Data Collection Survey on Health Sector

Country Report
The Democratic Republic of Timor-Leste

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.

[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

AusAID	Australian Agency for International Development
BCG	Bacille Calmette Guerin
DHS	Demographic and Health Survey
DOTS	Directly Observed Therapy Short-course
EPI	Expanded Programme on Immunization
GDP	Gross Domestic Product
GNI	Gross National Income
HIV	Human Immunodeficiency Virus
HSSP	Health Sector Strategic Plan
IMCI	Integrated Management of Childhood Illness
JICA	Japan International Cooperation Agency
JOCV	Japan Overseas Cooperation Volunteers
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
NGO	Non-Governmental Organization
OJT	On-the-Job Training
PHC	Primary Health Care
SDP	Strategic Development Plan
SISCa	Servico Integrado de Saude Comunitaria
TB	Tuberculosis
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United Nations Agency for International Development
WHO	World Health Organization

Source: Http://www.freemap.jp/blankmap/ (access on March 16, 2012)

The Democratic Republic of Timor-Leste

Summary

1. The problems of nation-building involving the improvement of administrative capacity are accumulating even if political stability was achieved after its independence in 2002. The ratio of population living in poverty did not improve despite the fact that the gross national income per capita increased rapidly due to the income coming from the oil and natural gas sector. There are sociocultural factors influencing the health sector such as low level of education and literacy, absence of common language, limited access to electricity and media, topographical constraint,, value of traditional culture, and violence such as domestic violence and stress.

2. The National Health Sector Strategic Plan (2011-2030) was designed according to the Strategic Development Plan 2011-2030 incorporating the goals of the health sector such as "All citizens must have access to primary healthcare". It aims at human resource development, health infrastructure development like hospitals, and administrative ability strengthening.

3. High total fertility rate and poor nutrition index stand out among the health indicators of Timor-Leste when compared to surrounding countries. Maternal mortality ratio is still high though children's mortality rate improved well in the indexes related to MDGs. In addition, the index in 2000 reported a significant reduction on the incidence of malaria. It seems that the cause of death due to infectious diseases decreased while the incidence of death due to non-communicable diseases increased. Epidemiological transition is taking place though tuberculosis topped the list of the cause of death.

4. A rapid growth of population in the future is feared due to the high fertility rate in Timor-Leste. As for the maternal mortality ratio the second highest in Southeast Asia after Laos, several measures were put in place to solve various problems on the following; low contraceptive prevalence, low institutional deliveries, and lack of knowledge on maternity. The neonatal mortality rate is still high even though infant and under-five mortality rate decreased steadily, and the probability to achieve MDGs' target is high.

5. Regarding infectious diseases, it is expected that the number of young people infected with HIV will increase in the future. Tuberculosis is the top cause of death and the prevalence rate has not improved while case detection rate exceeded 80% recently, and the treatment success rate maintained at 80% level. About 20% of the population were infected with malaria, and 40% of children's morbidity are caused by malaria-carrying mosquitoes.

6. There are no big improvements achieved in eradicating malnutrition in Timor-Leste despite the various programs made by MOH and development partners. Various factors such as low birth weight, mother's low body mass, low income levels, and low educational level were pointed out.

7. The problem of the health service delivery is that services do not reach the village level because of the unavailability of health posts. The contraceptive prevalence and EPI coverage are lower than the neighboring countries, also information dissemination on health services to communities is insufficient. Moreover, people's service utilization is low as recorded on the health statistics of the MOH. Problems on

health are encountered both by the provider side and demand side because of the lack of awareness on health.

8. The lack of quality human resources is a serious problem, and providing hospital care depends on foreign specialists. The Dili National Hospital provides only secondary care so patients who need tertiary care are transferred to foreign countries. The MOH does not have sufficient ability to analyze data and information. The health information system has just started so the quality of the information is another concern.

9. A lot of development partners are acting on the health sector, and the donor coordination has already functioned. The support for MCH, nutrition, and primary health care increased significantly.

10. The priority issues of the health sector in Timor-Leste are 1) Lack of health awareness, 2) Malnutrition, 3) High population growth, and 4) Insufficient health service. Moreover, lack of human resources is a bottleneck of growth, and assistance to the health sector by the education sector and nutrition improvement in agriculture programs are of great significance in order to promote human resource development of the future industry.

JICA Data Collection Survey on Health Sector

Country Report
The Democratic Republic of Timor-Leste

Table of Contents

Foreword
Abbreviation and Acronyms
Map of the Democratic Republic of Timor-Leste
Summary

Chapter 1 Country Situation 1-1
1.1 Overview of Timor-Leste 1-1
1.2 Sociocultural Situation 1-2
1.2.1 Low Level of Education and Absence of Common Language 1-2
1.2.2 Low Availability of Basic Infrastructure 1-2
1.2.3 Topography and Traditional Culture 1-3
1.2.4 Violence and Trauma 1-3
Chapter 2 Development Policies and Plans 2-1
2.1 National Development Policy 2-1
2.2 Health Sector Development Plan 2-1
2.2.1 Health Sector Strategic Plan 2-1
2.2.2 National Health Sector Strategic Plan 2011-2030 2-2
Chapter 3 Health Status of the People 3-1
3.1 Overview 3-1
3.2 Population 3-2
3.3 Maternal and Child Health 3-3
3.3.1 Mother's Health 3-3
3.3.2 Child Health 3-4
3.4 Communicable Diseases 3-5
3.4.1 HIV/AIDS 3-5
3.4.2 Tuberculosis 3-6
3.4.3 Malaria 3-7
3.5 Nutrition 3-7
3.5.1 Nutritional Status of Children 3-7
3.5.2 Nutritional Status of Women 3-9
Chapter 4 Health Services 4-1
4.1 Maternal and Child Health (MCH) 4-1
4.1.1 Strategy and Actions on MCH 4-1
4.1.2 Service Provision and Utilization 4-1

