Data Collection Survey on Health Sector

Country Report
Kingdom of Cambodia

October 2012

Japan International Cooperation Agency
(JICA)

KRI International Corp.

TAC International Inc.

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This report is prepared to support JICA's country operation in health through strategic programming. The contents, however, may need to be supplemented with the latest and more detailed information by the readers since the report is mainly based on literature review and not on field study, with the exception of some countries.

Foreword

Background

The current situation surrounding the health sector in developing countries has been changing, especially at the start of the 21st century. Based on the recommendations from the concept of "Macroeconomics and Health"[1], development assistance for health has greatly increased to accelerate efforts to achieve the Millennium Development Goals (MDGs) by 2015. The development assistance for health has risen sharply from USD 10.9 billion to USD 21.8 billion in 2007[2]. Moreover, development assistance was harmonized by the common framework developed at the three consequent high-level forums in Rome (2003), in Paris (2005) and in Accra (2008).

Regardless of such favorable environmental changes for the health sector in developing countries, the outcomes do not seem to reach the level of expectation in many countries. Many developing countries, particularly Sub-Saharan African countries, will not achieve some of their MDGs 4 (Reduce child mortality), 5 (Improve maternal health) and 6 (Combat HIV/AIDS, malaria and other diseases) by 2015. Therefore, while raising more money for health is crucial for lower-income countries striving to move closer to universal coverage[3]; "More Money for Health[4]", it is just as important to get the substantial health gains out of the resources available; "More Health for Money[5]". Efficiency is a measure of the quality and/or quantity of output of services for a given level of input, and improving efficiency should also be seen as a means of extending coverage for the same cost and the improved health outcomes.

Considering this situation surrounding the health sector in developing countries, in a recent movement of its development assistance work, JICA has been working on country-based analytical work. This consists of macro level and sector wide analytical work aiming to clarify JICA's aid direction in each country by looking at priority areas of concern and aid mapping. The purpose of the Data Collection Survey on Health Sector is to contribute to JICA's analytical work efforts. In the past, JICA's analytical efforts were concentrated on the project planning purpose, as a consequence, information gathered in such analytical works were naturally limited to be around the particular projects. It is therefore thought to be important for JICA to conduct a country-based health sector review to gather complete information and analyze the whole sector to learn about the situation of the country and identify high priority problems and issues to be tackled in the health system.

Objectives of the Study

The key to the formulation of a good project is having conducted thorough sector reviews. Good sector reviews and analyses help us to understand the health situation and its determinants, and the capacity for health project implementation in the countries. They also help us to contribute to the countries for identifying the feasible projects in the context of priorities and developing the necessary policies and strategic planning for the health service delivery. It is also necessary to conduct such health sector review studies on a regular basis in order to develop and implement effective and efficient health projects. Based on this concept, JICA decided to carry out the sector review studies of 23 selected countries. The objectives of the sector review are to give recommendations to JICA on the aid direction for the health sector in each country, and to improve strategic approaches and the efficiency of aid cooperation.

Structure of the Report

The health sector study country report consists of seven chapters. Chapter 1 is the summary of the socio-economic situation of each country. Chapter 2 is an analysis of the national health policy, strategic approaches, and plans. Chapter 3 describes the health situation of each country to show the priority health problems by using health information and data. Chapter 4 is an analysis of the health service delivery function of each country, while Chapter 5 is an analysis of other functions of the country's health system namely: human resources for health, health information systems, essential medical products and technologies including the health facilities, health financing, and leadership and governance. Chapter 6 is an analysis of the development partners' assistance and cooperation. Based on the above analysis, Chapter 7 provides recommendations to JICA on the strategic areas of cooperation and its approaches.

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[1] WHO announced "Macroeconomics and Health: Investing in Health for Economic Development" in December, 2000. This regards Health is an intrinsic human right as well as a central input to poverty reduction and socioeconomic development and the process helps place health at the centre of the broader development agenda in countries.

[2] Ravishankar N., Gubbins P. Cooley J.R., et. al; June 2009; Financing of global health: tracking development assistance for health from 1990 to 2007; the Lancet 373:2113-2132

[3] According to WHO, Universal coverage (UC) is defined as ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship. (http://www.who.int/health_financing/universal_coverage_definition/en/index.html)

[4] In the World Health Report 2010 (WHO), the report advocates it with the following concrete three suggestions as the requirements; 1) Increase the efficiency of revenue collection, 2) Reprioritize government budgets, and 3) Innovative financing. As the forth suggestion, it advocates increasing development aid and making it work better for health.

[5] The World Health Report 2010 also suggests the needs of improving the efficacy in the health systems and eliminating the inefficiency/waste will enable the poor countries to improve the availability and quality of the services.

Abbreviation and Acronyms

ACT	Artemisinin-based Combination Therapy
ADB	Asian Development Bank
AIDS	Acquired Immune Deficiency Syndrome
ART	Anti-retroviral Therapy
ARV	Anti-retroviral Drug
AusAID	Australian Agency for International Development
BCG	Bacille Calmette Guerin
BMI	Body Mass Index
BTC	Belgian Technical Cooperation
CBHI	Community Based Health Insurance
CCM	Country Coordinating Mechanism
CDHS	Cambodia Demographic and Health Survey
CMDGs	Cambodia Millennium Development Goals
CPA	Complementary Package of Activities
CSES	Cambodia Socio-Economic Surveys
DFID	Department for International Development
DOTS	Directly Observed Therapy Short-course
DPT	Diphtheria, Pertussis, Tetanus
EC	European Commission
FTI	Fast Track Initiative
GAVI	The Global Alliance for Vaccines and Immunization
GDP	Gross Domestic Product
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GMP	Good Manufacturing Practice
GNI	Gross National Income
H5N1	-
HC	Health Center
HCP	Health Coverage Plan
HEF	Health Equity Fund
HIS-SWG	Health Information System Stakeholder Working Group
HISSP	Health Information System Strategic Plan
HIV	Human Immunodeficiency Virus
HMN	Health Metrics Network
HP	Health Post
HRDD	Human Resource Development Department
HSP	Health Sector Strategic Plan
HSSP	Health Sector Support Program
IHP+	International Health Partnership Plus
IHR	International Health Regulations
ITN	Insecticide-Treated Mosquito Net
JICA	Japan International Cooperation Agency
JOCV	Japan Overseas Cooperation Volunteers

MAFF	Ministry of Agriculture, Forestry and Fisheries
MBPI	Merit Based Performance Incentive
MDG~~s~~	Millennium Development Goal~~s~~
MOSVY	Ministry of Social Affairs, Veteran and Youth Rehabilitation
MOWRAM	Ministry of Water Resources and Meteorology
MPA	Minimum Package of Activities
MSM	Men who have sex with men
NCHADS	National Center for HIV/AIDS, Dermatology and STIs
NGO	Non-Governmental Organization
NSDP	National Strategic Development Plan
NSSF	National Social Security Fund
NSSFC	National Social Security Fund for Civil Servants
NTP	National Tuberculosis Control Program
OD	Operational District
PHD	Provincial Health Department
PHEIC	Public Health Emergency of International Concern
PMTCT	Prevention of Mother to Child Transmission
RH	Referral Hospital
RMNCH	Reproductive Health, Maternal, Newborn, Child health
RTC	Regional Training Center
SARS	Severe Acute Respiratory Syndrome
SFFSN	Strategic Framework for Food Security and Nutrition
SOA	Special Operating Agency
STI	Sexually Transmitted Infection
TB	Tuberculosis
TBA	Traditional Birth Attendant
TSMC	Technical School for Medical Care
TWG	Technical Working Group
TWG-H	Technical Working Group for Health
UHS	University of Health Science
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCCT	Voluntary Confidential Counseling and Testing
WHO	World Health Organization

Source: http://www.freemap.jp/asia/asia_cambodia_all.html (as of 2 July 2012)

Kingdom of Cambodia

Summary

1. Due to a civil war in Cambodia which began after 1970, the number of human resources for health sharply decreased. The foundation supporting health services as well as a social foundation suffered a crushing blow. After the signing of the Paris Peace Agreement in 1991, the reconstruction of the country got into full swing. When political stability was brought by the Hun Sen Government, the economic growth rate also rose. Despite this progress, Cambodia is still included among the Least Development Countries. Insufficient social and economic infrastructure and the shortage of human resources are problems in development of the country.

2. In accordance with the Rectangular Strategy and the National Strategic Development Plan, which are national development policies, the Health Sector Strategic Plan 2008-2015 (HSP2) was settled on and has been implemented. HSP2, a continuation of HSP1, plans to enhance the sustainable development of the health sector for better health of all Cambodians, especially the poor, women and children, and launched three programs: maternal and child health, communicable diseases, noncommunicable diseases. It also declared goals and five cross-cutting strategies which are common to all the programs. HSP2 has concrete numerical targets which HSP1 didn't have and includes a system to monitor the achievements and progress.

3. The disease pattern of Cambodia has been gradually changing from that consisting of mainly communicable diseases to that of high noncommunicable diseases. Although there have been delays in the improvement of the nutrition situation (Goal 1), there has been slow progress among child health related indicators. The under five mortality rate and infant mortality rate (Goal 4) have already achieved their Millennium Development Goals. The maternal mortality ratio had been high in the past; however, according to the Cambodia Demographic and Health Survey (CDHS) 2010, it was 206 per 100,000 live births - less than half of the value in CDHS 2005. This highlights the positive result of years of maternal and child health programs. However, since the value is still much higher than that of neighboring countries like Vietnam and Thailand, it is necessary to further improve by putting highest priority on the issue.

   As for HIV/AIDS control, the prevalence rate has shown a significant decrease in the past 10 years due to the Cambodian government's strong commitment, as well as economical and technical supports by donors like the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). The estimated HIV prevalence of adults (ages 15-49) was 0.5% in 2009, which is lower than the 0.6% target of the Millennium Development Goal.

   For Tuberculosis (TB), the treatment success rate has significantly improved after the implementation of the Directly Observed Therapy Short-course (DOTS). DOTS is the WHO-recommended TB control strategy and was introduced with the revision of the National Tuberculosis Control Program in 1994. However, the TB prevalence rate per 100,000 population was 660 in 2010, which is still high and almost double the regional average (344)[6]. Cambodia is one of the 22 countries[7] with the highest TB burden in the world where the inclusive support with DOTS as core are being carrying out. The preliminary result of the second national TB prevalence survey, which was conducted in 2011, showed an approximately 35% reduction in prevalence of smear-positive TB compared with the first national TB prevalence survey. However, it also indicated new challenges including the need for taking measures for smear-negative TB, which cannot be detected by smear microscopy, early detection and treatment for elderly patients or TB patients without symptoms/serious conditions.

   Notified cases of malaria in Cambodia are also five times higher than those in Laos, Thailand and Vietnam. Especially, many people living in tropical forest areas belong to ethnic minority groups and the poor. It is assumed that they are less likely to receive messages on health services and other necessary services, which result in the high incidences of malaria.

   Noncommunicable diseases account for about 47% of causes of death, in which cardiovascular disease, cancer, and diabetes occupy high ranks.

4. On health service delivery, the Government of Cambodia and development partners have been making an effort in solidarity to recover human resources and health facilities which had been totally destroyed during the civil war. Standards on health facilities, equipment and human resources were established, and continuous efforts have been made to improve those to fulfill the standards. As for capacity building of human resources

[6] As of 2009
[7] About half of the 22 countries are from Asia, including Thailand, Vietnam and Myanmar.

for health, the improvement of the quality in pre-and post-graduate education is crucial. The current situation is that there is no standardized textbook, and students who are taught by trainers with less clinical experience and instruction skills are deployed at hospitals without enough clinical ability. Naturally, this results in a degradation of the health services. For example, there are many cases where midwives are assigned to health centers without acquiring necessary midwifery skills due to the lack of quality training. Therefore it has been pointed out that they cannot provide required midwifery services such as taking necessary examinations to identify pregnancy-induced hypertension, or maintain proper records related to delivery.

5. Regarding the health system overall, capacity building of human resource for health is considered as one of the most important issues, and emphasis is being laid on training midwives and nurses. In addition to increasing the number of human resources, it is a big challenge to improve their quality through the establishment of a national examination system, securing clinical training opportunities, and reinforcement of in-service training. As for health financing, although the out-of-pocket ratio out of total health expenditure is high (40%), various health finance schemes have been tried including introduction of a health insurance system in order to secure stable health finance. On health facilities and equipment, they have been developed based on Health Coverage Plan since 1997.

6. The Health Sector Support Program 2009-2013 (HSSP2), continued from HSSP1, is the biggest project in the health sector with joint capital investment of Ministry of Health and development partners. Many donors participated in Sector-Wide Approach and seven organizations, including Australian Agency for International Development (AusAID) and Belgian Technical Cooperation (BTC), established a pool fund and are giving financial support to the Special Operating Agency (SOA). As the framework of aid coordination, the Health Sector Technical Working Group was formed, which holds meetings once a month and conducts policy discussions and information exchange. Moreover, sub-Technical Working Groups were formed to conduct technical discussions on each separate issue, such as health financing. Japan has contributed to improving many health indicators so far, including maternal mortality ratio, as a result of long-term supports, such as facility establishment through the Grant Aid scheme, strengthening human resources, and systems and measures to spread established technology to the country by technical cooperation. Further, communicable disease control, especially the outcome of long-term support in TB control can be seen in the result of the second national TB prevalence survey implemented in 2010. This proved the effectiveness of the DOTS strategy that Japan supported as the core of TB control.

7. The priority issues of people's health in Cambodia include improving maternal and child health, responding to emerging issues in communicable diseases control (including response to the increase of smear-negative TB patients and cooperation with neighboring countries), and control of increasing noncommunicable diseases. Further, it is necessary to reduce the gap among regions and ethnic groups in health indicators and access to health services. These problems arise by mainly the following four reasons due to insufficient quantity of health facilities and human resources, difficult geographical and economic access to health services, and traditional values and customs on eating habits:

    1) universal coverage of basic health services has not been achieved
    2) quality of health services provided is low
    3) emergency obstetric care has not yet been provided in many places
    4) the budget for the health sector is not sufficient.

    Further, for the effective and efficient implementation and management of measures, it is necessary to continuously strengthen the capacity of administrators. These administrators are responsible for implementing and promoting each measure and programme at provincial and district levels, although their capacity has been strengthened by the introduction of new schemes such as Contracting. To solve these problems, Japan can provide support in the following areas:

    1) further cooperation to strengthen maternal and child health
    2) continuous support to TB control
    3) support to noncommunicable disease control
    4) support to improving economic access to health services

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Chapter 1 Country Situation

The Kingdom of Cambodia ("Cambodia" hereafter) is located in the Indochina Peninsula and has a land area of approximately 180,000 square kilometers. Cambodia is bordered by Vietnam, Thailand and Laos. Its total population is about 14,310,000, of which Khmers[8] make up ninety percent [1].

In Cambodia, a civil war broke out after 1970 and many people lost their lives in the purges launched by the Pol Pot Government. In the health sector, the infrastructure supporting health services received a crushing blow due to the number of doctors and human resources for health who were targeted to be killed as intellectuals. Additionally, medical equipment and facilities were destroyed and left without maintenance. Although the social infrastructure, such as water supply, sanitation and roads which affect people's health had also been destroyed, works to rebuild the country got into full swing after signing the Paris Peace Agreement in 1991. Cambodia has been satisfactorily accomplishing a revival while getting foreign support. After political stability was brought by the Hun Sen Government, the economic growth rate increased – the average GDP growth rate for ten years (1998-2007) after the formation of the government was 9.4% [2]. Although the growth rate dropped after that it recovered back up to 6.9 % in 2011. Cambodia is still included among the Least Developed Countries; the Human Development Index ranks it 139th of 187 countries, which is in the 'medium' human development category (Table 1-1) [3]. In the Fourth United Nations Conference on the Least Developed Countries in 2011, the UN showed its expectation that Cambodia would graduate from the Least Developed Countries before 2020, backed by its powerful growth. Insufficient maintenance of social and economic infrastructure and a shortage of the human resources, due to the influence of the civil war, remain as problems.

Table 1-1 Main Indicators of Cambodia

Indicator	Value	Latest Year
Total Population	14,310,000	2011
Population growth rate	1.2%	2011
Life expectancy at birth (years)	62.5	2010
Crude birth rate (per 1,000 people)	22.5	2010
Crude death rate, crude (per 1,000 people)	8.0	2010
Gross National Income (GNI) per capita (current US$)	830	2011
GNI growth (annual %)	6.9	2011
Total enrollment, primary	96.0%	2010
Human Development Index/rank	0.52/139 *	2011
Poverty gap at $1.25 a day (PPP)	4.9%*	2008

Source: World Development Indicators (Access May 2012) [4]
*Human Development Report 2011(UNDP) [3]

Cambodia's administrative system was reorganized in December 2008. There are twenty-three provinces and the capital Phnom Penh Special Municipality; the former consists of provinces (23), districts (159) and communes (1,417) and the latter consists of special municipality (1), sections (8) and *sangkats* (204). Moreover, there are 14,073 villages all over the country [5]. Table 1-2 shows the population of each city and

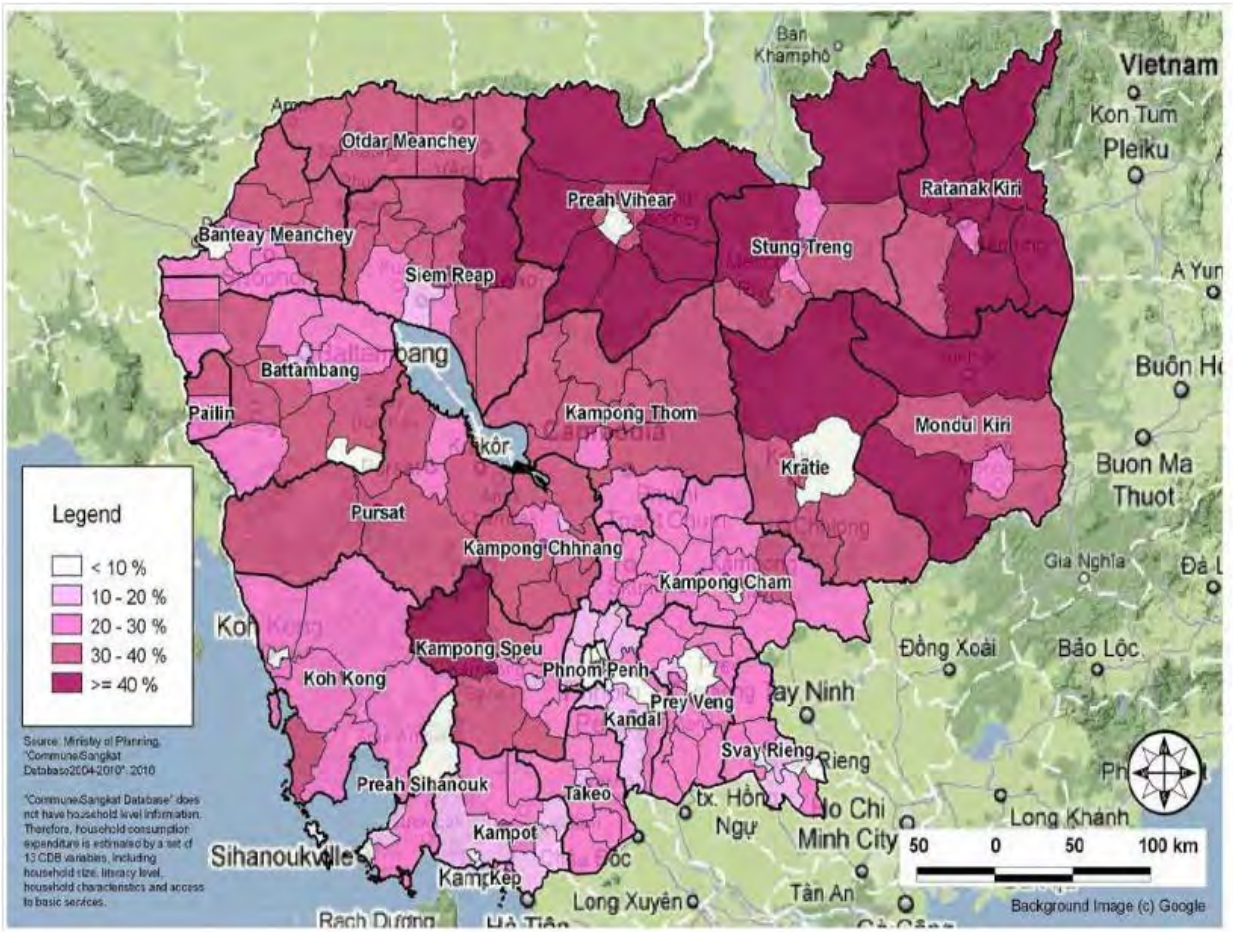
[8] Vietnamese makes up 5%, Chinese 1%, and others 4% of the whole population.

province and Figure 1-1 indicates the poverty rate by household income at district level. In general, the highlands and mountain areas near the borders with Thailand, Laos and Vietnam have relatively high poverty rate and the coastal areas have lower poverty rate.

