the Central Drug Fund, which was begun in 1999 as a semi-autonomous agency operating as a revolving drug fund.

Data on health personnel employed by the MoPHP also comes from the 2002 Annual Statistical Report of the MoPHP. Of the total number of 37,140, 4,384 are physicians (990 of which are specialists, some of them non-Yemeni), 8,043 are nurses, 1,336 are lab technicians, and 1,919 are midwives. A substantial proportion (almost 30 percent) of the total number employed are administrators and support staff. It should be noted that these data are likely to be incomplete (as well as out-of-date) and are not necessarily reflective of the numbers required to fully staff the facilities that were built and equipped in the year of this NHA estimate (2003).

2.3 The Health Services Delivery System: Private Sector

The private medical care sector has been developing rapidly in recent years, particularly in urban areas, and is not only an important source of care (mainly for urban residents) but is also a competitor with public sector facilities for trained medical personnel. OOP spending by households that is expended in private facilities means less revenue for government facilities charging nominal user fees in order to help to fund their operations. Many government-employed physicians are direct recipients of such OOP spending when (and if) they also practice privately in their off-hours. The latest data

[5] Excluding two tertiary care facilities in Sana'a City (Al-Thawrah and Al-Kuwait Hospitals).

published by the MoPHP are for 2002 (see **Table 2.2**) and show that the private sector comprises 92 hospitals, 336 polyclinics, 114 health centers, 534 physicians' clinics, 744 laboratories, and 1,601 pharmacies. As will be documented later in this report, it is difficult to obtain precise estimates of the number of visits or procedures and of the flow of funds to private providers and facilities. It is undeniable, however, that the private medical sector has been growing rapidly since 2002, and will be an increasingly important source of medical care in the future—even if predominantly accessible only to urban residents.[6]

Table 2-2. Distribution of Facilities by Type in the Private Sector, Yemen, 2002

Facilities	Number
Hospitals	92
Polyclinics	336
Health Centers	114
Physicians' Clinics	534
Specialty Clinics	709
Dental Clinic	259
Dental Lab	55
Laboratory	744
Radiology Clinic	73
Primary Health Care	1,077
Midwifery Clinic	41
Pharmacy	1,601
Ophthalmology Clinic	100

Source: MoPHP (2002)

2.4 Health Sector Reform: Developments Since 1998

In 1998, the MoPHP initiated a comprehensive effort to develop a long-term plan to reform its health sector in order to address the evident shortcomings of the health system. After a period of collaborative study and analysis in conjunction with major international partners, the government decided upon a health sector reform strategy that would take place within the overall context of other government reforms. Acknowledging many of the challenges it faced, the new strategy admitted, at that time, that the "government's health system is in a state of prolonged crisis, a crisis which has worsened dramatically in the past decade" (MoPHP 1998: Executive Summary [page b]). In response to the evident problems in the health sector, the MoPHP designed and launched a comprehensive health sector reform strategy in 1998. This reform strategy has twelve components[7]:

1. Decentralization of planning, decision-making, and financial management;

2. Redefinition of the role of the public sector with a stronger emphasis on policy, regulation, and public health, and the establishment of limits on its role as service provider;

3. A district health system approach;

[6] As will be seen in Section 4.2, spending on health care abroad ("treatment overseas")—which is typically accessible only to the wealthier segment of the population—has become a significant part of household spending.

[7] A comprehensive description of the health sector reform strategy and of its requirements and implications were presented in: World Bank (2001).

4. Community co-management of local health systems;

5. Cost-sharing by patients, with provisions for exemptions for poor patients;

6. Essential drugs policy, and realignment of the logistics system for drugs and medical supplies (with formation of a semi-autonomous Drug (and Medical Supplies) Fund);

7. Decentralized, outcomes-based management system from the central to the community level;

8. Inter-sectoral collaboration (recognizing that determinants of health lay beyond the health services system);

9. Hospital autonomy and eventual basic health facility autonomy;

10. Encouragement of responsible participation by the private sector and nongovernmental organizations (NGOs) through appropriate policy design regulation;

11. A sector-wide approach to planning and development; and

12. Innovative approaches to project/program design and implementation.

The long-term objectives of the health sector reform program were[8]:

- Adequate and universal access to health care services;
- Equity in both the delivery and eventually the financing of health care;
- Improved allocative and technical efficiency of the service delivery system;
- Improved quality of health services; and
- Long-term financial sustainability of the system.

The implementation of the health sector reform strategy was to begin with an "initiation" phase which would seek to implement reforms covering about 40 percent of the country's districts during the period 1998 through 2001. The second "consolidation" phase was to be implemented in the rest of the country coincident with implementation of the Second Five-year Plan (2001-2005) and with the Republic of Yemen's Poverty Reduction Strategy (PRS) (2003-2005). The timing of the implementation of the reform strategy, however, has been disrupted by the implementation of the Law on Local Administration, passed in 2001 and effective in 2002, which devolved authority for planning and implementation of the budgets of local authorities (districts and governorates).

[8] Objectives are from World Bank (2001): p. 12.

3. Methodology

Yemen's NHA estimates for 2003 are the first to be based on the methods for defining, categorizing, and estimating these financial flows recommended in the NHA Producer's Guide published in 2003 (WHO, USAID, and World Bank 2003). **Tables 4.1 and 4.4** (in the following section) provide the Yemen NHA team's summary of NHA data for 2003[9] based on a standardized approach to NHA estimation; however, they reflect some minor modifications to the Producers' Guide methods that were made by the NHA team in order to adapt them to the circumstances of the health sector in Yemen. These adaptations will continue to evolve as more attention is paid to improving estimates of private spending.

The study uses a definition of "health expenditures" that includes only those expenditures for which the primary purpose is the improvement of the health of individuals or of the population as a whole. Expenditures on activities with multiple objectives, such as food subsidy programs and water and sanitation projects, are only included if the primary objective is the direct improvement of health status. As for the categorizations of spending, the methodology used views the financing of the health sector in a comprehensive fashion, with funds flowing from original financing sources, through intermediary/financing agents, and finally to end uses—providers and/or functions.

The preliminary findings of the Yemen NHA team for 2003, as reported here, were presented in preliminary form at the Fourth International Symposium on National Health Accounts in Barcelona, Spain, in July, 2005. The team's work and findings benefited from the collaboration with other countries of the Gulf Cooperation Council (GCC) that attended a workshop sponsored by the MoPHP, the GCC, WHO, and USAID that was held in Sana'a in February 2005.

This 2003 NHA estimate is an interim estimate that did not have the benefit of a thorough research effort due to lack of time and funding. This meant that certain aspects of this estimate are less than precise. It was not possible to update the 1998 estimate of the flow of funds to different functions in the health sector due to lack of data from the relevant components of the flows from financing agents to providers. It has benefited, however, from a recently completed Public Expenditure Review (PER) (Fairbank 2006) for the health sector that compiled that actual expenditure data reported by the MoF in annual Expenditure Reports for the years 1999 through 2003. (Several NHA items of government health expenditure are included in this NHA estimate that were not included in the PER, e.g., health spending by the Ministries of Defense and Interior.)