4.2 Communicable Diseases Control 4-3
4.2.1 Tuberculosis 4-3
4.2.2 HIV/AIDS 4-3
4.3 Nutrition Improvement 4-3
4.4 Health Care Seeking Behavior of People 4-4
Chapter 5 Health System 5-1
5.1 Governance 5-1
5.1.1 Health Administration 5-1
5.1.2 Service Provision and Referral System 5-1
5.2 Human Resources for Health (HRH) 5-3
5.2.1 Present Situation 5-3
5.2.2 Human Resources Development 5-4
5.3 Health Financing 5-4
5.4 Health Management Information System 5-4
5.5 Health Facilities and Equipment 5-5
Chapter 6 Development Assistance and Partnership 6-1
6.1 Framework of Donor Coordination 6-1
6.2 Framework of Donor Coordination 6-1
6.2.1 United Nations Children's Fund (UNICEF) 6-1
6.2.2 Australian Agency for International Development (AusAID) 6-1
6.2.3 World Health Organization (WHO) 6-2
6.2.4 The World Bank 6-2
6.2.5 The United States Agency for International Development (USAID) 6-2
6.3 Outline of Japanese Cooperation 6-2
6.3.1 Cooperation in the Health Sector 6-2
6.3.2 Japan’s Cooperation Policy to Timor-Leste and Place of the Health Sector 6-2
Chapter 7 Priority Health Issues and Recommendations 7-1
7.1 Priority Health Issues 7-1
7.1.1 Serious Problems and Factors in the Health Sector 7-1
7.1.2 Actions by the Government and Development Partners with Problems, Strategy and Support 7-2
7.2 Recommendations 7-3

Annex
Annex 1 : Main Indicators in the Health Sector
Annex 2 : References

List of Figures and Tables

Figure 1-1 Literacy Rate by Age Group 1-2
Figure 3-1 Population by District 3-2
Figure 3-2 Participation Rate of ANC Visits and Delivery Assisted by Medical Personnel 3-4
Figure 3-3 Place of Delivery 3-4
Figure 3-4 HIV New Patients and Death Cases 3-5
Figure 3-5 Trends in Tuberculosis Prevalence 3-6
Figure 3-6 Trends in Case Detection Rate and Treatment Success Rate 3-6
Figure 3-7 Number of Reported Malaria Cases 3-7
Figure 3-8 Prevalence Rate Associated 3-7
Figure 3-9 Trends in Nutritional Status of Children under Five 3-8
Figure 3-10 Comparison of Stunting by District 3-8
Figure 3-11 Comparison of Wasting by District 3-9
Figure 4-1 Trends in Contraceptive Prevalence Rate (Modern Method) 4-1
Figure 4-2 Persons Assisted Delivery by Mother's Educational Level 4-2
Figure 4-3 Trends in Immunization Coverage 4-2
Figure 5-1 Organizational Chart of MOH 5-1
Figure 5-2 Health Service Provision of Timor-Leste 5-2
Figure 7-1 Problem Structure Analysis of the Health Sector in Timor-Leste 7-1

Table 2-1 Priority Areas and Strategies in the Health Sector Strategic Plan 2-2
Table 2-2 Priority Areas of National Health Sector Strategic Plan 2-2
Table 3-1 Health Index Comparison Between Asia and Pacific Nations (The country where the index is the worst is highlighted.) 3-1
Table 3-2 Trend of MDG Indicator 3-1
Table 3-3 Leading Causes of Death* and Major Diseases (2011) 3-2
Table 3-4 Number of Household Member, Fertility Rate (2010) 3-3
Table 3-5 Indicator Related to Neonatal Mortality (2011) 3-5
Table 4-1 Number of Outpatient Visit per Year per Person (2011) 4-4
Table 5-1 Number of Health Facilities by District (2011) 5-2
Table 5-2 Bed Occupancy and Average Length of Stay (2011) 5-3
Table 5-3 Number of Medical Personnel by District (2011) 5-3
Table 5-4 Indicator of Health Financing 5-4
Table 6-1 Main Development Partners and its Priority Areas 6-1
Table 6-2 Past Health Programs by Japan's Cooperation (Programs for the last five years after 2009) 6-2
Table 7-1 Problems, Strategies, and Assistance of the Health Field 7-2

Chapter 1 Country Situation

1.1 Overview of Timor-Leste

The Democratic Republic of Timor-Leste (hereinafter referred as Timor-Leste) covers approximately 15,000 km^2 of the eastern half of the island of Timor with a population of 1.13 million. The Timorese, most of whom are Melanesian, have about 30 local languages. The largest ethnic group is Tetun. Being colonized by Portugal in the 16th century, about 99% of the population are Christians. In 2002, Timor-Leste achieved independence after 400 years of colonization, 24 years of occupation by Indonesia, and three years of UN tutelage. The first presidential and parliamentary elections was held in 2007, and the country is now enjoying stability by restoring administration and rebuilding lost infrastructure. The government still has to strengthen the judicial system, capacity of administrative offices, and anti-corruption. There might be some changes in the policy and administration since a new President was elected in the presidential election held in March and general election held in July 2012.

The main industry is agriculture, and coffee is the main export product. However, the new oil and gas sector, which has been successfully initiated recently, is expected to provide substantial revenues for the coming decades. The gross domestic product (GDP) has rapidly grown six times from USD 460 million in 2004 to USD 2,900 million in 2008, and the gross national income (GNI) per capita is now higher than USD 2000. However, most of the population still lives in poverty. The big challenge for the government is to increase public investment and transfer the project benefits to vulnerable groups using the increased revenues from the petroleum sector. The following table shows major socioeconomic indicators of Timor-Leste.

Table 1-1 Major Indicators of Timor-Leste

Indicator		Year
Population	1.13 million	2009
Population growth rate	4.1%	2000-2009
Literacy rate	51%	2007
Life expectancy at birth	62	2009
Crude birth rate	40	2009
Crude death rate	9	2009
Infant mortality rate	46	2010
Under 5 mortality rate	55	2010
Maternal mortality ratio	370	2009
GNI per capita	USD 2,220	2010
GNI growth rate	7.4%	2010
Total enrollment, primary	117%	2009
Human development index rank*	147	2011
Population living below the poverty line	49%	2007

Sources: HNP Stats, World Bank [1]
*Human development report, UNDP [2]

