

**KINGDOM OF CAMBODIA**  
**NATION – RELIGION - KING**

រាជរដ្ឋាភិបាល



**Ministry of Health**

**Measuring Health Expenditure in Cambodia:**  
**National Health Accounts Report 2012**

Produced by:

*Bureau of Health Economics and Financing of the Department of Planning  
and Health Information with support from the World Health Organization  
and the Clinton Health Access Initiative*

October 2014



## Foreword

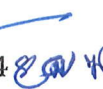
Information on health expenditure is an essential input to informing strategic policy-making, planning and resource allocation. It is also critical for monitoring of health systems performance and progress on policy goals such as universal health coverage (UHC), equity, efficiency and sustainability. This is the first ever National Health Accounts (NHA) analysis report. The report presents data on health expenditure in 2012, including information on expenditure by source, provider, activity, input, disease and age.

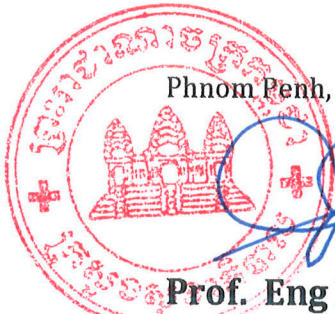
We are grateful to the Department of Planning and Health Information (DPHI) for its leadership and guidance in overseeing the production of the 2012 NHA, which was led by the Bureau of Health Economics and Financing, DPHI. The 2012 NHA builds on the Annual Health Financing Reports that have been produced by MOH since 2007.

We are also grateful for the technical and financial support of the World Health Organization and the Clinton Health Access Initiative and the close collaboration during the planning and implementation of this project.

The production of the 2012 NHA would not have been possible without the support of numerous government institutions and development partners who generously shared their data on health expenditure. The National Institute of Statistics, Ministry of Planning, provided access to data from the 2012 Cambodia Socioeconomic Survey. We are also grateful to a number of individuals who provided technical inputs and other contributions to the 2012 NHA.

The Ministry of Health is planning to continue the production of NHA on a regular basis and hope that this process will provide useful information on trends in health expenditure to inform policy, planning, resource allocation and monitoring of the contributions of the health financing system to achieving UHC in Cambodia.

Phnom Penh, 1 October 2014 



**Prof. Eng Huot**  
**Secretary of State for Health**

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The principal writers of the report were Ros Chhun Eang, MOH, and Henrik Axelson, WHO, with contributions from NHA team members.

The production of NHA 2012 would not have been possible without the tremendous contributions from government institutions and development partners. Their provision of data and information and support is gratefully acknowledged. Contributing government institutions include Ministry of Economy and Finance; National Social Security Fund of the Ministry of Labour and Vocational Training; National Institute of Statistics of the Ministry of Planning; and Provincial Health Departments. Fifty-eight NGOs and 30 donors contributed data through the NHA questionnaire. The following NGOs and donors contributed to piloting of questionnaires, review of supporting documentation, and commented on preliminary findings: Australia Department of Foreign Affairs and Trade (DFAT), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Sihanouk Hospital Center of Hope, University Research Co. (URC), Joint United Nations Programme on HIV/AIDS (UNAIDS) and the United States Agency for International Development (USAID). UNAIDS shared its experience of conducting the National AIDS Spending Assessment (NASA), which is gratefully acknowledged.

## Executive Summary

Policy-makers and program managers in Cambodia need timely and accurate information on health expenditure to inform policy, planning and budgeting in the health sector. While some data on health expenditure exists, more comprehensive and detailed data are required for strategic policy-making. Robust data on health expenditure can help inform the formulation of health sector policies and strategies such as the National Health Financing Policy and development of the 3<sup>rd</sup> Health Sector Plan (HSP3) 2016-2020. To generate more systematic, comprehensive and detailed data on health expenditure than currently exist, in 2013 the Ministry of Health embarked on producing its first ever National Health Accounts (NHA).

The overall goal of the 2012 NHA was to generate data on health expenditure to inform future strategic policy-making, planning and resource allocation in Cambodia. There were several specific objectives:

- Collect, analyze and present comprehensive data on health expenditure in Cambodia in 2012;
- Generate data on expenditure by source, provider, activity, inputs, disease and age
- Build capacity in Cambodia to routinely produce data on health expenditure;
- Support monitoring and evaluation of policy goals;
- Inform resource allocation by comparing health expenditure with the burden of disease.

The 2012 NHA was produced by the Department of Planning and Health Information, Ministry of Health, Royal Government of Cambodia, with support from the World Health Organization and the Clinton Health Access Initiative. Preparations were carried out in October-December 2013. Data collection took place in January-April 2014. Data analysis was carried out in May-June 2014. A consultation workshop to discuss preliminary findings was held in June 2014 with government institutions and development partners. The report was finalized in September 2014.

The 2012 NHA was developed using an internationally recognized and standardized methodology developed by WHO, World Bank and USAID to facilitate comparisons across countries and over time. Expenditure classifications are based on the System of Health Accounts. Data sources included government health expenditure and utilization reports, donor and NGO questionnaires, and the Cambodia Socioeconomic Survey. Data were analyzed using the Health Accounts Production Tool.

### *Key findings*

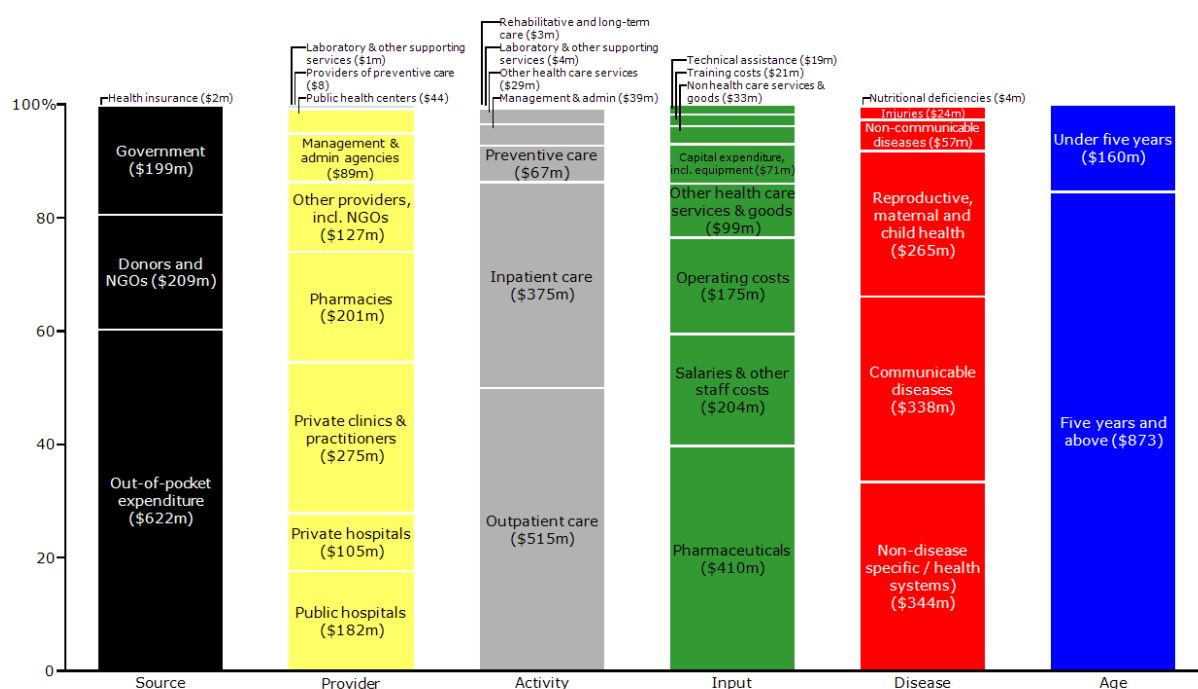
Total health expenditure in 2012 was US\$ 1,033 million, which is equivalent to US\$ 69.50 per capita and 7.2% of Gross Domestic Product. The NHA estimate of total health expenditure is significantly higher than previous estimates, which is likely due to different data sources and methods.

The figure below provides an overview of results by the main NHA categories. Highlights from each category are provided below:

- Source: Total health expenditure was distributed as follows: out-of-pocket (OOP) expenditure US\$ 622 million (60.3%), donors US\$ 209 million (20.2%), government

US\$ 199 million (19.3%) and health insurance US\$ 2 million (0.2%). These shares have remained relatively consistent over the last five years. Government expenditure on health as a share of total government expenditure was 6.5%.

- **Provider:** Expenditure at public providers accounted for US\$ 420 million (40.6%) and expenditure at private providers accounted for US\$ 613 million (59.4%). Spending in public and private primary care facilities (30.9%) and public and private hospitals (27.8%) accounted for about the same share.
- **Activity:** Spending on outpatient care accounted for almost half (49.9%) of total health expenditure. Inpatient care accounted for 36.4%. Only 6.4% was spent on preventive care.
- **Input:** Pharmaceuticals accounted for the largest share of total health expenditure by input. Spending on pharmaceuticals (39.7%) was double that of spending on salaries, incentives and other staff costs (19.8%).
- **Disease:** Communicable diseases and non-disease specific expenditure, including health systems strengthening, each accounted for about one-third of spending by disease, followed by about one-quarter for reproductive, maternal and child health. Only US\$ 57 million (5.5%) was spent on non-communicable diseases and less than US\$ 4 million on nutrition.
- **Age:** Spending on health care for children under five years old amounted to about US\$ 160 million (15.5%).



## Discussion

The NHA estimates that **total spending on health care** in Cambodia was US\$ 1.033 billion in 2012. This is significantly higher than previous estimates. The difference in total health expenditure is driven by larger estimates for OOP and donor/NGO expenditure and is likely due to more comprehensive and detailed data sources and methods applied to producing the NHA.

The health sector is to a large degree financed by OOP (about 60%), which is a cause of concern. First, OOP presents a major barrier to health care access and is a frequent cause of indebtedness and impoverishment. Second, OOP does not facilitate risk-sharing among the population. Third, OOP is not a very efficient way of financing health care. Relying on OOP may delay care-seeking, which makes it more costly to treat the patient when (and if) they do present to the health facility. These findings suggest that the social health protection system in Cambodia needs expansion and strengthening, in particular for the poor and other vulnerable groups. The government and donors finance roughly the same share of the health sector (about 20% each). To promote sustainability, this suggests that the government may need to increase its spending on health as its fiscal space continues to expand due to strong and sustained economic growth and increased tax collection.

Expenditure at private clinics and practitioners accounted for the largest share (27%) of all providers and also the largest share of expenditure on primary care (86%). The private sector is in practice unregulated (a regulatory framework exists, but is not enforced due to limited resources) and provide services of quality that is often poor. Different policy options could be considered to address this situation. First, efforts can be made to shift utilization from private to public facilities by making public services more attractive and of better quality. Second, the purchasing power of social health protection schemes can eventually be leveraged to improve quality of care in the private sector. Third, allocating additional resources to regulatory agencies to build capacity and enable enforcement of the regulatory framework may contribute to improving quality of care at private clinics and practitioners and improve prescription practices.

Pharmaceuticals account for almost half of OOP and government expenditure. This is more than double what the government spent on staff costs. Shifting funds from pharmaceuticals to other key inputs, such as staff costs, would contribute to improved quality of care by strengthening human resources. Different policy responses could be considered to try to reduce spending on pharmaceuticals. First, there are opportunities to make procurement and supply systems more efficient. Second, investment in pre-service and in-service training to improve prescription practices could reduce unnecessary prescriptions. Third, purchases of drugs without a prescription in private pharmacies and drugstores could over time be reduced by strengthening the legal framework and by building regulatory capacity.

The analysis of health expenditure by disease should be interpreted with some caution due to the sensitivity of the analysis to the assumptions related to how utilization and cost data were used to generate distribution factors (shares of total) by disease (see also below). Nevertheless, with this caveat in mind, the NHA analysis found that there is scope for enhanced alignment of resource allocation with the burden of disease. Spending on non-communicable diseases and nutritional deficiencies accounted for only 5.5% and 0.4%, respectively. A small share (6.4%) of total health expenditure is spent on prevention. This presents an opportunity to shift investment towards preventive care to improve health outcomes efficiency of resource use.

There are some limitations of the 2012 NHA analysis. It was beyond the scope of this first NHA exercise to collect expenditure data to analyze government funding flows below the provincial level. Limited information on health expenditure by private insurance companies and employers were obtained. It was beyond the scope of the 2012 NHA to collect detailed data from private health providers. We were only able to obtain the total amount spent by the government



on pharmaceuticals. The data on health expenditure by disease are sensitive to assumptions made when using utilization and cost data to generate distribution factors (shares of total) by disease. Finally, since the 2012 NHA is the first NHA conducted in Cambodia and only provides one data point, it is not possible to assess expenditure over time using data collected and analyzed using the same methodology.

### **Conclusions**

The 2012 NHA found that more than US\$ 1 billion was spent on health care in Cambodia in 2012, equal to almost US\$ 70 per capita. This suggests that considerable financial resources are spent in the health sector by households, the government and development partners. However, the findings of the 2012 NHA also suggests that these resources could be used more equitably (for example, OOP accounts for about 60% of THE), more efficiently (for example, about 40% is spent on pharmaceuticals) and better prioritized (for example, it appears that spending is not aligned to the burden of disease). The 2012 NHA has also highlighted areas in need of additional and more disaggregated data collection and analysis to further inform policy-making in the health sector.

MOH is planning to collect NHA data on an annual basis and build capacity and a system for routine collection of health expenditure in Cambodia. Over time, efforts will be made to institutionalize production of NHA and to make it part of routine data collection and analysis to generate evidence for policy. The contribution of government institutions and development partners will continue to be critical to this process.

#### **Cambodia 2012 National Health Accounts – 10 Key Findings**

1. Cambodia spent around US\$1 billion on health care in 2012.
2. Total health expenditure as a share of Gross Domestic Product (GDP) was higher than in low- and middle-income countries (LMIC) in the region.
3. Government health expenditure as a share of GDP was lower than in most LMIC in the region.
4. Out-of-pocket expenditure accounted for 60%; government and donors funded 20% each.
5. 60% of total spending occurred at private providers.
6. Pharmaceuticals accounted for 40% of total and almost half of government spending.
7. 20% of health expenditure was spent on salaries and incentives of health workers.
8. Communicable diseases and reproductive, maternal and child health together accounted for 59% of total spending
9. Spending on non-communicable diseases accounted for less than 6%.
10. 6% was spent on prevention, mostly financed by donors.

## 1. Introduction

Policy-makers and program managers in Cambodia need timely and accurate information on health expenditure to inform policy, planning and budgeting in the health sector. While some data on health expenditure exists, more comprehensive and detailed data are required for strategic policy-making. Robust data on health expenditure can help inform the formulation of health sector policies and strategies such as the National Health Financing Policy and development of the 3<sup>rd</sup> Health Sector Plan (HSP3) 2016-2020. Data on health expenditure are also required to inform prioritization and allocation of scarce resources, for example by assessing the degree to which health expenditure is aligned with the burden of disease. It can identify areas where efficiency gains could be made by providing data on spending by level of care and inputs. Health expenditure information is also a key input to the monitoring and evaluation of policy goals. NHA can provide estimates of financial resource requirements for achieving universal health coverage (UHC) and data to measure progress on UHC in terms of financial protection against the consequences of health expenditure.

Information on health expenditure in Cambodia is available from different sources. The Department of Planning and Health Information (DPHI), Ministry of Health (MOH), has produced an Annual Health Financing Report (AHFR) since 2007 (Ministry of Health, 2007-2013). The AHFR provides comprehensive health financing information, including government, donor and out-of-pocket expenditure (OOP) using data from various sources such as government data, the Council for the Development of Cambodia (CDC) for donor and NGO expenditure and secondary data analysis of OOP health expenditure using data from the Cambodia Socioeconomic Survey. The Global Health Expenditure Database managed by the World Health Organization (WHO) includes estimates of health expenditure in Cambodia for 1995-2012 (WHO, 2014a). However, these sources provide data that are either at an aggregated level with limited details or focus on health expenditure in a particular part of the health sector Cambodia.

To generate more systematic, comprehensive and detailed data on health expenditure than currently exist, in 2013 the Ministry of Health embarked on producing its first ever National Health Accounts (NHA). NHA measures both public and private expenditure, as well as national and external donor expenditure. It attempts to provide answers to the following key questions related to financial flows in the health sector: Who pays for health care? How are funds channeled? To what level of provider? For what services? With which inputs? For what diseases? Who benefits?

## 2. Goal and objectives

The overall goal of the 2012 NHA was to generate data on health expenditure to inform future strategic policy-making, planning and resource allocation in Cambodia. There were several specific objectives:

- Collect, analyze and present comprehensive data on health expenditure in Cambodia in 2012;
- Generate data on expenditure by source, provider, activity, inputs, disease and age
- Build capacity in Cambodia to routinely produce data on health expenditure;

- Support monitoring and evaluation of policy goals;
- Inform resource allocation by comparing health expenditure with the burden of disease.