In addition, the NHA team conducted two surveys that contributed primary data to the estimates reported here: one was a survey of external donors on their health assistance for 2003, and the other was a survey of cost recovery efforts at a small sample of government hospitals and clinics. While the survey of user fees was not a statistically valid sample from which to draw national-level conclusions, it was reasonably indicative of the level of cost recovery experienced in the system. A planned survey of the private sector was not completed because of the inability to develop a reasonable sampling

[9] The complete tables showing flows of funds from Sources to Financing Agents and Financing Agents to Providers are included in Annex A as Tables A and B.

frame. The household spending estimates relied upon methods developed to extrapolate the results of the 1998 household survey that was used in the first round of NHA estimates (to be explained in more detail below).

The NHA team's current 2003 estimates are not strictly comparable to those made in 2000 for 1998 for several reasons. First, the categorizations have been modified in order to comply with the standardized definitions suggested in the Producers' Guide. Second, certain categories that were either not estimated or comprised negligible amounts in 1998 have now been estimated (with a few exceptions, one being private health insurance, which has not yet been estimated as a financing agent). Third, the considerable amount of spending by households has been estimated using methods that extrapolate forward from the 1998 household survey, and incorporate new information on the evidently substantial amounts spent on overseas treatment. These methods are rather crude and are best approximations of actual spending by Yemeni households that can only be confirmed by the household survey that is planned for later in 2006.

As will be noted later in this report, the NHA estimates for nongovernmental entities were developed using various crude methods of extrapolation and/or interpolation. While these estimates were based on the most recent data available, in most cases the estimates rely upon assumptions about key variables that may prove to be off the mark when more precise estimates are made possible by future surveys and updated data.

Two limitations of the estimated data should be noted. First, the estimates vary in their reliability and consistency. For example, the estimates of private sector spending, by source of funding and by financing agent, are only very rough estimates. For the next rounds of NHA estimates, more attention and resources will be paid to developing more accurate and detailed estimates of private spending according to original source, financing agent, and provider. There are particular gaps in estimates of spending on private providers, expenditures on prescription drugs, and reimbursements made by private health insurance.

Second, while there is now a complete picture of the public expenditures, at least as reported in the yearly MoF Expenditures Reports, these data give very little information about how the funds are distributed by program, by function, or by type of facility. These estimates must be made after developing and applying an estimation methodology using assumptions that are difficult to verify.

4. NHA Results for 2003: Summary Findings

The 2003 NHA study showed that Yemen spent a total of YR 117.3 billion on health care that year—equivalent to US$ 639.2 million.[10] This represents per-capita spending of YR 6,128 or US$ 33.40, which amounts to 5.6 percent of Yemen's GDP for 2003.[11] This section describes, in summary, the distribution of spending by sources of expenditures, financing agents, and providers of services. It also shows how this flow of funds to the health sector relates to the broader indicators of macroeconomic activity and of total government spending.

4.1 Flow of Funds from Original Sources to Financing Agents

Table 4.1 gives a summary of the flows of funds from original sources of funds to financing agents (the detailed table in included as **Table A** in Annex A). **Table 4.1** also shows both the distribution of spending by sources of funds (totals in columns) as well as by financing agents (totals in rows).

Table 4.1: Flows of Funds from Financing Sources (FS) to Financing Agents (FA)
Distribution of Funding Flows from Sources to Financing Agents Yemen, 2003

(in Yemeni Rials, millions)

Code	Financing Agents	Financing Sources									
		FS 1 Public Funds		FS 2 Private Funds			FS 3 Rest of the World		Grand Totals		
		FS 1.1 Ministry of Finance	FS 1.3 Public Firms	FS 2.1 Private Employers	FS 2.2 House-holds	FS 2.3 Yemen NGOs	FS 3.1 Intl NGOs	FS 3.2 Foreign Assist-ance	YR (millions)	Percent	US$ (millions)
HF 1	**Public Sector**	**29,732**	**4,682**					**3,346**	**37,759**	**32%**	**$206**
HF 1.1.1.1	MoPHP	7,785						2,186	9,971	9%	$54
	Other Ministries	7,486						1,160	8,646	7%	$47
HF 1.1.2	Governorate & District Health Offices	14,461							14,461	12%	$79

[10] Average exchange rate for 2003 was US$ 1.00 = YR 183.5.
[11] A summary comparison of the 2003 NHA estimate with the 1998 NHA estimate (although not strictly comparable) was given in Table 2.1.

Code	Financing Agents	Financing Sources									
		FS 1 Public Funds		FS 2 Private Funds			FS 3 Rest of the World		Grand Totals		
		FS 1.1 Ministry of Finance	FS 1.3 Public Firms	FS 2.1 Private Employers	FS 2.2 House-holds	FS 2.3 Yemen NGOs	FS 3.1 Intl NGOs	FS 3.2 Foreign Assist-ance	YR (millions)	Percent	US$ (millions)
HF 1.3	Parastatal Companies (public firms)		4,682						4,682	4%	$26
HF 2	**Nonpublic Sector**			**2,993**	**67,504**	**39**			**70,536**	**60%**	**$384**
HF 2.3	Households				67,504				67,504	58%	$368
HF 2.4	Local NGOs (internal sources)					39			39	0%	$0
HF 2.5	Private Employers			2,993					2,993	3%	$16
HF 3	**Rest of the World**						**0**	**8,974**	**8,974**	**8%**	**$49**
HF 3.1	International NGOs (external sources)						0		0	0%	$0
HF 3.2	Foreign Assistance							8,974	8,974	8%	$49
	Totals (in YR millions)	**29,732**	**4,682**	**2,993**	**67,504**	**39**	**0**	**12,320**	**117,270**	**100%**	**$639**
	Percent	25%	4%	3%	58%	0%		11%	100%		
	Totals (in US$ millions)	$162	$26	$16	$368	$0		$67	$639		

(Summary Table; See Annex A, Table A, for detail)

4.1.1 Expenditures by Original Sources

Table 4.2 (and Figure 4.1) shows the distribution of spending by original sources of funds (summarizing the totals for the columns in **Table 4.1**). Almost three-fifths of spending (58 percent) comes originally from households, while one-fourth of spending comes from the MoF.[12] These amounts are supplemented by 11 percent from foreign aid and 7 percent from public and private employers. Following the Producers' Guide methodology, funding flows from the sources of financing to health care providers and to health care functions are facilitated by financing agents, often government agencies or third-party financing agents such as insurance companies or employers paying for health care. When a funding source pays directly to a health care provider, that source is considered to act as its own financing agent. In Yemen, households and public firms, as well as some

[12] Since decentralization was implemented in 2002, there has been some spending by local governments (through governorate and district health offices) from new revenue sources they have acquired. These amounts have not yet been estimated.

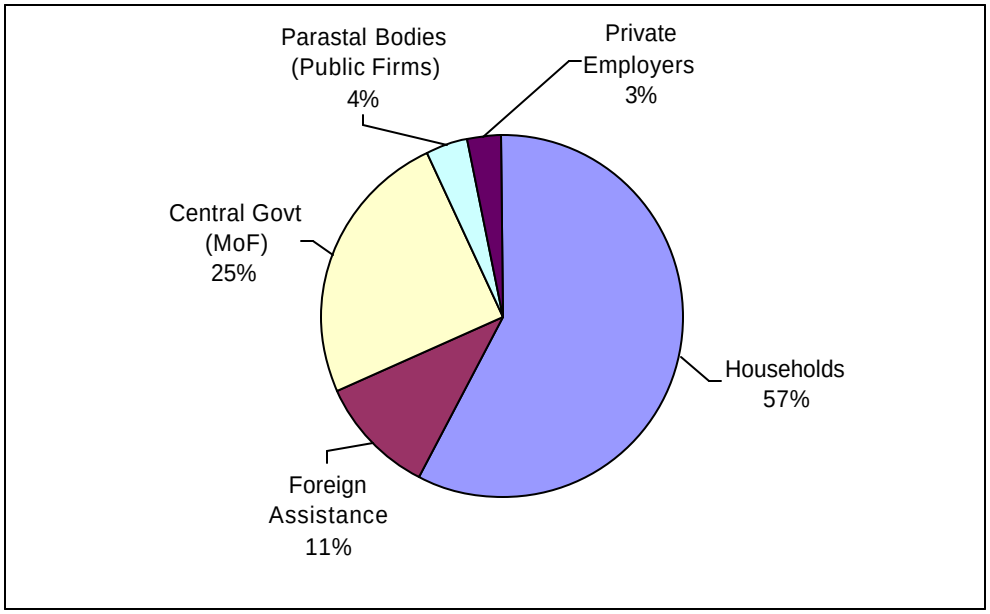
foreign donors—both of which are sources—make some or all of their expenditures directly to providers, thus acting as their own agents.