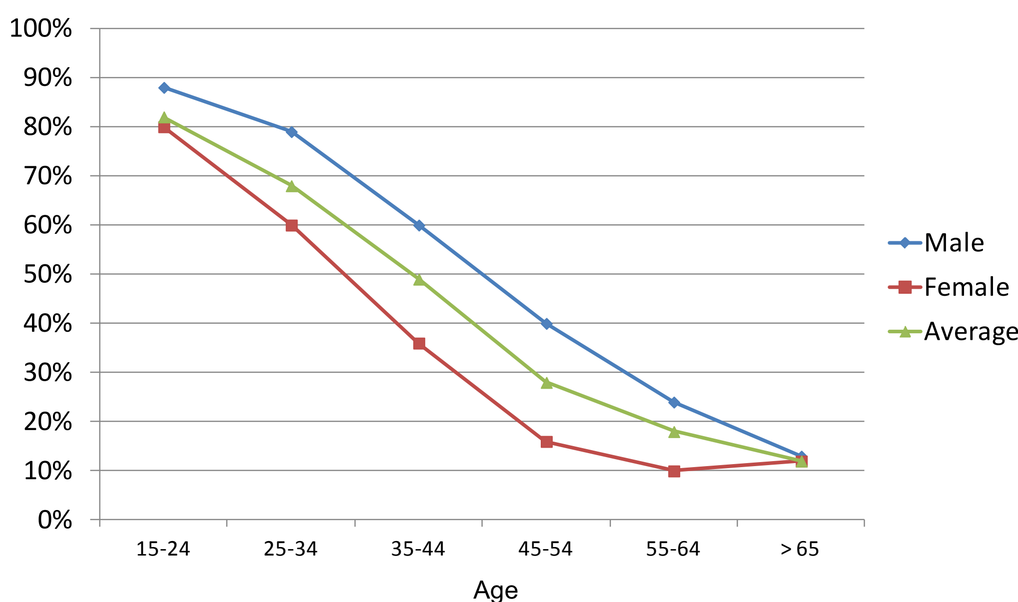
Timor-Leste is divided into 13 administrative districts which are subdivided into 65 sub-districts and 442 villages.

1.2 Sociocultural Situation

The features and cultural aspects of Timor-Leste that have influence on the health sector are as follows:

1.2.1 Low Level of Education and Absence of Common Language

The Portugese colonization in Timor-Leste did not put value and interest in education as well as basic support infrastructure such as schools in the country which resulted to a large number of illiterate adult population. In addition, schools were heavily destroyed in 1999. According to the 2010 Census, 30% of the population were never educated at school, and the literacy rate was getting lower as people gets older (Figure 1-1) For the oldest group, aged above 65, the level of literacy was around 10%, and the literacy rate of people above 40 was around 35%. These results influenced the low knowledge of people regarding nutrition and maternal health.



Source: Timor Leste Multiple Indicator Cluster Survey 2002 and UNICEF [3]

Figure 1-1 Literacy Rate by Age Group

Portuguese and Tetum are two official languages in Timor-Leste. However, a small portion of the population are proficient in Portuguese. Tetum, the most common language of Timorese, is spoken by up to 75% of the population, and some people in rural areas understand only their own dialects. These situation without a common language highlights the challenge on educational attainment as well as dissemination of information on health.

1.2.2 Low Availability of Basic Infrastructure

Households who have access to safe water on the national average accounted to 65% while 57% for rural area. Only 18% of rural households have electricity so that operation of health facilities and improvement of hygiene are quite difficult. Access to information through media is essential to increase people's knowledge and awareness on health, but media exposure is low in Timor-Leste as indicated in Table 1-2. This hampers the information dissemination of the government.

Table 1-2 Access to Electricity, Media, and Transportation Means

	Electricity	Television	Radio	Telephone	Refrigerator	Car	Motorcycle
Urban	87%	62%	44%	86%	31%	14%	34%
Rural	18%	10%	28%	43%	3%	2%	7%
National Average	36%	24%	32%	54%	10%	5%	14%

Source: Population and Housing Census 2010 and MOF［4］

1.2.3 Topography and Traditional Culture

Timor-Leste is a mountainous country with small flat area, therefore road construction is difficult. The road connecting the community health center to the health post in the village level is not passable due to floods during rainy season. Such situation disturbs the provision of health services and information. A lot of people who reside in isolated small village adhere in the traditional culture of their respective tribe. There seems to be still a lot of people who prefer the idea of traditional medicine rather than Western medicine.

1.2.4 Violence and Trauma

On the national average, around 35% of married women have experienced some kind of violence like domestic violence from their husband or partner. The figures in Lautem and Dili districts are 56% and 46%, respectively, according to the latest Demographic and Health Survey (DHS) [5]. Timor Leste has an original national character of male-dominant society. High unemployment rate was registered at 33% for aged 25-34. The trauma after the dispute caused a lot of stress which will result to frequent smoking, drinking, and teenage pregnancy. Smoking rate for aged 13-15 is 60% for men and 53% for women, which are far above the figures in other Southeast Asian countries [6]. The said results are risk factors of health.

Chapter 2 Development Policies and Plans

2.1 National Development Policy

The Strategic Development Plan (SDP) 2011-2030, a mid/long-term development plan of Timor-Leste, describes the vision to join the ranks of upper-middle-income countries in 2030, and implement the action plan in 2020, also the Public Investment Plan in 2015. The country will overcome present critical challenges such as urban-rural imbalance, shortage of skilled human resources, and fragile administrative institutions. The following goals are indicated as achievable in 2030:

Goals of Strategic Development Plan (SDP) 2011-2030

a) Every child has access to free, compulsory, and mandatory education;
b) All Timorese are literate;
c) All citizens have access to primary health care;
d) No child perishes because of inadequate water supply, malnutrition, or lack of health care;
e) Every citizen has the opportunity to acquire new skills based on the 21st century technologies such as wireless broadband, high-yield agriculture, and cutting-edge health care delivery; and
f) Extreme poverty is eradicated through universal access to public services, ample job opportunities, and economic development in all regions.

There are six pillars in the Framework of Action in 2020 that needs to be strengthened, namely: health, education, agriculture, infrastructure, urbanization, and industry sectors. Public Investment Plan in 2015 indicates the priority areas in health, education, roads, power, agriculture, petroleum, ports, and tourism sectors. Regarding health and nutrition, priority areas include: 1) institutionalization of primary health system by establishing one clinic per village staffed by a doctor, a nurse and one community health worker per 100 households; and provision of district hospitals; 2) establishment of national nutrition monitoring; 3) establishment of national public health data system; 4) provision of infectious disease control programs for HIV/AIDS, tuberculosis (TB), and malaria; 5) provision of large-scale skill training and upgrading programs.