### **3. Process**

Senior staff from MOH and Ministry of Planning participated in a workshop organized by WHO and the Commission for Information and Accountability (COIA) for Women's and Children's Health in Manila in March 2013, where NHA was presented as one tool to measure health expenditure. Countries were invited to prepare a plan and request for financial support to implement and monitor the recommendations of COIA. Cambodia was one of the countries to receive financial support.

To better understand the NHA development and prepare a concept note and roadmap to develop NHA, senior staff from MOH attended a training course in Bangkok in April 2013. The concept note and roadmap were presented to the senior management of the Department of Planning and Health Information (DPHI), MOH, and the Technical Working Group for Health, which gave strong support for NHA.

The production of the 2012 NHA was led by DPHI and supported by WHO and the Clinton Health Access Initiative (CHAI). The process was launched in October 2013 with a one-week workshop, facilitated by DPHI and WHO, for managers and technical staff from MOH and other government institutions to introduce NHA and to train the country team on the health account production tool, data collection and analysis. In December 2013, a workshop was organized for NGOs and donors to explain the data collection process. Data collection took place in January-April 2014. Data analysis was carried out in May-June 2014. A consultation workshop was held in June 2014 with the government and development partners to present and discuss the preliminary results of the analysis. The feedback from the consultation was used in the development of this report.

### **4. Methods**

NHA supports policy and resource allocation in low and middle-income countries by collecting and analyzing health expenditure data using an internationally recognized and standardized methodology to facilitate comparisons across countries and over time. The development of NHA in Cambodia follows the methods which were developed by the World Health Organization (WHO), USAID, World Bank and other development partners (World Bank et al, 2003; OECD et al, 2011). The collection and analysis of health expenditure data through NHA is supported by standardized data collection and analysis tools and technical support from WHO and other partners with the aim of institutionalizing NHA as a routine part of a country's management information system.

#### **4.1. Definition and classification of health expenditure**

The production of NHA is based on a conceptual framework called the System of Health Accounts (SHA) 2011, which was developed by WHO, the Organisation for Economic

Cooperation and Development (OECD) and Eurostat (OECD et al, 2011). SHA 2011 is an internationally recognized, standardized framework for analyzing health expenditure. According to SHA 2011, which uses a functional classification of health care activities, NHA should include expenditure on “all activities with the *primary purpose* of improving, maintaining and preventing the deterioration of the health status of persons and mitigating the consequences of ill-health through the application of qualified health knowledge (medical, paramedical and nursing knowledge, including technology, and traditional, complementary and alternative medicine)”. For example, expenditure on activities with the primary purpose to improve water and sanitation, although beneficial for health, should not be included. However, if the primary purpose of the water and sanitation activity is health-related, for example improving the water supply to health centers, such expenditure should be included. Following the same logic, social care for HIV orphans should not be included, while health care for HIV orphans should be included.

The SHA 2011 provides a standardized classification of expenditure. The current analysis followed this classification with some minor modifications to ensure compatibility with the Cambodian health system following review by technical experts in the NHA introductory workshop in October 2013 (Table 1 presents the final classifications used for expenditure by provider). The following modifications were made. First, the hospital category was divided into public and private hospitals. Second, the names of specific hospitals were added since it was considered of national health system and policy interest to measure the expenditure of national, specialized hospitals. Third, health system expenditure was added to the non-disease specific category in the disease classification.

**Table 1: System of Health Accounts provider classification**

<b>Code</b>	<b>Description</b>
<b>HP.1</b>	<b>Hospitals</b>
HP.1.1	General hospitals
HP.1.1.1	Private hospitals
HP.1.1.1.1	For-profit hospital
HP.1.1.1.2	NGO hospital
HP.1.1.1.nec <sup>1</sup>	Other private
HP.1.1.2	Public hospitals
HP.1.1.2.1	National hospital
HP.1.1.2.2	Provincial hospital
HP.1.1.2.3	District hospital
HP.1.1.2.nec	Other public
HP.1.1.nec	Other general hospitals
HP.1.1.2.4	Military hospital
HP.1.2	Mental health hospitals
HP.1.3	Specialized hospitals (other than mental health hospitals)
HP.1.3.1	Ang Duong Hospital (ear, nose, throat, eyes)
HP.1.3.2	National MCH Hospital
HP.1.3.3	National TB Hospital
HP.1.3.4	Kantha Bopha Hospital
HP.1.3.5	National Pediatric Hospital
HP.1.nec	Other hospitals

<sup>1</sup> “nec” = “not elsewhere classified”.

<b>Code</b>	<b>Description</b>
<b>HP.2</b>	<b>Residential long-term care facilities</b>
HP.2.1	Long-term nursing care facilities
HP.2.2	Mental health and substance abuse facilities
HP.2.9	Other residential long-term care facilities
<b>HP.3</b>	<b>Providers of ambulatory [outpatient] health care</b>
HP.3.1	Medical practices
HP.3.1.1	Offices of general medical practitioners
HP.3.1.2	Offices of mental medical specialists
HP.3.1.3	Offices of medical specialists (other than mental medical specialists)
HP.3.2	Dental practice
HP.3.3	Other health care practitioners
HP.3.3.1	Traditional healers
HP.3.4	Ambulatory health care centers
HP.3.4.1	Family planning centers
HP.3.4.2	Ambulatory mental health and substance abuse centers
HP.3.4.3	Free-standing ambulatory surgery centers
HP.3.4.4	Dialysis care centers
HP.3.4.5	Public health center
HP.3.4.9	All other ambulatory centers
HP.3.5	Providers of home health care services
<b>HP.4</b>	<b>Providers of ancillary services</b>
HP.4.1	Providers of patient transportation and emergency rescue
HP.4.2	Medical and diagnostic laboratories
HP.4.9	Other providers of ancillary services
<b>HP.5</b>	<b>Retailers and other providers of medical goods</b>
HP.5.1	Pharmacies
HP.5.2	Retail sellers and other suppliers of durable medical goods and medical appliances
HP.5.9	All other miscellaneous sellers and other suppliers of pharmaceuticals and medical goods
<b>HP.6</b>	<b>Providers of preventive care</b>
<b>HP.7</b>	<b>Providers of health care system administration and financing</b>
HP.7.1	Government health administration agencies
HP.7.2	Social health insurance agencies
HP.7.3	Private health insurance administration agencies
HP.7.9	Other administration agencies
<b>HP.8</b>	<b>Rest of economy</b>
HP.8.1	Households as providers of home health care
HP.8.2	All other industries as secondary providers of health care
HP.8.3	Community health workers (or village health worker, community health aide, etc.)
HP.8.9	Other industries
<b>HP.9</b>	<b>Rest of the world</b>
<b>HP.nec</b>	<b>Other health care providers</b>

*Source: modified version of OECD et al, 2011*

## 4.2. Data collection

The period of analysis was 1 January 2012 to 31 December 2012. This was the latest possible year given that data collection started in December 2012.<sup>2</sup>

To estimate government expenditure, central and provincial expenditure data were collected from the Department of Budget and Finance, MOH. The expenditure data were provided by line item (staff costs, pharmaceuticals, equipment, utilities, etc.). Additional provincial data were also obtained from Provincial Health Departments and Operational Districts. Data on expenditure by a scheme for formal sector workers that covers health care costs incurred as a result of a work injury were provided by the National Social Security Fund (NSSF), which is overseen by the Ministry of Labour and Vocational Training (MOLVT).

To estimate donor and NGO expenditure, standardized NHA questionnaires were used. The questionnaires include a project description and questions on non-capital and capital expenditure by source, provider, activity, inputs, disease and age using dropdown menus with NHA expenditure classifications. The questionnaire for NGOs is more detailed (see Annex 1). The questionnaires were tested with a few donors and NGOs, which was followed by an orientation workshop for donors and NGOs in December 2013 to promote NHA development and explain the questionnaire. A Frequently Asked Questions (FAQs) document with instruction to complete the questionnaire was also developed as a result of the workshop. The questionnaire was also presented at a workshop for NGOs in December 2013. The questionnaires were sent to all targeted donors (33) and NGOs (187). During the data collection process, the NHA team provided technical support directly in person or indirectly by phone and email to complete the questionnaires. A database was developed to monitor and follow up on the data collection process and status with donors and NGOs. As a result there were 30 donor questionnaires submitted (response rate = 91%) and 58 NGO questionnaires submitted (response rate = 31%) (Annex 2 and 3).

Out-of-pocket expenditure (OOP) on health, i.e. expenditure incurred at the time of use of health services or purchase of drugs, was estimated with data from the 2012 Cambodia Socioeconomic Survey (CSES) (National Institute of Statistics, 2014a). Information on health expenditure by private insurance companies was provided by the Ministry of Economy and Finance. Other data sources included the National AIDS Spending Assessment (NASA) and publicly available information from the Angkor Hospital for Children, GAVI Alliance and the Kantha Bopha Hospital. Data to estimate expenditure by disease were obtained from a recent costing study (Martin, 2012) and the national health information system for health service utilization data (Ministry of Health, 2014a).

## 4.3. Data analysis

### *Data cleaning, validation, and preparation for data import*

Data analysis was carried out in a software package designed specifically for NHA software, which is called the Health Accounts Production Tool (HAPT), version 3.2 (WHO, 2014b). The

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<sup>2</sup> One donor organizations do not use the calendar year as the fiscal year and therefore reported expenditure for 1 July 2012 to 30 June 2013. Since NHA does not collect data on expenditure by month, it was assumed that the reported expenditure was the same in 1 January 2012 to 31 December 2012.

HAPT contains six modules: (i) entry of basic parameters (time period, currency, etc.); (ii) confirming/adapting standardized expenditure sub-categories; (iii) generation of questionnaires; (iv) data import; (v) data analysis; and (vi) generation of standardized indicators, graphs and tables.

Submitted donor and NGO questionnaires were reviewed to ensure that required sections had been filled out completely and correctly. Questionnaires were then imported in the HAPT. If data import was unsuccessful because of incomplete or inconsistent data, the NHA team checked the questionnaire again and if necessary contacted the donor or NGO for any additional clarifications, in some cases visiting the offices of the respondents to assist in the completion of questionnaires. This process was time-consuming, but valuable for two main reasons. First, it ensured that questionnaires were correctly filled out and included as much detail about each expenditure line as possible. Second, it is an investment in the future production of NHA in Cambodia given that respondents now have a better understanding of the questionnaires.

Data on central and government provincial expenditure were provided in an Excel-file with budget and expenditure data for 2012 by two levels of expenditure (central and provinces) and by line item according to the government accounting codes organized by the following main categories: running costs (supplies, utilities, maintenance, transportation and communication), staff (salaries and allowances) and pharmaceuticals. The government expenditure data file was reformatted and then imported in the HAPT. Data on OOP and expenditure through private health insurance were entered directly in the HAPT in the household expenditure and insurance modules.

#### *Removal of double-counting*

The potential for double-counting is considerable when collecting data from donors and NGOs. For example, a bilateral or multilateral donor transfers funds to an NGO, which in turn uses those funds to implement a project. Both parties will legitimately report the amount as expenditure. To arrive at an accurate estimate of total health expenditure, a rigorous process was followed to remove double-counting. First, all funding flows from donors to recipient organizations were identified in the questionnaires. Second, all NGO surveys were checked to identify receipt of funds from donors. Finally, the two lists were compared to identify any double-counting (this amounted to US\$ 49 million). Generally the double-counted amount was removed from the donor questionnaire, since the NGO questionnaire provides more detailed information on health expenditure. Some double-counting of transfer of funds from NGOs to other NGOs as a sub-contractor of a project may be expected. Following review of NGO questionnaires, it was determined that this double-counting was negligible.

#### *Allocation of expenditure*

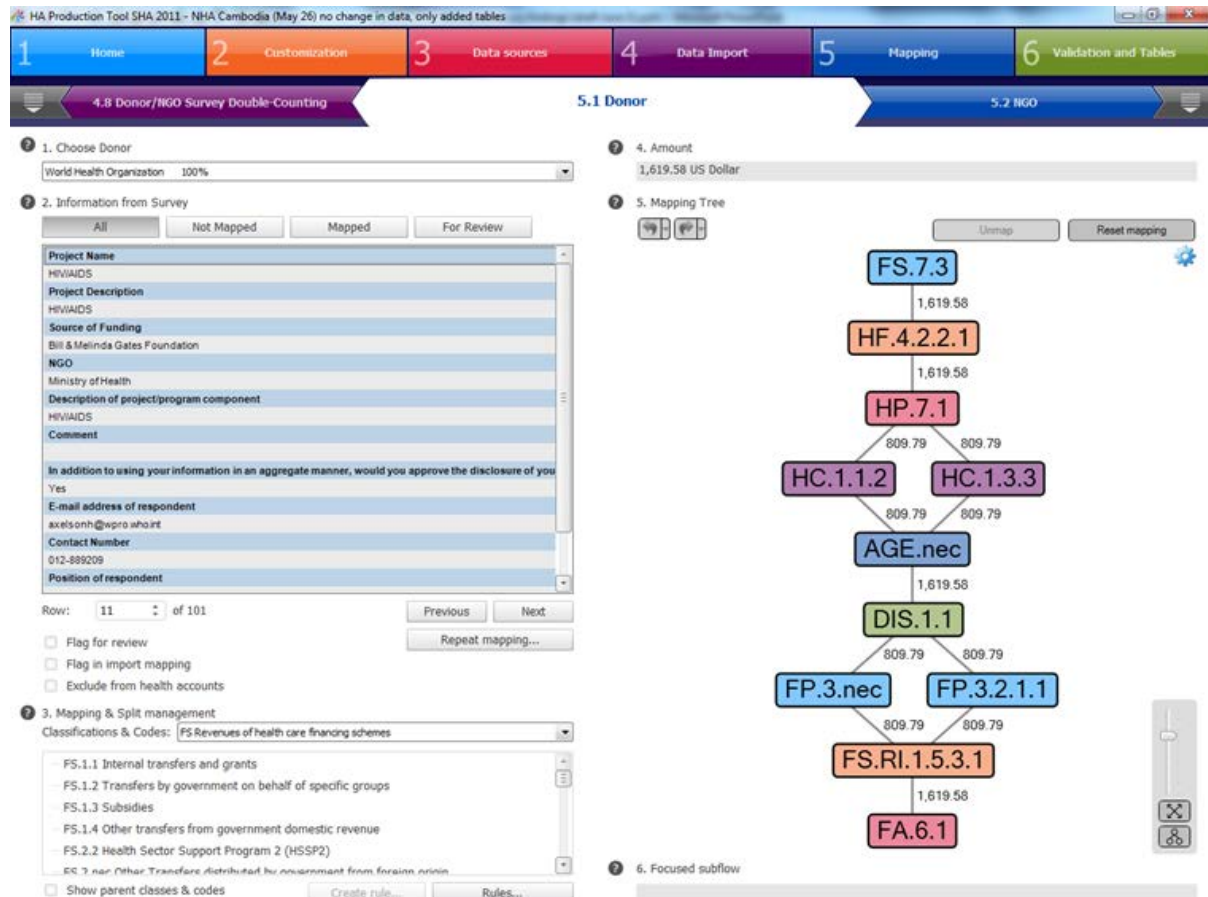
Following data import, each expenditure line was allocated (“mapped”) to sub-categories of each of the NHA categories included in the 2012 NHA (source, provider, activity, input, disease and age)<sup>3</sup> in the HAPT “mapping tree” (Figure 1). For example, one expenditure line could look

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<sup>3</sup> The NHA methodology also allows for analysis for expenditure by financing channel and agent, but these two categories were not included in the 2012 NHA as they were not considered a priority. They may be considered in future NHA rounds.

as follows from the top of the mapping tree: OOP > pharmacy > curative care > pharmaceuticals > respiratory infection > child less than five years of age.

Figure 1: Health accounts production tool mapping tree



For several sources and categories, direct allocation of expenditure by category was possible. Due to lack of disaggregated data for certain sources and categories, indirect allocation had to be applied. As an example, allocation of inputs was straightforward for expenditure by government, donors and NGOs, as this information was directly available. However, this information was not available for OOP incurred in the private sector. In the absence of data on expenditure in the private sector, the government distribution factors (share in % accounted for by each type of input) were applied as a proxy to allocate expenditure in the private sector by inputs. The data sources, methods and assumptions applied during the allocation process are described in Table 2. Some of the caveats related to this process are discussed in the Section 6. The allocation of expenditure by disease and on pharmaceuticals is described in more detail below.

#### *Allocation of expenditure by disease*

The allocation of expenditure by disease was the most complex. For donors and NGOs, data on expenditure by disease were imported from the donor and NGO questionnaires. To distribute expenditure by disease for government and OOP (for which there was no disease distribution in the expenditure data), the following approach was taken. First, we collected data on annual utilization by case from the national health information system on health service utilization



disaggregated by diagnosis (type of disease or condition), type of service (inpatient or outpatient) and level of care (health center, referral hospital and national hospital). Second, the diseases in the HIS classification were grouped according to NHA disease categories. Third, data from a recent hospital costing study were used to inform estimates of the cost of treatment by level of care (Martin, 2012). Fourth, we multiplied the cost data with the utilization data to generate estimates of total annual cost per disease (by type of service and by level of care). Fifth, the share of total cost accounted for by each disease was then calculated and used to map the expenditure data for government and OOP by disease. For OOP, one modification of this approach was made for expenditure in the private sector. Since immunization and prevention and treatment of TB and HIV/AIDS are financed by national programs in the public sector, these expenditures were omitted from the distribution of health expenditure by disease in the private sector. Because data was not available to directly allocate all expenditure by disease, the related findings need to be interpreted with caution (see Section 6 for a discussion on limitations).