Table 4.2: Distribution of Funding Flows from Original Sources, Republic of Yemen, 2003

Original Sources	Yemeni Rials (millions)	US$ (millions)	Percent of Total
Public Funds	34,414	$188	29%
Central Govt (MoF)	29,732	$162	25%
Local Govts* (Governorates/districts)	NA	NA	NA
Parastal Bodies (Public firms)	4,682	$26	4%
Private Funds	70,536	$384	60%
Private Employers	2,993	$16	3%
Households	67,504	$368	58%
Local NGOs (Internal sources)	39	$0	0%
Rest of the World	12,320	$67	11%
International NGOs (External sources)	0	NA	NA
Foreign Assistance	12,320	$67	11%
GRAND TOTAL	117,270	$639	100%
(in millions)			
Spending per Capita	6,128	$33.40	
Population	19,135,851		

* Because the amount financed by governorates and districts is not known, it is included in the Central Government category.

Figure 4.1: Summary of Distribution of Funding Flow from Original Sources



4.1.2 Expenditures by Financing Agents

Regardless of their sources of funding, financing agents are those agencies and organizations that directly pay providers or vendors for health services and/or medicines and supplies, typically on behalf of their sources of funding. As noted, some original sources of funds also act as their own agents or intermediaries whenever they pay their funds directly to providers. The distribution of spending according to financing agents is shown, in summary, in **Table 4.3** (summarizing the totals of the rows in **Table 4.1**). Households are responsible for the majority of spending by financing agents (58 percent), with government agencies responsible for spending 28 percent of the total—that being comprised of 9 percent by the MoPHP, 7 percent by other ministries, and 12 percent by governorates and districts. Public and private firms are responsible for 4 percent and 3 percent, respectively, while donors and NGOs are responsible for 8 percent of the total.

Table 4.3: Distribution of Funding Flow from Financing Agents, Republic of Yemen, 2003

Financing Agents	Yemeni Rials (millions)	US$ (millions)	Percent of Total
Public Sector	37,759	$206	32%
Minstry of Health*	9,971	$54	9%
Other Ministries/Agencies	8,646	$47	7%
Local Govts (Governorates/districts)	14,461	$79	12%
Parastal Bodies: (Public Firms)	4,682	$26	4%
Private Sector	70,536	$384	60%
Private Employers	2,993	$16	3%
Households	67,504	$368	58%
Local NGOs (internal sources)	39	$0	0%
Rest of the World	8,974	$49	8%
International NGOs (external sources)	0	$0	0%
Foreign Assistance	8,974	$49	8%
GRAND TOTAL	117,270	$639	100%

* Includes YR 2,186 million from foreign donors not included under "Foreign Assistance" in "Rest of the World".

4.2 Flow of Funds from Financing Agents to Health Care Providers

Table 4.4 shows a summary of the flow of funds from financing agents to health care providers categorized by type. (Note that the sums of the columns of **Table 4.4** are equal to the sum of the rows in **Table 4.1**, since they are the same entities.) Most spending by financing agents was distributed to hospitals (15 percent), to pharmaceuticals and medical supplies (26 percent), and to the rest of the world (36 percent); the remainder was divided between ambulatory care and labs (14 percent) and general administration (including research, education, and training) (8 percent).

Table 4.4: Flows of Funds from Financing Agents to Providers, Yemen, 2003

Code		Public Sector			Private Sector			Rest of the World	Grand Totals		
	Health Providers	Central Govt	Local Govt	Public Firms	House-holds	Local NGOs	Private Employers	Foreign Assist-ance	YR (millions)	Percent	US$ (millions)
HP 1	**Hospitals**	**7,494**	**5,927**	**404**	**3,125**	**3**	**137**	**0**	**17,090**	**15%**	**$93.1**
HP 1.1.1	Public Hospitals	7,201	5,813						13,014	11%	
HP 1.1.2	Other Hospitals	293	114	404			137		948	1%	
HP 3	**Providers of Ambulatory Care**	**1,229**	**7,231**	**907**	**7,019**	**7**	**308**		**16,701**	**14%**	**$91.0**
HP 3.4	Outpatient Care Centers	1,189	7,009	838	6,304	7	285		15,631	13%	
HP 3.5	Medical and Diagnostic Labs	41	222	69	715	1	23		1,070	1%	
HP 4	**Retail Sale of Medical Goods**			**3,372**	**26,107**	**28**	**1,147**		**30,654**	**26%**	**$167.1**
HP 4.1	Pharmacists			3,069	23,761	26	1,044		27,899	24%	
HP 4.2	Devices and Supplies			303	2,346	2	103		2,755	2%	
HP 5	**Provision of Public Health Programs**								**NA**	**NA**	**NA**
HP 6	**General Administration**	**8,466**	**1,298**						**9,764**	**8%**	**$53.2**
HP 8	**Health-related Services**	**320**	**3**						**326**	**0%**	**$1.8**
HP 8.1	Research Institutions	62							62	0%	
HP 8.2	Education and Training Institutions	257	6						263	0%	
HP 9	**Rest of the World**	**1,108**	**0**	**0**	**31,253**	**0**	**1,400**	**8,975**	**42,736**	**36%**	**$232.9**
HP 9.1	A-Salam Hospital (Sa'ada)							1,835	1,835	2%	$10.0
HP 9.2	Saudi Hospital (Hajjah							1,573	1,573	1%	$8.6
HP 9.3	Treatment Overseas	1,108			31,253		1,400		33,761	29%	$184.0
	Not Otherwise Specified							5,567	5,567	5%	$30.3
	Grand Total (YR, millions)	**18,617**	**14,461**	**4,682**	**67,504**	**39**	**2,993**	**8,975**	**117,270**	**100%**	**$639.1**
	Percent	16%	12%	4%	58%	0%	3%	8%	100%		
	Grand Total (US$ millions)	$101.5	$78.8	$25.5	$367.9	$0.2	$16.3	$48.9	$639.1		