Table 1-2 Population by City / Province

Province	Population	Province	Population	Province	Population
Banteay Meanchey	677,872	Mondul Kiri	61,107	Koh Kong	117,481
Otdar Meanchey	185,819	Ratanak Kiri	150,466	Preah Sihanouk	221,396
Siem Reap	896,443	Kratie	319,217	Kampot	585,850
Battambang	1,025,174	Kampong Thom	631,409	Kep	35,753
Pailin	70,486	Kampong Chhnang	472,341	Kandal	1,265,280
Pursat	397,161	Kampong Cham	1,679,992	Prey Veng	947,372
Preah Vihear	171,139	Kampong Speu	716,944	Svay Rieng	482,788
Stung Treng	111,671	Phnom Penh	1,327,615	Takeo	844,906
				Total	13,395,682

Source: General Population Census 2008 [6]



Source: Poverty Profile Survey for Kingdom of Cambodia (Asia) Final Report [7]

Figure 1-1 Distribution of Poor Household

Chapter 2 Development Policies and Plans

2.1 National Development Policy

2.1.1 Rectangular Strategy

With the formation of Hun Sen Government in July 2004, the Rectangular Strategy was settled on as a framework for Cambodia's comprehensive national development plan. Its core strategy is 'good governance' with the following four strategic growth rectangles:

1) Enhancement of agricultural sector
2) Further rehabilitation and construction of infrastructure
3) Development of private sector and creation of employment
4) Capacity building and human resource development

After the formation of the fourth government in September 2008, Prime Minister Hun Sen announced the Second Rectangular Strategy, in which the maintenance of infrastructure and the development of agriculture, especially in rural areas, were stressed as important issues.

2.1.2 National Strategic Development Plan (NSDP) 2009-2013

The National Strategic Development Plan (NSDP) is placed as a strategy to achieve the Cambodia Millennium Development Goals (CMDGs). These were settled on in 2003 along with the goals of the above-mentioned Rectangular Strategy. NSDP aims to reduce the population of the poor by 1% and to accomplish economic growth of 7% every year. The health sector is considered to be the core aspect of poverty reduction and economic growth; the "improvement of health service" is included in the main goals of "capacity building and human resource development" in the Rectangular Strategy (Table 2-1). To be concrete, improved access to the health services through the construction and maintenance of health facilities such as hospitals and health centers, and supporting access to sustainable health service systems, especially for the poor, are to be conducted [5].

Table 2-1 Main Issues and Important Sectors of NSDP (2009-2013)

Central issue: Good governance (fighting corruption, legal and judicial reform, administrative /financial reform, reform of the armed forces)		
No	Important issue	Main goal
1	Enhancement of agricultural sector	Productivity improvement and diversification of agriculture, land reform and clearing of mines, fisheries reform, forestry reform
2	Further rehabilitation and construction of physical infrastructure	Rehabilitation and construction of traffic infrastructure, management of water resources and irrigation system, development of energy sector, development of information and communication technology
3	Private sector development and employment	Strengthening private sector and attracting investment, creation of employment and improvement of working conditions, promotion of small and medium enterprises, establishment of social safety net
4	Capacity building and human resource development	Strengthening the quality of education, **improvement of health services**, promotion of gender equality, implementation of national population policy

Source: National Strategic Development Plan Update 2009-2013, Royal Government of Cambodia [5]

2.2 Health Sector Development Plan

2.2.1 Health Sector Strategic Plan (HSP)

In 2003, the first national health policy after the 1991 peace agreement "Health Sector Strategic Plan 2003-2007 (HSP1)" was developed by the Ministry of Health. With the overall goal to "enhance health sector development in order to improve the health of the people of Cambodia, especially mothers and children, thereby contributing to poverty alleviation and socio-economic development", numerical targets in accordance with the CMDGs were proposed and six priority areas were set [8]:

1) Health service delivery
2) Behavioral change
3) Quality improvement
4) Human resource development
5) Health financing
6) Institutional development

The challenges of the strategy included high maternal mortality ratio, the supervising ability of the government, policy-making and system establishment on health financing, and the effective management of donors' supports.

Based on the lessons of HSP1, the Health Sector Strategic Plan 2008-2015 (HSP2) was developed as the next strategy. HSP2 showed the commitment to continuously enhance sustainable development of the health sector for better health and well-being of all Cambodians, especially the poor, women and children. There are three main health programs under HSP2 including

1) Reproductive, maternal, new-born child health
2) Communicable diseases
3) Noncommunicable diseases

These goals and five cross-cutting strategies are common to all the programs. Table 2-2 shows the summary of HSP2.

Compared with HSP1, HSP2 has more definite targets[9] and includes a framework to monitor progress of its results.

[9] Main indicators and target values showed in HSP2 are given in Chapter 4.

Table 2-2 Summary of HSP2

Final goals	
To ensure sustainable development of the health sector for better health and well-being of all Cambodians, especially **the poor**, **women** and **children,** thereby contributing to poverty alleviation and socio-economic development	
Five common strategies	
1)health service delivery, 2) health care financing, 3) human resource for health, 4) health information system, 5) health system governance	
1) Health service delivery	➢ Expand coverage of MPA and CPA based on Health Coverage Plan and focused on client needs ➢ Strengthen health service delivery support systems in an integrated manner ➢ Target public health service provision and public health interventions according to need ➢ Develop and apply consistent standards of quality across entire health sector (public, private and non-profit) ➢ Develop contracting models as the center of a comprehensive approach to health service delivery
2) Health care financing	➢ Increase government budget and improve efficiency of government resource allocation for health ➢ Align donor funding with MOH strategies, plans and priorities and strengthen coordination of donor funding for health ➢ Reduce financial barriers at the point of care and develop social health protection mechanisms ➢ Account for the main sources and uses at service delivery level of national resources for health strategic intervention ➢ Evidence and information for health financing policy
3) Human Resource for Health Strategy	➢ Improve technical skills and competence of health workforce ➢ Strengthen staff professionalism, ethical conduct, and quality of work ➢ Staff distribution and retention, with priority to personnel essential to health sector priorities ➢ Staff remuneration, salaries, performance incentives
4) Health information Systems	➢ Increase the availability of accurate, timely and complete health data of high quality from public and private sources, together with enhanced coordination, and resources for the health information systems ➢ Improve data sharing, management, analysis, dissemination and use across all levels of the health system, including population and socio-demographic data ➢ Improve the national disease surveillance system, public facility patient medical record system, and strengthen the case reporting, monitoring and progress to noncommunicable diseases ➢ Expand the participation in the national health information system by the private sector, and facilitate data use for planning, resource allocation and management of human resources, infrastructure, and supplies
5) Health system governance	➢ Harmonization and alignment within MOH and across the health sector ➢ Public Private Partnerships ➢ Research, policy, regulation and legislation ➢ Institutional development ➢ Strengthen MOH health sector stewardship through decentralization and de-concentration ➢ Mobilize multi-sector responses increased national health system accountable for access to quality health services for all
Program 1: Maternal and child health **Goal Reduce maternal, new born and child morbidity and mortality with increase reproductive health**	
Objective	Improvement of nutritional status of women and children Improvement of access to quality reproductive health information and services Improvement of access to essential maternal and newborn health services and better family care practices Ensuring universal access to essential child health services and better family care practices

Program 2: Communicable disease **Goal 2: Reduce morbidity and mortality of HIV/AIDS, malaria, tuberculosis and other communicable diseases**	
Objective	Decrease of HIV prevalence rate Increase survival rate of people living with HIV/AIDS Achieve a high case-detection rate and maintain a high cure rate for pulmonary TB smear positive cases Reduce malaria related mortality and morbidity among general population Reduce burden of other communicable diseases
Program 3: Noncommunicable disease **Goal Reduce the burden of noncommunicable diseases and other health problems**	
Objective	Reduce risk behaviors leading to noncommunicable diseases (diabetes, cardiovascular diseases, cancer, mental health, accident and injuries, eye disease, oral health etc) Improve access to treatment and rehabilitation of noncommunicable diseases Ensure essential public health functions (environmental health, food security, disaster management and preparedness etc.)

Source: Second Health Sector Strategic Plan 2008-2015, MOH [9]

Chapter 3 Health Status of the People

3.1 Overview

In the past, the disease pattern of Cambodia was dominated by maternal and child mortality and infectious diseases caused by poor nutrition due to poverty and an unhygienic environment. However, noncommunicable diseases have been contributing an increasing share of the disease burden; the disease pattern of Cambodia is in a transitional period.

Table 3-1 shows the main health indictors in Cambodia in comparison with neighboring countries. Overall it shows an improving trend but the improvement has been delayed compared to Vietnam and the regional average. Infant mortality rate and under five mortality rate are still at a high level.

Table 3-1 Main Health Indictors and Comparison with Neighboring Countries

Indicator	Unit	Year	Cambodia	Regional Average*	Vietnam	Laos	Myanmar
Life expectancy at birth [1)]	Years	2010	62.5	72.2	74.8	67.1	64.7
Crude birth rate [1)]	per 1,000 population	2010	22.5	14.2	16.7	22.8	17.3
Crude death rate [1)]	per 1,000 population	2010	8.0	7.0	5.2	6.3	8.6
Total fertility rate [2)]	-	2010	2.6	1.8	1.8	2.8	2.0
Population growth rate [1)]	%	2010	1.1	0.7	1.0	1.4	0.8
Infant mortality rate [3)]	per 1,000 live births	2010	42.9	19.9	18.6	42.1	50.4
Under five mortality rate [3)]	per 1000 live births	2010	51.0	24.3	23.3	53.8	66.2
Maternal mortality ratio [4)]	per 100,000 live births	2010	206	88.7	56	580	240

*East Asia & Pacific (developing countries only)

Source: 1) World Development Indicators & Global Development Finance, World Bank [4]
2) Health Nutrition and Population Statistics, World Bank [10]
3) Millennium Development Goals [11]
4) Cambodia Demographic and Health Survey 2010 [12]

Table 3-2 shows the summary of likelihood of achieving the main health related indicators of Millennium Development Goals (MDGs) progress [13]. Although the improvement of nutrition status (Goal 1) is still lagging behind, the under five and infant mortality rates (Goal 4) and maternal mortality ratio (Goal 5) have achieved MDG targets. Infectious diseases (Goal 6) in general have remained on track to achieve the targets. In particular, the maternal mortality ratio was 472 (per 100,000 population) as of 2005, which made it seem difficult to achieve the MDG target, but it was reduced to 206 in 2010. The main contributors for the success include the government initiative to include maternal and child health improvement as one of the three prioritized programmes in HSP2 and the Fast Track Initiative (FTI). This was declared by MOH in 2008 and clearly showed necessary measures and commitments to allocate the national budget on maternal and child health and asked development partners for further financial and technical support [14]. Further, in the health sector technical working group held in August 2011, Special Operating Agency (SOA) and Health Equity Fund (HEF) were raised as the factors which gave the biggest impact on maternal and child health services,

although there were not referred to as direct causes [15]. Thus it can be said that these made access to maternal and child health services easier, which may have resulted in the reduction of maternal mortality ratio. Accordingly, the success in reducing maternal mortality ratio to less than half in a short period of time was due to Cambodian government's efforts such as making it a priority and promoting health service access together with development partners. This is a significant achievement in improving maternal and child health.

Table 3-2 Health Related MDGs Progress

MDG Indicators	1) Baseline	2) Current Value	3) 2015 Target
MDG1 Eradicate Extreme poverty and hunger			
Prevalence of underweight in children under five (%)	38.4 (2000)	28.8 (2010)	19.0
Prevalence of stunting in children under five (%)	49.7 (2000)	39.5 (2010)	25.0
MDG4 Reduce child mortality			
Under five mortality rate (per 1,000 live births)	124 (1998)	51 (2005) [1]	65
Infant mortality rate (per 1,000 live births)	95 (1998)	42.9 (2008) [1]	50
MDG5 Improve maternal health			
Maternal mortality ratio (per 100,000 live births)	437 (1997)	206 (2010) [3]	250
Proportion of births attended by skilled health personnel (%)	32 (2000)	71 [1] (2010)	87
Proportion of married women using modern birth spacing methods (%)	18.5 (2000)	26 (2008)	60
Antenatal care coverage – more than two visits (%)	30.5 (2000)	81 (2008)	90
MDG6 Combat HIV/AIDS, malaria and other diseases			
HIV prevalence rate among adults aged 15-49 (%)	1.9 (1997)	0.5 (2009) [2]	0.6
Antiretroviral therapy coverage (% of people with advanced HIV infection)	3 (2002)	94 (2009) [1]	95
Malaria case fatality rate reported by public health sector (%)	0.4 (2000)	0.35 (2008)	0.4
Prevalence of all forms of Tuberculosis (per 100,000 population)	928 (1997)	693 (2009) [1]	464
Tuberculosis death rate (per 100,000 population)	90 (1997)	61 (2010) [1]	32

Source: Achieving Cambodia's Millennium Development Goals 2010 [13]
1: MDGs database,
2: Cambodia Demographic and Health Survey 2010 [12],
3: Health Nutrition and Population Statistics [10]

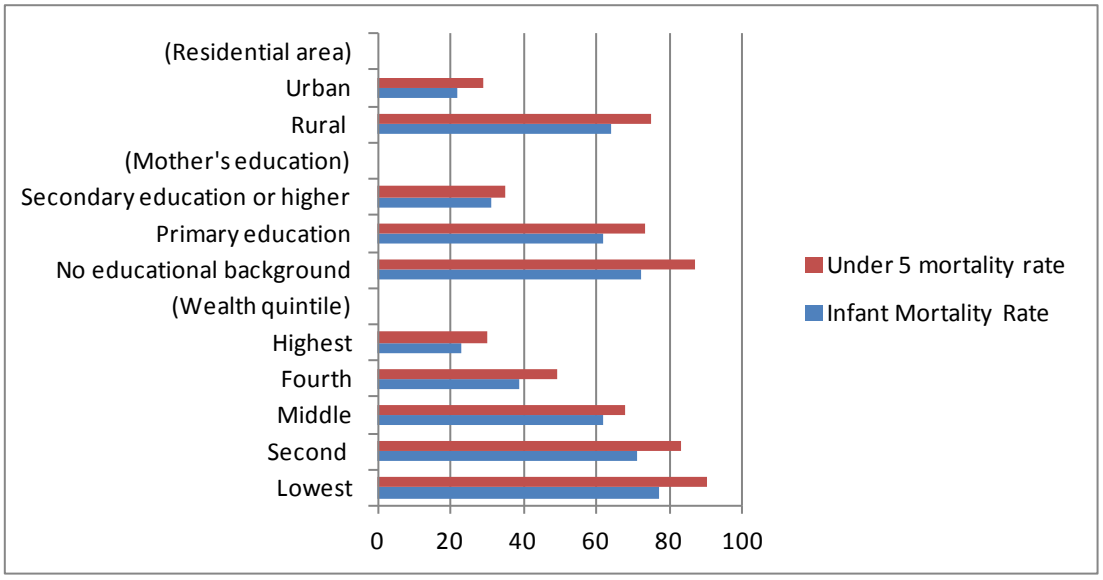
3.2 Maternal and Child Health

3.2.1 Mothers' health

The maternal mortality ratio in Cambodia was 206 (per 100,000 live births) in 2010 and was greatly improved from 690 in 1990 and 470 in 2000. However this ratio greatly exceeds the regional average (Table 3-1) and remains at a high level. According to Comprehensive Midwifery Review that was supported by United Nation Population Fund (UNPA) in 2006, the low quality of midwifery services were highlighted including low quality of antenatal checkup, an underdeveloped system to refer and transfer pregnant women who need emergency obstetric care, insufficient number of midwives and limitations in their training [16].

3.2.2 Children's health

Both the under five and infant mortality rates have already achieved the MDG targets (Table 3-2). The bases of these achievements include the national immunization program, promoting breastfeeding, improvement of access to basic health service and reducing poverty. Despite the improvement of these indicators, the problem of regional gaps remains. For example, under five mortality rate in rural areas such as Preah Vihear, Steung Treng, Prey Veng, Mondol Kiri and Ratanak Kiri are more than twice the national average and six times higher than the capital, Phnom Penh. According to the Cambodia Demographic and Health Survey (CDHS), these areas have higher rates of low income households, and girls' enrollment ratio in primary education is much lower than the national average [12]. It is estimated that the gap in the household income and the educational levels is behind the regional difference in under five mortality rate and infant mortality rate.



Source: Cambodia Demographic and Health Survey 2010 [12]

Figure 3-1 Comparison of Under-five Mortality Rate and Infant Mortality Rate (2010)

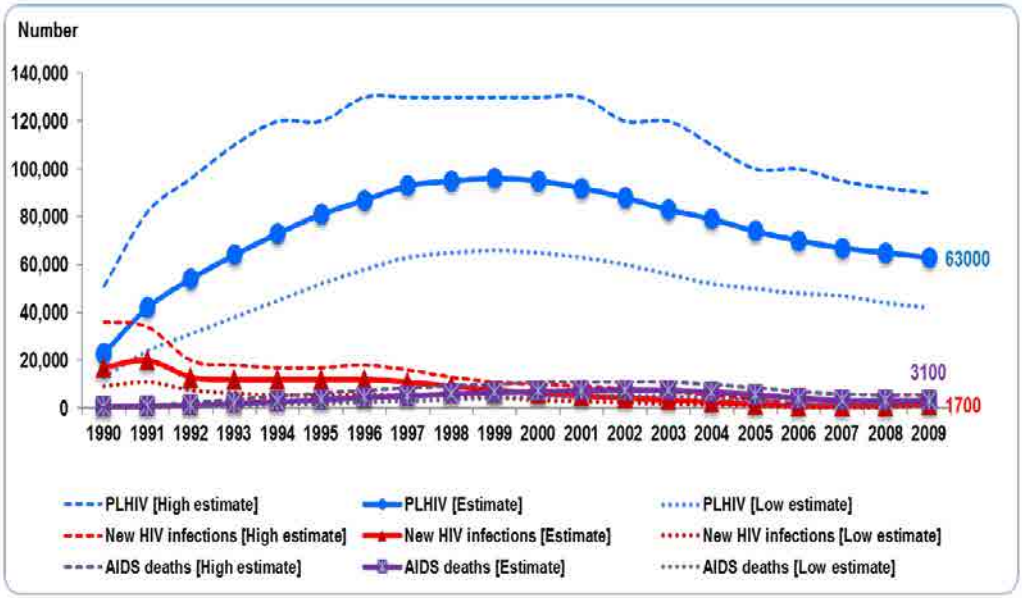
3.3 Situation of Infectious Diseases

3.3.1 HIV/AIDs

In Cambodia, the first case of HIV infection that was reported in 1991, which was caused by a HIV-infected blood donation; it then rapidly increased during 1990s. The HIV prevalence rate has decreased significantly in the past ten years and the rate of infection has been slowed (Figure 3-2). Although it is still higher than the regional average (Figure 3-3), the estimated HIV prevalence rate among adults aged 15-49 was 0.5% as of 2009; it has already achieved the MDG target of 0.6% [9]. The rate has decreased steadily (0.36% in 1990, 0.06% in 2000, 0.01% in 2009) and the estimated number of people living with HIV was 63,000 in 2009 [17]. The causes of this reduction, under the Cambodian government's strong commitments, include the focused and systematic measures taken by donors such as the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). In particular the increased use of condoms among people working in the sex industry was effective. Strengthening educational activities to the public on HIV/AIDs through television and radio is also a major contributing factor.