#### *Allocation by expenditure on pharmaceuticals*

Expenditure on pharmaceuticals was allocated for two categories. In the input category, expenditure on pharmaceuticals by the government was taken directly from the line item government expenditure report. Expenditure on pharmaceuticals by donors and NGOs was taken directly from the NHA questionnaires. OOP on pharmaceuticals at public providers used the same share as for government expenditure. Due to lack of data from private providers, the government expenditure share for pharmaceuticals was also applied to OOP at private providers. In the provider category, government expenditure on pharmaceuticals by the government was also taken directly from the line item government expenditure report. OOP in pharmacies was derived from the CSES. Since pharmaceuticals are also distributed as part of the service package in facilities, this amount is lower than expenditure on pharmaceuticals in the input category.

**Table 2: Data sources, methods and assumptions informing expenditure allocation**

<b>Category</b>	<b>Data sources</b>	<b>Methods</b>	<b>Assumptions</b>
Source	Government expenditure data (Department of Budget and Finance, MOH)	Direct allocation from government expenditure data	Not applicable
	NHA questionnaires (for donors and NGOs)	Direct allocation from questionnaires	Not applicable
	CSES (for OOP)	WHO methods to estimate OOP (Xu, 2004)	Household survey is nationally representative
	Insurance and Pension Department, MEF; Questionnaire from GRET	Direct allocation from MEF data (only total amount); direct allocation from questionnaire	Not applicable
Provider	Government expenditure data (government funding of public providers)	Indirect allocation based on 2011 government expenditure data on % spent by provider (there were no similar data available for 2012).	The provider expenditure shares were the same in 2012 as in 2011.
	CSES (for OOP at public providers)	WHO methods to estimate OOP (Xu, 2004)	Household survey is nationally representative
	CSES (for OOP at private providers)	WHO methods to estimate OOP (Xu, 2004)	Household survey is nationally representative
Activity	HIS, hospital costing study (for government expenditure)	Indirect allocation	Hospital costing study results are generalizable to facilities not included in the study
	NHA questionnaires (for donors/NGOs)	Direct allocation from questionnaires	Donors and NGOs have enough information to determine spending by activity
	CSES (for OOP by activity)	WHO methods to estimate OOP (Xu, 2004)	Household survey is nationally representative
Input	Government expenditure data (by line item)	Direct allocation from government expenditure data (line items aggregated by NHA sub-category)	Not applicable
	NHA questionnaires (for donors/NGOs)	Direct allocation from questionnaires	Donors and NGOs have enough information to determine spending by input
	CSES (for OOP at public providers)	Indirect allocation based on distribution of government expenditure to NHA sub-category	Distribution of government expenditure by input at public providers is same as for OOP (proxy due to lack of data on OOP by inputs)
	CSES (for OOP at private providers)	Indirect allocation based on distribution of government expenditure to NHA sub-category	The expenditure allocation is the same among private providers as public providers (proxy due to

Category	Data sources	Methods	Assumptions
			lack of data from private providers)
Disease	Government expenditure data (for national disease programs)	Direct allocation by disease	100% of funding for national disease programs allocated to the specific disease
	NHA questionnaires (for donors and NGOs)	Direct allocation from questionnaires	Donors and NGOs have enough information to determine spending by disease
	Annual Health Statistics Report 2012 (MOH, 2014a)	Number of annual cases by disease used to calculate utilization distribution (%) by disease	Cases by disease can be compared (using hospital costing study data to estimate differences in resource intensity)
	Hospital costing study (Martin, 2012)	Cost data (several, but not all diseases) multiplied by utilization share to arrive at estimated expenditure share (%) by disease. This % applied to all expenditures for which there was no direct data available.	Expenditure distribution in hospitals included in the hospital costing study is the same as for all health providers in Cambodia
Age (younger than five years old vs. five and older)	Government expenditure data	Direct allocation	100% of immunization expenditure is for children under-five
	NHA questionnaires (for donors and NGOs)	Direct allocation from questionnaires	Donors and NGOs have enough information to determine spending by age
	GAVI Alliance NHA questionnaire	Direct allocation from questionnaire	100% of GAVI Alliance is for children younger than five years old
	CSES (for OOP age distribution %)	Development of allocation factor (% spent on children younger than five years old vs. % on five and older) used to allocate government expenditure	The age distribution is the same for government expenditure as for OOP

#### *Out-of-pocket expenditure for health*

A separate study was carried out to estimate OOP on health.<sup>4</sup> Here we provide a summary of the data source and methods; further details are presented in detail in a separate report (Ministry of Health, 2014b). An internationally recognized and standardized methodology developed by WHO (Xu, 2004), which had been used in previous analysis of OOP in Cambodia (GIZ and Ministry of Health, 2014). The data source for the OOP analysis was the CSES 2012, which includes data on 17,644 individuals in 3,840 households. The CSES includes a module on health care seeking and expenditure, including how much individuals spent on medical care in the previous 30 days by type of care (inpatient vs. outpatient) and provider (public vs. private;

<sup>4</sup> In addition to OOP on health (disaggregated by provider, activity, disease and age) required to produce the NHA, the study also analysed OOP on transport to access health care, catastrophic expenditure, impoverishment due to OOP and several other indicators, including by quintile and other equity variables.

disaggregated by sub-categories). It was assumed that the spending reported in the survey was all OOP, with no reimbursement from a health insurance provider or other source. The estimate of OOP was carried out in several steps. First, monthly OOP incurred by individuals seeking care was averaged across all individuals in the sample (including those not seeking care) to estimate OOP per capita for the full population. Second, this monthly figure was converted to an annual total. Third, the annual OOP per capita was converted to OOP per household using household sample weights included in the dataset. Fourth, household OOP as a share of total household expenditure (another variable in the CSES) was calculated. Finally, this share was then multiplied by total household consumption expenditure from Cambodia's National Accounts (National Institute of Statistics, 2014b) to arrive at an estimate of total OOP in 2012.

In addition to detailed tables with expenditures broken down by source, provider, activity, input, disease and age, internationally standardized and commonly used health expenditure indicators were also produced (see Section 5). Box 1 provides the definitions of these indicators).

#### Box 1: Definitions of health expenditure indicators

THE = total health expenditure from all sources in a calendar year (US\$)

THE as share of GDP = total health expenditure as percentage of Gross Domestic Product (GDP)

THE per capita = total health expenditure divided per total population (US\$)

GHE as share of GGE = government expenditure on health as percentage of (total) general government expenditure in all sectors

OOP = out-of-pocket expenditure by individuals/households at the time of use or purchase of health care services and goods

## 5. Results

Total health expenditure (THE) from all sources in Cambodia was estimated at US\$ 1.033 billion, which is equivalent to US\$ 69.50 per capita and 7.2% of GDP. Table 3 compares these findings with other countries in the region (WHO, 2014a). With THE as a share of GDP is larger in Cambodia than in other countries. Cambodia spends less per capita than countries with higher incomes: two-thirds (67.8%) of Viet Nam, one-third (32.3%) of Thailand and less than one-fourth of China (21.6%).

Table 3: Summary health expenditure indicators, 2012

Indicator	Lao PDR	Cambodia	Viet Nam	Thailand	China
Total health expenditure (US\$ million)	267	1,033	9,306	14,365	445,461
THE per capita (US\$)	40.2	69.5	102.5	215.1	321.7
THE as share of GDP	2.9%	7.2%	6.6%	3.9%	5.4%

Sources: Cambodia 2012 NHA; Global Health Expenditure Database (WHO, 2014); World Bank, 2014a (Cambodia population data); Ministry of Economy and Finance, 2014a (Cambodia GDP data)

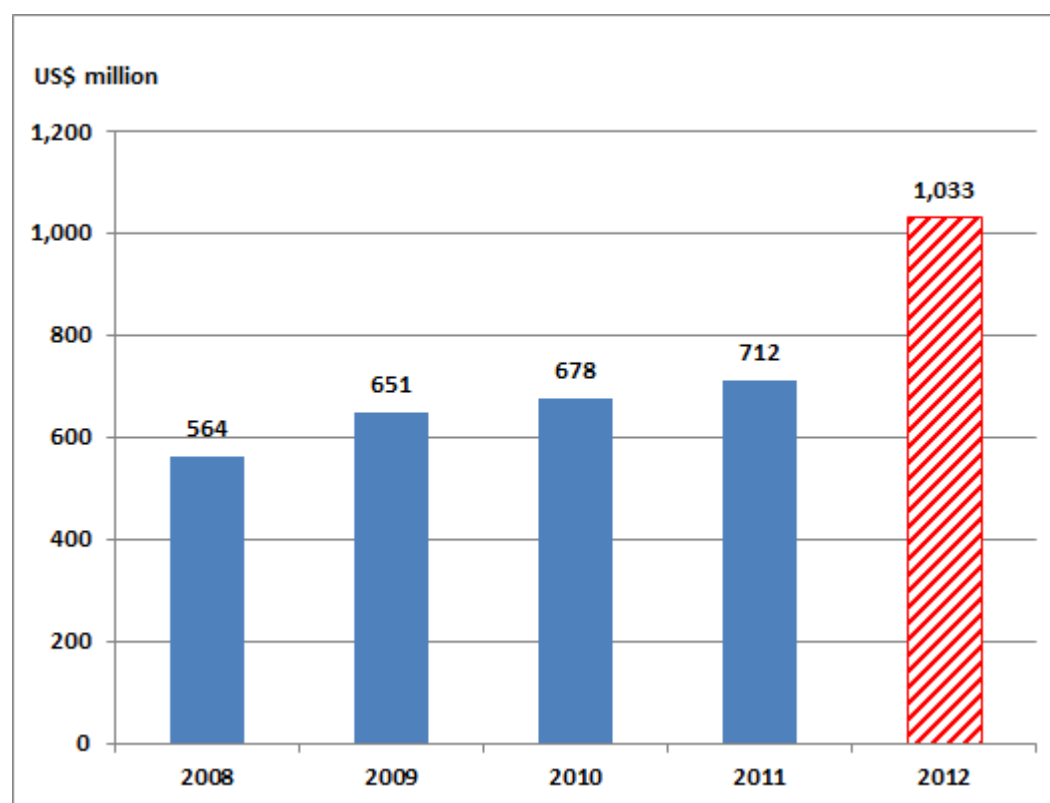
The NHA estimate of THE is significantly higher than previous estimates (35.4% higher than the US\$ 763 million estimate reported in the AHFR 2012). This is likely due to different data sources and methods, which will be discussed in Section 6. Table 4 and Figure 2 present trends in THE in 2008-2012, using the NHA estimate for 2012. It should be pointed out that the use of the NHA methodology would likely have generated higher estimates for 2008-2011. Figure 3 shows THE as a share of GDP in 2008-2012 in Cambodia. Figure 4 and Figure 5 compare Cambodia with other countries in the region in terms of THE as a share of GDP and government health expenditure as a share of GDP, respectively. With the exception of Pacific island states, Cambodia spends more on health as a share of Gross Domestic Product (GDP) than any other low- and middle-income country in Asia.

**Table 4: Total health expenditure, 2008-2012**

Indicator	2008	2009	2010	2011	2012
Total health expenditure (US\$ million)	564	651	678	712	1,033
Year-on-year increase	N/a	15.4%	4.1%	5.0%	45.1%

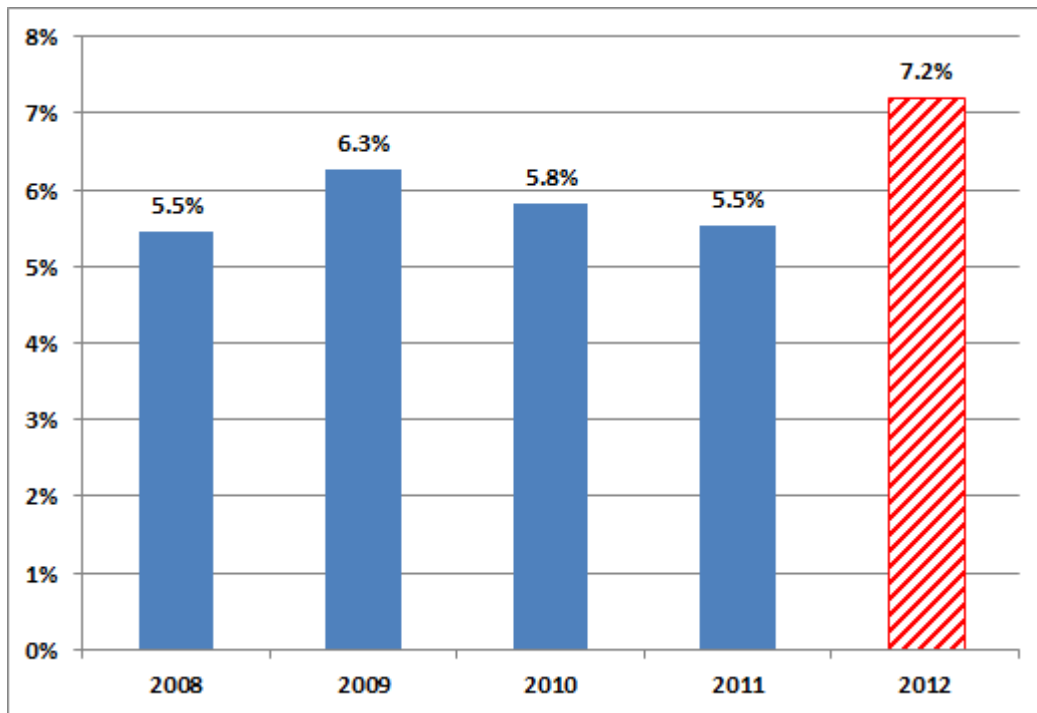
Sources: Annual Health Financing Reports, MOH (2008-2011 data); Cambodia NHA database (2012 data); Global Health Expenditure Database (WHO, 2014).

**Figure 2: Total health expenditure, 2008-2012**



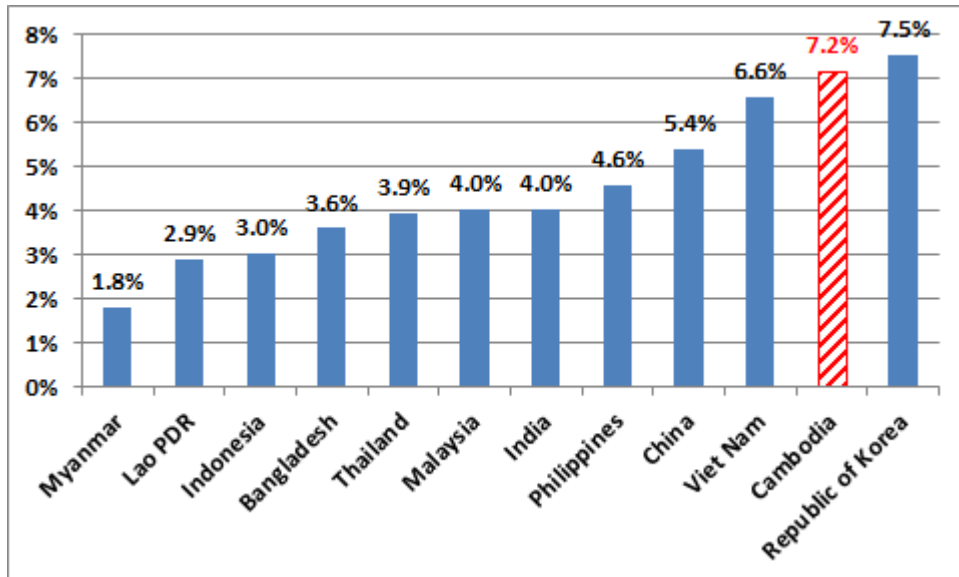
Sources: Annual Health Financing Reports, MOH (2008-2011 data); Cambodia NHA database (2012 data).