Source: See Annex A, Table B

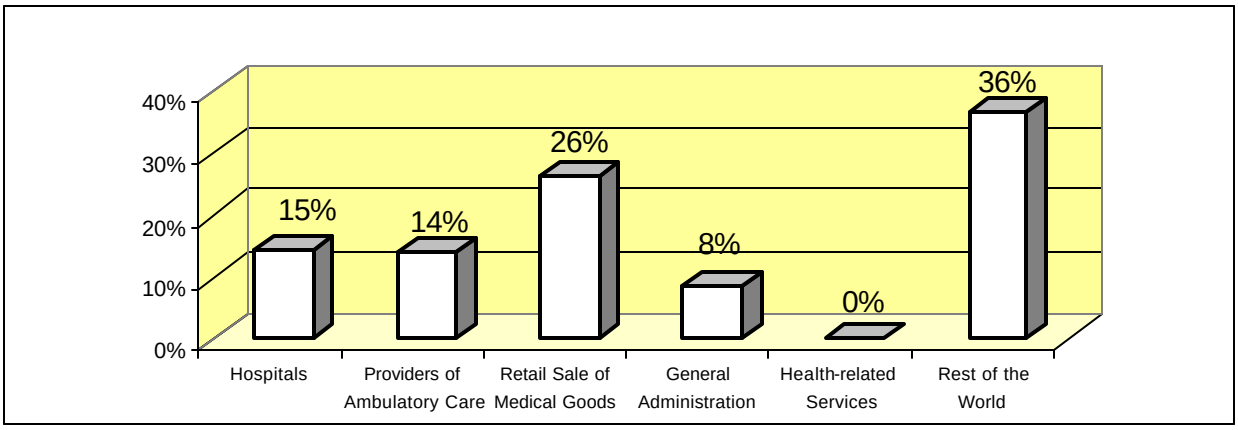
Note: There is YR 3,346 million included in the financing agents, as it was able to be identified going to specific agents; otherwise it is as specified or not.

Table 4.5 gives a more detailed breakdown of the distribution of spending to provider types. Most notable is the estimate of almost YR 34 billion being spent on medical treatment overseas, which amounts to 29 percent of total health expenditures and almost half of all household spending. (See Section 5.2.1 for a more detailed description of this spending and its estimation.)

Table 4.5: Flow of Funds from Financing Agents to Providers, Yemen, 2003

Code	Health Providers	Total (YR million)	Percent of Total	Total (US$ million)
HP 1	**Hospitals**	**17,090**	**15%**	**$93**
HP 1.1	Acute Care Hospitals	13,014	11%	$71
HP 1.1.1	Public Hospitals	13,014	11%	$71
HP 1.1.1.1	Al-Thawra Hospital	2,848	2%	$16
HP 1.1.1.2	Al-Kuwait Hospital	761	1%	$4
HP 1.1.1.3	Governorate Hospitals	2,960	3%	$16
HP 1.1.1.4	District Hospitals	3,932	3%	$21
HP 1.1.1.5	Ministry of Defense Hospitals	1,267	1%	$7
HP 1.1.1.6	Ministry of Interior Hospitals	1,245	1%	$7
HP 1.2	Mental health and substance abuse hospitals	64	0%	$0
HP 1.3	Specialty (not mental health/sub abuse)	338	0%	$2
HP 3	**Providers of Ambulatory Care**	**16,661**	**14%**	**$91**
HP 3.1	Offices of Physicians	6,408	5%	$35
Hp 3.2	Offices of Dentists	0	0%	$0
HP 3.3	Other Practitioners	449	0%	$2
HP 3.4	Outpatient care centers	8,734	7%	$48
HP 3.4.10	Outpatient care centers(Public)	8,189	7%	$45
HP 3.4.11	Outpatient care centers(Private)	14	0%	$0
HP 3.5	Medical & Diagnostic Laboratories	1,070	1%	$6
HP 4	**Retail Sale of Medical Goods**	**30,695**	**26%**	**$167**
HP 4.1	Pharmacists	27,936	24%	$152
HP 4.2	Retail Sale and other suppliers of optical glasses and other vision products	29	0%	$0
HP 4.3	Retail Sale and other suppliers of hearing aids	29	0%	$0
HP 4.9	Other retail sales	2,701	2%	$15
HP 6	**General Administration**	**9,764**	**8%**	**$53**
HP 6.1	Governorate Administration of health	9,764	8%	$53
HP 8	**Health-related Services**	**326**	**0%**	**$2**
HP 8.1	Research Institutions	62	0%	$0
HP 8.2	Education and Training Institutions	263	0%	$1
HP 9	**Rest of the World**	**42,735**	**36%**	**$233**
HP 9.1	A-Salam Hospital (Saada)	1,835	2%	$10
HP 9.2	Saudi Hosp. (Hajjah)	1,573	1%	$9
HP 9.3	Treatment overseas	33,761	29%	$184
Total		**117,270**	**100%**	**$639**
Percent of Total		100%		
183.45 US$ millions		$639		

Figure 4.2: Flow of Funds from Financing Agents to Providers, Yemen, 2003



4.3 Macroeconomic Context for Health Spending: International Comparison of Health Expenditures in Select Middle East/North African Countries

The flow of funds to Yemen's health sector is a relatively low share of overall economic activity and of total government spending. According to the 2003 NHA estimates, even though total health spending has grown substantially in recent years, it remains at a low level relative to GDP—at only 5.6 percent in that year (as shown in **Table 2.1 in Section 2.1.2**). This is a modest increase over the share spent on health according to the 1998 NHA estimates (4.9 percent).[13] In per capita terms, the amount spent on health in 2003 was YR 6,128, or US$ 33.40. This is also an increase over the 1998 NHA estimate of YR 2,523, US$ 18.57.[14] Virtually all of the increase is attributable to an increase in spending by households, with a large part of that increase resulting from a new (and relatively high) estimate of household spending outside of Yemen (a figure that was estimated in the 1998 NHA estimate to be much lower).

Relative to other countries in the region, health expenditures in Yemen are on the low end of the spectrum, as is shown in **Table 4.6**. Statistics for Yemen mentioned above are relatively low when compared with the regional averages for health spending by governments.

[13] NHA estimates for 1998 are not strictly comparable to those of 2003 because a number of components were not estimated in that first round.

[14] During this period, per capita GDP more than doubled from YR 51,583 to YR 110,149, or from US$ 380 to US$ 600 (see Table 2.1). However, because of consumer price inflation and a gradual devaluation of the currency, the nominal increase in the GDP, which averaged almost 20 percent yearly during this period, was equivalent to considerably less in real terms. After factoring in the population growth rate of 2.9 percent yearly, the growth in real GDP per capita per year was only 1 percent during this period.

Table 4.6: Health Financing Indicators, 1998 and 2002, Selected Middle East and North African Countries

Country	1998						2002*					
	Total Spending on Health		Public Spending on Health		Private Spending As % of Total Health	External Resources As % of Total Health	Total Spending on Health		Public Spending on Health		Private Spending As % of Total Health	External Resources As % of Total Health
	As a % of GDP	Per Cap In PPP$	As % of Total Govt	As % of Total Health			As a % of GDP	Per Cap In PPP$	As % of Total Govt	As % of Total Health		
Djibouti		$127		27%	44%	29%	6.3%	$78	10.1 %	33%	47%	20%
Egypt		$93		41%	56%	3%	4.9%	$192	6.0%	35%	63%	2%
Iran		$313		30%	70%	0%	6.0%	$432	9.0%	48%	52%	0%
Iraq							1.5%	$44	0.7%	16%	83%	1%
Jordan		$309		45%	47%	8%	9.3%	$418	12.5 %	41%	54%	5%
Lebanon		$581		18%	80%	2%	11.5 %	$697	9.1%	30%	70%	0%
Libya							3.3%	$222	5.0%	47%	53%	0%
Morocco		$136		32%	67%	1%	4.6%	$186	4.9%	31%	67%	2%
Somalia							2.6%	na	4.2%	35%	55%	9%
Sudan*							4.9%	$58	6.3%	18%	79%	3%
Syria							5.1%	$109	6.5%	46%	54%	0%
Tunisia		$263		35%	65%	0%	5.8%	$415	7.5%	49%	50%	1%
Yemen		$45		35%	57%	8%	5.0%	$58	3.5%	24%	73%	3%
Average		$233		31%	67%	2%						
Average w/o Lebanon		$184										

Sources:
1998: Nandakumar et al. (2004).
2002: WHO (2002).
* Sudan data is for 2001.
Note: "PPP" means "Purchasing Power Parity" expressed in dollars. It is a measure of the purchasing power expressed in dollars of the amount expressed in a country's own currency. It is intended to make the measure comparable across countries.