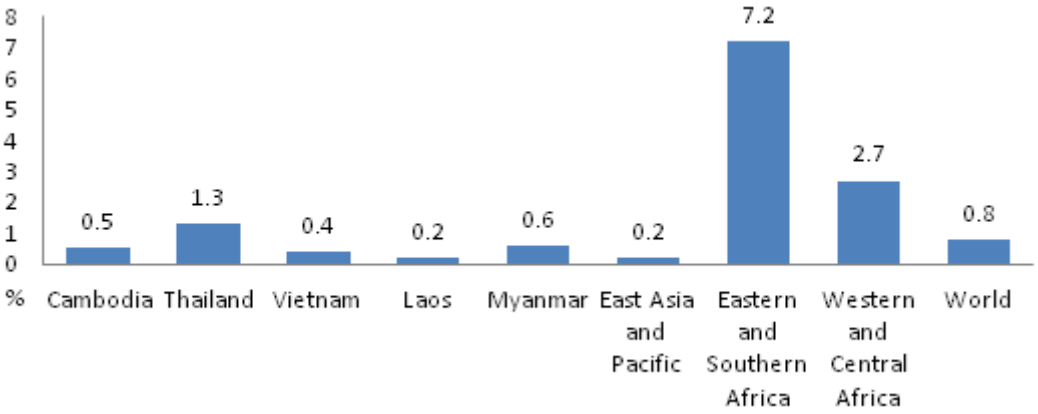
The route of HIV transmission was most commonly through heterosexual sex. The epidemic became prevalent in the early 1990s. The infection was particularly prominent among female sex workers in Phnom Penh and some provinces. Nowadays a third of the total HIV transmission is by mother-to-child. There is a clear pathway from men who were infected by sex workers, who passed it on to their wives and girlfriends and subsequently to their children.

According to the HIV sentinel surveillance in 2006, HIV prevalence rates among brothel-based female sex workers, one of the risk groups, was over 20% in Banteay Mean Chey and Battambang near the Thai border, in Siem Reap which is next to the these provinces, Kampong Speu near Phnom Penh, and the coastal areas of Koh Kong and Sihanoukville. In particular, it is said that the prevalence rate is over 30% in Banteay Mean Chey [18].



Source: Ministry of Health

Figure 3-2 Trend of Adult HIV Prevalence Rate (aged 15-49) in Cambodia (1990-2009)



Source: Health Nutrition and Population Statistics [10]

Figure 3-3 Estimated Adult HIV Prevalence Rate (aged 15-49) in 2009

3.3.2 Tuberculosis

After years of civil war, tuberculosis (TB) prevalence in Cambodia was extended due to the corruption in health systems and poor nutritional status of the people. However, after the National Tuberculosis Control

Program was drastically revised in 1994, the Directly Observed Therapy Short-course (DOTS), which is the WHO-recommended TB control strategy, was introduced and measures have been taken to increase the quality of rapidly expanding DOTS service. As a result, the Cambodian people's access to TB control service was improved and the TB treatment success rate was much improved [19]. However, the TB prevalence rate in Cambodia was 660 per 100,000 population as of 2010 (Table 3-3) and about two times higher than the regional average10 of 344. Cambodia is one of the 22 countries[11] with the highest TB burden in the world. The preliminary result of the second national TB prevalence survey, which was conducted in 2011, showed an approximately 35% reduction in prevalence of smear-positive TB compared with the first national TB prevalence survey. However, it also indicated new challenges including the need for taking measures for smear-negative TB, which cannot be detected by smear microscopy, early detection and treatment for the elderly patients or TB patients without symptoms/serious conditions [20].

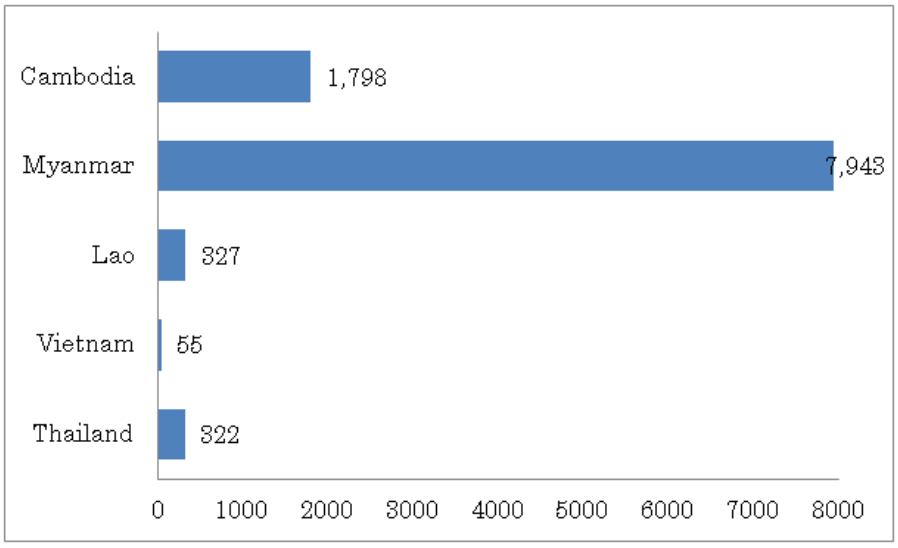
Table 3-3 Trends of Number of New Sputum Smear-Positive Pulmonary TB Case and TB Prevalence Rate

	1990	1995	2000	2005	2009
Number of new sputum smear-positive pulmonary TB case	-	11,101	14,822	21,001	17,863
TB Prevalence rate per 100,000 population	1,258	1,032	923	746	660 (2010)

Source: 1 WHO Report 2011. Global Tuberculosis Control (number of new sputum smear-positive patient), WHO [21]
2 Millennium Development Goals Database (Prevalence per 100000 population) [11]

3.3.3 Malaria

Figure 3-4 shows the comparison of the notified cases of malaria per 100,000 population compared to neighboring countries. It is noticed that Cambodia has a much lower rate than Myanmar, but is far above the rates for Lao, Vietnam and Thailand combined. The malaria death rate for all ages is 4 and for children under five years is 2 (per 100,000 population) [23].



Source: Millennium Development Goals Indicators, United Nations [23]

Figure 3-4 Comparison of the Notified Cases of Malaria per 100,000 Population (2008)

[10] As of 2009
[11] Asian countries account for about half of the 22 countries including Thailand, Vietnam and Myanmar.

About 6.2 million Cambodian people, or 44% of the total population, still live in high-risk areas which are concentrated in the borders of Thailand, Laos and Vietnam. The ethnic minority people, people living in tropical forest areas and seasonal workers are the major high-risk groups. The minority groups and those living in the tropical forest area are less likely to receive messages on health and other necessary services; hence the incidence of malaria rate is high. As for malaria drug resistance, it has been confirmed in the border area between Cambodia and Thailand since the 1970s[12], and according to the report in 2007 [24], there was observed a significant increase in treatment failure rates of artemisinin-based combination therapies (ACT). The need for better control measures in the Greater Mekong sub region was pointed out.

3.4 Nutrition

3.4.1 Children's Nutrition

The improvement of nutritional status has been delayed, while there has been an improvement in indicators on child death. The reasons behind the delay include the difficulty in securing the necessary amount of food due to poverty, and poor knowledge of mothers on nutrition, traditional values and customs surrounding diet [12].

Table 3-4 shows the nutritional status of children under five, showing that there has not been a significant improvement in the nutritional status of children under five in recent years. The improvement in stunting (low height for age) has been particularly slow with approximately 40% of children under five being stunted [10]. The recent economic recession and rising food prices are pointed out as factors for the resurgence in the stunting rate [13].

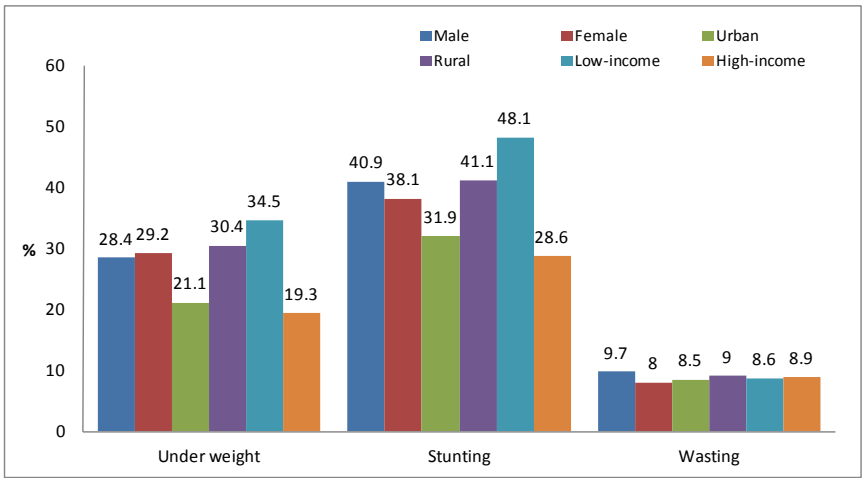
Table 3-4 Malnutrition in Children Under-five

Indicator	2000 (%)	2008 (%)	2011 (%)
Underweight	39.5	28.8	29.0
Stunting	49.2	39.5	40.9
Wasting	16.9	8.9	10.8

Source: Health Nutrition and Population Statistics, World Bank [10]

Figure 3-5 shows the comparison of malnutrition in children under five by sex, area and income. There is no big difference between boys and girls in each indicator. Also there is no significant difference between urban and rural areas and by income in wasting; however the differences in underweight children and stunting are remarkable. There is also a regional gap in malnutrition[13] [13].

[12] Resistance to Chloroquine, Sulfadoxine, Pyrimethamine, Mefloquine was confirmed so far.
[13] According to Cambodia Demographic and Health Survey 2010, the gap in stunting is more than twice between Preah Vihear/Steung Treng with the highest (56%) and Phnom Penh (25%).



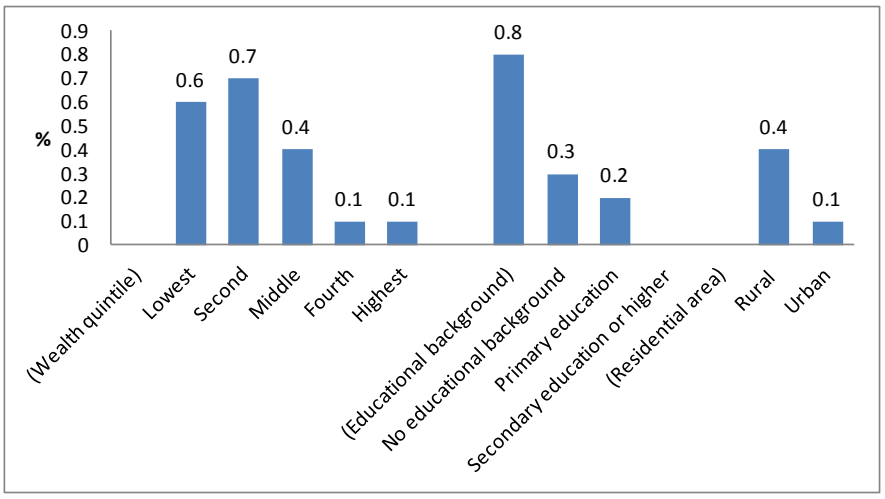
Source: Achieving Cambodia's Millennium Development Goals 2010, Ministry of Planning [13]

Figure 3-5 Comparison of Malnutrition in Children Under-five (2008)

3.4.2 Women's Nutrition

19.1 % of woman of reproductive age have a Body Mass Index (BMI) of less than 18.5[14]. There is a regional gap in the difference, being more than double between Svay Rieng (27%) and Takeo with the highest (25%) and Banteay Mean Chey with the lowest (12%) [12].

Approximately 7.3% of women of reproductive age have moderate anemia and 0.4% suffer from severe anemia. Figure 3-6 shows the prevalence of severe anemia in woman of reproductive age; there is an inverse correlation between the prevalence of severe anemia and income and education level. The prevalence of severe anemia in women living in rural areas is higher than for those in urban areas [12].



Source: Cambodia Demographic and Health Survey 2010, National Institute of Statistics [12]

Figure 3-6 Proportion of Severe Anemia in Woman 15-49 Years Old

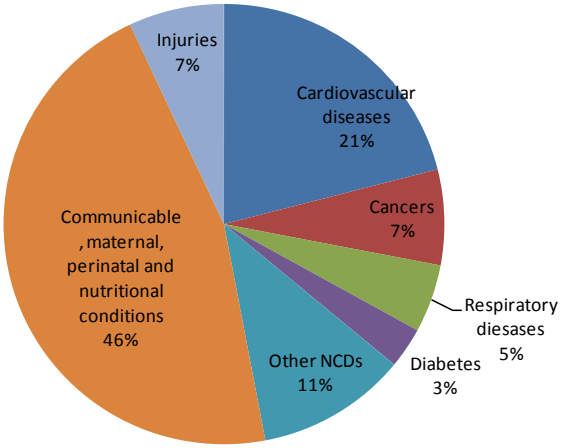
3.5 Others

3.5.1 Noncommunicable Diseases

As Figure 3-7 shows, noncommunicable diseases accounted for 47% of total deaths in 2011 [17]. Smoking and physical inactivity are significant behavioral risk factors. Metabolic risk factors to be diagnosed with

[14] BMI is an index of weight-for-height. The percent of non-pregnant women who have a BMI less than 18.5 are "underweight", which has a correlation with risk of low birth weight.

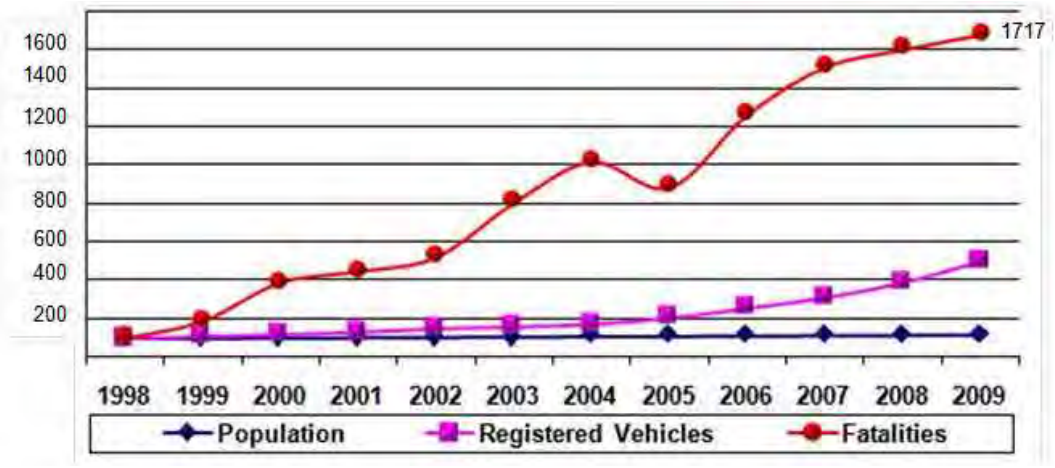
metabolic syndrome include hypertension, overweight, obesity and high cholesterol. In particular, the ratio of hypertension and high cholesterol is higher than other risk factors, and each ratio is almost 30% (27.6%, 29.0% respectively) [25].



Source: Noncommunicable Diseases Country Profile, 2011, WHO [25]

Figure 3-7 Proportion of Cause-Specific Deaths (2008)

In addition, the majority of injuries are due to traffic accidents, especially among 20-39 year olds and in urban areas with a heavy traffic [12]. As Figure 3-8 shows, the number of deaths due to traffic accidents has been increasing, while the number of registered vehicles has not so increased. There were 1,717 traffic fatalities in 2009, out of which 1,218 were motorbike accidents. Further, 79% of traffic fatalities from 2007-2009 occurred among people aged 20-49 years, the most productive age group [26].



Source: Road safety in Cambodia [26]

Figure 3-8 Evolution of Road Fatalities, Population and Vehicles in Cambodia, 1998- 2009 (base 100 = 1998)

Among accidental injuries and deaths, traffic accidents account for an average of 74% in urban areas and 66% in rural areas. According to CDHS in 2010, out of studied cases of 1,331 persons (of which 898 were due to traffic accidents) who are accidentally injured or killed, the number of traffic accidents was the highest in Phnom Penh Capital (125 cases), followed by its neighboring provinces in Kampong Speu (108 cases) and Kandal (99 cases). The percentage of traffic accidents out of total accidental injuries or deaths in those areas were 75.4%, 79.4% and 66% respectively [12].

Chapter 4 Health Services

4.1 Maternal and Child Health

4.1.1 National Policies and Visions

The Government of Cambodia shows a very strong commitment toward improving maternal and child health. As mentioned in 2.2.1, maternal and child health is as one of the three pillars of priority health programs in the Health Sector Strategic Plan 2008-2015 (HSP2), along with communicable diseases and noncommunicable diseases. In order to achieve the goal to "reduce maternal, new born and child morbidity and mortality with increase of reproductive health ", indicators and targets have been set. Table 4-1 shows the main indicators and targets.

Table 4-1 Main Indicators and Targets for Improving Maternal and Child Health in Health Sector Strategic Plan 2008-2015

Indicators	2005-2010 Baseline Value	2015 Target
Total fertility rate (%)	3.4	3
Maternal mortality ratio (per 100,000 live births)	206*	140
Neonatal mortality rate (per 1,000 live births)	28	22
Infant mortality rate (per 1,000 live births)	66	50
Under five mortality rate (per 1,000 live births)	83	65
Anemia in pregnant women (%)	57.1	33
Underweight in children under five (%)	36	22.6
Pregnant women receiving antenatal care at least two visits (%)	68	90
Births attended by skilled health personal (%)	44	80
Institution births (%)	22	70
Contraceptive prevalence using modern contraceptive method (%)	27	60
Proportion of children under 1 fully immunized (%)	60	80

Source: Health Sector Strategic Plan 2008-2015, MOH [9]
*CDHS 2010 [12]

After the new Minister assumed his position in 2008, the Fast Track Initiative (FTI) was developed to promote reproductive health, maternal, new born, child health (RMNCH). One of the principal measures to achieve was to improve the numbers and the quality of midwives. In order to do so, the subcommittee that connects existing interdisciplinary organizations called the RMNCH Task Force was appointed. Its members included the Director of the Ministry of Health and Manager of National Immunization Program, Director of National Maternal and Child Health Center, Director of National Reproductive Health Program and Director of National Nutrition Program. The main development partners such as WHO, UNFPA and JICA also joined as observers. This task force has a reporting system to Minister and donor coordination meeting through monitoring indicators of FTI.

4.1.2 Maternal and Child Health Care Service Provision and Utilization

Table 4-2 shows the trend of main indicators on reproductive health care services. WHO recommends antenatal care to be conducted at least four times. Cambodia falls short of this standard but antenatal care coverage has been greatly improved since 2005. As for *t*he percentage of births attended by skilled health personnel, which affects the reduction of maternal mortality ratio, it is still far from the HSP2 target of 80% but is improving as well.

Table 4-2 Major Indicator of Maternal Service

Indicators	2000	2005	2010
Pregnant women receiving antenatal care (%)	37.7	69.3	89.1
Pregnant women receiving antenatal care at least four visits (%)	8.9	27.0	59.4
Births attended by skilled health personal (%)	31.8	43.8	71.0

Source: Millennium Development Goals Indicators, United Nations [23]

The above indicators of the whole country generally tend to improve but there is a regional gap in utilizing services as indicated in Table 4-3. For example, the percentage of pregnant women who received antenatal care is 99% in the capital, Phnom Penh, which is quite different from 62% of Mondol Kiri/Rattanak Kiri with the lowest coverage. Further, among the pregnant women who received antenatal care, the percentage receiving blood pressure measurement and urine tests for the early detection of pregnancy-induced hypertension is relatively high in the urban areas. Although the coverage of urine test is very low and the national average is 36.4%, it is only 5.1% in Kratie with the lowest coverage, approximately one-15th of Phnom Penh. In addition, there is a correlation between the rate of receiving antenatal care and mother's education level. As education level becomes higher, the percentage of those receiving antenatal care increases and the percentage of mothers receiving care from a doctor also increases [12]. Compared to rural areas, the percentage receiving antenatal care in urban area and high income is higher (Table 4-3).