2.2 Health Sector Development Plan

2.2.1 Health Sector Strategic Plan

There are ten priority areas chosen in the Health Sector Strategic Plan (HSSP) 2008-2012 in order to accomplish the three big goals, i.e., a) improvement of the access to quality health services, b) management strengthening, and c) improvement of planning, monitoring, and coordination (Table 2-1).

Table 2-1 Priority Areas and Strategies in the Health Sector Strategic Plan

Priority Area	Strategy
Service provision	・Improve access to services in remote areas especially for the poor and the vulnerable. ・Strengthen provision of basic health services in hospitals, community health centers, and mobile clinics. ・Improve quality of services.
Behavior change and health promotion	・Improve health staff's attitude to have good communication with patients. ・Promote activities for behavior change.
Improvement of quality	・Define the standards of quality, and establish the culture that improves the quality of services.
Human resource development	・Deploy health personnel based on needs. ・Introduce incentives for staff. ・Increase the number of skilled midwives by effective training. ・Strengthen nurse's ability. ・Manager's skill improvement.
Health financing	・Improve financial management ability.
Asset management	・Enact standard and guidelines of asset management.
Administrative capacity improvement	・Review the organization and function of the MOH for the achievement of more effective health administration.
Health information system	・Work out master plan on health information system.
Gender	・Improve awareness in the MOH so as to increase the access of woman to health service.
Research	・Establish the research center for ability strengthening of study and analysis.

Source: Health Sector Strategic Plan 2008-2012 and MOH [7]

2.2.2 National Health Sector Strategic Plan 2011-2030

The National Health Sector Strategic Plan 2011-2030 is a long-term plan for 20 years after 2011 responding to the HSSP that will end in 2012, and was designed according to the contents of the SDP. The following goals have been set for 20 years from 2011, respectively divided into four periods (Table 2-2). The personnel training, the health infrastructure development, and the administrative ability strengthening are aimed in 2020. While the establishment of a tertiary service hospital and installation of hospital in each district are planned in 2025.

Table 2-2 Priority Areas of National Health Sector Strategic Plan

Period	Goals
2011-2015	・Human resource development and deployment at the hospital and health center, etc. ・Strengthening of infrastructure development and logistics of health service at the district level ・Administrative ability strengthening at the central and district level
2016-2020	・Revision of health policy matching it to the change in health indicator ・Human resource development and deployment at the hospital and health center, etc. ・Administrative ability strengthening at the central and district level
2021-2025	・Execution of assessment of the national health system ・Installation of hospitals in each district ・Provision of the tertiary level medical service
2026-2030	・Establishment of an effective national health system

Source: National Health Sector Strategic Plan 2011-2030, MOH [8]

Chapter 3 Health Status of the People

3.1 Overview

Table 3-1 shows the comparative result on the health indicators of Timor Leste with Asian and Pacific nations. The indexes on total fertility rate, stunting rate, and maternal mortality ratio in Timor-Leste are higher (worse) than other countries. It has high maternal mortality ratio secondary to Laos. As a result, life expectancy relatively becomes shorter (the same as Cambodia 62 years old).

The total fertility rate is second highest in the world (Somalia and same place) after Afghanistan (6.5), and stunting rate is the third highest after Afghanistan (59) and Yemen (58).

Table 3-1 Health Index Comparison Between Asia and Pacific Nations (The country where the index is the worst is highlighted.)

	Life Expectancy 2009	Infant Mortality Rate 2009	Under 5 Mortality Rate 2009	Maternal Mortality Ratio 2008	Total Fertility Rate 2009	Stunting (%) 2003-09	Literacy Rate 2005-08
Timor Leste	62	48	56	370	6.4	54	58
PNG	61	52	68	250	4.0	43	60
Solomon Islands	67	30	36	100	3.8	33	77
Cambodia	62	68	88	290	2.9	40	78
Bangladesh	67	41	52	340	2.3	43	55
Laos	65	46	59	580	3.4	48	73
Indonesia	71	30	39	240	2.1	37	92

Note: Growth stunting is the prevalence of nutritional deficiency of children under five years old. (It is WHO standard and is defined as a child whose height is low for his/her age.)

Source: The State of The World 's Children 2011 and UNICEF [9]

Among the Millennium Development Goals (MDGs), the infant mortality rate and under-five mortality rate have decreased gradually, while maternal mortality ratio was improved in the past 20 years though it has not reached the MDGs' targets yet. The improvement on the malaria incidence has not been achieved and the target years to attain these indicators are far from realization (Table 3-2).

Table 3-2 Trend of MDG Indicator

MDG	Indicator of MDG	1990	2000	2010	Targets in 2015	Achievement Possibility
4	Under 5 mortality rate	169	104	55	96	High
	Infant mortality rate	127	82	46	53	High
5	Maternal mortality ratio per 100,000 birth	650	520	370*	252	Low
	Birth attended by skilled health personnel (%)	-	18	29	60	Low
6	Malaria incidence per 1000 population		113	206*	45	Low
	Treatment success rate of malaria		76%	80%	85%	High

*maternal mortality rate in 2008, and malaria incidence in 2007

Source: MDG database, The Millennium Development Goals, and Timor-Leste 2009[10]

Regarding major cause of death, non-communicable diseases such as cardiovascular disease, cerebrovasucular disease, bronchial asthma, and accidents entered the top 6 in the list, and it seems that infectious diseases decreased gradually according to the statistics of the MOH (Table 3-3). This result indicates that the epidemiological transition is happening. The factors affecting this transition include the change in diet, drinking, smoking, and people's limited knowledge to health.