5. NHA Results for 2003: Detailed Findings

This section gives more detailed analyses in three areas: spending by the government, spending by private parties, and spending by donors. Analysis of health spending by the government relies heavily on the recently completed Public Expenditure Review, 1999-2003 (Fairbank 2006). However, NHA estimates include some items of government expenditure on health that were not included in the PER, for example, spending by other ministries (e.g., defense, interior [police], and education).

5.1 Health Spending by Government

Public financing of health care comprises two basic categories: (1) recurrent spending to fund operations, and (2) capital spending to fund investment in infrastructure. Virtually all of the government's recurrent funding for health comes from the MoF, and is spent by the various ministries and agencies through their budgets. Since decentralization was implemented in 2002, there has been some revenue raised and spent on health through local governments (governorate and district health offices), but it was not possible to estimate this spending for this report. Most of the capital spending in health is financed by foreign assistance. The following sections give more detail on the breakdown of this spending, which is summarized in **Table 5.1**. Note that approximately 28 percent of foreign assistance was accounted for by subsidies of the recurrent costs of two Saudi hospitals (YR 3.4 billion out of YR 12.3 billion).

Table 5.1: Public Financing for Health (including Foreign Aid), Yemen, 2003 (in YR millions)

Source/Financing Agent	Recurrent Spending		Capital Spending		(of which) Foreign Assistance	TOTAL SPENDING	
	Total	%	Total	%		Total	%
Ministry of Health and Population	5,071	15%	2,186	19%	2,186	9,442	21%
Social Fund for Development			810	7%	810	810	2%
Public Works Project			350	3%	350	350	1%
Supreme Drug Authority	142	0%	59	1%		201	0%
Ministry of Defense*	1,267	4%				1,267	3%
Ministry of Interior (police)*	1,245	4%				1,245	3%
Al-Thawra Hospital	2,382	7%	466	4%		2,848	6%
Al-Kuwait Hospital	519	2%	242	2%		761	2%
Other ministries/allotments*	1,164	4%				1,164	3%
Governorate & District Health Offices	12,914	39%	1,546	14%		14,461	33%
Parastatal Companies*	4,689	14%				4,689	11%
Saudi Hospitals (Hajjah and Sa'ada)*	3,408	10%			3,408	3,408	8%
Financing Agent Not Specified*			5,567	50%	5,567	5,567	13%
TOTALS	32,801	100%	11,227	100%	12,321	44,028	100%
Capital as % of Total			25%				

* Excluded from calculations in the PER, 1999-2003 (Fairbank 2006). "Other ministries/allotments" includes payments for treatment overseas.
**Not all foreign assistance is capital spending; note that assistance to Saudi Hospitals is for operating costs.

5.1.1 Recurrent Spending

Recurrent government spending on health amounted to YR 32.8 billion in 2003, with almost 40 percent of that being spent by governorate and district health offices. The MoPHP accounted for YR 5.1 billion (or 15 percent of the recurrent total). It is notable that recurrent spending on hospitals and clinics that are operated by other ministries (including two tertiary hospitals, Al-Thawra and Al-Kuwait) amount (at a combined total of YR 6.7 billion, or 20 percent) to more than the total recurrent budget of the MoPHP. This is partly a reflection of the fact that decentralization has led to a shift in budgeted spending[15] toward governorate and district health offices, and away from the MoPHP (i.e., before 2002, the MoPHP budget was substantially higher than it was in 2003).

5.1.2 Capital Spending

There are five major agencies that have funds budgeted for government health investment spending:

- The central MoPHP budget;
- Foreign assistance;
- Governorate health budgets;
- The Social Fund for Development (under the Prime Minister's Office); and
- The Public Works Project[16] (under the Ministry of Planning and Development).

Foreign assistance finances most of the investment budgets and channels its funds through one or more of the above agencies (it also spends some money directly). The main source of financing for the remainder of capital spending is the MoF, which directly funds the central MoPHP budget, the governorate and district capital budgets, as well as Al-Kuwait and Al-Thawra Hospitals in Sana'a and the Supreme Drug Authority.

Total capital spending by government for health infrastructure amounted to YR 11.2 billion in 2003, or one-fourth of the total public spending on health (including foreign assistance). Almost 80 percent of the total amount spent on health investments—a total of YR 8.9 billion—however, was financed by foreign assistance through the various agencies listed above.

5.2 Health Spending by Private Parties

There are four general categories of private entities that spend money as financing agents for health and medical care in Yemen:

- Households;
- Private employers;

[15] A devolution of authority to decide how to spend funds provided by the MoF.
[16] The Public Works Project began operations in 2000.

- NGOs (with Yemeni sources of funding); and
- Private insurance companies.

Households are by far the largest source of financing for health care in Yemen, responsible for roughly two-thirds of total health care expenditures. Private employers and Yemeni NGOs account for a small but growing portion of private spending (about 3 percent). Private insurance companies have only recently begun to participate to a significant degree, by adding health as a line of business to complement other lines of business in both life and non-life insurance products. Because estimates are not yet available for spending through private health insurance companies, this section provides descriptions of the NHA estimates for the first three private entities.[17]

5.2.1 Household Spending on Health

Estimates of household spending in 2003 on health cannot be made with much precision because of the absence of any household survey of spending since the one performed in 1998 that was used as the basis for the 1998 NHA estimates. The estimates for 2003 were made by extrapolating from the 1998 household survey data (as reported in the NHA report of 2000) and making one large adjustment for newly available data documenting a larger amount spent by households overseas.

The 2003 estimate of household spending was performed by expanding the per capita rate of 1998 OOP spending by households (and its distribution among provider types and treatment settings) according to the rate of economic growth as indicated by the rate of growth in the GDP in the five years since 1998 (109 percent, or almost 16 percent yearly). The new per capita estimate was then multiplied by the 2003 estimate of the population (19,135,581) that was generated by the 2004 Census. (The per capita figure for 1998 was also adjusted downward from the 1998 NHA estimate to account for the downward adjustment in the estimated population for 1998 that resulted from the 2004 Census results.[18])

The level and distribution of household spending was then adjusted for two factors. First, it was assumed that prices of health goods and services grew at the rate of the health price index (40 percent over the period 1998 to 2003). Second, a new estimate of health spending for treatment overseas was made. This new estimate was based on a 2003 study of noncitizens in Jordanian hospitals.[19] This study showed that there was a much higher level of spending by Yemenis in Jordan than previously thought (Yemenis comprised the largest group of non-Jordanians to be treated in Jordan in 2003).[20] On the basis of that study, it was estimated that overseas spending by and/or for Yemenis amounted to YR 33.8 billion, or US$ 184 million, in 2003. This figure is more than ten times the estimated figure for 1998 (based on the household survey of that year). Of that total, an estimated YR 31.3 billion was