Figure 3: Total health expenditure as share of GDP, 2008-2012



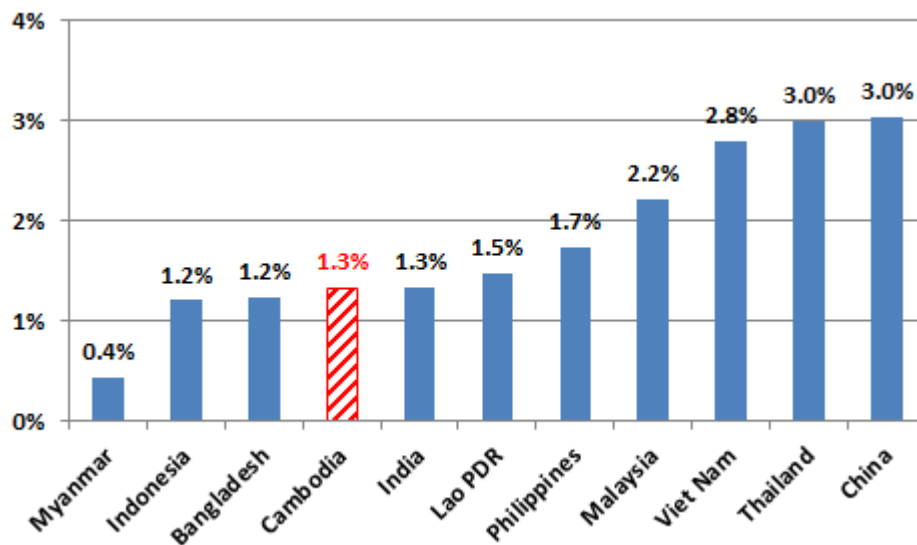
Source: Annual Health Financing Reports, MOH (2008-2011 data); Cambodia NHA database (2012 data).

Figure 4: Total health expenditure as share of GDP, 2012



Sources: Cambodia NHA database; Global Health Expenditure Database (WHO, 2014).

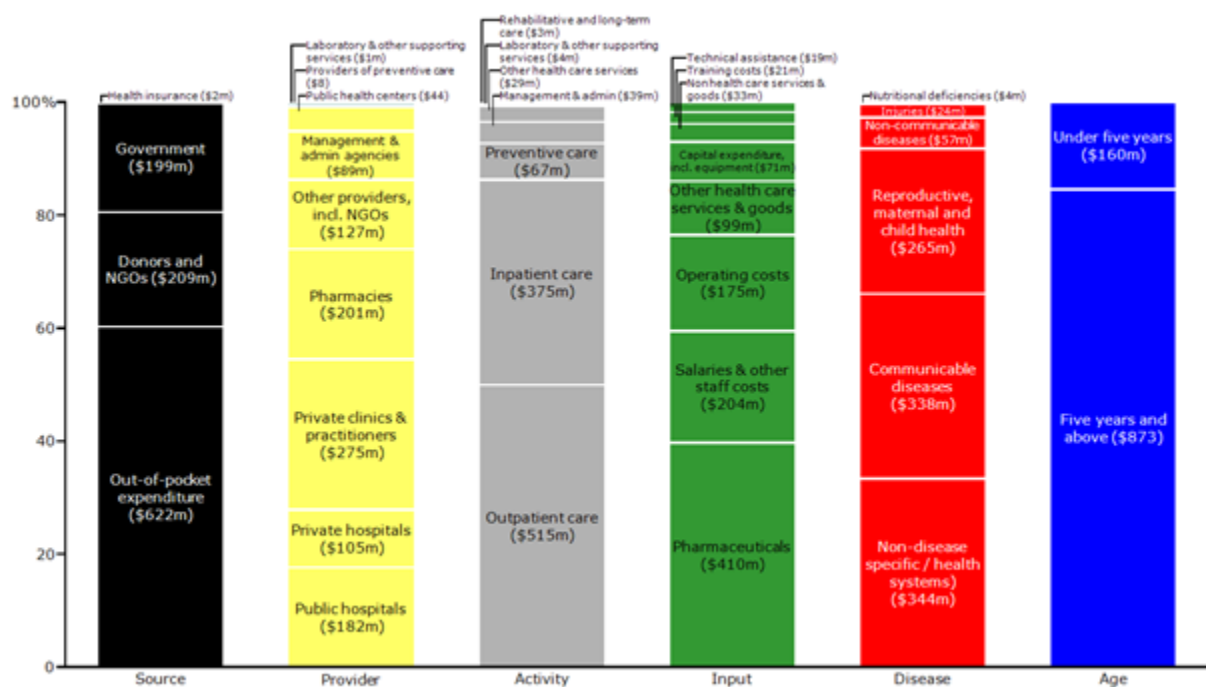
Figure 5: Government health expenditure as share of GDP, 2012



Sources: Cambodia NHA database; Global Health Expenditure Database (WHO, 2014).

Figure 6 presents health expenditure by source, provider, activity, input, disease and age. These results are summarized in Sections 5.1-5.6. A further breakdown is provided in Annexes 4-8.

Figure 6: Cambodia 2012 National Health Accounts – Health spending by category<sup>5</sup>



Source: Cambodia NHA database.

<sup>5</sup> Numbers may not add to US\$ 1,033 million due to rounding.

## 5.1. Expenditure by source

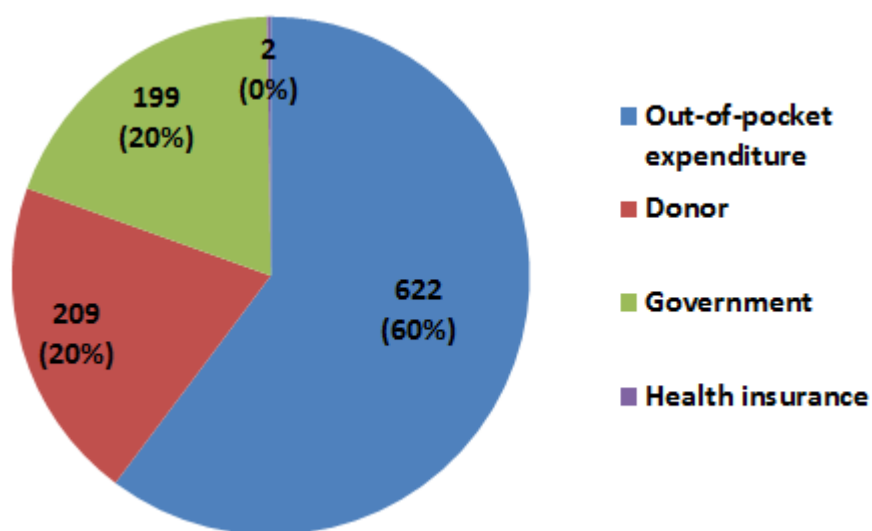
As illustrated by Table 5 and Figure 7, OOP accounted for a majority (US\$ 622.2 million or 60.3%) of THE. Figure 8 shows OOP as a share of THE in selected countries in the region. Only Myanmar (71.3%) and Bangladesh (63.3%) have a higher share than Cambodia. Both Viet Nam (48.8%) and Lao PDR (38.2%) have lower shares than Cambodia; the shares of China (34.3%) and Thailand (13.1%) are considerably lower. If donor expenditure is deducted from THE, the OOP share of THE in Cambodia would be 75.6% (Figure 9 provides a regional comparison).

**Table 5: Expenditure by source**

Category	Amount (US\$ million)	Share
Out-of-pocket (OOP)	622.2	60.3%
Donors and NGOs	209.0	20.2%
Government	199.1	19.3%
Health insurance	2.4	0.2%
<b>Total</b>	<b>1,033</b>	<b>100%</b>

Source: Cambodia NHA database.

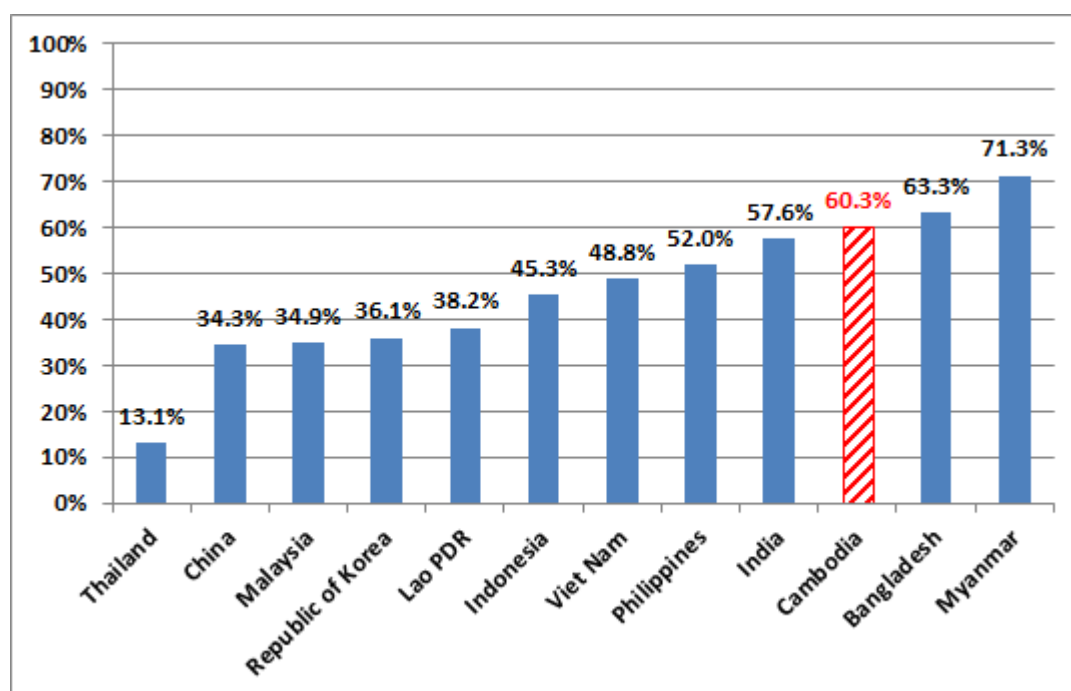
**Figure 7: Expenditure by source (US\$ million)**



Source: Cambodia NHA database.



Figure 8: Out-of-pocket expenditure on health as share of total health expenditure, 2012



Sources: Cambodia NHA database; Global Health Expenditure Database (WHO, 2014).

Figure 9: Out-of-pocket expenditure as share of total health expenditure (less donor expenditure), 2012

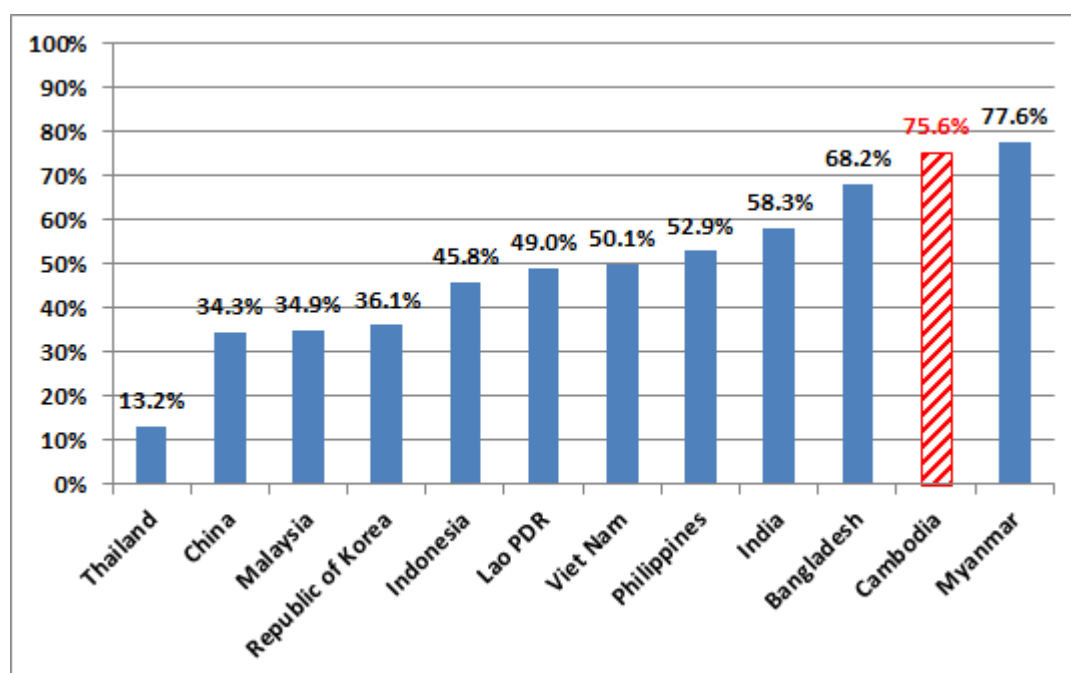
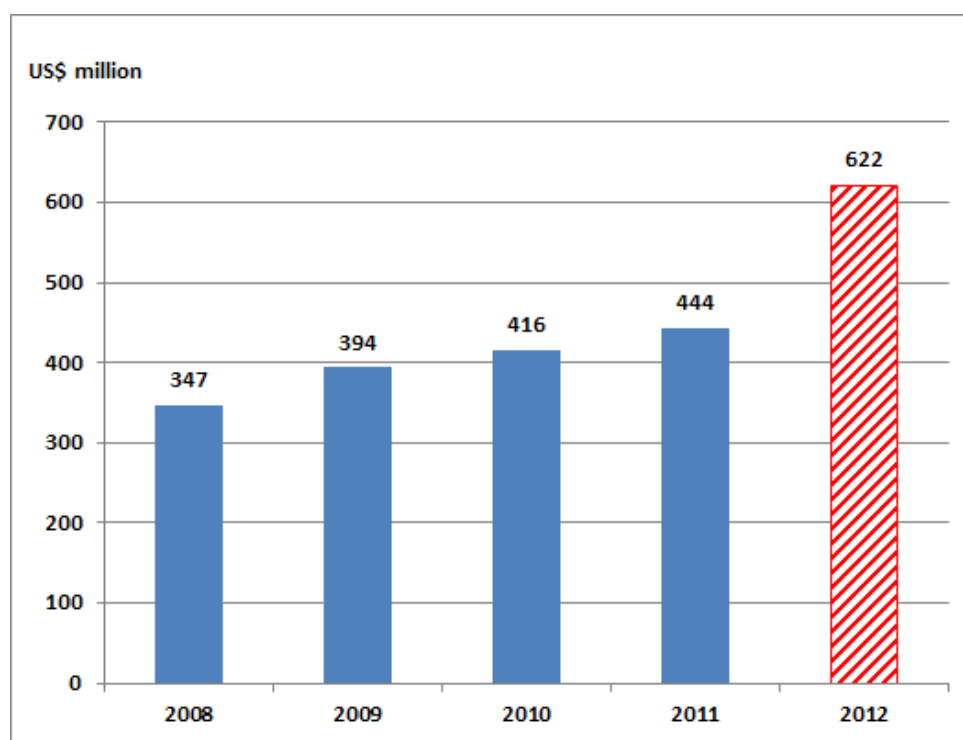


Figure 10 illustrates how OOP has evolved in recent years. As will be pointed out in Section 6, it is likely that the 2010 and 2011 estimates would have been higher if those estimates had been derived from the 2010 and 2011 CSES (rather than based on CSES 2009 figures adjusted for inflation).

Figure 10: Out-of-pocket expenditure, 2008-2012

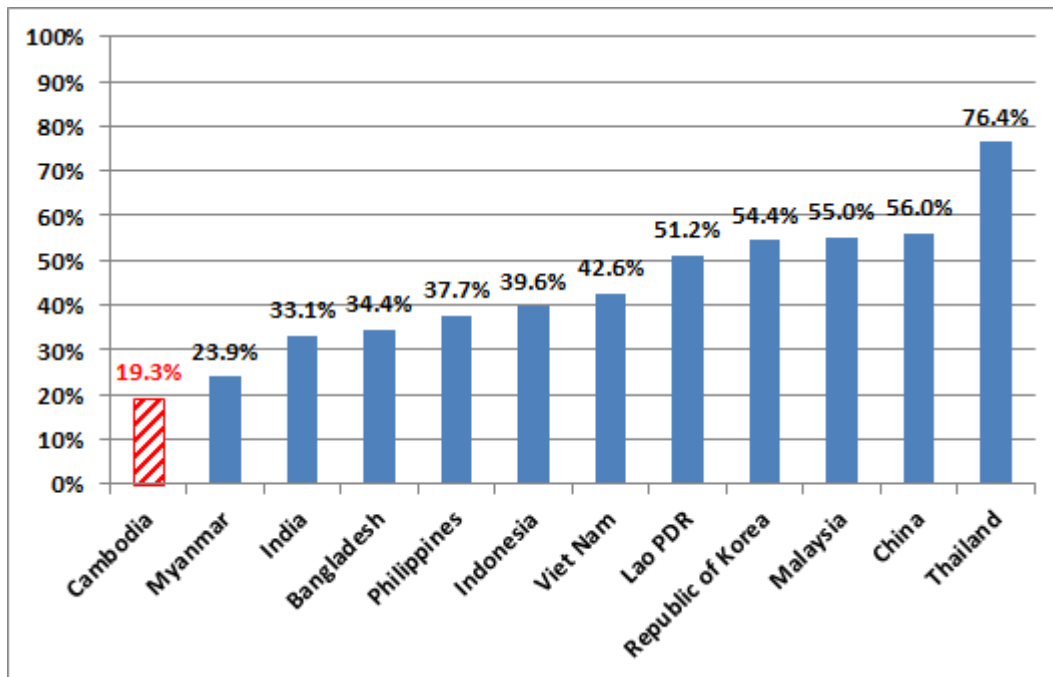


Source: Annual Health Financing Reports, MOH (2008-2011 data); Cambodia NHA database (2012 data).