Table 4-3 Situation of Antenatal Care (2010)

	Percentage receiving Antenatal care from a skilled provider* (%)	Blood pressure measured (%)	Urine sample Taken (%)
Banteay Mean Chey	88.3	84.9	25.8
Kampong Cham	88.1	89.7	20.4
Kampong Chhnang	89.6	95.1	16.3
Kampong Speu	90.3	94.3	33.6
Kampong Thom	85.4	82.6	43.3
Kandal	89.0	91.8	42.5
Kratie	65.2	92.2	5.1
Phnom Penh	99.1	97.8	77.7
Prey Veng	92.1	87.6	32.6
Pursat	90.2	91.3	45.1
Siem Reap	92.9	98.8	61.2
Svay Rieng	93.3	83.4	35.2
Takeo	96.7	88.9	26.8
Otdar Mean Chey	91.1	85.6	27.5
Battambang/Pailin	91.1	91.2	29.5
Kampot/Kep	86.0	89.6	21.2
Preah Sihanouk/Koh Kong	88.1	87.1	44.1
Preah Vihear/Steung Treng	66.9	81.5	14.0
Mondol Kiri/Rattanak Kiri	61.8	75.0	21.1
Total	89.1	90.6	36.4

* Skilled provider includes doctor, nurse, and midwife.
Column encircled with thick line shows the highest 3 provinces/city and highlighted column shows the lowest 3 provinces.
Source: Cambodia Demographic and Health Survey 2010, National Institute of Statistics [12]

The percentage of births attended by skilled health personnel (doctor, nurse, midwife) was 71% as of 2010, which significantly improved from 44% in 2005. It is said that the increase in births attended by skilled health personnel was greatly due to the introduction of the financial incentives for institutional delivery [14]

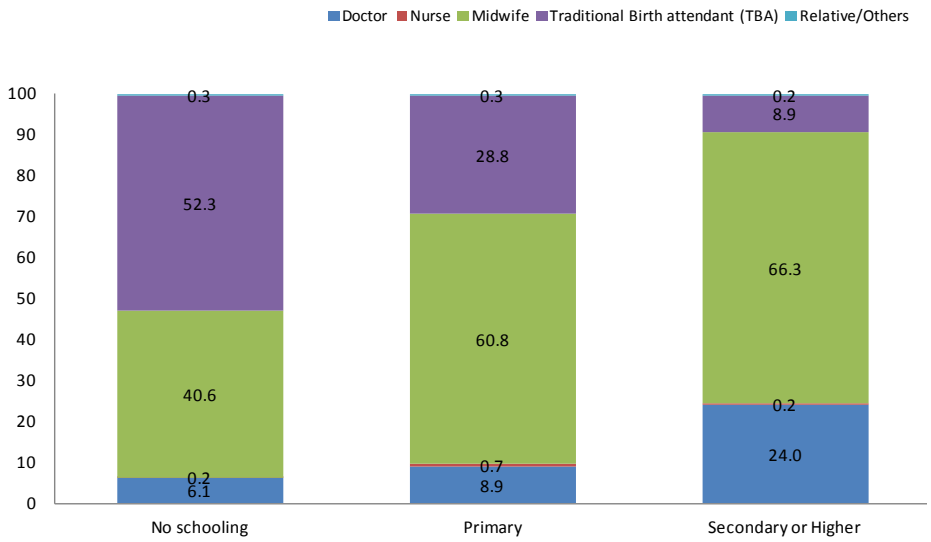
[27]. In addition, the government initiative in the allocation of new graduate midwives, the increased technical and financial support to maternal and child health service from development partners such as Japan and the Global Alliance for Vaccines and Immunization (GAVI), and the introduction of the Health Equity Fund have complemented each other and have contributed to increasing the provision and utilization of maternal and child health services [28].

Table 4-4 shows that there is a regional gap in utilizing delivery services. In areas with low rates of institutional delivery, there are many cases that a traditional birth attendant (TBA) assists deliveries at home. In addition, there is a correlation between education level and the birth attendants. The higher the education level is, the greater the percentage of births attended by skilled health personnel (Figure 4-1). As for the percentage of birth by cesarean section, it is only Phnom Penh (9.9%) that exceeds the WHO recommendation of 5% [27]; the national average is 3% [12]. It can be said that the system that can provide emergency obstetric services has been established at the national level.

Table 4-4 Percentage of Institutional Delivery and Breakdown of Birth Attendants (2010)

	Percentage delivered in a health facility (%)	Birth attendants				
		Skilled health personnel			Non skilled health personnel	
		Doctor	Nurse	Midwife	Traditional Birth Attendant (TBA)	Relative/ Others
Banteay Mean Chey	55.7	4.4	0.0	64.5	30.6	0.0
Kampong Cham	45.8	13.2	0.2	54.5	30.9	0.3
Kampong Chhnang	54.0	4.3	0.2	55.3	38.8	0.9
Kampong Speu	47.3	2.2	0.0	66.1	31.8	0.0
Kampong Thom	36.1	10.3	0.1	37.3	52.3	0.0
Kandal	65.2	7.0	0.7	79.3	11.1	0.8
Kratie	25.8	2.6	0.2	41.5	55.2	0.2
Phnom Penh	93.3	73.2	0.0	25.5	0.9	0.0
Prey Veng	41.1	1.4	0.0	57.8	40.8	0.0
Pursat	48.8	5.0	0.9	67.9	25.9	0.0
Siem Reap	68.8	21.5	0.6	50.6	27.3	0.0
Svay Rieng	44.6	5.5	0.6	83.4	10.2	0.0
Takeo	71.6	4.0	2.7	78.7	13.4	0.0
Otdar Mean Chey	57.3	3.9	3.5	57.0	35.3	0.0
Battambang/Pailin	51.5	2.1	0.0	76.0	20.9	0.3
Kampot/Kep	42.2	7.1	0.3	59.1	31.7	1.7
Preah Sihanouk/Koh Kong	56.6	2.2	0.2	76.8	20.5	0.0
Preah Vihear/Steung Treng	21.2	3.5	0.0	24.8	71.8	0.0
Mondol Kiri/Rattanak Kiri	30.1	3.5	0.3	34.6	59.6	0.7
Total	53.8	12.2	0.5	58.4	28.2	0.3

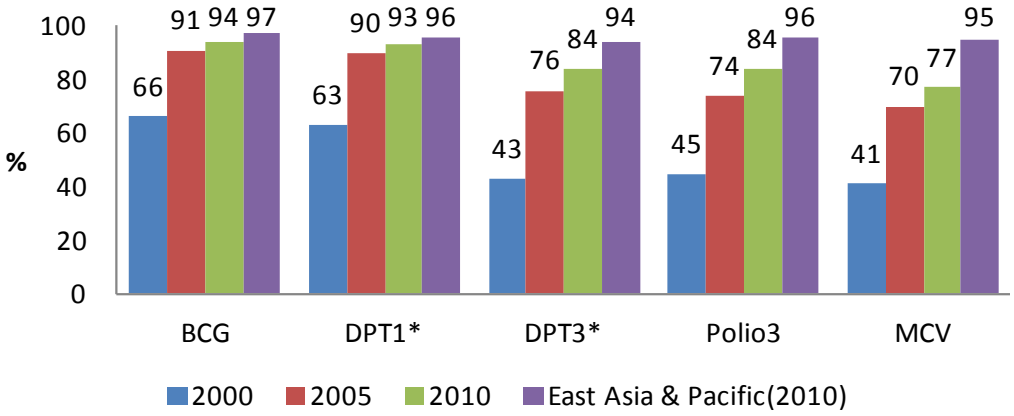
*Column encircled with thick line shows the highest 3 provinces/city and highlighted column shows the lowest 3 provinces.
Source: CDHS2010 [12]



Source: Cambodia Demographic and Health Survey 2010, National Institute of Statistics [12]

Figure 4-1 Birth Attendant and Mother's Education Level (2010)

Regarding child immunization in Cambodia, BCG, DPT (Diphtheria, Pertussis, Tetanus), Polio and Measles vaccines have been introduced. Since 2006, a tetravalent vaccine (DPT+Hib) and a pentavalent vaccine (DPT+Hib+ Hepatitis B) have been instroduced. Although immunization coverage has been showing a great improvement over the past 10 years, the measles vaccination coverage remains at 70%, which is lower than the regional average (Figure 4-2). There is also a regional gap in coverage throughout Cambodia.



* About the DTP coverage of DTP in Cambodia, the figure of 2010 shows the coverage of tetravalent vaccine (DPT+Hib), a pentavalent vaccine (DPT+Hib+ Hepatitis B)

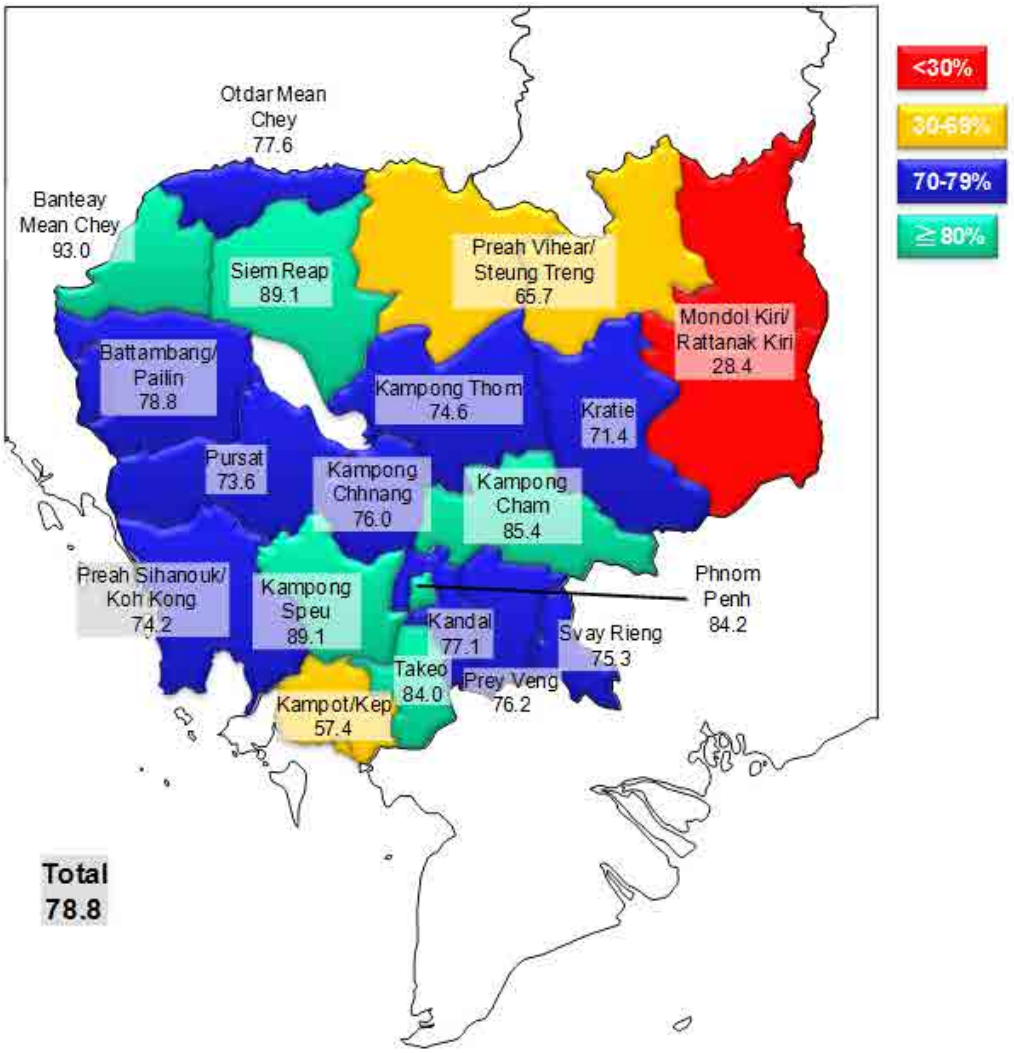
Source: Cambodia Demographic and Health Survey 2010 [12]
The regional immunization coverage is from Childinfo [29]

Figure 4-2 Immunization Coverage

Figure 4-3 shows the immunization coverage by area. There is over 60% difference between Banteay Mean Chey with the highest coverage and Mondol Kiri/Rattanak with the lowest. Although outreach services including immunization activity have been carried out, the service may not have been expanded enough and poor educational activities on immunization would affect the low coverage.

There is a strong correlation between mother's education level and the child immunization rate. The immunization rate of children whose mother has secondary or higher level of education is 88%, but for those

whose mother has had no schooling is only 58%. The mother's education level might account for their limited access to health services and opportunities to have education on immunization, which affect the health status of children, as mentioned in 3.2.2.



Source: Cambodia Demographic and Health Survey 2010, National Institute of Statistics [12]

Figure 4-3 Immunization Coverage by Area (All Immunization)[15]

Contraceptive prevalence has been steadily making progress. The prevalence of modern and traditional contraceptive methods is 50.5% and shows an increasing trend. However, the proportion of modern contraceptive methods is currently at 34.9% and is still short of the 2015 target of 60% [12]. The most popular modern contraceptive method is the pill (15.7%), followed by injection (10.4%) and IUD (3.1%). The total fertility rate (TFR) in Cambodia was 2.6 in 2010 and exceeds the regional average (1.8: only developing countries). Even in comparison neighboring countries, it has the highest level after Laos [10].

[15] BCG, Measles, and either tetravalent vaccines or pentavalent vaccine and Polio (3 times)

4.2 Communicable Diseases Control

4.2.1 National Policies and Visions

In the Health Sector Strategic Plan 2008-2015 (HSP2), communicable diseases control is one of the three priorities programs and under the goal to "reduce morbidity and mortality of HIV/AIDs, malaria and tuberculosis and others communicable diseases", there are indicators and targets to be achieved (Table 4-5).

Table 4-5 Major Indicators and Targets in Controlling Communicable Diseases under HSP2

Indicator	2005-2010 Baseline	2015 Targets
HIV prevalence rate among adults 15-49 (%)	0.6 0.9* *estimated by Expert consensus meeting	<0.6 <0.9*
Number of Voluntary Confidential Counseling and Testing (VCCT) sites	194	>250
Anti-retroviral therapy (ART) coverage of people with advanced HIV infection (%)	50	>85
Percentage of people living with HIV/AIDs on ART survival after a 12-month treatment (%)	N.A	>85
Prevalence of smear-positive Tuberculosis (TB) (per 100,000 population)	234	135
TB death rate (per 100,000 population)	75	32
Case detection rate of smear-positive pulmonary TB (%)	66	>70
TB cure rate (%)	>85	>85
Number of malaria cases treated at public health facilities (per 1,000 population)	4	3
Malaria case fatality rate (per 1,000 population)	0.36	0.1
Percentage of families living in high malaria endemic areas (<1 km from forest) of 20 provinces have sufficient (1 net per 2 persons) treated bed nets (%)	64	95
Dengue hemorrhagic fever case fatality rate reported to public health facilities	0.74	0.3

Source: Health Sector Strategic Plan 2008-2015 [9]

4.2.2 HIV/AIDs Control

(1) Implementation system

For HIV/AIDs control in Cambodia, there is a system in which the national AIDs program that was established for responding to the epidemic in 1991, the National Center for HIV/AIDS, Dermatology and STD (NCHADS, established in 1998) and the National AIDs Authority (established in 1999) promote control measures in cooperation with government agencies, international organizations and NGOs.

(2) The Status of HIV/AIDS control

The situation of providing services for HIV/AIDs control in Cambodia has greatly improved in recent years. As of 2011, the percentage of HIV infected pregnant women who received the anti-retroviral drug (ARV) was 63.5%, which had increased from 49.5% the previous year. The percentage of children who receive ARV also greatly increased to 61% from 40% of the previous year (Table 4-6).

According to the NCHADS, the progress of HIV/AIDS control in Cambodia was due to the fact that HIV/AIDs prevention, treatment and care services (Voluntary Confidential Counseling and Testing (VCCT), ART, Prevention of Mother to Child Transmission (PMCTC)) are incorporated into the existing health care

system without targeting only people living with HIV/AIDs. In addition, community participation, including civil society and peer support, are essential components for HIV/AIDs control in Cambodia. However, there are still many challenges for promoting control. By the Law on the Suppression of Human Trafficking and Sexual Exploitation which was established in 2008, sex workers who were afraid of the crackdown hid themselves and it became difficult to provide them with prevention programs such as distributing condoms or referral for testing. A prejudice and a discrimination against HIV/AIDs are still strong and there are cases that female victims of domestic violence did not participate in counseling and HIV testing during antenatal care [30]. For improving access to services and providing continuous control measures, it is necessary to implement gender sensitive measures, establish policies that further consider patients' human rights, and strengthen community participation and public-private partnerships.

Table 4-6 Status of HIV/AIDs service provision

Target		
All HIV positive (2010)	Percentage of people with advanced HIV infection receiving ARV	89.5%*
	The number of health facilities providing voluntary counseling and testing	246
	The number of health facilities providing ART	51
Prevention of mother to child transmission (PMTCT) (2010)	Pregnant women tested for HIV and received the result	74% (236,314 people)
	Percentage of pregnant women who received HIV counseling as part of antenatal care	46.6%
	HIV infected pregnant women who received ARV	63.5%* (2011)
	Children born to HIV-infected mothers received ARV	61.1%* (2011)
Risk groups (2010)	Percentage of condom use at last sex	Female sex workers: 94.8% Men who have sex with men (MSM): 86% (2007) Injection drug users (IDU): 68% (2007)

Source: HIV and Aids Data Hub for Asia-Pacific [31]
*Cambodia Country Progress Report. Monitoring the Progress towards the Implementation of the Declaration of Commitment on HIV/AIDs [18]

4.2.3 Tuberculosis Control

(1) Implementing System

Since 1994, tuberculosis control in Cambodia has been carried out with a focus on the Directly Observed Therapy Short-course (DOTS). This was recommended by WHO under the National Tuberculosis Control Program (NTP) which was established in 1980. Specific measures have been carried out mainly by the National Center for Tuberculosis and Leprosy Control (CENET)[16] [32].

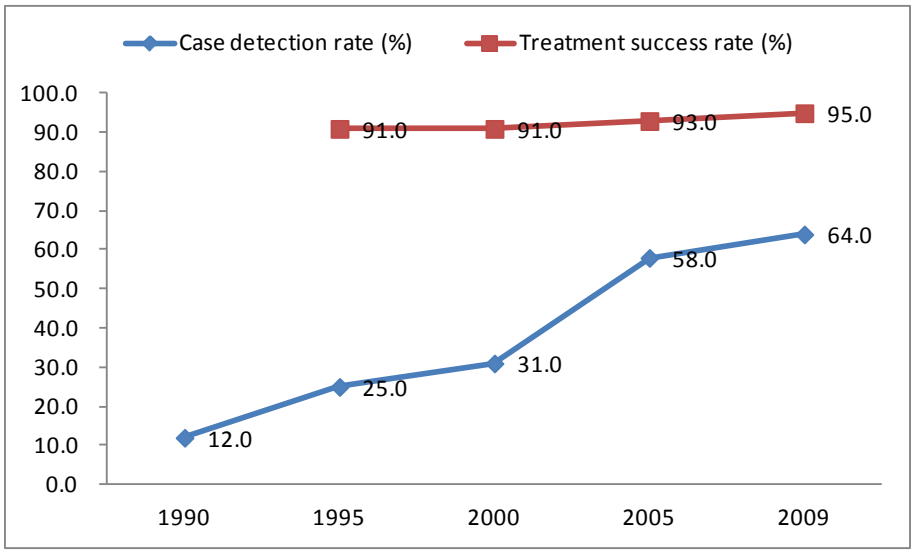
(2) The status of Tuberculosis control

Although the case detection rate has not reached the WHO target of 70% yet, it has greatly improved under the DOTS strategy (Figure 4-4). On the other hand, the treatment success rate reached 95%, ahead of WHO's target of 85%. The outcome of control measures was also reflected in the second national TB prevalence survey[17] that was conducted in 62 regions nationwide from 2010 to 2011. This survey showed that the

[16] The facilities of CENET were renovated and equipment was provided by Japanese Grants Aid in 1999. Further, the comprehensive support that centered on DOTs had been carried out through Japanese technical cooperation "National Tuberculosis Control Project (and Phese 2)" which was based on CENET, from 1999 to 2009 [15].

[17] Japan has been providing support since the first national TB prevalence survey. In the second national TB prevalence survey, Japan provided supports in establishing the system including the preparation of its protocol, implementation, monitoring, analysis and reporting through the technical cooperation, "the Project for Improving the Capacity of the National TB Control Program through

tuberculosis prevalence rate decreased by about 35% compared to the previous survey in 2002 and proved the effectiveness of the DOTS strategy [33].



Source: Millennium Development Goals Database [11]

Figure 4-4 Trends of Tuberculosis Case Detection Rate and Treatment Success Rate (1990-2009)

The Government of Cambodia has strengthened the measures on increasing the treatment TB and HIV co-infection patients. The percentage of TB-HIV co-infected patients receiving both treatments greatly improved to 32.7% in 2011 from 4.8% in 2009. TB and HIV services have been expanded in prisons [18]. Due to outreach activities, the case detection rate of children has increased [34].