Table 3-3 Leading Causes of Death* and Major Diseases (2011)

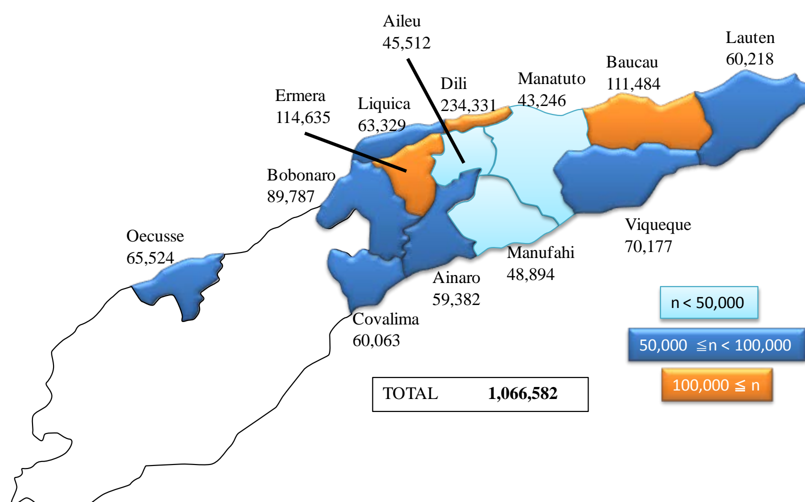
	Cause of Death	Number of Death	Disease	Number of In-patients
1	Tuberculosis	119	Pneumonia	2551
2	Pneumonia	91	Tuberculosis	1355
3	Cerebrovascular disease	56	Diarrhea	1226
4	Cardiovascular disease	52	Traffic accident	894
5	Bronchial asthma	36	Cardiovascular disease	648
6	Accident	29	Bronchial asthma	428
7	Meningitis and encephalitis	27	Malaria	427
8	Malaria	26	Urinary tract infection	406
9	Liver disease	25	Dengue	257
10	Renal failure	17	Cerebrovascular disease	175

Note: *only death in the hospitals

Source: Health Statistics Report 2011 and MOH [11]

3.2 Population

In the past 30 years, the population of Timor-Leste doubled to 1.07 million in 2010. Population has rapidly increased after independence considering that nearly one quarter of the population believed to have died during Indonesian occupation [8]. The average population increase rate in 2000-2009 was 4.1% and it went down to 2.4% in 2010. This rate becomes a basis of calculation to which population doubles in 30 years if it keeps the level of 2.4%. Figure 3-1 shows the population of each district as of 2010.



Source: Population and Housing census 2010, MOH [4]

Figure 3-1 Population by District

Total fertility rate ranged to 3.0-4.0 before independence. This has increased rapidly during the baby boom after independence, which reached to 7.8 (DHS in 2003), and about 6.0 recently. Marriage age of woman is about 20 and at the average will bear around five to six children as shown in Table 3-4. About 30% of households have more than seven family members. The median age of the population is 14.4 years old due to the rapid increase in population for the past ten years, and half of the population is under 15 years old. The aggravation of unemployment problem is caused by the poor current state of industries except agriculture. Also, low educational level in agriculture is a serious concern of the country [12].

Table 3-4 Number of Household Member, Fertility Rate (2010)

District	Number of Household Member*1	No. of Children per Woman*2	Average First Marriage Age of Woman*2
Aileu	6.3	5.6	20.6
Ainaro	6.1	7.2	20.8
Baucau	5.2	5.5	22.2
Bobonaro	5.4	6.0	21.0
Covalima	5.4	4.4	19.7
Dili	6.7	4.6	21.4
Ermera	6.1	6.6	20.8
Lauten	5.3	6.7	20.4
Liquica	6.1	5.5	20.8
Manatuto	6.0	5.5	21.3
Manufahi	6.5	5.9	20.7
Oecusse	4.7	6.6	19.8
Viqueque	5.2	5.6	21.0
TOTAL/average	**5.8**	**-**	**-**

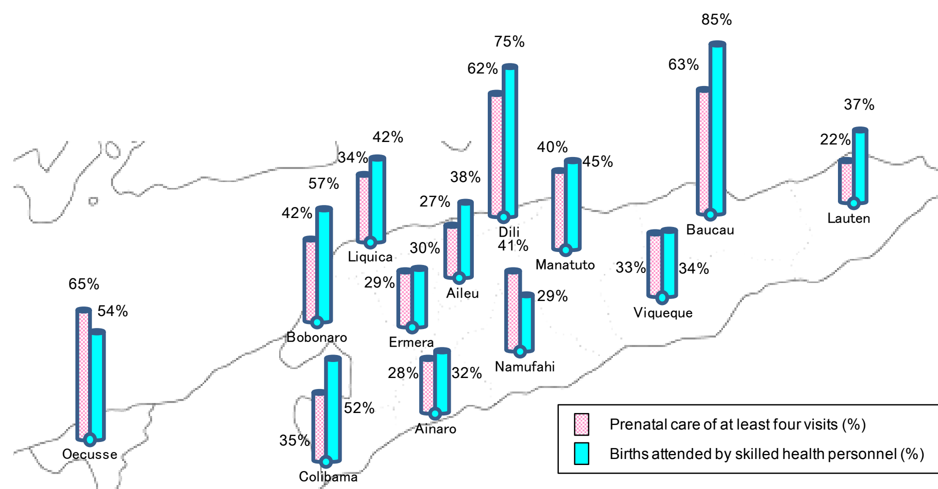
Source: 1. Population and Housing Census 2010, MOH [4]
2. DHS 2009-2010 [5]

3.3 Maternal and Child Health

3.3.1 Mother's Health

Main causes of maternal death are hemorrhage, infection, obstructed labor, abortion-related complications, and eclampsia. Maternal death has gradually decreased, but still higher compared to neighboring countries. Factors affecting high maternal death are as follows: a) low contraceptive prevalence, b) few institutional deliveries, c) teenage pregnancies, d) high total fertility rate, e) limited access to health services, f) deliveries assisted by traditional birth attendants, and g) people's limited knowledge on health. It seems that various approaches are needed for the improvement of maternal care.