The government's contribution to THE amounted to US\$ 199.1 million (19.3%), which is equal to 6.5% of total government expenditure<sup>6</sup> (or 12% of total government recurrent expenditure) in 2012. Figure 11 compares the government's share of THE with other countries in the region. Figure 12 provides a regional comparison of government health expenditure as a share of total government expenditure. The share in Cambodia was higher than in Lao PDR, Malaysia and Myanmar, but lower than most countries in the region, such as Viet Nam (9.5%), China (12.5%) and Thailand (14.2%).

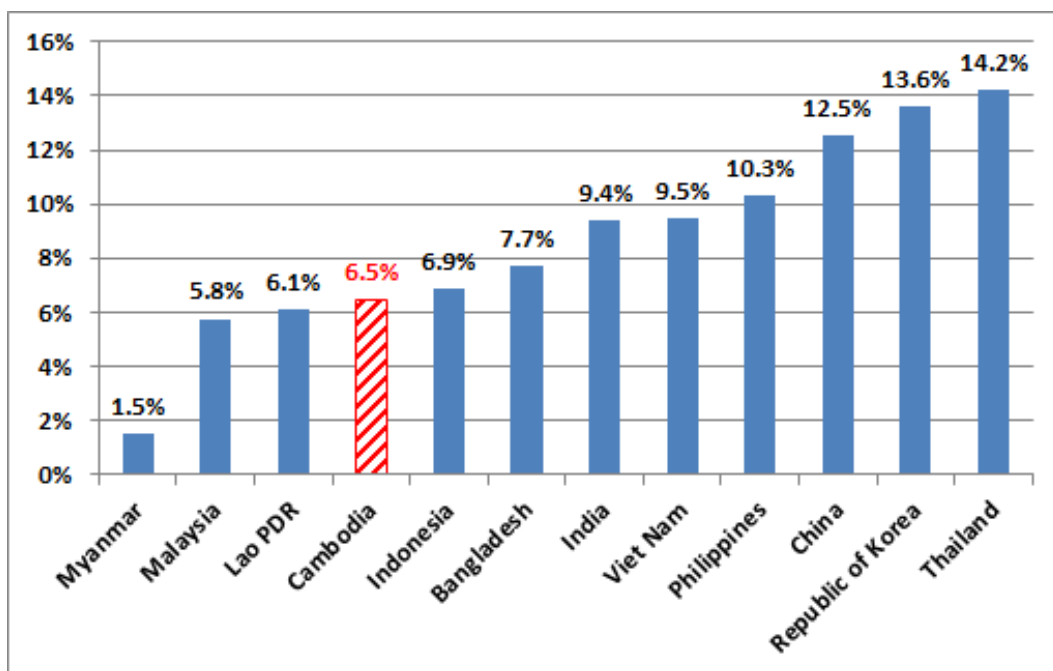
<sup>6</sup> According to the Budget in Brief 2014 factsheet from the Ministry of Economy and Finance, total government expenditure in 2012 was 12,343,199 million Riels, which is equal to US\$ 3.086 billion (Ministry of Economy and Finance (2014)).

Figure 11: Government expenditure on health as share of total health expenditure, 2012



Sources: Cambodia NHA database; Global Health Expenditure Database (WHO, 2014)

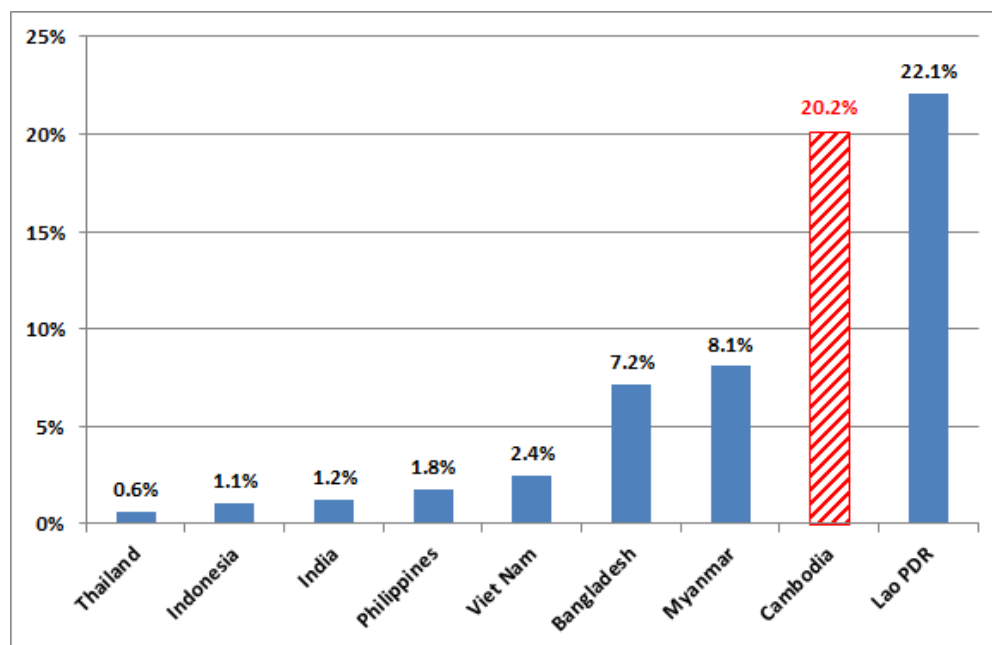
Figure 12: Government health expenditure as share of total government expenditure, 2012



Sources: Cambodia NHA database; Global Health Expenditure Database (WHO, 2014)

Donors and NGOs accounted for US\$ 209.0 million (20.2%) of THE in Cambodia in 2012.<sup>7</sup> Figure 13 presents donor expenditure as a share of THE for selected countries in the region. Several countries have shares lower than 5%. The only country with a similar share to Cambodia is Lao PDR (22.1%).

Figure 13: Donor expenditure on health as share of total health expenditure, 2012

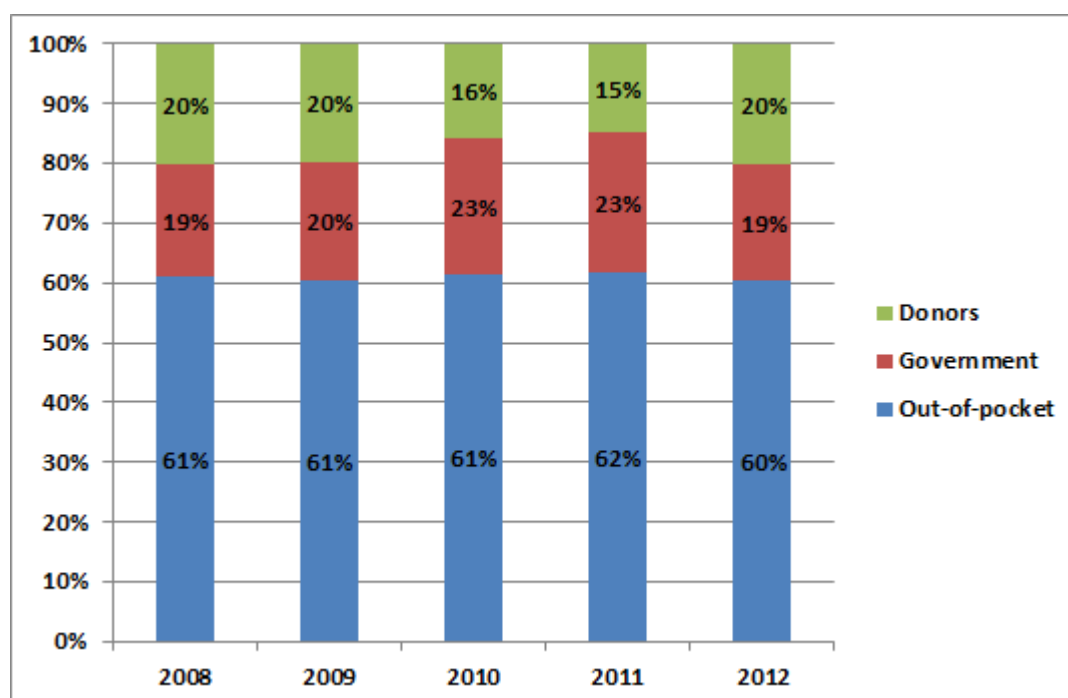


Sources: Cambodia NHA database; Global Health Expenditure Database (WHO, 2014)

Based on data from the AHR 2007-2012, the shares of health expenditure by source (OOP, government and donors) has been fairly constant at 60%-20%-20%, respectively (Figure 14). The nascent nature of health insurance is reflected by a very small contribution to THE (0.2%, not shown).

<sup>7</sup> The total amount of health expenditure recorded in the donor and NGOs questionnaires was US\$ 258 million. As noted in Section 4, a total of US\$49 million was identified as double-counting, leaving US\$ 209 million in health expenditure by donors and NGOs in 2012.

Figure 14: Total health expenditure by main sources of financing, 2008-2012



Source: Annual Health Financing Reports, MOH (2008-2011 data); Cambodia NHA database (2012 data).

## 5.2. Expenditure by provider

Expenditure at public providers accounted for US\$ 419.8 million (40.6%) and expenditure at private providers accounted for US\$ 612.7 million (59.4%).

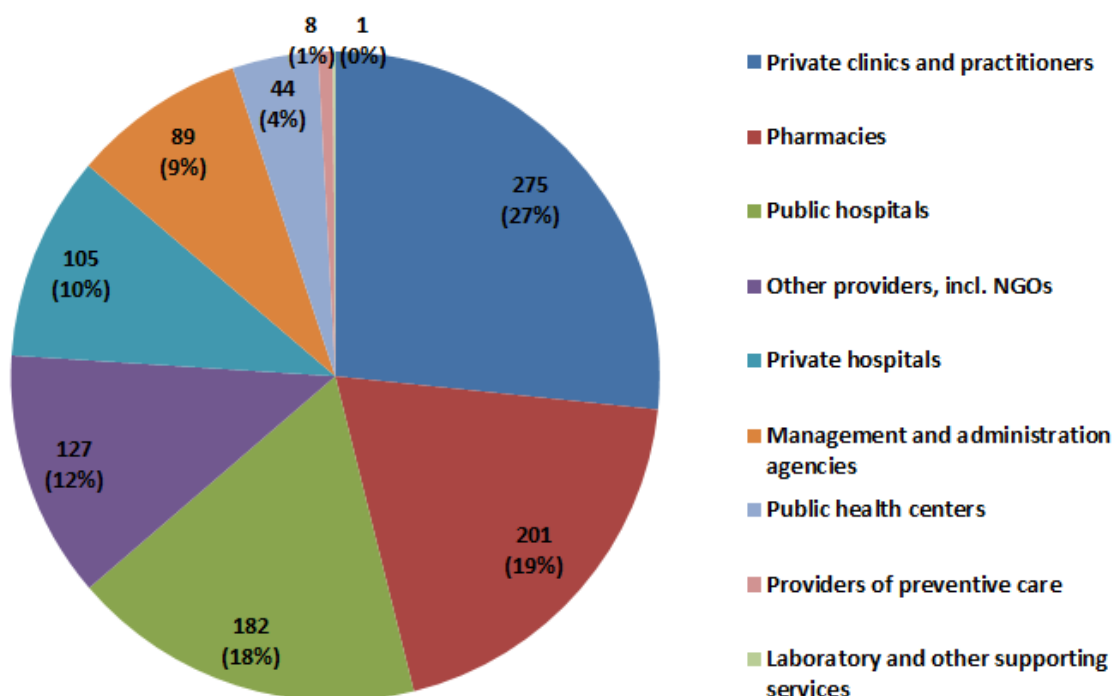
Spending in public (health centers) and private (clinics and individual practitioners) primary care facilities (30.9%) and public and private hospitals (27.9%) accounted for about the same share (Table 6 and Figure 15). Most of the expenditure in primary care facilities was incurred in private clinics (including individual private practitioners). Spending in pharmacies was about one-fifth (19.5%) of THE and was distributed relatively evenly between public (47.7%) and private (52.3%) pharmacies. Table 7 provides a further breakdown of hospital expenditure by public/private ownership. Public hospitals accounted for almost two-thirds (63.3%) of hospital expenditure, with private for-profit and NGO hospitals making up the remainder (36.7%). Annex 4 presents disaggregated data on expenditure by provider category and by the main sources of funding.

**Table 6: Expenditure by provider**

Category	Amount (US\$ million)	Share
Private clinics and practitioners	275.1	26.6%
Pharmacies <sup>8</sup>	201.0	19.5%
Public hospitals	181.8	17.7%
Other providers, incl. NGOs	127.2	12.3%
Private hospitals	105.4	10.2%
Management and administration agencies	89.4	8.7%
Public health centers	44.0	4.3%
Providers of preventive care <sup>9</sup>	7.5	0.7%
Laboratory and other supporting services	1.3	0.1%
<b>Total</b>	<b>1,032.7</b>	<b>100%</b>

Source: Cambodia NHA database.

**Figure 15: Expenditure by provider (US\$ million)**



Source: Cambodia NHA database.

<sup>8</sup> This accounts for expenditures on pharmaceuticals in pharmacies only. Adding expenditures on pharmaceuticals in health care facilities results in a total spending on pharmaceuticals of close to 40% (see Section 5.5 on expenditure by input).

<sup>9</sup> Preventive care can also be delivered by other providers, not only those dedicated solely to prevention. As shown in Section 5.3, expenditure on preventive amounts to US\$ 66.6 million when expenditure is disaggregated by activity.

**Table 7: Hospital expenditure**

Category	Amount (US\$ million)	Share
Public national hospital	79.0	27.5%
Public provincial hospital	67.7	23.6%
Public district hospital	35.1	12.2%
<b><i>Sub-total public hospitals</i></b>	<b>181.8</b>	<b>63.3%</b>
Private for-profit hospital	62.6	21.8%
NGO hospital	42.8	14.9%
<b><i>Sub-total private hospitals</i></b>	<b>105.4</b>	<b>36.7%</b>
<b>Total</b>	<b>287.2</b>	<b>100%</b>

Source: Cambodia NHA database.

### 5.3. Expenditure by activity

Spending on outpatient care accounted for almost half (49.9%) of THE by activity (Table 8 and Figure 16). Inpatient care accounted for 36.4%. Only 6.4% was spent on preventive care. Annex 5 presents disaggregated data on expenditure by activity category and by the main sources of funding.

**Table 8: Expenditure by activity**

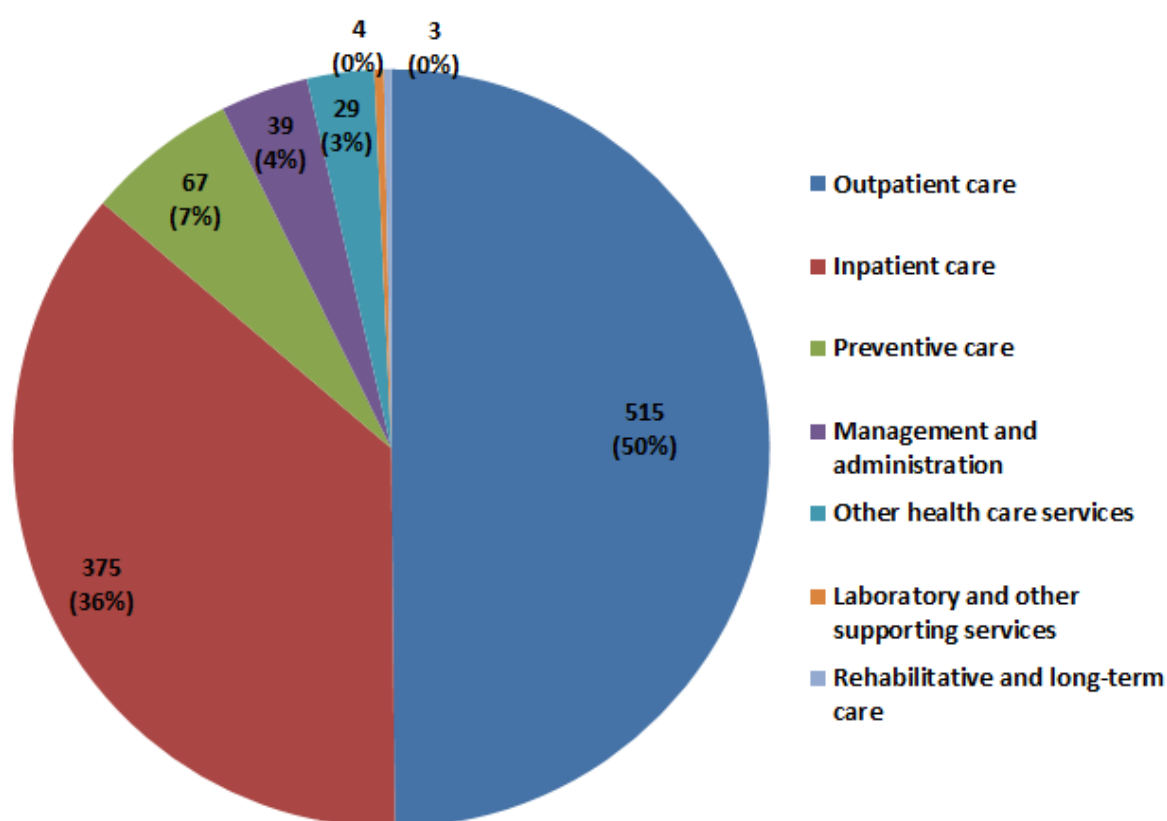
Category	Amount (US\$ million)	Share
Outpatient care	514.8	49.9%
Inpatient care	375.4	36.4%
Preventive care	66.6	6.4%
Management and administration <sup>10</sup>	38.9	3.8%
Other health care services	29.5	2.9%
Laboratory and other supporting services <sup>11</sup>	4.2	0.4%
Rehabilitative and long-term care	3.2	0.3%
<b>Total</b>	<b>1,032.7</b>	<b>100%</b>

Source: Cambodia NHA database.