[17] There is likely insufficient spending through private insurance companies to warrant inclusion in this NHA estimate. Completion of the 2005 household survey by the Central Statistical Organization, however, should help to clarify the magnitude and trends of spending by these companies.
[18] The 1998 NHA assumed a population for that year of 17.071 million, and OOP household spending of YR 1,565. The new estimate for 1998, based on the 2004 Census results, is 16.367 million, and OOP household spending of YR 1,467. The extrapolation to 2003 is based on the new (adjusted) data for 1998.
[19] From the Office of His Excellency, Adviser to the Ministry of Health, Department of Medical Treatment Tourism, Ministry of Health Jordan, "The Number of Patients Coming to Jordan, 2003", Amman, MOH. The number of inpatients was 33,960, outpatients 112,300, and a total of 146,260. The total annual revenue from patients coming from abroad was $571 million. An estimated 28 percent of the patients were Yemeni
[20] This estimate assumes that all Yemenis who identify themselves as such are visitors to Jordan and are not permanent residents while remaining Yemeni citizens. It is not known whether this was true.

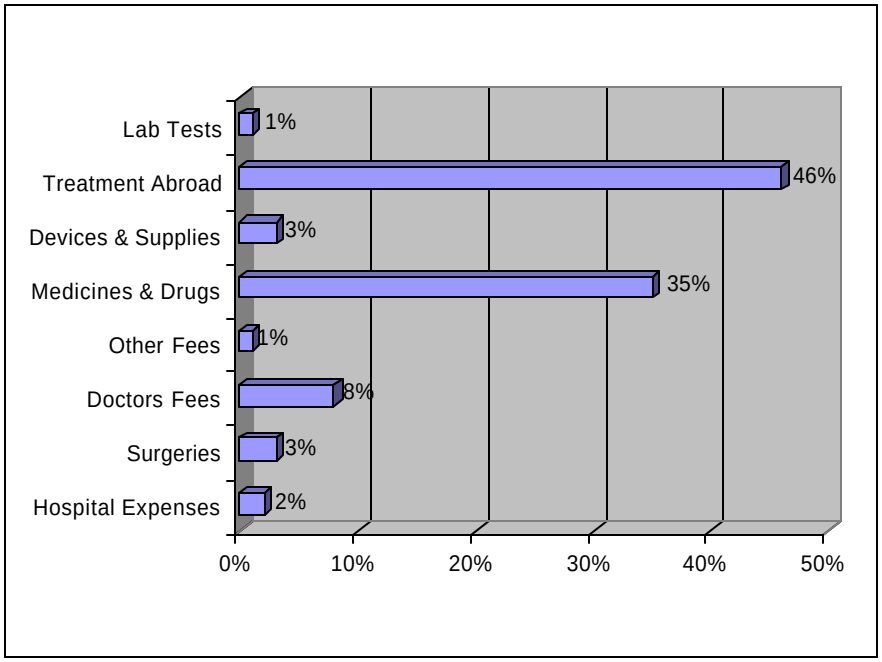
paid for OOP. That YR 31.3 billion (or $ 170 million) also comprises almost one-half total household OOP spending in 2003. In addition to the amounts spent OOP by households, the government also pays for overseas treatment for selected individuals, and private employers are known to reimburse employees (primarily high-level managers) for treatment received after traveling overseas to Egypt and Saudi Arabia, as well as to Jordan. In addition to the YR 31.3 billion in OOP spending by households, the government was estimated to reimburse for YR 1.1 billion and private employers for YR 1.4 billion in 2003. Total overseas treatment spending was thus estimated at YR 33.8 billion in that year.

Table 5.2 (and Figure 5.1) shows the levels and distribution of spending by households in 2003.

Table 5.2: Distribution of Household Spending, Yemen, 2003

Type of Expenditure	Yemeni Rials (millions)	US$ (millions)	Percent
Hospital Expenses	1,357	$7	2%
Surgeries	1,768	$10	3%
Doctors Fees	5,450	$30	8%
Other Fees	854	$5	1%
Medicines & drugs	23,761	$130	35%
Devices & supplies	2,346	$13	3%
Treatment abroad	31,253	$170	46%
Lab tests	715	$4	1%
TOTAL	67,504	$368	100%
Per capita, YR	3,423		
Per capital, US$		$19	
Population, 2003	19,721,643 (from 2004 Census)		

Figure 5.1: Distribution of Household Spending



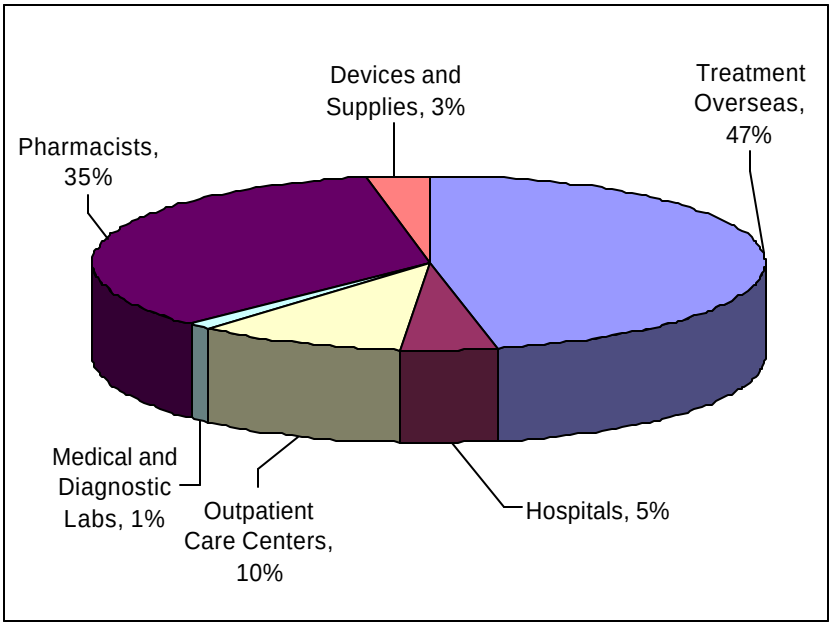
5.2.2 Spending by Private Employers on Health

Private employers spent almost YR 3 billion on their employees' health care during 2003. Almost half of that amount (47 percent) was spent on treatment overseas, while an additional 35 percent was expended on prescription drugs. Only 10 percent was spent on ambulatory care and 5 percent was spent on hospital care by private employers. Table 5.3 (and Figure 5.2) shows a comparison of private employer spending with public firms, households, and local NGOs, giving the levels and distribution of spending by those non-government financing agents on providers in 2003.