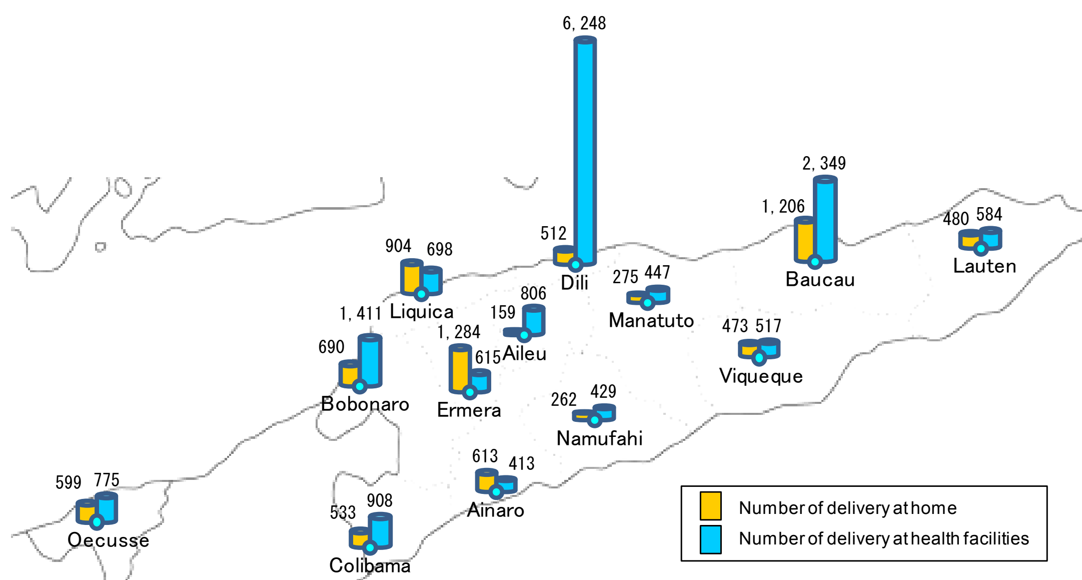
There are a large regional differences on the percentage of women who use antenatal care (ANC) more than four times and delivery assisted by medical personnel. Examples are the districts of Ermera, Ainaro, Oecussi, and Aileu which obtained low percentages as shown in Figure 3-2. Maternal mortality is still high even if delivery assisted by medical personnel is relatively higher at 51% on the national average. Reasons for high maternal mortality are high fertility rate due to low contraceptive use and poor nutritional status of women. Woman who gave birth six times or more on the average becomes the basis of calculation in a situation where the pregnancy and birth are repeated at very short intervals of three years or less. There is an issue on the limited information on health services reaching people living in community because 60% of women did not have contraceptive knowledge and 75% of women lack knowledge on where to obtain information on contraception [13].



Source: Health Statistics Report 2011 and MOH [11]

Figure 3-2 Participation Rate of ANC Visits and Delivery Assisted by Medical Personnel

As a whole, institutional delivery has increased as shown in Figure 3-3, but for Ermera and Liquica districts' the number of home deliveries are more than the institutional delivery even if these districts are adjacent to Dili, the capital city of Timor-Leste.



Source: Health Statistics Report 2011 and MOH [11]

Figure 3-3 Place of Delivery

3.3.2 Child Health

Mortality rate of children has decreased significantly because of the expansion of basic health services such as the Expanded Immunization Programme (EPI) and Integrated Management of Childhood Illness (IMCI). Both infant mortality rate (IMR) and under-five mortality have improved at the same level as the mean value (45 and 59 respectively [6]) of Southeast Asian region. The main causes of under-five children's death are birth asphyxia (16%), malaria (14%), prematurity (13%), sepsis (12%), diarrhea (11%), measles (9%), and pneumonia (8%) [14]. Neonatal mortality is high with 30% ratio.

Table 3-5 Indicator Related to Neonatal Mortality (2011)

District	Low Birth Weight of Infant (less than 2500 g)	Stillbirth	Neonatal Mortality		
			Within 0-6 days	Within 7-28 days	Total
Aileu	23	6	4	2	6
Ainaro	92	3	10	1	11
Baucau	221	19	7	1	8
Bobonaro	91	29	17	0	17
Covalima	31	12	2	0	2
Dili	426	73	34	2	36
Ermera	13	16	13	0	13
Lauten	28	5	12	0	12
Liquica	13	7	11	0	11
Manatuto	9	11	6	0	6
Manufahi	9	2	5	2	7
Oecussi	20	12	8	0	8
Viqueque	23	6	22	0	22
Timor-Leste	999	201	161	8	159

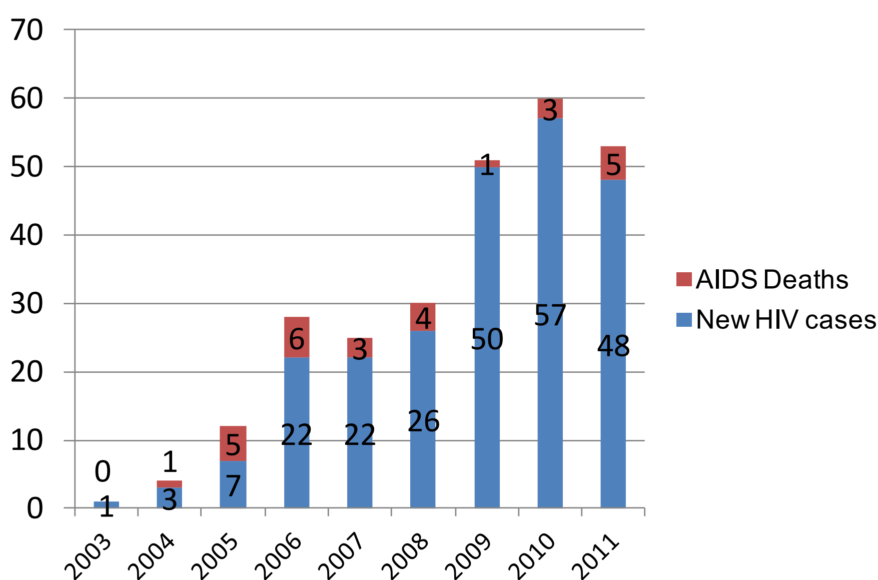
Source: Health Statistics Report 2011, MOH [11]

Child's death and disease differ not only between urban (Dili and Baucau districts) and rural but also with the plains and highland regions. In highland areas 15% of children die before reaching the age of five compared to major urban areas with less than 7% due to the difference in access to services and parents' educational level [3].

3.4 Communicable Diseases

3.4.1 HIV/AIDS

In 2003 to 2011, a total of 236 infected patients and 28 deaths were accounted. Age range of infected patients are as follows; 25-44 years old (65%), 15-24 years old (26%), and under five (1.9% or five patients).