<sup>10</sup> Management and administration in expenditure by activity is lower than by provider because some management and administration expenditure is absorbed by other activity categories.

<sup>11</sup> Expenditure on laboratory and other supporting services by activity is higher than by provider because some laboratory functions are carried out in-house among some providers.

Figure 16: Expenditure by activity (US\$ million)



Source: Cambodia NHA database.

#### 5.4. Expenditure by input

Pharmaceuticals accounted for the largest share of THE by inputs. As illustrated in Table 9 and Figure 17, spending on pharmaceuticals (39.7%) was double that of spending on salaries, incentives and other staff costs (19.8%). Annex 6 presents disaggregated data on expenditure by input category and by the main sources of funding.

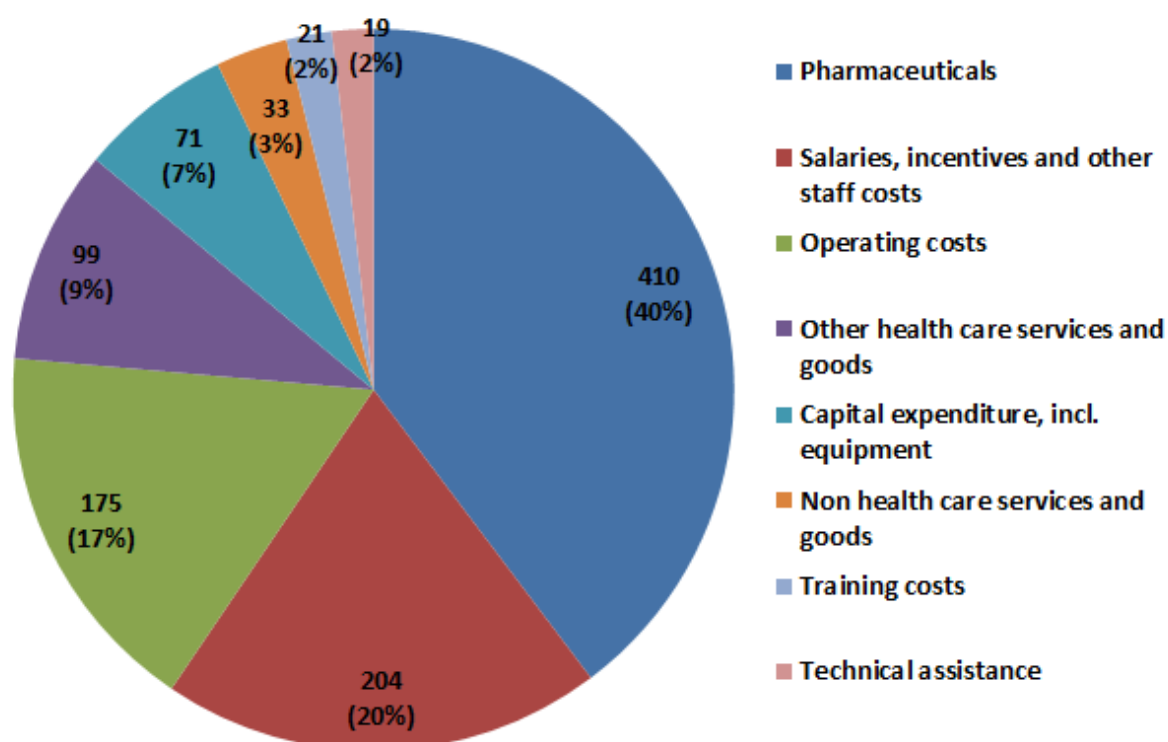
Table 9: Expenditure by input

Category	Amount (US\$ million)	Share
Pharmaceuticals	410.1	39.7%
Salaries, incentives and other staff costs	204.1	19.8%
Operating costs	174.7	16.9%
Other health care services and goods	99.3	9.6%
Capital expenditure, incl. equipment	71.0	6.9%
Non health care services and goods	33.3	3.2%
Training costs	21.0	2.0%
Technical assistance	19.2	1.9%
<b>Total</b>	<b>1,032.7</b>	<b>100%</b>

Source: Cambodia NHA database.



Figure 17: Expenditure by input (US\$ million)



Source: Cambodia NHA database.

## 5.5. Expenditure by disease

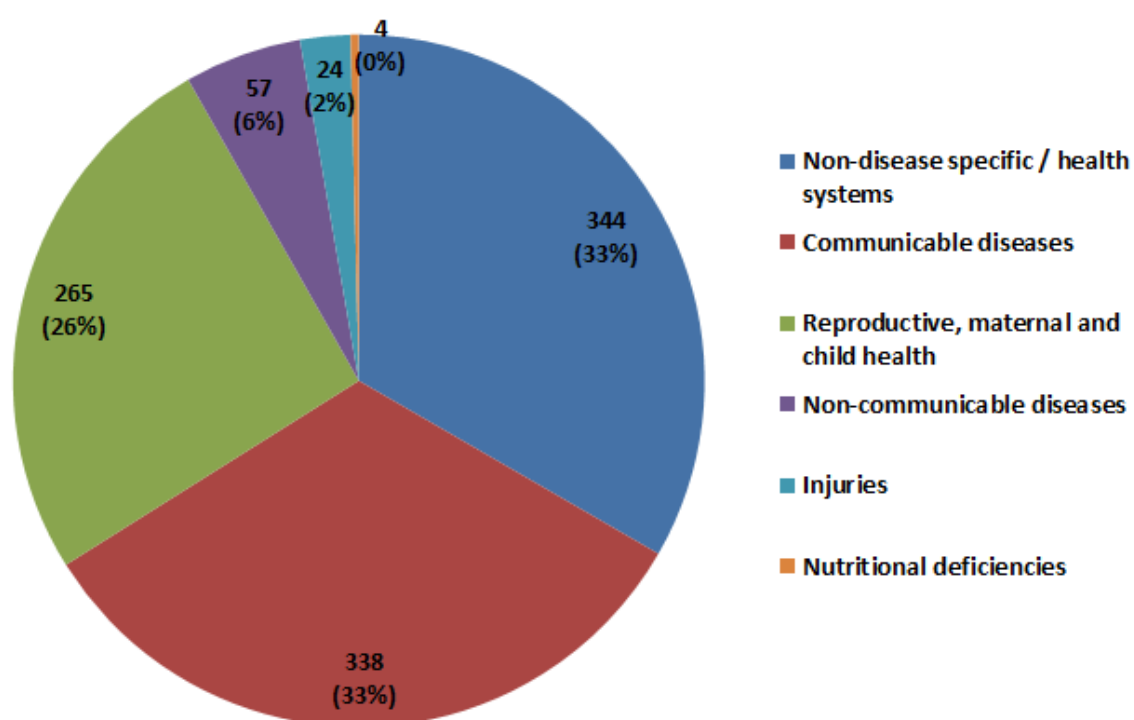
Table 10 and Figure 18 present data on spending by disease (or illness or condition). Communicable diseases (32.8%) and non-disease specific expenditure, including health systems strengthening (33.3%), each accounted for about one-third, followed by reproductive, maternal and child health (25.7%). It is notable that only US\$ 56.6 million (5.5%) of THE was spent on non-communicable diseases (NCDs), which is less than its share of the burden of disease in Cambodia (WHO, 2013). Expenditure targeting nutritional deficiencies was even smaller; less than US\$ 4 million (0.4%). Annex 7 presents disaggregated data on expenditure by disease category and by the main sources of funding.

Table 10: Expenditure by disease

Category	Amount (US\$ million)	Share
Non-disease specific / health systems	344.2	33.3%
Communicable diseases	338.2	32.8%
Reproductive, maternal and child health	265.5	25.7%
Non-communicable diseases	56.6	5.5%
Injuries	24.3	2.3%
Nutritional deficiencies	3.9	0.4%
<b>Total</b>	<b>1,032.7</b>	<b>100%</b>

Source: Cambodia NHA database.

Figure 18: Expenditure by disease (US\$ million)



Source: Cambodia NHA database.

Table 11 presents disaggregated expenditure for communicable diseases. Respiratory infections accounted for the largest share (40.0%) of communicable diseases, followed by HIV/AIDS (16.3%) and diarrheal diseases (12.1%). Table 12 presents disaggregated expenditure for NCDs. Spending on physical disabilities amounted to almost half (45.5%) of spending on NCDs, followed by cardiovascular disease (27.1%) and mental disorders (18.1%). It is noteworthy that the combined expenditure on neoplasms and endocrine disorders which include cancers and diabetes, respectively, accounts for less than 5% of spending on NCDs (and only 0.3% of THE).

Table 11: Expenditure by communicable diseases

Category	Amount (US\$ million)	Share
Respiratory infections	135.4	40.0%
HIV/AIDS <sup>12</sup>	55.0	16.3%
Diarrheal diseases	40.9	12.1%
Neglected tropical diseases	32.5	9.6%
Tuberculosis	25.8	7.6%
Malaria	25.6	7.6%
Other communicable diseases	22.9	6.8%
<b>Total</b>	<b>338.2</b>	<b>100%</b>

Source: Cambodia NHA database.

<sup>12</sup> The 2012 NHA estimate for HIV/AIDS is 8% higher than the National AIDS Spending Assessment (NASA) IV, which estimated that HIV/AIDS expenditure in Cambodia was US\$ 50.9 million in 2012 (NCHADS et al, 2013). The difference is largely due to a larger share of government general health expenditure allocated to HIV/AIDS than in the NASA.

**Table 12: Expenditure by non-communicable diseases**

Category	Amount (US\$ million)	Share
Physical disabilities	25.8	45.5%
Cardiovascular diseases	15.3	27.1%
Mental disorders	10.3	18.1%
Other non-communicable diseases	2.6	4.5%
Endocrine disorders (e.g. diabetes)	2.0	3.5%
Neoplasms (e.g. cancer)	0.7	1.3%
<b>Total</b>	<b>56.6</b>	<b>100%</b>

Source: Cambodia NHA database.

## 5.6. Expenditure by age

Health expenditure on children less than five years old amounted to about US\$ 160 million, equal to 15.5% (Table 13). This would appear consistent with the large share of spending on communicable diseases accounted for by two of the main childhood diseases (respiratory infections and diarrheal disease). Annex 8 presents disaggregated data on expenditure by age category and by the main sources of funding.

**Table 13: Expenditure by age**

Category	Amount (US\$ million)	Share
Five years old and above	872.9	84.5%
Under five years old	159.8	15.5%
<b>Total</b>	<b>1,032.7</b>	<b>100%</b>

Source: Cambodia NHA database.

## 6. Discussion

The NHA estimates that THE in Cambodia amounted to US\$ 1.033 billion in 2012. This is significantly higher than previous estimates, such as those presented in the AHFRs produced by MOH. However, the shares by source of financing are similar (approximately 60% OOP, 20% government and 20% donor). The 2012 AHFR estimated that THE amounted to US\$ 763 million in 2012, which implies that the NHA estimate is 35.4% higher than the AHFR estimate. Government expenditure is relatively similar in the AHFR (US\$ 187 million) and the NHA (US\$ 199 million). The difference in THE is driven by larger estimates for OOP and donor/NGO expenditure and is likely due to differences in data sources and methods applied to producing the NHA.

The AHFR estimate of OOP in 2012 was generated by applying a general inflation rate to the results of an analysis of the CSES 2009 mentioned earlier. In contrast, the NHA estimate of OOP was produced using actual data from the CSES 2012. It seems plausible that OOP has increased between 2009 and 2012 by a higher rate than the general rate of inflation because of increased health care costs, particularly in the private sector. OOP may also increase because of limited social health protection coverage. To address this, the draft National Health Financing Policy provides guidance on the establishment of social health protection schemes. Another possible

reason for increased OOP is that the disposable income of the population has increased due to economic growth and poverty reduction, which would enable substantial increases in health spending to meet unmet demand (at least for portions of the population). The study of OOP expenditure that informed the 2012 NHA also analyzed OOP in 2010 and 2011. It found that utilization increased between 2010 and 2012 (MOH, 2014b).

The AHFR estimates of donor and NGO expenditure relied on data submitted by donors and NGOs to the Council for the Development of Cambodia (CDC). As previously noted, data submitted to CDC is at a very aggregate level with a separation of general health expenditure and HIV/AIDS expenditure being the only disaggregated of total health expenditure. This is understandable, given that the CDC collects data on development assistance for all sectors and is not meant to collect detailed health expenditure data. It appears plausible that the disaggregated and rigorous data collection process with detailed questionnaires employed by the NHA would have captured a larger level of health expenditure.

The fact that the health sector is to a large degree financed by OOP (>60%) is a cause of concern. First, OOP presents a major barrier to health care access and is a frequent cause of indebtedness and impoverishment. A study of global data on OOP estimated that a 1% increase in OOP's share of THE is associated with a more than 2% increase in households facing catastrophic expenditures (Xu et al, 2003). Second, OOP does not facilitate risk sharing among the population; a key pillar of social health protection. Third, OOP is not a very efficient way of financing health care. Relying on OOP may delay care-seeking, which makes it more costly to treat the patient when (and if) they do present to the health facility. Moreover, a small share of OOP is spent on preventive care. These findings suggest that the social health protection system in Cambodia needs expansion and strengthening, in particular for the poor, near-poor and other vulnerable groups such as older people and the disabled.

The NHA analysis has confirmed earlier findings that the government and donors finance roughly the same share of the health sector (about 20%). To promote sustainability of health financing, this suggests that the government needs to increase its spending on health as its fiscal space continues to expand due to strong and sustained economic growth in the last decade and increased tax collection. Cambodia's annual real GDP growth rate has been 6% or higher since 2010 and is projected to exceed 7% in 2014 (Ministry of Economy and Finance, 2014b). Tax revenue as a share of GDP is still small, but has increased in recent years; from 9.6% in 2009 to 11.6% in 2012 (World Bank, 2014b).

Expenditure at private clinics and practitioners accounted for the largest share (26.6%) of all providers and also the largest share of expenditure at the primary care level (86.2%). This is a cause of concern, since private clinics and practitioners are in practice unregulated (a regulatory framework exists, but is not enforced due to limited resources) and provide services of quality that is often poor. Different policy options could be considered to address this situation. First, efforts can be made to shift utilization from private to public facilities by making public services more attractive and of better quality. This would be facilitated by investment in pre-service and in-service training, improved financial and other incentives to increase the motivation of health workers and investment in infrastructure and procurement and supply systems. Second, the purchasing power of social health protection schemes can be leveraged to

improve quality of care in the private sector.<sup>13</sup> For example, only accredited private facilities would be eligible to participate in social health protection schemes. Third, allocating additional resources to regulatory agencies to build capacity and enable enforcement of the regulatory framework may contribute to improving quality of care and drug prescription practices at private clinics and practitioners.

Pharmaceuticals account for almost half of OOP (49%) and government expenditure (48%). This is more than double what the government spent on salaries, incentives and other staff costs in 2012. Shifting funds from pharmaceuticals to other key inputs, such as staff costs, would contribute to improved quality of care by strengthening human resources. Different policy responses could be considered to try to reduce spending on pharmaceuticals. First, there are opportunities to make procurement and supply systems more efficient. Second, investment in pre-service and in-service training to improve prescription practices could reduce unnecessary prescriptions. Third, purchases of drugs without a prescription in private pharmacies and drugstores could over time be reduced by strengthening the legal framework and by building regulatory capacity.

The analysis of health expenditure by disease should be interpreted with some caution due to the sensitivity of the analysis to the assumptions related to how utilization and cost data were used to generate distribution factors (shares of total) by disease (see also below). Nevertheless, with this caveat in mind, the NHA analysis appears to have identified diseases and conditions that would justify additional investment. Spending on communicable diseases accounted for about one-third (32.8%) of THE. Respiratory infections make up about 40% of this expenditure, so further investment in the introduction of the pneumococcal vaccine could contribute to reducing this substantial portion of THE.<sup>14</sup> The NHA 2012 found that HIV/AIDS expenditure was US\$ 55.0 million, a non-trivial share of THE (5.3%) and significant share of spending on communicable diseases (16.3%). More than four-fifths (83.6%) of HIV/AIDS expenditure was financed by donors, with the remaining share financed by the government (see Annex 7). Donors also accounted for a large share of health expenditure on malaria and tuberculosis. It is likely that the government share will increase in coming years due to counterpart financing requirements in the new funding model of the Global Fund to Fight AIDS, Tuberculosis and Malaria.