4.2.4 Malaria

(1) Implementing System

For Malaria control in Cambodia, the National Center for Parasitology, Entomology and Malaria Control of the Ministry of Health carries out the planning, coordinating, training and testing services.

(2) The status of Malaria control

Looking at the situation of using mosquito nets (2006-2009), the percentage of children under five sleeping under insecticide-treated mosquito nets (ITN) was 4.2%; the percentage of families who have at least one ITN was 5% [17]. The control measure is inadequate considering the fact that 40% of the total population still live in high risk areas.

To respond to the increasing prevalence of multidrug-resistant malaria, an Artemisinin-based Combination Therapy (ATC) has been introduced in Cambodia. However, an Artemisimin-resistant falciparum malaria case was confirmed on the border between Cambodia and Thailand and a containment project[18] was initiated with financial support by Bill and Melinda Gates Foundation in 2009. As a result, malaria prevalence in the area has decreased [35].

implementation of the 2nd National TB Prevalence Survey".

[18] Supports included the distribution of mosquito nets, training of village malaria workers, free early detection and treatment services and strengthening advocacy.

The high risk areas are concentrated in the border areas with Thailand, Laos and Vietnam. Most of the residents of these tropical forest areas are minority groups and the poor. Accordingly, improving the access to health services for the at-risk population and strengthening prevention activities at the border areas will be the keys for malaria control.

4.2.5 Response to International Health Regulation

WHO revised the International Health Regulations (IHR) in 2005 in response to the series of outbreaks of emerging infectious diseases including severe acute respiratory syndrome (SARS) and avian influenza (H5N1). The revised IHR includes responding to all public health emergency of international concern (PHEIC)[19], establishing a National IHR Focal Point for communication to and from WHO, meeting core capacities for disease surveillance and response, and strengthening international response coordination to contain the disease.

In Cambodia, the National Committee for Disaster Management chaired by the Prime Minister is responsible for the control measures. The detailed control measures for an influenza pandemic and other emerging infectious diseases are defined in the Cambodia National Comprehensive Avian and Human Influenza Plan. In addition, the public health risk management of human resources for health has been strengthened through training supported by donors. The outcome of a series of measures that have been taken in Cambodia can be seen in the prompt and appropriate response in identifying the symptoms of the unknown diseases, which occurred in April 2012. This presented as a severe form of hand, foot and mouth disease. This response was the result of coordination among MOH, WHO, Cambodia Pasteur Institute and Center for Disease Control and Prevention [36].

4.3 Nutrition Improvement

4.3.1 National policies and visions

As a guideline for nutrition in Cambodia, there is the Strategic Framework for Food Security and Nutrition 2008-2012 (SFFSN). SFFSN set a goal which is “By 2012, poor and food-insecure Cambodians have substantially improved physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” Five specific goals have been defined; the objective concerning maternal and child health is “Objective 3: Food-insecure households improve their utilization of food resulting in reduced malnutrition, morbidity and mortality, particularly among women and children”. Within this objective, there are three priority issues:

- Reducing child and maternal malnutrition and mortality.
- Improving domestic water supply and sanitation and hygiene practices.
- Improving food safety and enhancing food fortification.

As the measures against malnutrition is the issue to be addressed and goes beyond sectors such as agriculture problems and securing water resources, SFFSN defines the roles of the Ministry of Health, the Ministry of

[19] Before the revision of IHR, PHEIC referred to yellow fever, cholera and pest.

Agriculture, Forestry and Fisheries (MAFF) and the Ministry of Water Resources and Meteorology (MOWRAM).

4.3.2 The status of nutrition improvement

Looking at the status of the micronutrient fulfillment, the rate of vitamin A supplementation coverage among children under five (6-59 months/ twice per year) is 98%[20], while the rate of those living in households with iodized salt is 73% (2003-2009) [17]. The rate of exclusive breastfeeding among infant under six months of age is 73.5% [23]. However, there is a regional gap in the nutritional status. Table 4-7 shows the nutritional status of children under five [12] and in some indicators, the difference is more than double between the highest and lowest regions.

Table 4-7 Nutritional Status of Children Under Five (2010)

Indicator	Nation Average	The highest regions	The lowest regions
Percentage given vitamin A supplements in past 6 months (%)	70.9%	Banteay Mean Chey (84.6%) Kandal (83.9%) Pursat (81.0%)	Mondol Kiri/Rattanak Kiri (37.4%) Prey Veng (57.5%) Kampot/Kep (57.9%)
Percentage given iron supplements in past 7 days (%)	1.7%	Phnom Penh (8.5%) Svay Rieng (5.3%) Kampot/Kep (3.1%)	Banteay Mean Chey (0.0%) Takeo (0.0%) Kampong Speu (0.1%)
Percentage living in households with iodized salt (%)	84.2%	Phnom Penh (99.6%) Pusat (98.3%) Kampong Chhnang (98.1%) Kampong Speu (98.1%)	Kampot/Kep (58.2%) Prey Veng (62.6%) Takeo (65.8%)

Source: Cambodia Demographic and Health Survey 2010 [12]

7.7% of women of reproductive age (15-49) suffer from moderate or severe anemia and 56.9% of women took the iron supplements for more than 90 days during pregnancy [31]. This number also has varied by region. The rates of the highest region, Phnom Penh, is almost three times higher than those of the lowest regions of Preah Vihear/Steung Treng (28.1%) and Mondol Kiri/Rattanak Kirib(30.1%) [12].

4.4 Noncommunicable Diseases Control

In Cambodia, with the increase of lifestyle-related diseases caused by changing lifestyles and injuries due to traffic accidents, the proportion of noncommunicable diseases has increased. The Government of Cambodia recognized the importance of control measures and placed noncommunicable diseases as one of three priorities programs in the Health Sector Strategic Plan 2008-2015 (HSP2), of which indicators and targets are shown in Table 4-8.

[20] As of 2009

Table 4-8 Major NCD Indicators and Targets in HSP2

Indicator	2005-2010 baseline	2015 Target
Deaths due to road traffic accident (%)	3.5	2.8
Injured population with head trauma due to road traffic accident received treatment (%)	41	35
Incidence of cervical cancer (per 10,000 people) (reported from public health facilities)	25	12.5
Prevalence of adult with diabetes (reported from public health facilities) (%)	2	<2
Incidence of hypertension (per 1,000 people)	20	15
Adult smoking (%) Male/Female	54/9	44/2
Blindness rate(%)	1.2	<0.3
Number of mental health cases reported in public sector	10,000	28,000

Source: Health Sector Strategic Plan 2008-2015, MOH [9]

According to the Cambodia Demographic and Health Survey (2010), the percentage of ill or injured persons who did not seek treatment even one time was nearly 8%. The rate is higher in rural areas (8.3%) than urban areas (4.6%). In addition, when people do visit doctors, the percentage of people choosing private health facilities is twice as high as those choosing public health facilities [12]. Chronic diseases increase the need for high level medical services and rehabilitation due to the delay of detection and treatment. The above-mentioned healthcare-seeking behavior would lead to escalating medical costs with the increase of treatment and rehabilitation for noncommunicable diseases in the future. Therefore, it is essential to promote prevention and early detection of lifestyle-related diseases by the expansion of the primary prevention services at primary health care facilities which are close to patients. In addition, it is also urgent to strengthen educational activities and securing and build capacity for human resources in order to implement control measures.

Chapter 5 Health System

5.1 Human Resources for Health (HRH)

5.1.1 Current Situation of HRH

In Cambodia, the purge under the Pol Pot regime and the prolonged conflict brought about a massive decrease in human resources for health and teachers, as well as the destruction of the educational system for human resources development. In addition to the lack of absolute number of the human resources, one of the emerging issues is to ensure their quality. As mentioned in Chapter 2, the capacity building and human resources development are set as prioritized issues in the National Strategic Development Plan (NSDP 2009-2013). Also, the Health Sector Strategic Plan (HSP2) positions human resources development as one of the cross-cutting issues. The pillars of the development strategies are:

1) Improvement of the skills of human resources for health
2) Establishment of staff professionalism
3) Promotion of staff distribution and retention (priority to midwives)
4) Promotion of staff remuneration and salaries through Civil Servant Reform of the government, and the improvement of salary supplementation through various incentives such as adopting the user fee.

Table 5-1 shows the trend of human resources for health by occupation. Although the number of doctors has increased, the number of nurses/midwives has remained the same since 2000. Further, the lack of dentists and pharmacists is severe.

Table 5-1 Trend of Human Resources for Health by Occupation (1996-2008)

	1996	1998	2000	2004	2008	Population Per Health Human Resource (2008)
Doctor	1,247	1,711	1,878	2,177	2,139	6,265
Dentist	64	68	85	135	170	78,824
Pharmacist	327	415	362	406	421	31,829
Nurse	3,979	4,384	4,268	4,521	4,915	2,726
Assistant-nurse	4,430	3,993	3,892	3,563	3,404	3,937
Midwife	1,706	1,830	1,771	1,813	1,811	7,399
Assistant -midwife	1,515	1,482	1,257	1,113	1,302	10,292

Source: Report on Preliminary Study on the Project for Improving Maternal and Newborn Care through Midwifery Capacity Development, JICA, 2010 [37]

5.1.2 Human Resources Development of Health Medical Workers

The University of Health Science (UHS) is a public medical institute, with the faculty of medicine, the faculty of dentistry, and the faculty of pharmacy. As a substructure of UHS, there exists the Technical School for Medical Care (TSMC) with faculties of Nursing, Midwifery, Clinical Testing, Physiotherapy and Radiology. Moreover, there are four Regional Training Centers (RTCs) under the supervision of MOH in rural areas, and each center accepts students from neighboring provinces. The coverage areas of TSMC and RTCs are explained in Table 5-2.

Table 5-2 Coverage Areas of Medical Educational Institutions

Medical Educational Institutions	Covered Provinces
TSMC	Phnom Penn, Kandal, Kg.Chhnang, Kg.Speu
RTC Kg.Cham	Kg.Cham, Kg.Tom, Svay Rieng, Pry Veng
RTC Battambang	Battambang, Siem Reap, Pursat, Paillin, Batemeanchey Odymeanchey
RTC Kampot	Kampot, Takev, Koh Kong, Sianouk Ville, Kep
RTC Stung Treng	Stung Treng, Kuratie, Preah Viher, Mondolkiri, Ratanakiri

Source: Report on Preliminary Study on the Project for Strengthening Human Resources Development System of Co-medicals [38]

The importance of nurturing nurses and midwives is recognized along with the Cambodian health policy which prioritizes MCH, and several courses are available (Table 5-3). In order to respond to the lack of midwives in rural areas, MOH started the one-year courses to train assistant nurses and assistant midwives after graduating from high school in January 2006. However, the educational period was not enough and the low level of knowledge/skills became an issue, leading to its in 2011. Midwives were required to take the so-called 3+1 system –,3-year nursing education and 1-year specialized education –,in the past. However, since it took time for development and it could not ensure adequate numbers of students, MOH introduced a 3-year direct entry midwifery program from March 2008.

Table 5-3 Nurturing Courses for Nurses / Midwives

Nurturing Courses	Period	Educational Institute			Note
		UHS	TSMC	RTCs	
Nurses					
Bachelor	4 years	○			Commenced in September, 2008
Bachelor	Nurse (3 years)+18 months	○			Commenced in October, 2009
Nurse(Assistant-Bachelor)	3 years		○	○	
Assistant-Nurse	1 year			○	Ended in 2011
Midwives					
Midwife	3 years		○	○	Commenced in March, 2008
Assistant-Midwife	1 year			○	Ended in 2011

Source: Report on Preliminary Study on the Project for Strengthening Human Resources Development System of Co-medicals [38]

5.1.3 Prioritized Issues in Human Resources Development

There was no national qualification system for either of the above-mentioned occupations, and the students were licensed health professionals at the time of graduation from each medical-education institution. As for nursing, it is planned to introduce a national certified examination in December 2012. Securing the quality of graduates in recent years has been an issue as there has been no adequate system to provide an enabling environment for them. This has been caused by the increased number of students who came with the start of new courses such as the 3-year midwife course in 2008. There is no standardized textbook and the institutions cannot provide sufficient on-site trainings to the students. Moreover, since there is no training course for trainers, students who are taught by trainers with less specialized knowledge, clinical experiences and instruction skills are deployed at hospitals without enough clinical ability. Therefore, the improvement of the quality in pre-graduate education is crucial at the moment.

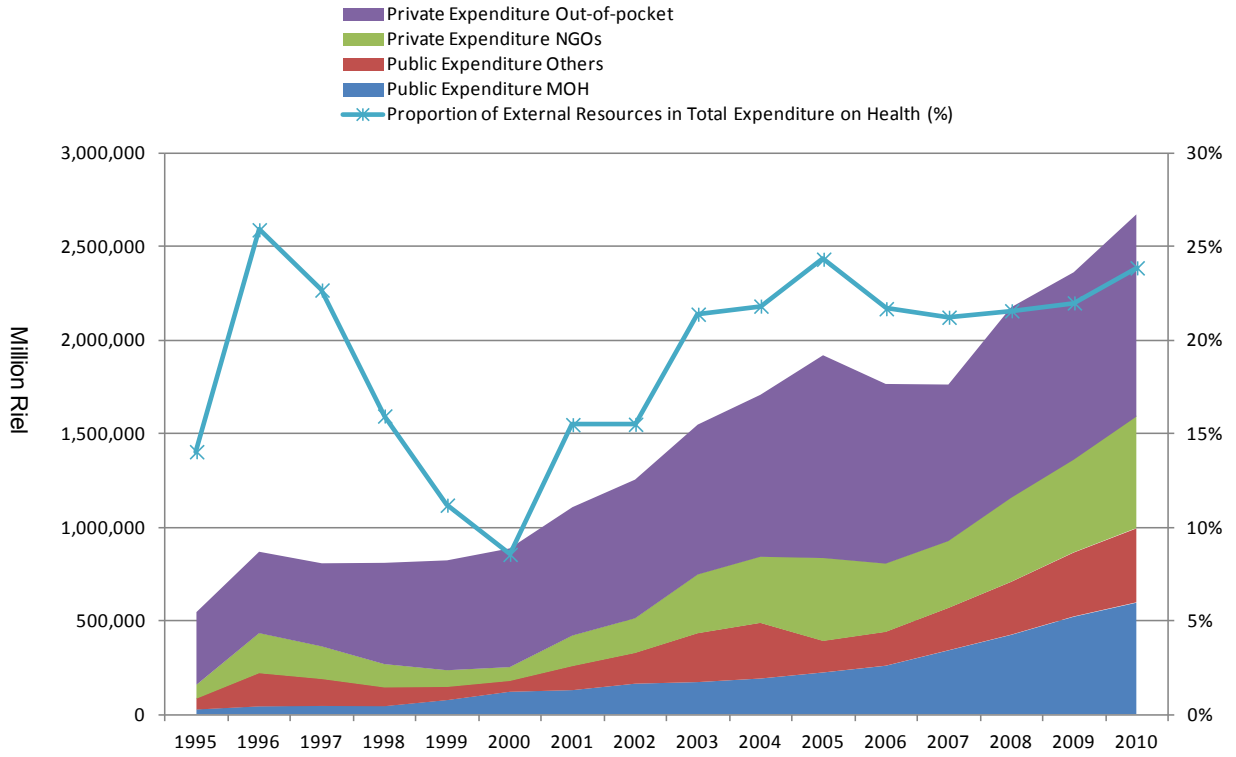
In particular, it is said that the capacity-building of midwives, who provide quality reproductive and new-born care, is the key in reducing the maternal mortality ratio and the neonatal mortality rate [39]. In practice, however, new graduates are deployed to each health facility without acquiring enough midwifery skills due to the lack of quality of pre- and post-graduate education, which results in the degradation of midwifery services [37]. For example, according to the Comprehensive Midwifery Review that was supported by UNFPA, the low quality of midwifery services was pointed out including the antenatal checkup, in which blood pressure measurement and urine test for early detection of pregnancy-induced hypertension were not practiced properly. In addition, records related to delivery were not properly kept, and active management of 3rd stage of labor was not properly implemented [39].

Looking at the deployment situation of human resources for health, roughly 50% of doctors work in Phnom Penn according to government statistics and it is said that about 80% of doctors work in the capital if those working in the private sector are included. On the other hand, regarding the deployment in rural areas where lack of human resources for health is severe, a practical countermeasure has not been found although the improvement in their treatment has been discussed. At present, the government does not grasp the situation of human resources deployment precisely, and it is an issue that the Health Coverage Plan (HCP) which specifies human resources deployment plan at each health facility and the human resources employment plan do not correspond to each other. This is a severe barrier for planning appropriate deployment [37].

5.2 Health Financing

5.2.1 Overview

Figure 5-1 shows the health financing indicators for Cambodia. The breakdown of health expenditure illustrates that out-of-pocket expenditure's share has decreased from about 70% of the total expenditure in 2000 to 40% in 2010. The government expenditure remains at 37% despite its gradual increase every year, while donor's support consists of 24%.



	1995		2000		2005		2010	
Public Expenditure	87,999	(16.0%)	182,033	(20.4%)	394,576	(20.5%)	995,278	(37.2%)
MOH	26,125		121,000		224,560		600,056	
Others	61,874		61,033		170,016		395,222	
Private expenditure	462,436	(84.0%)	708,447	(79.6%)	1,526,970	(79.5%)	1,678,261	(62.8%)
NGOs	74,379		74,504		444,365		598,347	
Out-of-pocket	388,057	(70.5%)	633,943	(71.2%)	1,082,605	(56.3%)	1,079,914	(40.4%)
Total expenditure on health	**550,435**		**890,480**		**1,921,546**		**2,673,539**	
External resources*	77,343	(14.1%)	76,291	(8.6%)	467,364	(24.3%)	638,013	(23.9%)

Note: (%) in the table is the proportion in the total expenditure on health.
* Based on OECD/DAC data. The amount is included in the total expenditure on health.

Source: Based on Global Health Expenditure Database, WHO [40]

Figure 5-1 Trend of Health Expenditure Resources

Health expenditure per capita has increased by 2.5 times in the past 10 years since 2000. However, in view of the Minimum Package of Activities (MPA)[21] and the Complementary Package of Activities (CPA)[22] which are the standardized service packages defined by MOH, and the utilization status of each health service mentioned in Chapter 4, $45 expenditure per capita (Table 5-4) cannot guarantee universal access to necessary health services.

[21] MOH stipulates MPA as the standardized package to be provided at primary health facilities. Services should include antenatal check-up, delivery, pediatrics, immunization, tuberculosis, malaria, health education and others.

[22] CPA is the secondary or tertiary standardized package which can be provided for referral hospital level. From the higher level of hospital diagnosis function, it is classified as CPA3, CPA2, and CPA1. CPA1 consists of internal medicine, pediatrics, obstetrics/gynecology, outpatient diagnosis, emergency, radiology, sterilization, clinical testing, pharmacy; CPA2 consists of CPA 1 level service, surgery, operation; and CPA3consists of CPA 2 services, ophthalmology, otolaryngology, and blood bank.

Table 5-4 Transition of Health Financing Indicators

	2000	2005	2010
Health expenditure, total (% of GDP)	6	6	6
Health expenditure, public (% of government expenditure)	9	12	10
Health expenditure per capita (US$)	17	29	45

Source: Health Nutrition and Population Statistics [10]

In Cambodia, in order to improve access to public health services and to ensure improved services and stable health financing, several health financing schemes have been tried. The following are the major examples:

(1) User-fee System

Before the health sector reform in 1996, the medical fee was free in principle at public health facilities. However, the gratuity to human resources for health became common and the free system did not function; therefore, users started to share the fixed costs based on the new standard. Other than depositing 1% of the interest to the government by this system, the use of the finance can be decided by each medical facility. Therefore, some of them are utilized as a supplement to salary or management costs for hospitals, bringing certain effects for improvement.

(2) Health Equity Fund (HEF)

HEF targets to improve the access to health services for low income groups. Basically, when low income families receive health services, the medical fees will be supplemented to the respective health facilities where the patient is admitted, and the patient himself/herself will be provided the cost for transportation and food when visiting the health facilities. A third party organization, which is assigned for the management of the system, carries out the authorization of low income families and the payment. HEF covers 47 out of 77 operational districts (OD) and 6 national hospitals [41].