Source: Health Statistics Report 2011, MOH [11]

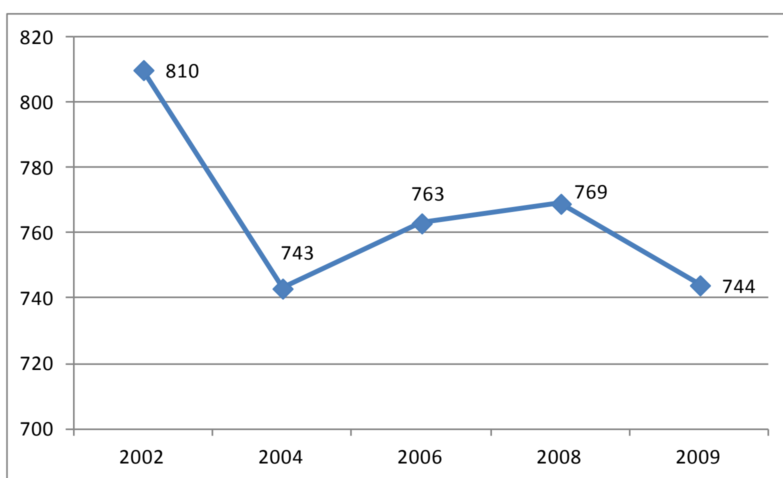
Figure 3-4 HIV New Patients and Death Cases

The number of new patients increased to about 50 people after 2009 as shown in Figure 3-4. Moreover, 0.68% of pregnant women were infected with HIV according to the epidemiological surveillance of UNICEF.

The condom use ratio is low at 3%, moreover 59% of the sex workers did not use condom. The ratio of people at age 15-24 years old who has correct knowledge about HIV/AIDS was only 13% (2007), and it is said that the risk of spreading HIV infection is high because of the presence of U.N. Forces, where young people have aggressive sexual behavior and limited knowledge of HIV/AIDS.

3.4.2 Tuberculosis

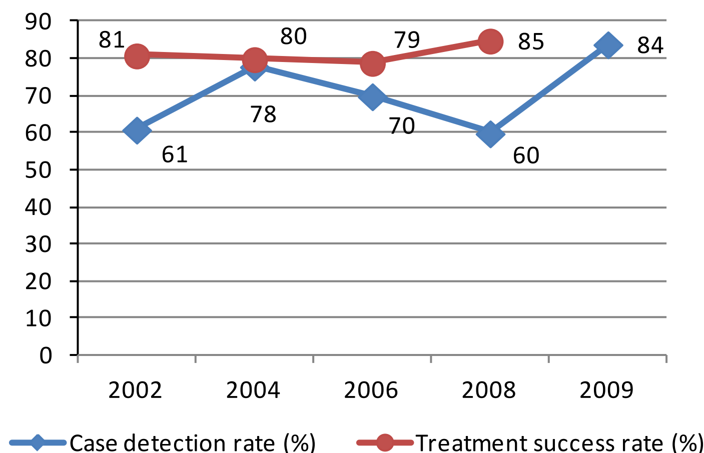
Tuberculosis is the top cause of death, and the prevalence of TB has not greatly improved for the past ten years which resulted to 744 (per 100,000) in 2009 (Figure 3-5).



Source: MDG database [10]

Figure 3-5 Trends in Tuberculosis Prevalence

The case detection rate remained at 60-70% level, but exceeded 80% in 2009. The treatment success rate remained almost more than 80% , and reached 85% which is the targeted value of WHO (Figure 3-6).

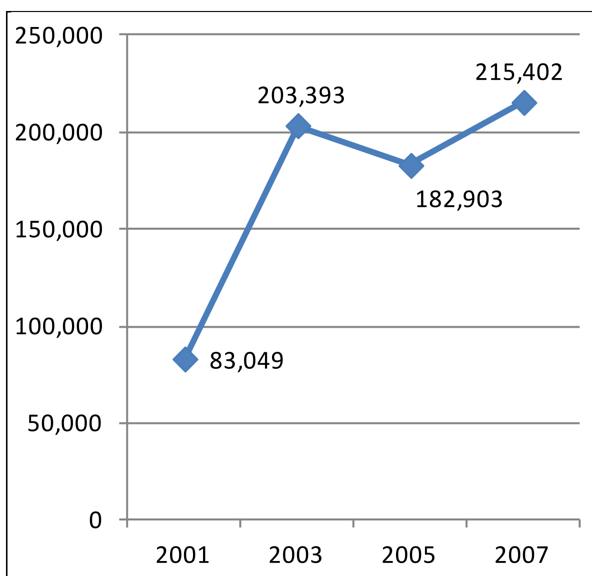


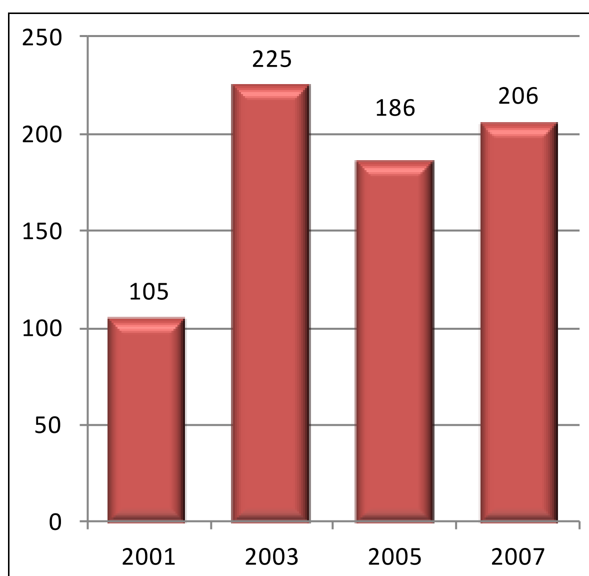
Source: MDG database [10]

Figure 3-6 Trends in Case Detection Rate and Treatment Success Rate

3.4.3 Malaria

About 20% of the population were infected by malaria and it ranked 8th on the list of cause of death, and 40% of under-five children get infected, and still highly endemic (Figure 3-7). The achievement of MDG's target (45/1000 people) is difficult to attain because the prevalence has increased from 113 in 2000 to 206 in 2007.