There is scope for enhanced alignment of resource allocation with the burden of disease. First, spending on NCDs accounted for only 5.5%. This could be a reflection of limited availability of services for NCDs. It could also be related to the methods used for the NHA. Since there is no health utilization data from private providers, the disease distribution at public providers were used as a proxy for private providers. If more NCDs are seen by the private sector, which seem plausible, the NCD share will be underestimated. Nevertheless, there may still be a need for increased funding to address the growing burden of NCDs. Second, expenditure on nutritional deficiencies is very low (US\$ 3.9 million or 0.4% of THE), despite high rates of malnutrition in Cambodia. In 2010, 41% of Cambodian children under five were stunted and 29% were

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<sup>13</sup> The draft National Health Financing Policy states that the benefit package of social health protection schemes can be delivered through both the public and private sector.

<sup>14</sup> According to the website of the GAVI Alliance (<http://www.gavialliance.org/country/cambodia/>), of US\$ 6,782,500 committed to support the pneumococcal vaccine in Cambodia, no funds had been disbursed as of 31 May 2014.

underweight (UNICEF et al, 2012). A very small share (6.4%) of THE is spent on prevention. This presents an opportunity to shift investment towards preventive care (for example, cancer screening), which will have two benefits. First, it will reduce illness and improve the health of the population. Second, it will improve efficiency and reduce service costs.

There are some limitations of the 2012 NHA analysis. The response rate by NGOs (31%) may appear low, but is comparable to the first year of NHA data collection in other countries. Particular efforts were made to capture NGOs that are known to operate large programs and the NHA team assesses that a very small portion of NGO health expenditure may not have been captured. The response rate by donors is very high and only donors known to operate relatively small programs did not submit a questionnaire.

We were able to measure OOP incurred in district hospitals and health centers, but it was beyond the scope of this first NHA exercise to collect expenditure data to analyze government funding flows below the provincial level. Possible methods and data sources to capture flows from the provincial level and below will be explored in preparation for the 2013 NHA.

Limited information on health expenditure by private insurance companies and employers were obtained. This is not likely to have affected the estimate of THE to any larger degree, given that the private insurance market for health is very small and only a few large garment factories operate health clinics for its employees. However, options to collect data from these groups that are likely to account for larger shares of THE will be considered for the 2013 NHA. It was beyond the scope of the 2012 NHA to collect detailed data from private health providers. However, given the importance of the private sector, the NHA 2013 will devote resources to collect and analyze data from private providers.

We were only able to obtain the total amount spent by the government on pharmaceuticals. This lack of disaggregated data meant that we were not able to analyze spending on different kinds of drugs or spending on drugs by level of care. Pharmaceuticals expenditure was therefore distributed by disease according to utilization data, although different disease categories may be less drug-intensive and/or use drugs that are different in price.

As noted above, the data on health expenditure by disease are sensitive to assumptions made when using utilization and cost data to generate distribution factors (shares of total) by disease. Efforts will be made in future NHA rounds to conduct sensitivity analysis to identify assumptions that are particularly important in driving the disease expenditure results, refine the assumptions and approach, including drawing on additional data sources if required. In addition, almost one-third (33.3%) of expenditure by disease was allocated to "Non-disease specific, including health systems strengthening (HSS)". While it is likely that most of this expenditure was related to HSS, it is plausible that respondents referred to expenditure on diseases not covered by the other categories. Future NHA rounds will separate these two categories in the questionnaires. Because detailed expenditure data from private providers were not collected, or previously available, distribution of expenditure by factor of provision had to rely on the distribution factors developed based on government data. It is possible that the cost structures are different in the private sector.

For one donor that does not report by calendar year, expenditure was allocated to 2012 on a pro-rata basis. This may have an impact on the results if funds tend to be spent during certain parts of the year. However, it is unlikely that this would have a major impact on the overall results. Furthermore, any differences will be smoothed out as additional NHA rounds are conducted.

Finally, since the 2012 NHA is the first NHA conducted in Cambodia and only provides one data point, it is not possible to assess expenditure over time using data collected and analyzed using the same methodology (as discussed above, previous data on health expenditure drew on different data sources and methods). This means it is also not possible to determine the degree to which 2012 health expenditure is part of a broader trend. However, results of preliminary analysis of OOP using data from the 2013 CSES confirms a significantly higher total OOP compared to earlier estimates.

## **7. Lessons learned**

The process of producing the first NHA in Cambodia has generated a number of lessons learned that will be applied in future NHA exercises to refine methods and data sources for data collection and analysis. It has been a very resource intensive exercise. This is to be expected given that this is Cambodia's first NHA and that a process for data collection and analysis had to be set up. Given that NHA aims at generating data disaggregated by several categories, data collection is complex and time-consuming. This is especially true in a country where 20% of the resources are provided by a large number of donors and where close to 200 NGOs are active in the health sector. Considerable resources had to be allocated to providing technical support to data providers during the data collection phase. However, the initial resources devoted to increasing the understanding of NHA in Cambodia is an investment that should yield returns in subsequent years. The need for technical support will not disappear as additional organizations participate and as current respondents change organizations, but it should be considerably reduced in the future.

The exercise has identified, or at least confirmed, several gaps in data availability. Only the aggregate figure of government expenditure on pharmaceuticals was provided to the NHA team. This means that the 2012 NHA could not present any disaggregated data on pharmaceuticals in the input category. More detailed information on pharmaceuticals would also have enabled the NHA team to allocate a larger direct share of expenditure by disease; now the indirect allocation approach described in Section 4 had to be applied, which is more sensitive to assumptions. There is also limited data available on private providers, which means that part of the allocation of expenditure by input and disease had to rely on government data for distribution shares. The analysis would also benefit from the availability, or at least collection, of additional data on expenditure below the provincial level.

Certain aspects of the data collection and analysis tools can be improved. The questionnaires generated by the HAPT are not particularly intuitive and required significant explanation. The NGO questionnaire is very detailed and not always aligned with how NGOs report on their expenditure, which means that some organizations had to devote considerable time to prepare their expenditure in the NHA format. It is possible that this had an effect on the response rate

from NGOs. The process of allocating expenditure by category in the HAPT would be considerably streamlined if fewer resources had to be devoted to manually specifying information that is already available in the questionnaire. WHO HQ has informed the Cambodia NHA team that the next version of the HAPT will address this constraint by making more of the expenditure allocation process automatic.

Finally, support, participation and ownership by government institutions and development partners are critical to ensure that NHA is based on the best possible data and that the NHA process and findings are considered useful by all stakeholders concerned with policy, planning and resource allocation in the health sector in Cambodia. The support and participation in the first NHA exercise has been strong, as reflected by response rates and interest in the process.

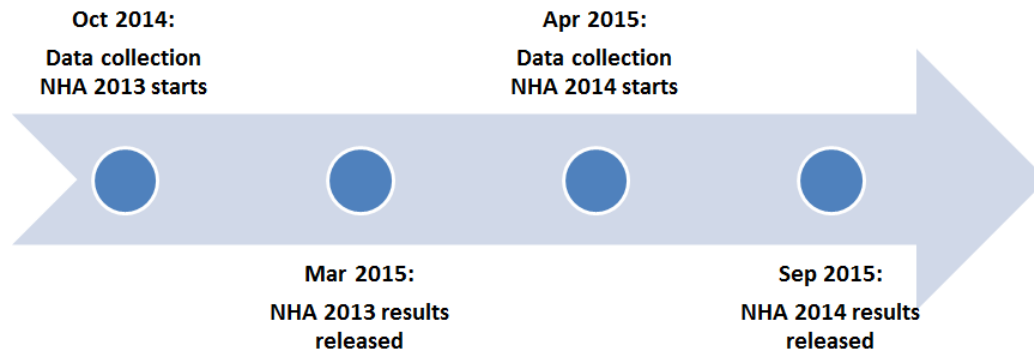
## **8. Conclusions**

The 2012 NHA found that more than US\$ 1 billion was spent on health care in Cambodia in 2012, equal to almost US\$ 70 per capita. This suggests that considerable financial resources are spent in the health sector by households, the government and development partners. However, the findings of the 2012 NHA also suggests that these resources could be used more equitably (for example, OOP accounts for about 60% of THE), more efficiently (for example, 40% is spent on pharmaceuticals) and better prioritized (for example, it appears that spending is not aligned to the burden of disease). The 2012 NHA has shed light on some of these important policy issues. It has also highlighted areas in need of additional and more disaggregated data collection and analysis to further inform policy-making in the health sector. Future NHA exercises should consider such analyses and also continue to build capacity and a system for routine collection of health expenditure in Cambodia.

MOH is planning to collect NHA data on an annual basis. As illustrated in Figure 19, data collection for the 2013 NHA is anticipated to start in September 2014 (with results anticipated to be released in the first quarter of 2015). Data collection for 2014 will take place in the second quarter of 2015 (with results released in the third quarter of 2015). At this point Cambodia will be on track to produce health expenditure data with a time-lag of less than one year. Over time, efforts will be made to institutionalize production of NHA and to make it part of routine data collection and analysis to generate evidence for policy. The contribution of government institutions and development partners will continue to be critical to this process.



Figure 19: Next steps of National Health Accounts in Cambodia



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## Annexes

### Annex 1: NHA questionnaire for NGOs

<b>Part A - Identification information of respondent</b>			
Q01	Name		
Q02	Position		
Q03	Phone number		
Q04	Email address		
<b>Part B: General NGO information</b>			
Q05	Name of NGO		
Q06	Type of NGO (national or international)		
Q07	In addition to using your information in an aggregate manner, would you approve the disclosure of your organization's name and contribution in the final NHA report?		
Q08	What currency will you use to fill out all the questions in the survey?		
<b>Part C: Total expenditure on health</b>			
Q09	Did you have any health expenditures between January 01, 2012 and December 31, 2012?		
Q10	What was your organization's non-capital expenditure on health, which excludes capital expenditure, but includes all health expenditures from January 01, 2012 to December 31, 2012 (including the value of donations given in-kind (i.e. material donations), administrative and management support)?		
Q11	What was your organization's capital expenditure on health, from January 01, 2012 to December 31, 2012?		
<b>Project/Program 1<sup>15</sup></b>			
Q12	Name of project/program		
Q13	Description of project/program		
Q14	Total project non-capital health expenditure		
Q15	Total project capital expenditure on health		
Q16	Name of donor <sup>16</sup>		Amount
<b>How was the project non-capital expenditure spent? (include in-kind expenditure)</b>			
Q17	Providers (where was money spent?) <sup>17</sup>		Amount (or % of project)
Q18	Factors of provision (expenditure on what inputs?) <sup>18</sup>		Amount (or % of provider)
Q19	Activities (what was the money spent on?) <sup>19</sup>		Amount (or % of provider)
Q20	What disease was the money spent on?		
Q21	What age was the money spent on?		
<b>How was the project capital expenditure spent? (include in-kind expenditure)</b>			
Q22	Capital expenditure (what type?		Amount (or %)
Q24	What disease was the non-capital expenditure spent on?		

<sup>15</sup> Respondents could add up to 10 projects/programs per questionnaire.

<sup>16</sup> Up to four donors per project.

<sup>17</sup> Up to four providers per project.

<sup>18</sup> Up to four inputs per provider.

<sup>19</sup> Up to six activities per provider.

## Annex 2: List of donor respondents

No	Name of organization
1	Asian Development Bank
2	Australia (Department of Foreign Affairs and Trade)
3	Australian Respiratory Council (ARC)
4	Bill & Melinda Gates Foundation
5	Bread for the World
6	Canada
7	Catholic Relief Services (CRS)
8	EU/EC
9	Foundation Maieux in Cambodia (FMC)
10	France (AFD)
11	GAVI Alliance
12	Germany
13	Global Fund to Fight AIDS, TB and Malaria
14	Japan (JICA)
15	KfW Development Bank
16	Louvain Cooperation (DGD)
17	Norwegian Association for Support of Private Initiative in Cambodia (NAPIC)
18	Republic of Korea (KOICA)
19	Rose Charities International
20	Switzerland
21	UK (DFID)
22	UNAIDS
23	UNESCO
24	UNFPA
25	UNICEF
26	US Centers for Disease Control (CDC)
27	USA
28	World Bank
29	World Food Programme
30	World Health Organization

### Annex 3: List of NGO respondents

No	Name of organization
1	Action for Health
2	Adventist Development Relief Agency (ADRA)
3	All Ears Cambodia (AEC)
4	Association of Medical Doctors of Asia (AMDA)
5	Australian Volunteers International (AVI)
6	Buddhism for Health
7	Cambodia Anti-Tuberculosis Association (CATA)
8	Cambodia HIV/AIDS Education and Care (CHEC)
9	Cambodian Children's Fund (CCF)
10	Cambodian Health Committee (CHC)
11	Children and Love/Life Association (CLA)
12	Children's Surgical Centre (CSC)
13	Christian Medical Ministry to Cambodia/ Jeremiah's Hope (CMMC/JH)
14	Clinton Health Access Initiative (CHAI)
15	Compassionate & Mercy Association (CAMA)
16	CRM / Inner Change (CRM-IC)
17	Douleurs Sans Frontières (DSF)
18	Family Health International (FHI 360)
19	Family Resource Center (FRC)
20	Foundation for International Development Relief (FIDR)
21	Foundation Maieux in Cambodia (FMC)
22	GIZ
23	Groupe de Recherche et d'Echanges Technologiques (GRET)
24	Harvest Development Organization of Cambodia (HDOCAM)
25	Health and Development Alliance (HEAD)
26	HEBRON
27	Indigenous People Health Improvement Association (IPHIA)
28	Indradevi Association (IDA)
29	International Relief and Development (IRD)
30	Japan Anti Tuberculosis Association (JATA)
31	Japan Medical Development Organization (JMDO)
32	Malaria Consortium (MC)
33	Maries Stopes International Cambodia (MSIC)
34	Médecins Sans Frontières - France (MSF-FRANCE)
35	Missionaries of Charity (MC)
36	OPBG Vatican (OPBG)
37	Operation Enfant du Cambodge (OEC)
38	Pact Cambodia
39	Partners for Development (PFD)
40	Partners in Compassion-(PC)
41	Patient Information Centre (MoPoTsyo)
42	Pharmaciens Sans Frontières (ACTED-PSF) Cambodia
43	Population Services International (PSI)
44	Reproductive Health Association of Cambodia (RHAC)
45	Rose Charities Cambodia
46	Save The Children
47	Sihanouk Hospital Center of Hope (SHCH)
48	Spien Cambodia - Holland (SPIEN)
49	Sugar Palm Foundation Cambodia (SPFC)

No	Name of organization
50	Tean Thor Association ( TTA)
51	The Children's Sanctuary Inc. (CS)
52	The Fred Hollows Foundation (FHF)
53	The Lake Clinic-Cambodia (TLC)
54	University Research Co. (URC)
55	URC CAP Malaria
56	Ven. Mother Park Chung Soo's Won Buddhist Relief Foundation (VMPCSWBRF)
57	Voluntary Service Overseas (VSO)
58	World Vision Cambodia (WVC)

#### Annex 4: Health expenditure by provider (US\$)

Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
<b>HP.1</b>	<b>Hospitals</b>	<b>53,572,709</b>	<b>60,345,988</b>	<b>173,208,297</b>	<b>68,898</b>	<b>287,195,891</b>
HP.1.1	General hospitals	50,617,749	56,219,877	173,208,297	34,847	280,080,769
HP.1.1.1	Private hospitals	0	43,072,029	62,327,176	0	105,399,205
HP.1.1.1.1	For-profit hospital	0	0	62,327,176	0	62,327,176
HP.1.1.1.2	NGO hospital	0	42,838,630	0	0	42,838,630
HP.1.1.1.nec	Other private	0	233,398	0	0	233,398
HP.1.1.2	Public hospitals	50,617,749	10,862,112	110,881,121	34,847	172,395,829
HP.1.1.2.1	National hospital	12,050,110	422,020	48,725,875	8,507	61,206,512
HP.1.1.2.2	Provincial hospital	23,126,302	1,354,570	43,216,287	8,507	67,705,666
HP.1.1.2.3	District hospital	15,409,727	768,255	18,938,960	8,507	35,125,448
HP.1.1.2.nec	Other public	31,609	8,317,268	0	9,326	8,358,203
HP.1.1.nec	Other general hospitals	0	2,285,736	0	0	2,285,736
HP.1.2	Mental health hospitals	0	422,939	0	0	422,939
HP.1.3	Specialized hospitals (other than mental health hospitals)	2,954,960	3,680,219	0	25,520	6,660,700
HP.1.3.2	National MCH hospital	0	22,889	0	8,507	31,396
HP.1.3.3	National TB hospital	903,585	2,432,722	0	0	3,336,307
HP.1.3.4	Kun Theak Bopha hospital	0	22,889	0	8,507	31,396
HP.1.3.5	National pediatric hospital	0	253,883	0	8,507	262,390
HP.1.3.nec	Other specialized hospitals (other than mental health hospitals)	2,051,375	947,837	0	0	2,999,212
HP.1.nec	Other hospitals	0	22,953	0	8,531	31,484
<b>HP.3</b>	<b>Providers of outpatient health care</b>	<b>18,557,866</b>	<b>7,735,057</b>	<b>292,833,302</b>	<b>0</b>	<b>319,126,224</b>
HP.3.1	Medical practices	0	2,324,201	271,133,979	0	273,458,180
HP.3.1.1	Offices of general medical practitioners	0	0	271,133,979	0	271,133,979
HP.3.1.nec	Other medical practices	0	2,324,201	0	0	2,324,201
HP.3.3	Other health care practitioners	0	215,765	26,628	0	242,393
HP.3.3.nec	Other Other health care practitioners	0	215,765	26,628	0	242,393
HP.3.4	Ambulatory health care centers	18,557,866	3,815,092	21,672,695	0	44,045,653
HP.3.4.1	Family planning centers	0	150,029	0	0	150,029
HP.3.4.5	Public health center	18,557,866	3,665,063	21,672,695	0	43,895,624
HP.3.5	Providers of home health care services	0	214,082	0	0	214,082
HP.3.nec	Other providers of ambulatory health care	0	1,165,917	0	0	1,165,917
<b>HP.4</b>	<b>Providers of ancillary services</b>	<b>291,635</b>	<b>966,622</b>	<b>0</b>	<b>0</b>	<b>1,258,257</b>
HP.4.2	Medical and diagnostic laboratories	291,635	966,622	0	0	1,258,257
<b>HP.5</b>	<b>Retailers and other providers of medical goods</b>	<b>95,815,596</b>	<b>167,489</b>	<b>105,012,671</b>	<b>2,188</b>	<b>200,997,945</b>
HP.5.1	Pharmacies	95,815,596	162,489	105,012,671	2,188	200,992,945
HP.5.2	Retail sellers and other suppliers of durable medical goods and	0	5,000	0	0	5,000



Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
	medical appliances					
<b>HP.6</b>	<b>Providers of preventive care</b>	<b>895,319</b>	<b>6,624,496</b>	<b>0</b>	<b>0</b>	<b>7,519,815</b>
<b>HP.7</b>	<b>Providers of health care system administration and financing</b>	<b>29,855,610</b>	<b>59,345,722</b>	<b>0</b>	<b>190,397</b>	<b>89,391,729</b>
HP.7.1	Government health administration agencies	29,250,445	47,509,429	0	171,463	76,931,336
HP.7.2	Social health insurance agencies	605,165	708,233	0	18,934	1,332,333
HP.7.9	Other administration agencies	0	11,128,060	0	0	11,128,060
HP.8	Rest of economy	<b>0</b>	<b>98,751</b>	<b>0</b>	<b>0</b>	<b>98,751</b>
HP.8.3	Community health workers (or village health worker, community health aide, etc.)	0	98,751	0	0	98,751
<b>HP.9</b>	<b>Rest of the world</b>	<b>72,992</b>	<b>5,500,911</b>	<b>0</b>	<b>0</b>	<b>5,573,903</b>
<b>HP.nec</b>	<b>Other health care providers</b>	<b>57,642</b>	<b>68,209,764</b>	<b>51,178,309</b>	<b>2,095,086</b>	<b>121,540,801</b>
	<b>Total all providers</b>	<b>199,119,369</b>	<b>208,994,800</b>	<b>622,232,579</b>	<b>2,356,569</b>	<b>1,032,703,317</b>

## Annex 5: Health expenditure by activity (US\$)

Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
<b>HC.1</b>	<b>Curative care</b>	<b>195,684,103</b>	<b>72,167,270</b>	<b>622,205,952</b>	<b>161,466</b>	<b>890,218,791</b>
HC.1.1	Inpatient curative care	119,900,073	30,234,668	225,183,704	80,733	375,399,178
HC.1.1.1	General inpatient curative care	117,268,185	21,322,907	225,183,704	35,543	363,810,338
HC.1.1.2	Specialized inpatient curative care	2,631,888	8,145,810	0	45,190	10,822,888
HC.1.1.nec	Other inpatient curative care	0	765,952	0	0	765,952
HC.1.2	Day curative care	0	31,039	0	0	31,039
HC.1.2.1	General day curative care	0	31,039	0	0	31,039
HC.1.3	Outpatient curative care	75,784,030	35,141,737	397,022,248	80,733	508,028,749
HC.1.3.1	General outpatient curative care	75,199,338	30,556,143	397,022,248	35,543	502,813,272
HC.1.3.2	Dental outpatient curative care	0	22,733	0	0	22,733
HC.1.3.3	Specialized outpatient curative care	584,692	3,441,478	0	45,190	4,071,360
HC.1.3.nec	Other outpatient curative care	0	1,121,383	0	0	1,121,383
HC.1.4	Home-based curative care	0	1,049,028	0	0	1,049,028
HC.1.nec	Other curative care	0	5,710,797	0	0	5,710,797
<b>HC.2</b>	<b>Rehabilitative care</b>	<b>0</b>	<b>1,902,135</b>	<b>0</b>	<b>0</b>	<b>1,902,135</b>
HC.2.3	Outpatient rehabilitative care	0	42,613	0	0	42,613
HC.2.4	Home-based rehabilitative care	0	287,963	0	0	287,963
HC.2.nec	Other rehabilitative care	0	1,571,558	0	0	1,571,558
<b>HC.3</b>	<b>Long-term care (health)</b>	<b>98,712</b>	<b>1,240,301</b>	<b>0</b>	<b>0</b>	<b>1,339,013</b>
HC.3.1	Inpatient long-term care (health)	0	922,409	0	0	922,409
HC.3.3	Outpatient long-term care (health)	98,712	4,420	0	0	103,132
HC.3.4	Home-based long-term care (health)	0	160,000	0	0	160,000
HC.3.nec	Other long-term care	0	153,472	0	0	153,472
<b>HC.4</b>	<b>Ancillary services (non-specified by function)</b>	<b>1,431,025</b>	<b>2,800,427</b>	<b>0</b>	<b>0</b>	<b>4,231,452</b>
HC.4.1	Laboratory services	291,635	2,396,929	0	0	2,688,564
HC.4.2	Imaging services	0	25,235	0	0	25,235
HC.4.3	Patient transportation	687,908	193,826	0	0	881,734
HC.4.nec	Other ancillary services	451,482	184,438	0	0	635,920
<b>HC.6</b>	<b>Preventive care</b>	<b>993,934</b>	<b>65,591,414</b>	<b>0</b>	<b>21,510</b>	<b>66,606,858</b>
HC.6.1	Information, education and counseling programs	86,908	8,101,907	0	0	8,188,815
HC.6.2	Immunization programs	0	5,476,741	0	0	5,476,741
HC.6.3	Early disease detection programs	0	751,146	0	0	751,146
HC.6.4	Healthy condition monitoring programs	0	1,257,709	0	0	1,257,709
HC.6.5	Epidemiological surveillance and risk and disease control programs	119,428	30,420,058	0	7,010	30,546,496
HC.6.5.1	Planning & Management	119,428	14,651,148	0	0	14,770,576
HC.6.5.2	Monitoring & Evaluation (M&E)	0	6,795,458	0	0	6,795,458
HC.6.5.3	Procurement & supply management	0	2,388,840	0	0	2,388,840
HC.6.5.nec	Other epidemiological surveillance and risk and disease control	0	6,584,611	0	7,010	6,591,621

Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
	programs					
HC.6.6	Preparing for disaster and emergency response programs	0	261,000	0	0	261,000
HC.6.nec	Other preventive care	787,598	19,322,853	0	14,500	20,124,951
<b>HC.7</b>	<b>Governance, and health system and financing administration</b>	<b>650,200</b>	<b>38,272,383</b>	<b>0</b>	<b>18,934</b>	<b>38,941,517</b>
HC.7.1	Governance and Health system administration	592,558	28,990,587	0	18,934	29,602,079
HC.7.1.1	Planning & Management	243,891	11,757,009	0	0	12,000,900
HC.7.1.2	Monitoring & Evaluation (M&E)	94,902	5,757,907	0	18,934	5,871,743
HC.7.1.3	Procurement & supply management	185,815	2,212,749	0	0	2,398,564
HC.7.1.nec	Other governance and Health system administration	67,950	9,262,921	0	0	9,330,871
HC.7.2	Administration of health financing	0	4,028,809	0	0	4,028,809
HC.7.nec	Other governance, and health system and financing administration	57,642	5,252,987	0	0	5,310,629
<b>HC.9</b>	<b>Other health care services not elsewhere classified</b>	<b>261,395</b>	<b>27,020,869</b>	<b>26,628</b>	<b>2,154,658</b>	<b>29,463,550</b>
	<b>Total all activities</b>	<b>199,119,369</b>	<b>208,994,800</b>	<b>622,232,579</b>	<b>2,356,569</b>	<b>1,032,703,317</b>

## Annex 6: Health expenditure by input (US\$)

Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
<b>FP.1</b>	<b>Compensation of employees</b>	<b>36,666,895</b>	<b>56,575,982</b>	<b>110,837,339</b>	<b>0</b>	<b>204,080,216</b>
FP.1.1	Wages and salaries	22,269,562	35,092,734	68,962,878	0	126,325,174
FP.1.2	Social contributions	1,263,917	5,459,543	0	0	6,723,460
FP.1.3	All other costs related to employees	4,717,438	11,627,057	26,879,297	0	43,223,792
FP.1.4	Incentives	8,415,978	4,396,648	14,995,163	0	27,807,789
<b>FP.2</b>	<b>Self-employed professional remuneration</b>	<b>0</b>	<b>44,337</b>	<b>0</b>	<b>0</b>	<b>44,337</b>
<b>FP.3</b>	<b>Materials and services used</b>	<b>162,154,313</b>	<b>114,059,346</b>	<b>458,321,073</b>	<b>215,119</b>	<b>734,749,851</b>
FP.3.1	Health care services	2,021,907	11,857,444	0	9,326	13,888,678
FP.3.1.1	Laboratory & Imaging services	0	1,103,307	0	0	1,103,307
FP.3.1.nec	Other health care services	2,021,907	10,754,138	0	9,326	12,785,371
FP.3.2	Health care goods	120,826,894	21,585,642	333,876,026	54,389	476,342,950
FP.3.2.1	Pharmaceuticals	95,815,596	7,649,527	306,561,184	52,052	410,078,359
FP.3.2.1.1	Anti-retroviral treatment (ARV) for HIV	0	952,767	0	36,314	989,081
FP.3.2.1.2	TB drugs	0	468,807	0	8,876	477,683
FP.3.2.1.3	Antimalarial medicines	0	304,069	0	4,673	308,742
FP.3.2.1.3.1	ACT (artemisinin combination therapy) for malaria	0	152,034	0	2,337	154,371
FP.3.2.1.3.2	Other antimalarial medicines	0	152,034	0	2,337	154,371
FP.3.2.1.4	Vaccines	0	4,444,154	0	0	4,444,154
FP.3.2.1.5	Contraceptives	0	224,171	0	0	224,171
FP.3.2.1.7	Drugs on MOH essential drugs list	0	44,145	0	0	44,145
FP.3.2.1.nec	Other pharmaceuticals	95,815,596	1,211,413	306,561,184	2,188	403,590,383
FP.3.2.2	Other health care goods	25,011,297	13,936,115	27,314,841	2,337	66,264,591
FP.3.2.2.4	Diagnostic equipment	16,582,919	202,080	808,868	2,337	17,596,204
FP.3.2.2.nec	Different other health care goods	8,428,378	13,734,035	26,505,974	0	48,668,387
FP.3.3	Non-health care services	39,128,002	51,259,247	124,445,047	56,567	214,888,864
FP.3.3.1	Training	13,794	20,996,876	0	19,855	21,030,526
FP.3.3.2	Technical Assistance (consultants)	22,946	13,659,104	0	35,229	13,717,279
FP.3.3.3	Operational research	39,389	5,438,754	0	1,483	5,479,626
FP.3.3.nec	Other non-health care services	39,051,873	11,164,513	124,445,047	0	174,661,434
FP.3.4	Non-health care goods	8,695	1,880,467	0	0	1,889,162
FP.3.nec	Other materials and services used	168,816	27,476,545	0	94,837	27,740,198
<b>FP.4</b>	<b>Consumption of fixed capital</b>	<b>249,834</b>	<b>35,470</b>	<b>53,074,168</b>	<b>2,078</b>	<b>53,361,549</b>
<b>FP.5</b>	<b>Other items of spending on inputs</b>	<b>48,327</b>	<b>3,652,795</b>	<b>0</b>	<b>0</b>	<b>3,701,122</b>
FP.5.2	Other items of spending	48,327	3,652,795	0	0	3,701,122
<b>FP.nec</b>	<b>Other factors of health care provision</b>	<b>0</b>	<b>34,626,870</b>	<b>0</b>	<b>2,139,372</b>	<b>36,766,241</b>
<b>Total all inputs</b>		<b>199,119,369</b>	<b>208,994,800</b>	<b>622,232,579</b>	<b>2,356,569</b>	<b>1,032,703,317</b>

## Annex 7: Health expenditure by disease (US\$)

Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
<b>DIS.1</b>	<b>Infectious and parasitic diseases</b>	<b>73,681,968</b>	<b>92,215,852</b>	<b>172,174,614</b>	<b>156,962</b>	<b>338,229,396</b>
DIS.1.1	HIV/AIDS	9,001,424	45,949,504	0	72,629	55,023,557
DIS.1.2	Tuberculosis	10,782,105	14,981,822	0	17,751	25,781,679
DIS.1.3	Malaria	2,184,601	19,616,500	3,832,240	7,010	25,640,351
DIS.1.4	Respiratory infections	25,032,418	395,804	109,964,413	29,786	135,422,421
DIS.1.5	Diarrheal diseases	10,564,240	1,619,511	28,715,363	29,786	40,928,900
DIS.1.6	Neglected tropical diseases	7,359,274	2,763,559	22,384,414	0	32,507,247
DIS.1.7	Vaccine preventable diseases	6,538,494	543,516	0	0	7,082,010
DIS.1.8	Hepatitis	83,188	0	144,549	0	227,737
DIS.1.nec	Other infectious and parasitic diseases	2,136,226	6,345,636	7,133,637	0	15,615,499
<b>DIS.2</b>	<b>Reproductive health</b>	<b>54,560,272</b>	<b>36,190,708</b>	<b>174,667,887</b>	<b>59,572</b>	<b>265,478,439</b>
DIS.2.1	Maternal conditions	41,788,673	10,258,940	131,896,961	59,572	184,004,146
DIS.2.2	Perinatal conditions	0	2,202,839	0	0	2,202,839
DIS.2.3	Contraceptive management (family planning)	8,864,611	12,756,248	36,006,682	0	57,627,541
DIS.2.nec	Other reproductive health conditions	3,906,988	10,972,680	6,764,243	0	21,643,911
<b>DIS.3</b>	<b>Nutritional deficiencies</b>	<b>198,507</b>	<b>3,410,660</b>	<b>325,201</b>	<b>14,500</b>	<b>3,948,868</b>
<b>DIS.4</b>	<b>Non-communicable diseases</b>	<b>6,322,686</b>	<b>5,830,793</b>	<b>44,466,518</b>	<b>0</b>	<b>56,619,997</b>
DIS.4.1	Neoplasms (for example, cancer)	65,711	524,394	120,694	0	710,799
DIS.4.2	Endocrine disorders (for example, diabetes)	394,410	286,126	1,278,803	0	1,959,339
DIS.4.3	Cardiovascular diseases (for example, hypertension)	3,486,540	404,119	11,433,025	0	15,323,684
DIS.4.4	Mental disorders	915,334	438,476	8,906,957	0	10,260,767
DIS.4.5	Drug dependency	8,116	0	38,917	0	47,033
DIS.4.6	Physical disabilities (for example, blindness, deafness)	1,452,575	1,649,633	22,688,122	0	25,790,330
DIS.4.9	Other non-communicable diseases	0	2,528,044	0	0	2,528,044
<b>DIS.5</b>	<b>Injuries</b>	<b>2,924,165</b>	<b>2,801,335</b>	<b>18,530,614</b>	<b>0</b>	<b>24,256,114</b>
<b>DIS.6</b>	<b>Non-disease specific</b>	<b>38,481,701</b>	<b>1,783,523</b>	<b>212,067,746</b>	<b>0</b>	<b>252,332,970</b>
DIS.nec	Other diseases or non-disease specific (e.g. health systems strengthening)	22,950,070	66,761,929	0	2,125,535	91,837,534
<b>Total all diseases</b>		<b>199,119,369</b>	<b>208,994,800</b>	<b>622,232,579</b>	<b>2,356,569</b>	<b>1,032,703,317</b>

## Annex 8: Health expenditure by age (US\$)

Code	Description	Source of funds				Sub-total
		Government	Donors/NGOs	Out-of-pocket	Health insurance	
AGE.1	< 5 years old	38,210,998	54,799,793	66,755,085	64,312	159,830,188
AGE.2	≥ 5 years old	160,908,371	154,195,005	555,477,494	2,292,257	872,873,127
<b>Total all ages</b>		<b>199,119,369</b>	<b>208,994,800</b>	<b>622,232,579</b>	<b>2,356,569</b>	<b>1,032,703,317</b>