Table 5.3: Flow of Funds from Employers, Households, and NGOs to Providers, Yemen, 2003

Code	Health Providers	Public Firms		Households		Local NGOs		Private Employers	
		YR millions	%	YR millions	%	YR millions	%	YR millions	%
1	**Hospitals**	**404**	**9%**	**3,125**	**5%**	**3**	**9%**	**137**	**5%**
3	**Providers of Ambulatory Care**	**907**	**19%**	**7,019**	**10%**	**7**	**19%**	**308**	**10%**
3.4	Outpatient Care Centers	838	18%	6,304	9%	7	17%	285	10%
3.5	Medical and Diagnostic Labs	69	1%	715	1%	1	2%	23	1%
4	**Retail Sale of Medical Goods**	**3,372**	**72%**	**26,107**	**39%**	**28**	**72%**	**1,147**	**38%**
4.1	Pharmacists	3,069	66%	23,761	35%	26	66%	1,044	35%
4.2	Devices and Supplies	303	6%	2,346	3%	2	6%	103	3%
9	**Treatment Overseas**	**0**	**0%**	**31,253**	**46%**	**0**	**0%**	**1,400**	**47%**
Grand Total (YR millions)		**4,682**	**100%**	**67,504**	**100%**	**39**	**100%**	**2,993**	**100%**
Grand Total (US$ millions)		**$25.51**		**$367.87**		**$0.21**		**$16.31**	

Figure 5.2: Summary of Flow of Funds from Employers, Households, and NGOs to Providers, Yemen, 2003



5.3 Health Spending by Donors

The level of spending in the health sector by multilateral and bilateral donor agencies was estimated on the basis of a survey of 2003 assistance levels that was undertaken by the NHA Team during 2005. While the level of financial support provided by multilateral and bilateral donors was estimated, it was not possible to estimate separately the spending by international NGOs (international NGOs were not surveyed); local NGOs were estimated to have expended YR 39 million, or roughly US$ 200,000. Foreign aid in the amount of YR 2.2 billion (almost US$ 12 million) flowed through the MoPHP, while YR 810 million (about US $4.4 million) was donated through the Social Fund for Development and YR 350 million (about US$ 1.9 million) was donated through the Public Works Project.

Foreign assistance that did not constitute financial flows through an identified financing agent or that went directly to providers amounted to about YR 9 billion (or about US$ 49 million). Of this amount, donations were made by Saudi Arabia directly towards the operating costs of A-Salam Hospital in Sa'ada (YR 1.8 billion, or about US$ 10 million) and of the Saudi Hospital in Hajjah (YR 1.6 billion, or about US$ 9 million). The remainder of the YR 9 billion (YR 5.6 billion, or about US$30 million) was identified by source, but was not able to be identified by financing agent or by provider services so financed.

6. Findings

The following are findings of the Yemen NHA team based on these 2003 estimates:

1. While there appears to be considerable accuracy in the government spending (as reported by the yearly MoF Expenditure Reports), these data are not organized to facilitate estimates by facility, by program, or by function. Rather, they are reported by traditional line item categories such as wages and salaries, goods and services, repair and maintenance, etc. Moreover, there appears to be considerable lack of transparency in the accounting and information systems providing data to the MoF, especially now that decentralization has given decision-making authority to lower levels of government.

2. The 2003 NHA estimates reconfirmed a conclusion of the 1998 NHA estimates that the health care system is highly fragmented and complex, with funds flowing through from multiple sources through multiple channels with little or no coordination from the center. The MoPHP does not exercise adequate control over the investment budget. Many investment projects are initiated on a promise from the MoPHP that, once completed and equipped, they will be staffed; then when they are completed and equipped, there is no staff, or insufficient staff and insufficient operating budget for the facilities built and equipped. This phenomenon can be expected to get worse under decentralization, which is causing lower levels of government to take decisions to construct facilities without the knowledge or consent of the central authorities.

3. The data produced by the 2003 NHA estimates are similar to those produced by the 1998 NHA estimates, in that both reveal an excessive emphasis on capital investment projects, and a relative lack of attention to the needs for operating budgets, and the ongoing needs for repair and maintenance budgets. During the interim (between 1998 and 2003), there was a brief relative de-emphasis, only to be followed by a resurgence of capital spending in 2003.

7. Recommendations

On the basis of the 2003 NHA estimates and of the findings above, the NHA team makes the following recommendations:

1. The next nationwide household survey needs to include more detailed questions addressing some of the gaps in household spending that are mentioned above. The sampling used for the next household survey should also be weighted to provide larger samples for smaller regions in order that there may be a basis for starting regional health accounts.

2. The MoPHP and its partners should insist on standardized accounting systems that would allow calculation of expenditures by all levels of government according to various program goals and functions. To achieve this, the MoF needs to approve the use of program-based budgeting that is cross-walked with the conventional line-item budgeting used by all levels of the MoF.

3. The need for program-based and cost-based budgeting is apparent from the local level on up to the national level, and is especially evident during recent efforts to develop the Third Five-Year Plan. The ability to track investments made during the past five years is limited by the rigidity of the current line-item accounting system and by the associated lack of transparency about exactly where the budget was spent and what it was spent on—in terms of programs and projects, and in terms of the goals of the last five-year plan.

4. The MoPHP should clarify its national policy on cost recovery, on pricing of services, and on who has authority to decide how this revenue is to be spent. At present, there is conflict between the law on decentralization and the MoPHP's bylaws on cost recovery, with the result that authority over revenues collected from health facilities is variable: in some places, facilities retain the funds and allocate them to facility-level purposes (the MoPHP bylaw); in other places, the facilities are required to remit the funds to the local authority for allocation as that authority may see fit (the law on decentralization).

5. With specific regard to planning for future NHA estimates, it is recommended that:

    a. Methods be developed to make more accurate estimates of expenditures by level of care: primary, secondary, and tertiary;

    b. The expenditure estimates be linked explicitly to outputs, e.g., measures of utilization, such as visits, admissions, bed-days, prescriptions per visit, etc.;

    c. The needs of planning, implementing, monitoring, and evaluating development initiatives, including those sponsored predominantly by donors, should be explicitly linked to the planning for NHA estimation;

    d. The expenditures from all sources on private providers be directly estimated on the basis of a survey of private providers;

e. The expenditures that now flow through private health insurance companies be directly estimated on the basis of a survey of insurers;

f. A special study be conducted to verify the apparently high level of expenditures on treatment overseas, to be validated by sufficient sampling of urban populations so that a reasonable statistical inference might be drawn;

g. Data collection and training in the development of regional health accounts be initiated at the level of the governorates where there are sufficient technical personnel available; and

h. The NHA give special consideration to the need to provide accurate and complete data on the financial risks facing individuals when they are sick (a profile of OOP spending by households on all types of providers, in Yemen and abroad) with the specific goal of assessing the level of private health insurance that exists as compared to the need that such risks reveal.

Annex A. Flows of Funds Tables

Table A: Flow of Funds from Original Sources to Financing Agents, Yemen, 2003

Code	Financing Agents	Financing Sources								Total	Percent	US$ (milllions)
		FS.1 Public Sector			FS.2 Nonpublic Sector			FS.3 Rest of the World				
		FS.1.1		FS.1.3	FS.2.1	FS.2.2	FS.2.3	FS.3.1	FS.3.2			
		Government										
		FS.1.1.1	FS.1.1.2									
		Central Government	Governorate & District Health Offices	Parastatal companies (public firms)	Private employers	Households	Local NGOs (internal sources)	Internatll NGOs (external sources)	Foreign assistance			
HF.1	**Public Sector**	**29,732**	**0**	**4,682**	**0**	**0**	**0**	**0**	**3,346**	**37,759**	**32%**	**$206**
HF.1.1	General Government	28,624	0	0	0	0	0	0	3,346	31,970	27%	$174
HF.1.1.1	Central Government	14,163	0	0	0	0	0	0	3,346	17,509	15%	$95
HF.1.1.1.1	Ministry of Pop. & Public Health (MoPHP)	7,785							2,186	9,971	9%	$54
HF.1.1.1.2	Al-Kuwait	761								761	1%	$4
HF.1.1.1.3	Al-Thawra	2,848								2,848	2%	$16
HF.1.1.1.4	Supreme Drug Authority	201								201	0%	$1
HF.1.1.1.5	Social Development Fund								810	810	1%	$4
HF.1.1.1.6	Public Works Project								350	350	0%	$2
HF.1.1.1.7	Military	1,267								1,267	1%	$7
HF.1.1.1.8	Police	1,245								1,245	1%	$7
HF.1.1.1.9	Other Ministries & Central Allotments	56								56	0%	$0
HF.1.1.1.10	Treatment Overseas Central Allotments	1,108								1,108	1%	$6
HF.1.1.2	Governorate & District Health Offices	14,461								14,461	12%	$79
HF.1.3	Parastatal companies (public firms)			4,682						4,682	4%	$26