(3) Contracting of Health Administrative Services to External Organizations

This system would confide the tasks for improved health administrative management and services at operational district level to external organizations (mainly NGOs). This was implemented through the Health Sector Support Program 2003-2008 (HSSP 2003-2008) and was mainly funded by the World Bank. It is expected to strengthen the capacities of government officials through the cooperative implementation of the project between contracted organizations and officials of MOH. Furthermore, the calculation of the estimate which is necessary to provide qualified services is possible by scrutinizing the contract amount. 11 ODs were contracted to 7 NGOs through competitive bids from 2004 to the beginning of 2009 [42].

(4) Special Operating Agency (SOA)

SOA aims to improve services by strengthening the discretion of administrative service providers, and the remuneration will be given based on the contract by accomplishment. It commenced at some ODs, four Regional Training Centers and some referral hospitals since 2009.

In order to implement the Health Sector Strategic Plan 2008-2015, MOH decided to change the contract between external organizations as mentioned above into Internal Contracting[23], which contracts the tasks

[23] For example, a provincial referral hospital organizes a SOA and arranges the “Internal Contracting” with provincial health department to gain the funding for health services strengthening activities.

with internal bodies of MOH. When conducting the Internal Contracting, the Merit Based Performance Incentive (MBPI) and SOA are adopted.

5.2.2 Social Insurance/Health Insurance System

(1) Social Insurance System for Public Officers/Retired Soldiers

This system provides pension, accident insurance, pregnancy insurance, labor disaster and dependent family insurance for public officers. Pensions and accident insurance are paid from the Ministry of Social Affairs, Veteran and Youth Rehabilitation (MOSVY), and others are paid from their respective agencies/government agencies. Unfortunately, the amounts provided are low and the payment tends to be delayed, so the Government of Cambodia approved the establishment of the National Social Security Fund for Civil Servants (NSSFC) in 2008. NSSFC receives a budget allocation from Ministry of Economy and Finance and distributes the funds. 6% of the monthly basic salary will be deducted as an insurance fee and 18% will be paid separately by employers. At present, it is in a transitional period from previous social insurance system [7].

(2) Social security system for private sector employees

The legislature to establish the National Social Security Fund (NSSF) targeting private employees was formulated in 2007. Companies with over 8 employees are obliged to register at NSSF and to contribute 0.8% of each employee's basic salary to the labor disaster system. The insurance covers medical fees, transportation, temporary disorder treatment fees, nurturing costs, life-long disorder treatment fees, funeral costs, survivor grants, rehabilitation fees and other costs of a similar nature. The affiliates are 1,390 companies with 435,000 people as of May, 2010 [7].

(3) Social Health Protection Programme for Informal Sector

MOH established the system for the informal sector workers, including farmers and the self-employed, which occupy the majority of the population in Cambodia. However, since there is no comprehensive health insurance system for all the citizens to be insured, a comprehensive model with community participation in the national framework is being prepared, which will be is sustainable and low cost (as of 2010) [7].

(4) Community Based Health Insurance (CBHI)

CBHI is managed by domestic/international NGOs and microfinance agencies. The main targets of the CBHI are the near-poor although they can pay insurance fee at minimum level. The coverage is less than 1% of the target population (as of 2010) [7].

5.3 Health Management Information System

A health information system was introduced in Cambodia in 1995. The information collection has been conducted based on the monthly reporting format, which is from the District Health Department (DHD), Provincial Health Department (PHD) and finally to MOH from public health facilities such as health centers and referral hospitals. However, the health information systems at DHD and PHD did not have enough capacity to analyze the collected data, to plan according to the results, or to give feedback to agencies under them. Therefore, the use of data was limited. According to the research through the *Health Metrics Network*

(HMN)[24], which was implemented for the purpose of the assessment of Cambodian health information system, the following four points were raised:

1) use of an assessment tool developed by HMN for evaluating health information and modifying it for the Cambodian context
2) formulation of Health Information System Strategic Plan 2008-2015
3) strengthening Vital Registration system
4) local capacity strengthening for health information improvement

At present, the activities for health information are implemented based on the Health Information System Strategic Plan (HISSP) 2008-2015, which was formulated by the Department of Planning and Health Information of MOH. HISSP corresponds with Health Sector Strategic Plan (HSP2) 2008-2015. The indicators for MCH, communicable diseases and noncommunicable diseases, which are prioritized at HSP2 are set, and the progress of HSP2 activities are monitored and evaluated through them.

The visions and goals for HISSP are as follows.

◆ Vision

Availability of relevant, timely and high quality health and health-related information for evidence-based policy formulation, decision making, program implementation, and monitoring and evaluation so as to contribute toward the improved health status of the Cambodian people

◆ Goals

1. To ensure high performance of the national HIS complying with international standards and receiving recognition and support among policy makers and the public.
2. To ensure evidence-based decision-making through monitoring and evaluation of health sector performance and improved data generation and information dissemination with appropriate communication and technology.
3. To enable availability of quality socio-demographic, economic, morbidity, mortality, and risk factor information and improved coordination of survey planning and implementation.
4. To enhance the quality of patient medical records for improved case management and the quality, completeness and timeliness of surveillance data for efficient outbreak response and disease control.
5. Ensure effective and efficient health care and public health performance through comprehensive HIS coverage and improved database management on infrastructure, human resources and logistics.

As for the progresses of HISSP, it is shared regularly at the Health Information System Stakeholder Working Group (HIS-SWG). This group was established by MOH with attendants of relevant stakeholders such as MOH, Cambodian government officials, development partners and NGOs. Moreover, the following surveys have been conducted regularly for health related reports:

- The General Population Census of Cambodia: Once in 10 years. Last one conducted in 2008.

[24] HMN, launched in May 2005, is an international partnership that aims to improve health information at all levels.

- Cambodia Socio-Economic Surveys (CSES): Conducted 7 times in the past. It shows the household's socio-economic situation by sample survey.
- Cambodia Demographic and Health Survey (CDHS): Once in 5 years. The latest one is CDHS 2010. It grasps the progresses of population, health and nutrition related programmes by sample survey.

As a monitoring tool for the MDGs, there exists CamInfo[25], which is the Cambodian version of the global database DevInfo software.

5.4 Health Facilities/Medical Equipment/Drug Supply System

5.4.1 Health Facilities

In Cambodia, the facility development plan has been ongoing based on the National Health Coverage Plan since 1997. Table 5-5 shows the numbers of health facilities nationwide under the direct supervision of MOH. As Cambodian public health facilities, there are Referral Hospitals (RH) and Health Centers (HC). In addition, there are Health Posts (HP) where it is difficult to have access to HC [37]. The standard of RH is defined as CPA, and that of HC is MPA. Each package defines the standards for service/facility/human resource/equipment. From the higher level of hospital diagnosis function of RH, it is classified as CPA3, CPA2, and CPA1. The summary of each function is shown in Table 5-6. Moreover, there is no facility standard for the 7 national hospitals and 9 national centers in Phonom Penh. The *Human Resource Development Department* (HRDD) sets the standard based on CPA and MPA [38]. However, there exists a gap between the standard and the reality. For example, the hospital functions of CPA1 are mostly the same as HC. Also, the facilities and human resource deployment are not satisfactory for HC, as well as the difficulty in human resource deployment at HP, bringing limited service provision [37;38].

Table 5-5 Numbers of Health Facilities

Province	RH	HC	HP	Province	RH	HC	HP
Banteay Mean Chey	5	55	11	Preah Vihear	1	12	13
Battambang	4	75	3	Prey Veng	7	90	2
Kg Cham	11	136	0	Pursat	2	32	3
Kg Chhnang	2	34	3	Rattanak Kiri	1	11	18
Kg Speu	3	50	0	Siemreap	3	60	6
Kg Thom	3	50	0	Sihanoukville	1	10	2
Kampot	4	50	0	Stung Treng	1	11	3
Kandal	5	93	3	Svay Rieng	3	37	0
Koh Kong	2	13	2	Takeo	5	72	3
Kratie	2	26	9	Oddar Mean Chey	2	4	0
Mondul Kiri	1	7	17	Kep	1	17	3
Phnom Penh	5	17	6	Pailin	1	5	1
				Total	75	967	108

Source: Health Sector Strategic Plan 2008-2015 [9]

[25] In sequence of Version 3.2 which was released in 2009, the Version 4.1 is available at present.

Table 5-6 Standard Services of Health Facilities

Facilities	Standards	Services	Access	Population Coverage
RH	CPA1	Internal medicine, pediatrics, obstetrics/gynecology, outpatient diagnosis, emergency, radiology, sterilization, clinical testing, pharmacy	Within 3 hours by car/ship	Appropriate coverage population: 100,000 Acceptable coverage:60,000～200,000
	CPA2	CPA1 function and surgery, operation		
	CPA3	CPA2 function and ophthalmology, otolaryngology, and blood bank		
HC	MPA	Antenatal check-up, delivery, newborn, babies/infants, immunization, TB, malaria, health education	10km or 2 hours by walk	Appropriate coverage population: 10,000 Acceptable coverage : 8,000～10,000

Source: Health Sector Strategic Plan 2008-2015 [9]

In Cambodia, there is the referral system of patient transfer from HC or lower level RH (CPA1 and CPA2) to CPA3 level PH in the provinces. If patients use the public health service, they are supposed to go to the nearest HC first [43]. In principle, if patients are to be referred to an upper level health facility, they are given referral letter and medical files that they must take to the receiving facility. However, the reality is the referral system is not functioning properly due to the lack of budget of HCs, lack of transportation for patients, and bad road condition.

The behavior of patients seeking health care differs according to the condition or residence of the patient. According to WHO, 70% of patients used private service for the first treatment, of which private clinics accounted for 27% in urban areas and 16% in rural areas, while private pharmacies accounted for 20% and 8% respectively as of 2010. On the other hand, within the public sector, HCs were most often sought for treatment (18%) in rural areas, while RHs were most often sought (12%) in urban areas. The main reasons to choose private services include the quality of service, access and cost [44]. Thus, people who lives in urban areas with easy access and seek better service tend to go to private health facilities. In addition, there are many cases where patients directly visit CPA3 level RH, national hospitals or private hospitals in the capital.

5.4.2 Medical Equipment

In the Health Sector Strategic Plan 2008-2015, the improvement of health services is mentioned as one of the 6 prioritized issues. For medical equipment, the standard list is formulated at the above-mentioned CPA and the implementation is underway based on this. However, the actual situation is that there is a lack of equipment in general and the existing equipment is getting old. Even for the national hospital or CPA3 level RH, they are not equipped with the medical equipment necessary for basic health services. Furthermore, each hospital receives various support separately, and there is a big gap among facilities or sections [43].

In response to the request from the Government of Cambodia, Japan signed the Exchange of Note on “The Project for Improvement of Medical Equipment in National, Municipal and Provincial Referral Hospitals (Grant Aid)”. This aims to improve the health services by providing necessary medical equipment for 4 national hospitals and 17 CPA3 level PHs in March, 2012. It is expected to provide the equipment such as the general radiographic X-ray apparatus, the supersonic wave dislocation device, and other similar machinery to the above hospitals.

Moreover, it is crucial to properly maintain and manage the medical equipment. MOH recognizes the importance of this and provides continuous trainings at health facilities nationwide. However, enough training has not been conducted because of the geographic difficulty in rural health facilities, leaving the equipment inoperational and management capacity unsolved [43]. Japan has been supporting the strengthening of the management capacity on medical equipment to central and rural RH by providing technical support on medical equipment management through "The Project for Promotion of Medical Equipment Management (2006-2008)" and "The Project on Strengthening of Medical Equipment Management in Referral Hospitals (2009-2014)". This grant aid assistance includes technical support for equipment's operation and maintenance in its soft component.

5.4.3 Provision of Medicines

The Department of Drugs and Food of MOH approves the medicines which are used in Cambodia. The department coordinates and implements the domestic strategies on medicines and regulates sales and usage. An essential drug list and related booklet were developed with the cooperation of the department in 2003 [45]. MOH manages the essential drug list according to the standard defined in MPA and CPA. Procured medicines are distributed from the Central Medical Store, MOH to each operational district, and then to RHs and HCs [44]. In addition, the Essential Drug Bureau is responsible for monitoring supply and usage of medicines at public health facilities [46].

The domestic medicine industry is not so developed, and 7 small scale production facilities supply about 20% of the market. Most of the demand relies on imported goods from developed countries (such as France) and newly emerging countries (such as India, Thailand and Vietnam). Furthermore, the domestic production is limited to generic medicines. Counterfeit medicines are becoming the major issue in Cambodia, and the Government of Cambodia strongly restricts them. For example, monitoring activities are strengthened with support from the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), and the local authorities hand out severe penalties to private pharmacies which illegally sell drugs that fail to match national standards, as part of tackling drug-resistant malaria on the Cambodia-Thailand border [47]. In addition, advocacy activities are also strengthened by drawing people's attention toward counterfeit medicines through national campaigns. The reasons for the emergence of counterfeit medicines can be identified:

1) The government budget for medicines is limited
2) Since the medical insurance is not sufficient, patients directly visit the pharmacy to avoid the diagnosis cost, and they tend to use over-the-counter medicines rather than prescription.

Although the relevant stakeholders recognize the importance of following Good Manufacturing Practice (GMP), it is not easy to produce the medicines to this standard with vulnerable infrastructure and lack of instructors[26]. It is also an issue to countermeasure the imported counterfeiting medicines because of lack of governance and transparency in medicine procurement and logistics.

[26] Japan Pharmaceutical Manufacturers Association sends experts to Cambodia to provide the technical support on medical production [35]; however, the support in this field is limited in general.

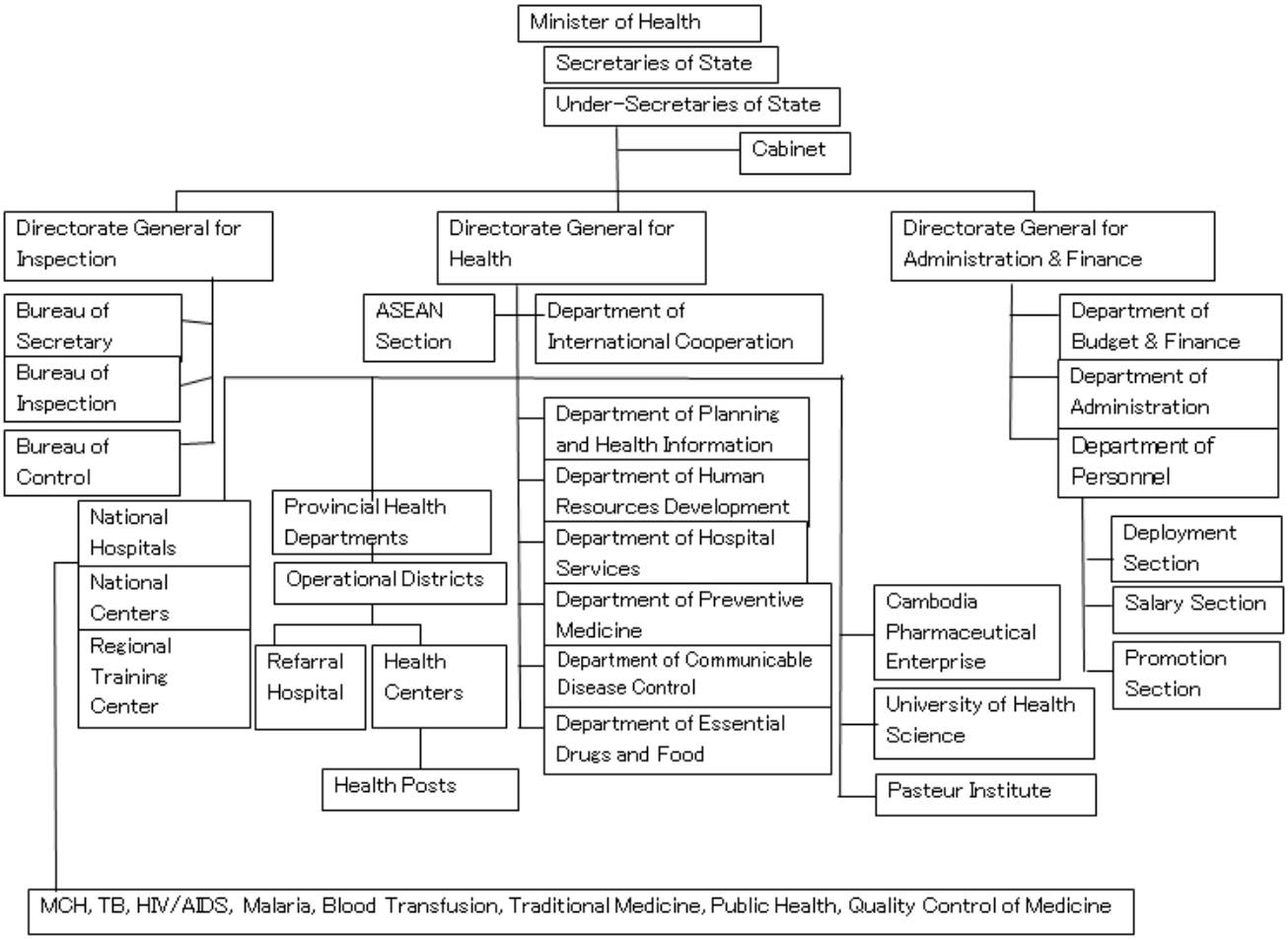
5.5 Governance and Management

Figure 5-2 shows the organizational chart of the Cambodian health administration. An Under-Minister, Secretaries, Under-Secretaries, Cabinet and three Directorates (Directorate General for Inspection, Directorate General for Health, and Directorate General for Administration and Finance) exist in each department. National hospitals and national centers also belong to the central government. MOH does not have a Department of MCH, so that MCH center (which is one of the national centers) conducts MCH related programmes such as reproductive health. Programmes such as immunization were implemented separately, so comprehensive measures for MCH were difficult to conduct. However, after the inauguration of the new Minister in 2008, the Reproductive Health, Maternal, Newborn, Child Health (RMNCH) were included in Fast Track Initiative, and the crosscutting working group called RMNCH task force was established. This connected existing organizations in order to promote RMNCH[27] and the comprehensive system to tackle MCH related issues was formed. Major development partners related to MCH participate in this task force as observers, so that the mechanism to report to the Minister and donor coordinating meetings on the indicators' progresses is functioning [48].

Aligning with the Health Coverage Plan (HCP) which was adopted in 1996, there are 24 Provincial Health Department (PHD) and 77 Operational Districts (OD) under the supervision of MOH. The ODs are the district divisions for health administration to cover by population scale (one covers 150,000 people), so that it does not correspond with rural administrative divisions by the Government of Cambodia.

As for public health facilities, there are 7 national hospitals at the central level and there are RH, HC, and HP under PHD and OD office at rural levels. Each medical facility's diagnosis contents and standards are mentioned in 5.4.1.

[27] Members of RMNCH includes Director of the Ministry of Health and Manager of National Immunization Program, Director of National MCH Center, Director of National Reproductive Health Programme, and Director of National Nutrition Programme.



Source: Report on Preliminary Study on the Project for Improving Maternal and Newborn Care through Midwifery Capacity Development [37]

Figure 5-2 Organizational Chart of MOH

5.5.1 Towards ASEAN Integration

Towards ASEAN Integration, the ASEAN + 3[28] Health Ministers Meeting is held to discuss common challenges and cooperation among respective countries. In the 5th ASEAN+3 Health Ministers Meeting, which was held in Phuket in Thailand, the member countries discussed regional cooperation for response to the double burden of communicable diseases and noncommunicable diseases, and achievement of universal health coverage. There is a road map for integration in the health sector which defines standardization of certification of medicine and medical equipment, and capacity development (e.g. regional training, personnel exchange) [49;50]. They discussed how to reduce the gap between the six countries29 and four of the less developed ASEAN nations including Cambodia. It is also necessary in the health sector to promote capacity building of human resources and establish networks in order to avoid 'brain drain' of highly qualified health professionals and the declining of the domestic health industry.

[28] ASEAN+3 is the framework to strengthen regional cooperation among ASEAN and Japan, China and Korea.
[29] Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand

Chapter 6 Development Assistance and Partnership

6.1 Framework of Donor Coordination

In the health sector of Cambodia, various donor agencies have been providing support in various ways. This support has come from international organizations, bilateral donors and NGOs, as well as the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and Global Alliance for Vaccines and Immunization (GAVI).