HF.2	**Nonpublic Sector**	**0**	**0**	**0**	**2,993**	**67,504**	**39**	**0**	**0**	**70,536**	**60%**	**$384**
HF.2.2	Private insurance companies									0	0%	$0
HF.2.3	Households					67,504				67,504	58%	$368
HF.2.4	Local NGOs (internal sources)						39			39	0%	$0
HF.2.5	Private employers				2,993					2,993	3%	$16
HF.3	**Rest of the World**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8,974**	**8,974**	**8%**	**$49**
HF.3.1	International NGOs (external sources)									0	0%	$0
HF.3.2	Foreign assistance								8,974	8,974	8%	$49
Totals		**29,732**	**0**	**4,682**	**2,993**	**67,504**	**39**	**0**	**12,320**	**117,270**	**100%**	**$639**
Percent		25%	0%	4%	3%	58%	0%	0%	11%	100%		
183.45 US$ (millions)		$162	$0	$26	$16	$368	$0	$0	$67	$639		

Table B: Flows of Funds from Financing Agents to Providers, Yemen, 2003

Health Providers		HF 1 Public Sector												HF 2 Private Sector				HF 3 Rest of the World				Total	Percent of Total	US$ million
		HF.1.1 General Government																	HF.3.2 Foreign assistance					
		HF.1.1.1 Central Government																						
		HF.1.1.1Ministry of Pop. & Public Health (MoPHP)	HF.1.1.1.2 Al-Kuwait Hospital	HF.1.1.1.3 Al-Thawra Hospital	6XSUHPH&RXQFLO for Planning & Economy	HF.1.1.1.5 Social Development Fund	HF.1.1.1.6 Public Works Project	HF.1.1.1.7 Military	HF.1.1.1.8 Police	HF.1.1.1.9 Other Ministries & Central Allotments	HF.1.1.1.10 Treatment overseas	HF.1.1.2 Governorate & District Health Offices	HF.1.3 Parastatal companies (public firms)	HF.2.2 Private insurance companies	HF.2.3 Households	HF.2.4 Local NGOs (internal sources)	HF.2.5 Private employers	HF.3.1 International NGOs (external sources)	HF.3.2.1 A-Salam Hospital (Saada)	HF.3.2.2 Saudi Hosp. (Hajjah)	HF.3.2.3 Remainder			
HP 1	Hospitals	1,232	761	2,848	0	119	17	1,267	1,245	5		5,927	404	0	3,125	3	137	0	0	0	0	17,090	15%	$93
HP 1.1	Acute Care Hospitals	1,008	761	2,848	0	56	17	1,267	1,245	0		5,813	0	0	0	0	0	0	0	0	0	13,014	11%	$71
HP 1.1.1	Public Hospitals	1,008	761	2,848	0	56	17	1,267	1,245	0		5,813	0	0	0	0	0	0	0	0	0	13,014	11%	$71
HP 1.1.1.1	Al-Thawra Hospital			2,848																		2,848	2%	$16
HP 1.1.1.2	Al-Kuwait Hospital		761																			761	1%	$4
HP 1.1.1.3	Governorate Hospitals	362				37						2,561										2,960	3%	$16
HP 1.1.1.4	District Hospitals	645				19	17					3,251										3,932	3%	$21
HP 1.1.1.5	Ministry of Defense Hospitals							1,267														1,267	1%	$7
HP 1.1.1.6	Ministry of Interior Hospitals								1,245													1,245	1%	$7
HP 1.2	Mental health and substance abuse hospitals					64																64	0%	$0
HP 1.3	Specialty (not mental health/sub abuse)	224										114										338	0%	$2
HP 3	Providers of Ambulatory Care	435	0	0	0	410	333	0	0	11	0	7,231	907	0	7,019	8	308	0	0	0	0	16,661	14%	$91
HP 3.1	Offices of Physicians									9			704		5,450	6	240					6,408	5%	$35
Hp 3.2	Offices of Dentists																					0	0%	$0

HP 3.3	Other Practitioners									1			92		323	1	31					449	0%	$2
HP 3.4	Outpatient care centers	395	0	0	0	410	333	0	0	1		7,009	42	0	531	0	14	0	0	0	0	8,734	7%	$48
HP 3.4.10	Outpatient care centers(Public)	395				410	333			1		7,009	42			0						8,189	7%	$45
HP 3.4.11	Outpatient care centers(Private)																14					14	0%	$0
HP 3.5	Medical & Diagnostic Laboratories	40								1		222	69		715	1	23					1,070	1%	$6
HP 4	Retail Sale of Medical Goods	0	0	0	0	0	0	0	0	41			3,372	0	26,107	28	1,147	0	0	0	0	30,695	26%	$167
HP 4.1	Pharmacists									37			3,069		23,761	26	1,044					27,936	24%	$152
HP 4.2	Retail Sale and other suppliers of optical glasses and other vision products									0			21			0	7					29	0%	$0
HP 4.3	Retail Sale and other suppliers of hearing aids									0			21			0	7					29	0%	$0
HP 4.9	Other retail sales									3			261		2,346	2	89					2,701	2%	$15
HP 6	General Administration	8,266	0	0	201	0	0	0	0	0	0	1,298	0	0	0	0	0	0	0	0	0	9,764	8%	$53
HP 6.1	Governorate Administration of health	8,266			201							1,298										9,764	8%	$53
HP 8	Health-related Services	39	0	0	0	281	0	0	0	0		6	0	0	0	0	0	0	0	0	0	326	0%	$2
HP 8.1	Research Institutions	6				56																62	0%	$0
HP 8.2	Education and Training Institutions	33				225						6										263	0%	$1
HP 9	Rest of the World	0	0	0	0	0	0	0	0	0	1,108	0	0	0	31,253	0	1,400	0	1,835	1,573	5,567	42,735	36%	$233
HP 9.1	A-Salam Hospital (Saada)																		1,835			1,835	2%	$10

HP 9.2	Saudi Hosp. (Hajjah)																		1,573		1,573	1%	$9
HP 9.3	Treatment overseas										1,108				31,253		1,400					33,761	29%	$184
	Not otherwise specified																			5,567				
Total		9,971	761	2,848	201	810	350	1,267	1,245	56	1,108	14,461	4,682	0	67,504	39	2,993	0	1,835	1,573	5,567	117,270	100%	$639
	Percent of Total	9%	1%	2%	0%	1%	0%	1%	1%	0%	1%	12%	4%	0%	58%	0%	3%	0%	2%	1%	5%	100%		
183.45	US$ millions	$54	$4	$16	$1	$4	$2	$7	$7	$0	$6	$79	$26	$0	$368	$0	$16	$0	$10	$9	$30	$639		

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