The Ministry of Health organized the Technical Working Group for Health (TWG-H) as a framework of aid cooperation. It conducts information exchange through regular meetings held once a month and group e-mailing, as well as holding policy discussions on important issues. There are sub-TWGs under TWG-H related to individual issues, such as maternal and child health, tuberculosis, health service delivery, health financing and so on, which have technical discussions. According to the review on Health Sector Strategic Plan 2003-2007 (HSP1) conducted in 2006, it was pointed out that aid donations/support are still fragmented, although certain progress has been made in aid coordination such as promotion of sharing information among the concerned institutes and persons. Because of this result, reinforcement of harmonization and alignment was included in governance, which is one of the five crosscutting strategies in HSP2, and measures have been reinforced [13]. HSP2 stressed that all cooperation should be implemented within one common cooperation framework, regardless of different aid modalities including fund cooperation, by utilizing pool funds and technology cooperation projects.

Other than the above mechanism, the HIV/AIDS Technical Working Group and the Country Coordinating Mechanism (CCM) of the Global Fund are also important maintenance mechanisms.

Furthermore, in 2007, under the leadership of the United Kingdom, Cambodia signed the International Health Partnership Plus. This is a mechanism for promoting aid cooperation world-wide, in which various countries and international organizations participate, and became its pilot country.

6.2 Activities of Major Development Partners

6.2.1 Second Health Sector Support Program 2009-2013

Health Sector Support Program 2009-2012 (HSSP2), which was launched in accordance with the priority issues of Health Sector Strategic Plan 2008-2015 (HSP2), is the largest health sector project in the country. It is joint-funded by MOH and various development partners. In Health Sector Support Program 2003-2008 (HSSP1), MOH, Asian Development Bank (ADB), World Bank (WB), Department for International Development of the United Kingdom (DFID), and the United Nations Population Fund (UNFPA) had participated in the Sector-Wide Approach. ADB and WB, together with eleven Health Operational Districts, implemented Contracting (see 5.2.1), in which they managed health administration, and the staff of MOH provided the health service delivery. In HSSP2 more donors have been participating in the Sector-Wide Approach aiming at effective and efficient enforcement support. Seven organizations including Agence Francais de Development (AFD), Australian Agency for International Development (AusAID), Belgian

Technical Cooperation agency, DFID, UNFPA, United Nations Children's Fund (UNICEF) and WB established a pool fund to conduct funding support to a Special Operating Agency (SOA) and are conducting fund support individually as well.

Four main activities of HSSP are as follows:

1) Strengthening of health service delivery
   Operational District and Provincial Referral Hospitals organize SOAs and get funds for activities to strengthen health services, by making internal contracting with Provincial Health Departments and getting Service Delivery Grants. In addition, strengthening of management function and maintenance of health service network etc. are also included.

2) Health Financing Support
   Health Equity Funds (HEF) are provided to the poor. In addition, support for financial policy making and administrative management are included.

3) Development of human resource for health
   Activities are focused on human resource development, especially in the areas and health facilities where there is remarkable shortage of human resources, and retraining of health service personnel. In addition, capacity building of human resource management at management level in MOH, and applying Merit Based Performance Incentive (MBPI) to MOH staff at central and lower levels who are in charge of management and implementation of the prioritized issues in health sector.

4) Strengthening health system governance

Activities that are picked up in HSP2 are as follows;

a) Enforcement of Internal Contracting for reinforcement of health service function by MOH central/Provincial Health Departments
b) Strengthening governance on transfer of the right on budget to national hospitals
c) Reward system reform for health service personnel
d) Establishing various guidelines.

6.2.2 The Situation of Assistance by Major Development Partners

Table 6-1 shows the situation of support by major development partners.

Table 6-1 Main Support Fields of Major Development Partners

Development partner	Main support field					
	Maternal and child health	Nutrition	HIV/ AIDS	Malaria	Tuberculosis	Reinforcement of health system
ADB						○
USAID	○		○		○	○
UNICEF	○	○	○			○
WHO	○	○	○	○	○	○
EC	○			○		○
WB						○
DFID	○		○			○
France						○
GIZ						○
BTC						○
AusAID						○

Source: Made by a research team based on various materials

(1) Asian Development Bank (ADB)

ADB is implementing activities including basic health service, health sector support (including the construction of health centers and the provision of equipment), and contracting health administrative services to outside organizations. It does not participate in HSSP2.

(2) United States Agency for International Development (USAID)

USAID implements programs on reproductive health, HIV/AIDS prevention, Health Equity Fund and tuberculosis control. In addition, it has been conducting the health system strengthening program, which is equivalent to US$77,000,000 since 2009, by contracting out to NGOs.

(3) United Nations Children's Fund (UNICEF)

UNICEF supports the health sector by supplying funding o HSSP2. It puts emphasis mainly on child health, communicable disease control, health behavior change, promoting the participation of local people and community based health promotion.

(4) World Health Organization (WHO)

WHO provides technical advice in the fields of nutrition, Integrated Management of Childhood Illness (IMCI), Expanded Program on Immunization and HIV/AIDS, by dispatch of advisors. In addition, it also conducts a human resource development plan, supports usage of the data-base of the Department of Human Resources Development and the personnel section, preparation support of Merit Based Performance Incentive (MBPI) of the personnel section and SOA.

(5) European Commission (EC)

EC supports mainly in the capacity development of NGOs, support to people with disabilities, malaria control, reproductive health and strengthening basic health service.

(6) Department of International Development (DFID)

DFID is supporting the health sector through joint financing to HSSP2.

(7) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

GIZ is carrying out support to Health Sector Reform Program (2003-2013) with the purpose of increasing utilization of the service and to improve the quality of health services in health institutions. GIZ is carrying out projects such as a pilot project for introducing social health insurance in public hospitals in Kampong Cham and in Phnom Penh, a pregraduation education program for nurses in Regional Training Center in Kampot, training nursing preceptors in Kampong Cham Referral Hospital, and support in post-graduation education for midwives in Kampong Thom Referral Hospital.

(8) Belgian Technical Cooperation (BTC)

BTC is supporting the health sector through joint funding to HSSP2. In addition, BTC is supporting health administration organizations and public hospitals in Kampong Cham, Siem Reap and Otdar Mean Chey and health equity funds.

(9) AusAID

AusAID is supporting the health sector through joint funding to HSSP2. It is also supporting strengthening of midwife teachers and clinical instructors and establishing implementation system at Technical School for Medical Care.

(10) Global Fund

The present situation of the support of the Global Fund is as in Table 6-2.

Table 6-2 Programme Assistance to HIV/AIDS, Tuberculosis, Malaria by the Global Fund

Type of Assistance	Round	Title	Agreed Assistance Amount(USD)	Responsible agencies to accept the fund
HIV/AIDS	5	HIV/AIDS-Increasing Coverage in Key Service Areas(Phase II)	33,159,693	Ministry of Health of Cambodia
	SSF	Continued achievement of Universal Access of HIV/Sexually Transmitted Infections Prevention, Treatment and Care services in Cambodia	53,402,333	National Center for HIV/AIDs, Dermatology and STI
Tuberculosis	5	Scaling-up the Quality of Services for TB and TB/HIV Patients including those in Remote and Underserved Populations, in collaboration with NGOs(Phase II)	9,022,696	Ministry of Health of Cambodia
	7	Increased Access to and Improved Quality of TB Services at OD and Community levels, with linkages to TB/HIV(Phase II)	15,204,894	National Center for HIV/AIDs, Dermatology and STI
Malaria	6	Renewed efforts to achieve high coverage of proven malaria control interventions and scaling up the response to high anti-malaria drug resistance in Cambodia (Phase II)	22,908,144	Ministry of Health of Cambodia
	SSF	Containing Artemisinin-Resistant Plasmodiom Falciparum Parasite and moving toward Malaria Pre-elimination status in Cambodia(Phase I)	56,137,912	National Center for Parasitology, Entomology and Malaria Control
Strengthening health system	SSF	Strengthening Cambodia's Health System in the fight against HIV/AIDS, TB and Malaria(Phase I)	11,737,602	Ministry of Health of Cambodia

Source: Country Grant Portfolio, GFATM, 2012 [51]

6.3 Outline of Japanese Cooperation

According to Japan's Country Assistant Policy for Cambodia (April 2012), the priority areas for assistance include

1) reinforcement of economic infrastructure
2) promotion of social development (including improvement of health care)
3) strengthening of governance

Although the infant mortality rate and maternal mortality ratio have improved in recent years, they are still higher than those in neighboring countries. Therefore, support mainly on maternal and child health sector including strengthening of the health system is to be carried out.

Table 6-3 shows the area of current cooperation of Japan for the health sector in Cambodia. Japan has been supporting mainly on maternal and child health and tuberculosis measures, in which Japan has comparative advantage, facility establishment through the Grant Aid scheme, strengthening human resources and systems, and measures to spread established technologies to rural areas through technical cooperation. As a result of long-term support, many health indicators have been improving. However, there are still issues to be worked

on, such as insufficient number and quality of human resource for health and low accessibility to health service in rural areas.

Table 6-3 Contents of Japan's Assistance under Enforcement in Health Sector

Grant Aid		
Title	**Period**	**Outline**
The Project for Improvement of Medical Equipment in National, Municipal and Provincial Referral Hospitals	2011-2015	Assistance on equipment and facilities necessary for basic medical service to four national hospitals, seventeen municipal and provincial hospitals in the highest level
Technical Cooperation Project		
Title of Item	**Implemented Year**	**Outline**
The Project for Improving Maternal and Newborn Care through Midwifery Capacity Development	2009-2014	Strengthening of midwifery training system including capacity development of midwifery trainers
The Project on Strengthening of Medical Equipment Management in Referral hospitals	2009 -2014	Assistance on medical equipment to referral hospitals in the center and in the country Technical guidance on management, strengthening of management capacity
The Project for Improving the Capacity of the National TB Control Program through implementation of the 2nd National TB Prevalence Survey	2009-2012	Strengthening of Capacity of National Tuberculosis Center through national tuberculosis prevalence study (protocol development, implementation, monitoring, analysis, reporting system, strengthening of diagnosis network)
Project for Human Resources Development System of Co-medicals	2010-2015	Assistant to strengthen basic education for nurses, clinical technologists, medical radiology technicians, physical therapists in Technical School for Medical Care
Other Scheme	**Title**	
Assistance on clinical technologists in local hospitals (JOCV)		
Implementation of health and HIV services on integrated sex to men who have sex with men (Multi) (Relevant organizations: International Planned Parenthood Federation, Japan Trust Fund for HIV/AIDS/Reproductive Health)		
Grassroots Human Security Grant Aid (4) (Improvement of Provincial Hospital, Improvement of school dormitory of provincial training center for nurses/midwives and others)		
Grant Aid for Japanese NGOs' Projects (1)		
Grassroots Technical Cooperation (2)		

Source: Based on Ministry of Foreign Affairs ODA Country Data Book [2] and Country Assistant Policy [52]

Chapter 7 Priority Health Issues and Recommendations

7.1 Priority Health Issues

Figure 7-1 shows the current situation and challenges in the health sector in Cambodia based on an analysis of the previous chapter.

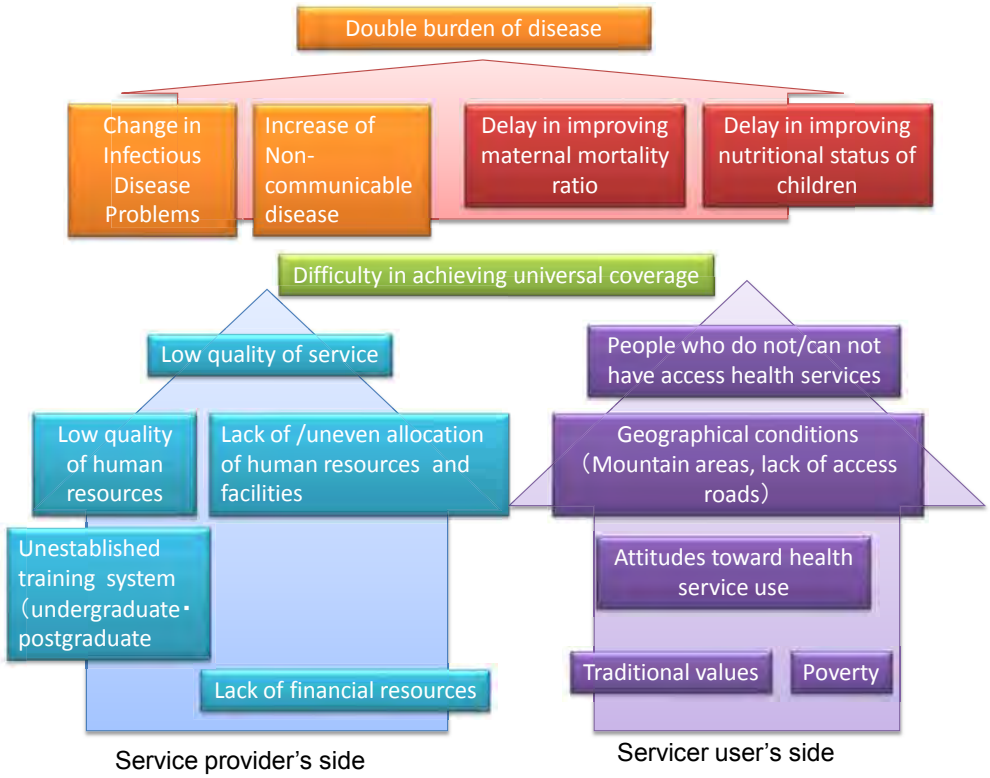


Figure 7-1 Issues and Background in Cambodia's Health Sector

7.1.1 Health Problems in Cambodia

In general, trends in health indicators have improved. However, disparities in the access to health services still exist among different regions and ethnic groups. There are still many regions where basic health services cannot be reached, thus the priority should be to expand health services to those areas. In addition, it is necessary to respond to newly emerging issues such as control measures for noncommunicable diseases. In addition to domestic health problems, it is necessary to respond to international issues such as AESAN integration, strengthening infectious diseases control and cooperation with neighboring countries with the revision of International Health Regulations.

With regard to maternal and child health, the under five and infant mortality rates have already achieved the MDG targets, although there is a delay in the improvement of nutritional status. The maternal mortality ratio has started to decline due to various measures taken under the strong commitment of the Cambodian government. That said, the maternal mortality ratio is much higher than that in neighboring countries, and further improvement in this area remains as one of the highest priorities in Cambodia.

As for communicable diseases control, progress has been made to a certain extent due to support from agencies like the Global Fund. On the other hand, it is still required to respond to new challenges such as the increase of smear-negative TB, and cooperation with neighboring countries in tackling multidrug-resistant malaria and emerging communicable diseases. The changes in disease patterns show an increase in the incidences of noncommunicable diseases and it is expected that the trend will further accelerate. This will most likely result in increasing demand for prevention and early detection of lifestyle-related diseases by improving services at the primary level health facilities that are close to patients.

7.1.2 Background of Issues

(1) Difficulty to achieve universal coverage

Universal coverage of basic health services has not yet been achieved due to the lack of health facilities and health human resources and their unbalanced deployment in urban areas. For example, looking at the usage of maternal and child health services, the coverage of antenatal care and immunization is lower in the northeast region where there is a high rate of low income households. In this area, people tend to rely on traditional birth attendants. In many areas people have to walk 30 kilometers along bad roads to reach the nearest health center, especially in the mountain areas in the northeast where roads have not yet been firmly established [7]. In addition to the difficult geographical access problem, the economic burden also becomes barrier for patients to have access to health services. This is evidenced in the low coverage of health insurance and excessive transportation costs to visit health facilities. Further, poor knowledge of mothers on nutrition and traditional values and customs on eating habits negatively affect maternal and child health.

(2) Still low quality of health service

The quality of health services as a whole has been gradually improving, owing to the efforts of Cambodia's Ministry of Health and development partners. However, in some regions it is still low due to lack of technical skills in health human resources and shortage of equipment and medicines. Systems of national examinations, training in hospital facilities in the pre-graduate education of health human resources and post-graduate education in the office have not yet been prepared, or, as they are incomplete, there are some problems in the technical competency of human resource.

(3) Undeveloped Emergency Obstetric Care

Although the ratio of institutional deliveries has been gradually increasing, 45% of deliveries are still carried out at home attended by traditional birth attendants. This is a fundamental reason for the high maternal mortality ratio. Under such a situation, the establishment of emergency obstetric care is essential in order to reduce the maternal mortality ratio. Since only referral hospitals of CPA2 or higher have facilities for operations, it is necessary to transport patients in a timely fashion to hospitals of either CPA2 or CPA3. However, there are many cases, in which the timely transportation of patients is not possible because of the lack of access during rainy season and delay in the judgment due to birth assistance by non-skilled birth attendants. In addition, many of hospitals of CPA2 level have no facility for operations.

(4) Lack of financial resources for health sector

There is an issue of lack of financial resources for the health sector on the basis of the above mentioned challenges. In order to improve health services and secure financial resources, different schemes have been introduced in Cambodia including the *Health Equity Fund* and the contracting of health administration services to external organizations. Their usage is, however, limited to just a few regions. In addition, most of the financial resources depend on development partners, and it is a challenge to secure stable financial resources and utilize them effectively.

(5) Challenge in capacity building of administrators in Provincial Health Department and in District Health Department

According to a comprehensive assessment on contracting which was conducted in 2007, positive evaluations were given on contracting in general. For example, the supported fund had reached operational districts though the implementation method differs among donors. Further, the flow of funds was fully transparent between planning and implementation, the management capacity of operational districts has improved, income of MOH staff has gone up from the introduction of the performance incentive system and overall, the health service delivery has improved. However, it is more important to continue the capacity development of local administrators in order to sustain such successful outcomes mentioned above even after the contracting period. The Special Operating Agency (SOA) which started in 2009 is a system to strengthen discretionary powers of administrative service delivery organizations by paying rewards on the achievement-based contract with the aim of improving services. Through this system, it is expected to improve the management capacity of each organization including operational districts.

7.1.3 Measures Taken by the Government of Cambodia and Development Partners Tackling the Challenges

The Government of Cambodia has been carrying out HSSP2, following HSSP1 2003-2008, with development partners. As measures for maternal and child health projects are prioritized issues, a taskforce was appointed in order to promote the Fast Track Initiative of Reproductive Health, Maternal, Newborn, Child Health. As this taskforce is coordinating each program, which have been separately implemented due to the absence of a maternal and child health department, and implementing and monitoring, more improvement in the sector of maternal and child health can be expected. In addition, service provision for communicable disease control including HIV/AIDS, TB and malaria has improved due to the supports from the Global Fund.

Concerning the regional gap of access to health service, the Health Equity Fund was introduced in order to reduce the financial burden of the poor. In this system, medical expenses of poor patients are supplemented to health facilities, and transportation and food expenses are being provided to the patients when they go to health facilities. The third-party organizations, who are entrusted with managing this system, bear the responsibility to recognize if the patient is entitled to receive the fund and pay the supplement. As of June 2010, 31% of the population who live under the poverty line and cannot bear medical expenses, have been covered by the system. Further financial supports for Contracting and SOA also have contributed to improving health administrative management and services.

7.2 Recommendations

Based on the above-mentioned problems, there are a number of possible areas for further Japanese cooperation with Cambodia as follows:

(1) Further cooperation to strengthen maternal and child health

Regarding the improvement of the quantity and quality of midwives, which is the purpose of the Fast Track Initiative, it is considered that continuation of the cooperation which has been carried out so far will strengthen the maternal and child health projects and, as a result, reduce the maternal mortality ratio. Like the capacity development of the maternal and child health center which Japan has been carrying out and "the project for maternal and child health services in rural areas" (2006-2009), it should continue at the state level to improve the capacity of midwives by supporting them, as a result, to strengthen maternal and child health projects.

Capacity development of midwives

The development of a midwifery training system including capacity development of midwifery trainers, which is under implementation in “the project for improving maternal and newborn care through midwifery capacity development” should be introduced in other three Regional Training Centers (RTCs). As part of strengthening the capacity of midwives, it is necessary to respond to the facility degradation of RTCs as well; it is expected to consider the reconstruction of the RTCs. In addition, it is expected to consider supporting SOA as well for the effective management of RTCs.

Assistance to reduce the regional gap

Strengthening of the maternal and child health project through strengthening of basic health services in Modol Kiri, Rattanak Kiri and other areas where the poverty rate is high is also essential for further reducing the maternal mortality ratio for the whole country. There has been a significant the delay in the improvement of the nutrition status on the indicators for child health. There also exist regional differences in women's nutrition status, which adversely affects maternal mortality ratio. As such, including nutritional improvement in the strengthening of basic health services in remote and border areas will be easy to conduct from the aspect of "Program Integration", which the Fast Track Initiative aims at. Furthermore, Japan declares its assistance policy to contribute to the achievement of MDGs by embodying EMBRACE[30], a maternal and child health assistance model which was proposed in the new international health policy. The above mentioned measures seem to have high validity from that point of view.

Strengthening of Emergency Obstetric Care

Development of operating rooms in CPA 2 and CPA3 health facilities is essential for the strengthening of Emergency Obstetric Care (EmOC). If projects such as development of operating rooms and technical improvement of health human resources would start from the remote and border areas where EmOC services are critical, a larger impact on reducing maternal mortality ratio would be expected.

[30] The EMBRACE (Ensure Mothers and Babies Regular Access to Care) model is an effective package aiming with other government and private partners, using a wide approach, including infrastructure, safe water and sanitation development and other social development.

(2) Continuous Support to Tuberculosis Control

Japan has long years of experience in TB control and its effectivness was proved from the result of the national TB prevalence survey implemented in 2010. That DOTS strategy, which Japan supported for many years as a core in TB control, contributed to Cambodia's TB reduction. However, the survey also indicated new challenges including smear-negative TB, which cannot be detected by smear microscopy, and early detection and treatment for elderly patients or TB patients without symptoms/serious conditions. Therefore, it is necessary to continuously promote TB control including appripriate responses to such new challenges. It will be effective for Japan to consider providing continuous support in planning and implementing new TB control strategy based on its past achievements.

(3) Support to noncommunicable disease control

Considering the fact that 47% of the deaths in Cambodia are by are noncommunicable diseases, it is necessary to take measures to control these. It is important to promote the prevention and early detection of lifestyle-related diseases by including health check-up and advocacy activity in the Minimum Package of Activities (MPA), which is supposed to be provided at the primary health facilities. It is also necessary to strengthen the capacity of human resources that are responsible for noncommunicable disease control.

(4) Support to improving economic access to health services

As mentioned earlier, the difficulty of economic access to health services is a barrier for achieving universal health coverage. The introduction of the Health Equity Fund and health insurance is limited in some regions and they have not reduced the financial burden of patients in many regions yet. It is worth considering for Japan to take privilege measures for vulnerable groups (such as low income groups and women in areas with low coverage of Health Equity Fund and health insurance), as they would improve the economic access of more people to health services, and help lead towards universal health coverage.

ATTACHMENTS

Attachment 1: Major Health Indicators

Attachment 2: References

Attachment 1: Major Health Indicators (Kingdom of Cambodia)

Kingdom of Cambodia				MDGs	Sources	1990	2000	Latest	Latest year	Latest in Region	(Latest year)	Region
0 General Information	0.1 Demography	0.1.01	Population, total		WDI	9,531,928	12,446,949	14,139,000	2010	1,961,558,757	(2010)	East Asia & Pacific (developing only)
		0.1.02	Population growth (annual %)		WDI	3.5	1.8	1.1	2010	0.7	(2010)	East Asia & Pacific (developing only)
		0.1.03	Life expectancy at birth, total (years)		WDI	55.4	57.5	62.5	2010	72.2	(2010)	East Asia & Pacific (developing only)
		0.1.04	Birth rate, crude (per 1,000 people)		WDI	43.6	27.1	22.5	2010	14.2	(2010)	East Asia & Pacific (developing only)
		0.1.05	Death rate, crude (per 1,000 people)		WDI	12.1	9.6	8.0	2010	7.0	(2010)	East Asia & Pacific (developing only)
		0.1.06	Urban population (% of total)		WDI	21.6	16.9	22.8	2010	46.0	(2010)	East Asia & Pacific (developing only)
	0.2 Economic・Development Condition	0.2.01	GNI per capita, Atlas method (current US$)		WDI		290	750	2010	3,695.8	(2010)	East Asia & Pacific (developing only)
		0.2.02	GNI growth (annual %)		WDI		8.1	5.4	2010	10.0	(2010)	East Asia & Pacific (developing only)
		0.2.03	Total enrollment, primary (% net)	2.1	WDI		90.5	96.0	2010	94.4	(2007)	East Asia & Pacific (developing only)
		0.2.04	Ratio of female to male primary enrollment (%)	3.1	WDI		87.2	95.2	2010	101.1	(2009)	East Asia & Pacific (developing only)
		0.2.05	Literacy rate, adult total (% of people ages 15 and above)		WDI			77.6	2008	93.5	(2009)	East Asia & Pacific (developing only)
		0.2.06	Human Development Index		HDR	0.18	0.54	0.52	2011	0.67	(2011)	East Asia and the Pacific
		0.2.07	Human Development Index (rank)		HDR	136/160	130/173	139 /187	2011			
		0.2.08	Poverty gap at $1.25 a day (PPP) (%)		WDI			4.9	2008	3.4	(2008)	East Asia & Pacific (developing only)
	0.3 Water and Sanitation	0.3.01	Improved water source (% of population with access)	7.8	HNP Stats	31	44	64	2010	89.9	(2010)	East Asia & Pacific (developing only)
		0.3.02	Improved sanitation facilities (% of population with access)	7.9	HNP Stats	9	17	31	2010	65.6	(2010)	East Asia & Pacific (developing only)
1 Health Status of People	1.1 Mortality and Morbidity	1.1.01	Age-standardized mortality rate by cause (per 100,000 population) - Communicable		GHO			478	2008	74	(2008)	Western Pacific
		1.1.02	Age-standardized mortality rate by cause (per 100,000 population) - Noncommunicable		GHO			748	2008	534	(2008)	Western Pacific
		1.1.03	Age-standardized mortality rate by cause (per 100,000 population) - Injuries		GHO			65	2008	64	(2008)	Western Pacific
		1.1.04	Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)		HNP Stats			46.6	2008	13.4	(2008)	East Asia & Pacific (developing only)
		1.1.05	Cause of death, by non-communicable diseases (% of total)		HNP Stats			46.3	2008	76.3	(2008)	East Asia & Pacific (developing only)
		1.1.06	Cause of death, by injury (% of total)		HNP Stats			7.1	2008	10.3	(2008)	East Asia & Pacific (developing only)
		1.1.07	Distribution of years of life lost by broader causes (%) - Communicable		GHO			60	2008	19	(2008)	Western Pacific
		1.1.08	Distribution of years of life lost by broader causes (%) - Noncommunicable		GHO			31	2008	63	(2008)	Western Pacific
		1.1.09	Distribution of years of life lost by broader causes (%) - Injuries		GHO			10	2008	18	(2008)	Western Pacific
	1.2 Maternal and Child Health	1.2.01	Maternal mortality ratio (modeled estimate, per 100,000 live births)	5.1	MDGs	690	470	290	2008	88.7	(2008)	East Asia & Pacific (developing only)
		1.2.02	Adolescent fertility rate (births per 1,000 women ages 15-19)	5.4	MDGs		48.6	36.4	2010	18.8	(2010)	East Asia & Pacific (developing only)
		1.2.03	Mortality rate, under-5 (per 1,000)	4.1	MDGs	121.0	103.1	51.0	2010	24.3	(2010)	East Asia & Pacific (developing only)
		1.2.04	Mortality rate, infant (per 1,000 live births)	4.2	MDGs	87.4	77.3	42.9	2010	19.9	(2010)	East Asia & Pacific (developing only)
		1.2.05	Low-birthweight babies (% of births)		HNP Stats		11.3	8	2010	6.4	(2010)	East Asia & Pacific (developing only)
		1.2.06	Fertility rate, total (birth per woman)		HNP Stats	5.7	3.8	2.6	2010	1.8	(2010)	East Asia & Pacific (developing only)
	1.3 Infectious Diseases	1.3.01	a) Prevalence of HIV, male (% ages 15-24)	6.1	MDGs			0.1	2009			
			b) Prevalence of HIV, female (% ages 15-24)	6.1	MDGs			0.1	2009			
		1.3.02	Notified cases of malaria per 100,000 population	6.6	MDGs Database			1,798	2008			
		1.3.03	a) Malaria death rate per 100,000 population, all ages	6.6	MDGs Database			4	2008	6	(2009)	South-Eastern Asia
			b) Malaria death rate per 100,000 population, ages 0-4	6.6	MDGs Database			2	2008	18	(2009)	South-Eastern Asia
		1.3.04	Tuberculosis prevalence rate per 100,000 population (mid-point)	6.9	MDGs Database	1258	923	660	2010	344	(2009)	South-Eastern Asia
		1.3.05	Incidence of tuberculosis (per 100,000 people)	6.9	MDGs	574	492	437	2010	123	(2010)	East Asia & Pacific (developing only)
		1.3.06	Tuberculosis death rate (per 100,000 people)	6.9	MDGs	153	105	61	2010	12	(2010)	East Asia & Pacific (developing only)
		1.3.07	Prevalence of HIV, total (% of population ages 15-49)		HNP Stats	0.5	1.3	0.5	2009	0.2	(2009)	East Asia & Pacific (developing only)
		1.3.08	AIDS estimated deaths (UNAIDS estimates)		HNP Stats	500	7,000	31,000	2009			
		1.3.09	HIV incidence rate, 15-49 years old, percentage (mid-point)		MDGs Database	0.36	0.06	0.01	2009			
		1.3.10	Paritial Prioritization Score by the Global Fund (HIV)		GF			8	2012			
			Paritial Prioritization Score by the Global Fund (Malaria)		GF			10	2012			
			Paritial Prioritization Score by the Global Fund (TB)		GF			10	2012			
	1.4 Nutrition	1.4.01	Prevalence of wasting (% of children under 5)		HNP Stats		16.9	9.6	2010			
2 Service Delivery	2.1 Maternal and Child Health	2.1.01	Births attended by skilled health personnel, percentage	5.2	MDGs Database		31.8	43.8	2005	72.0	(2009)	South-Eastern Asia
		2.1.02	Birth by caesarian section		GHO			1.8	2005	24.4	(2011)	Western Pacific
		2.1.03	Contraceptive prevalence (% of women ages 15-49)	5.3	MDGs		23.8	50.5	2010	77.0	(2009)	East Asia & Pacific (developing only)
		2.1.04	Pregnant women receiving prenatal care (%)	5.5	HNP Stats		37.7	89.1	2010	92.2	(2010)	East Asia & Pacific (developing only)
		2.1.05	Pregnant women receiving prenatal care of at least four visits (% of pregnant women)	5.5	HNP Stats		8.9	27.0	2005			
		2.1.06	Unmet need for family planning, total, percentage	5.6	MDGs Database		29.7	25.1	2005	10.9	(2008)	South-Eastern Asia
		2.1.07	1-year-old children immunized against: Measles	4.3	Childinfo	34	65	93	2010	95	(2010)	East Asia & Pacific
		2.1.08	1-year-old children immunized against: Tuberculosis		Childinfo	52	81	94	2010	97	(2010)	East Asia & Pacific
		2.1.09	a) 1-year-old children immunized against: DPT (percentage of infants who received their first dose of diphtheria, pertussis and tetanus vaccine)		Childinfo	63	78	93	2010	96	(2010)	East Asia & Pacific
			b) 1-year-old children immunized against: DPT (percentage of infants who received three doses of diphtheria, pertussis and tetanus vaccine)		Childinfo	38	59	92	2010	94	(2010)	East Asia & Pacific
		2.1.10	1-year-old children immunized against: Polio		Childinfo	38	62	92	2010	96	(2010)	East Asia & Pacific
		2.1.11	Percentage of infants who received three doses of hepatitis B vaccine		Childinfo			92	2010	94	(2010)	East Asia & Pacific
	2.2 Infectious Diseases	2.2.01	Condom use with non regular partner, % adults (15-49), male	6.2	MDGs			82.6	2005			
		2.2.02	Condom use with non regular partner, % adults (15-49), female	6.2	MDGs		42.7					

Attachment 1: Major Health Indicators (Kingdom of Cambodia)

Kingdom of Cambodia				MDGs	Sources	1990	2000	Latest	Latest year	Latest in Region	(Latest year)	Region
		2.2.03	Men 15-24 years old with comprehensive correct knowledge of HIV/AIDS, percentage	6.3	MDGs Database			45.2	2005			
		2.2.04	Women 15-24 years old with comprehensive correct knowledge of HIV/AIDS, percentage	6.3	MDGs Database		37.1	50.1	2005	24	(2005-2010)	South-Eastern Asia
		2.2.05	Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years	6.4	MDGs Database		0.71	0.83	2005			
		2.2.06	Use of insecticide-treated bed nets (% of under-5 population)	6.7	HNP Stats			4.2	2005			
		2.2.07	Children under 5 with fever being treated with anti-malarial drugs, percentage	6.8	MDGs Database			0.2	2005			
		2.2.08	Tuberculosis treatment success rate under DOTS, percentage	6.10	MDGs Database		91	95	2008	89	(2008)	South-Eastern Asia
		2.2.09	Antiretroviral therapy coverage (% of people with advanced HIV infection)	6.5	MDGs			94.0	2009			
		2.2.10	People aged 15 years and over who received HIV testing and counselling, estimated number per 1,000 adult population		GHOr			98.5	2010			
		2.2.11	Testing and counselling facilities, estimated number per 100,000 adult population		GHOr			3.2	2010			
		2.2.12	Pregnant women tested for HIV, estimated coverage (%)		GHOr			49	2010			
		2.2.13	Percentage of HIV-infected pregnant women who received antiretroviral drugs to reduce the risk for mother-to-child transmission (Mid point)	6.5	MDGs Database							
		2.2.14	Tuberculosis case detection rate (all forms)		HNP Stats	12.0	31.0	65.0	2010	76	(2010)	East Asia & Pacific (developing only)
		2.2.15	Tuberculosis treatment success rate (% of registered cases)	6.10	MDGs		91.0	95.0	2010	92	(2009)	East Asia & Pacific (developing only)
	2.3 Nutrition	2.3.01	Vitamin A supplementation coverage rate (% of children ages 6-59 months)		HNP Stats			95.0	2010			
		2.3.02	Consumption of iodized salt (% of households)		HNP Stats		13.8	82.7	2010	85.7	(2010)	East Asia & Pacific (developing only)
	2.4 Quality and Coverage	2.4.01	Estimate of health formal coverage		ILO					11.6		Countries of very high vulnerability
		2.4.02	Population not covered (%) due to financial resources deficit		ILO			82.1		85.8		Countries of very high vulnerability
		2.4.03	Population not covered (%) due to professional health staff dificit		ILO			76.8		74.6		Countries of very high vulnerability
3 Health System	3.1 Human Resources	3.1.01	Physicians (per 1,000 people)		HNP Stats		0.2	0.2	2010	1.2	(2010)	East Asia & Pacific (developing only)
		3.1.02	Midwives (per 1,000 people)		HNP Stats			0.2	2001	0.04	(2002)	East Asia & Pacific (developing only)
		3.1.03	Nurses (per 1,000 people)		HNP Stats		0.6			1	(2001)	East Asia & Pacific (developing only)
		3.1.04	Dentistry personnel density (per 10,000 population)		GHO			0.17	2008	1	(2007)	Western Pacific
		3.1.05	Density of pharmaceutical personnel (per 10,000 population)		GHO			0.38	2008	4.0	(2007)	Western Pacific
	3.2 Health Financing	3.2.01	Health expenditure, total (% of GDP)		HNP Stats		5.8	5.6	2010	4.8	(2010)	East Asia & Pacific (developing only)
		3.2.02	Health expenditure, public (% of total health expenditure)		HNP Stats		22.5	37.2	2010	53.4	(2010)	East Asia & Pacific (developing only)
		3.2.03	Health expenditure, private (%) of total health expenditure)		HNP Stats		77.6	62.8	2010	46.6	(2010)	East Asia & Pacific (developing only)
		3.2.04	Out-of-pocket health expenditure (% of private expenditure on health)		HNP Stats		97.1	64.4	2010	67.0	(2010)	East Asia & Pacific (developing only)
		3.2.05	Health expenditure, public (% of government expenditure)		HNP Stats		8.7	10.5	2010	9.3	(2004)	East Asia & Pacific (developing only)
		3.2.06	External resources for health (% of total expenditure on health)		HNP Stats		9.4	23.9	2010	0.4	(2010)	East Asia & Pacific (developing only)
		3.2.07	Social security expenditure on health as a percentage of general government expenditure on health		GHO			0.0	2009	68.6	(2009)	Western Pacific
		3.2.08	a) Health expenditure per capita (current US$)		HNP Stats		16.5	45.2	2010	182.8	(2010)	East Asia & Pacific (developing only)
			b) Per capita total expenditure on health (PPP int. $)		GHO			122	2009	614	(2009)	Western Pacific
		3.2.09	Per capita government expenditure on health at average exchange rate (US$)		GHO			9	2009	361	(2009)	Western Pacific
	3.3 Facilities, Equipments and Supplies	3.3.01	a) Median availability of selected generic medicines (%) - Public		GHO							
			b) Median availability of selected generic medicines (%) - Private		GHO							
		3.3.02	a) Median consumer price ratio of selected generic medicines - Public		GHO							
			b) Median consumer price ratio of selected generic medicines - Private		GHO							
		3.3.03	Hospital beds (per 1,000 population)		HNP Stats	2.1		0.8	2010	3.9	(2009)	East Asia & Pacific (developing only)

WDI: World Development Indicators & Global Development Finance (http://databank.worldbank.org/ddp/home.do) (Accessed 06/2012)
HDR: Human Development Reports (http://hdr.undp.org/) (Accessed 06/2012)
HNP Stats: Health Nutrition and Population Statistics (http://databank.worldbank.org/ddp/home.do) (Accessed 06/2012)
GF: Global Fund eligibility list for 2012 funding channels, the Global Fund to Fight AIDS, Tuberculosis and Malaria (http://www.theglobalfund.org/en/application/applying/ecfp/) (Accessed 06/2012)
GHO: Global Health Observatory Country Statistics (http://www.who.int/gho/countries/en/) (Accessed 06/2012)
GHOr: Global Health Observatory Repository (http://apps.who.int/ghodata/) (Accessed 06/2012)
MDGs: Millennium Development Goals (http://databank.worldbank.org/ddp/home.do) (Accessed 06/2012)
MDG database: Millennium Development Goals Indicators (http://mdgs.un.org/unsd/mdg/) (Accessed 06/2012). Regional data is available on The Millennium Development Goals Report Statistical Annex 2011 (United Nations).
Childinfo: Childinfo UNICEF (http://www.childinfo.org/) (Accessed 06/2012)
ILO: World Social Security Report 2010/11: Providing coverage in times of crisis and beyond. International Labour Office Geneva: ILO 2010.

1.3.10 Partial Prioritization Score is composed of the income level score for the country and the disease burden score for the particular disease in the country. The minimum score is 3 and the maximum score is 12.

2.4.01 Estimate of health formal coverage is indicated as percentage of population covered by state, social, private, company-based, trade union, mutual and other health insurance scheme.

2.4.02 Population not covered (%) due to financial resources deficit (based on median value in low-vulnerability group of countries) uses the relative difference between the national health expenditure in international $ PPP (excluding out-of-pocket) and the median density observed in the country group with low levels of vulnerability as a benchmark for developing countries. The rate can be calculated using the following formula:

Per capita health expenditure not financed by private households' out-of-pocket payments (PPP in int. $) [A]
Population (in thousands) total [B]
Total health expenditure not financed by out of pocket in int. $ PPP (thousands) [C = A x B]
Population covered by total health expenditure not financed by out-of pocket if applying Benchmark* (thousands) [D = C ÷ Benchmark]**
Percentage of the population not covered due to financial resources deficit (%) [F = (B - D) ÷ B x 100]
*Benchmark: Total health expenditure not financed by out-of-pocket per capita = 350 international $ PPP.
**This formula was partially modified from the original in the source to suit an actual calculation.

2.4.03 Population not covered (%) due to professional health staff dificit uses as a proxy the relative difference between the density of health professionals in a given countries and its median value in countries with a low level of vulnerability. The rate can be calculated using the following formula:

Total of health professional staff [A = B + C]
Number of nursing and midwifery personnel [B]
Number of physicians [C]
Total population (in thousands) [D]
Number of health professional per 10,000 persons [F = A ÷ D x 10]
Total population covered if applying Benchmark* (thousands) [E = A ÷ Benchmark x 10]
Percentage of total population not covered due to health professional staff deficit [G = (D - E) ÷ D x100]
Benchmark: 40 professional health staff per 10,000 persons.

Attachment 2：References (Kingdom of Cambodia)

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