Source: MDG database [10]

Figure 3-7 Number of Reported Malaria Cases

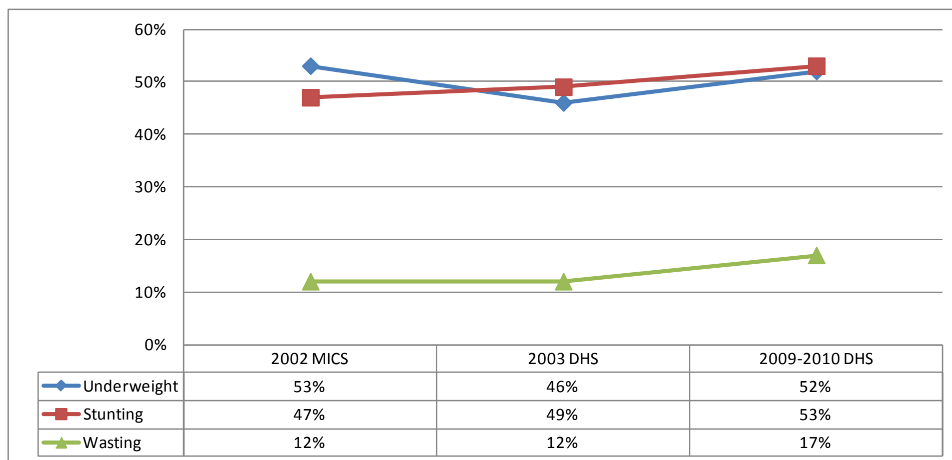
Figure 3-8 Prevalence Rate Associated with Malaria (per 1000 population)

Use of insecticide-treated nets has increased from 41% in 2001 to 51% in 2007. However, there is a gap on the knowledge and action concerning malaria prevention between urban and rural areas.

3.5 Nutrition

3.5.1 Nutritional Status of Children

Malnutrition is a risk factor contributing to a high level of death among children and pregnant women. Though a lot of development partners have supported this field, remarkable improvement was not seen as shown in Figure 3-9. Timor Leste was placed third highest in the world for stunted growth rate and nearly 50% of children were underweight and stunted, and 38% were anemic.

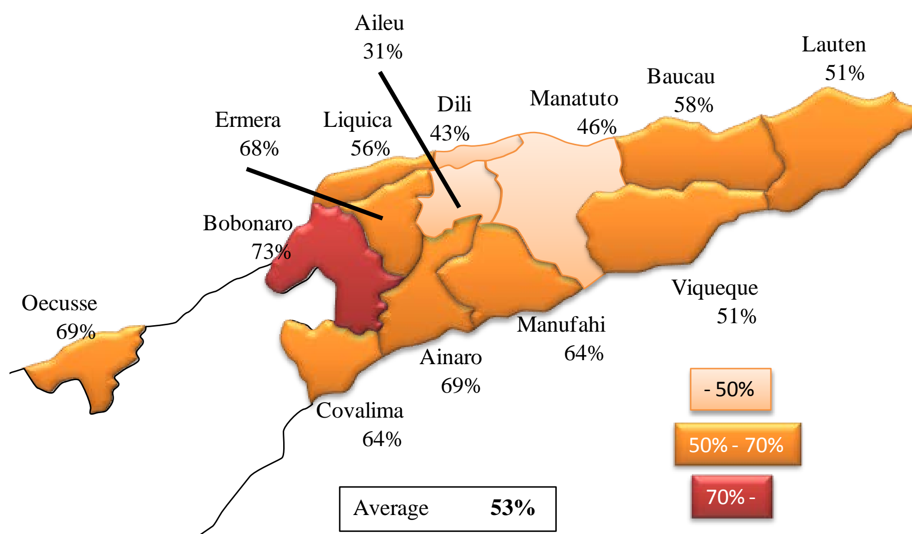


	2002 MICS	2003 DHS	2009-2010 DHS
Underweight	53%	46%	52%
Stunting	47%	49%	53%
Wasting	12%	12%	17%

Source: MICS (Multiple Indicator Cluster Survey) [15]
DHS (Demographic and Health Survey) [5]

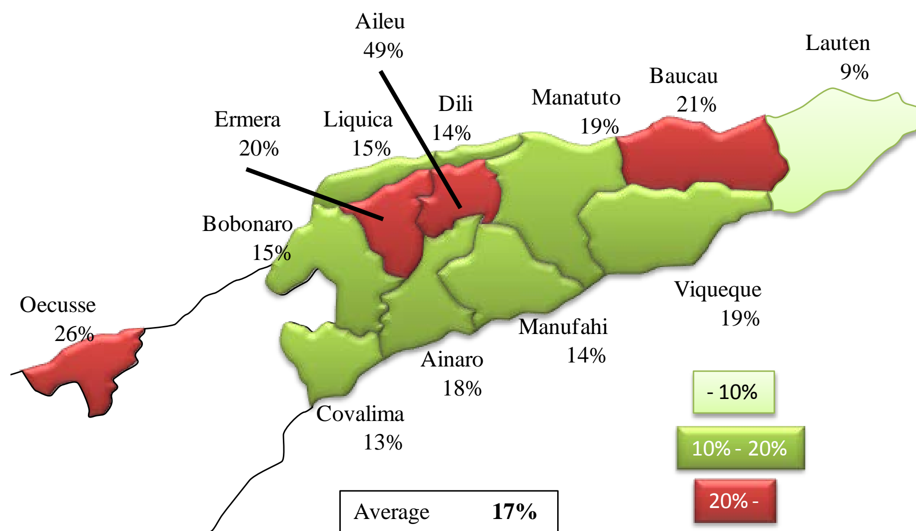
Figure 3-9 Trends in Nutritional Status of Children under Five

District variation in nutritional status is substantial, except for underweight. There is a wide gap in stunting among children living in urban areas as against to their rural counterparts. Growth stunting was highest in Bobonaro District (73%) and lowest in Aileu District (31%) as shown in Figure 3-10.



Source: 2009-2010 Timor-Leste DHS [5]

Figure 3-10 Comparison of Stunting by District



Source: 2009-2010 Timor-Leste DHS [5]

Figure 3-11 Comparison of Wasting by District

Common factors affecting malnutrition are low birth weight, low body mass index (thin and short) of mothers, low income level, living in highlands, and low education attainment of mothers [5]. In addition, lack of the hygiene knowledge (domestic animals freely enter the kitchen and do not observe sanitary cooking), traditional health practices, and limited access to health services are influencing factors. It is observed that feeding practice is a more serious problem than food security.

3.5.2 Nutritional Status of Women

Women of reproductive age have poor nutritional status and high prevalence of nutritional risk factors for delivery complications and low birth weight. There are 27% of women under reproductive age in the state of malnutrition and 15% of women whose height is shorter than 145 cm. These factors contribute to difficult delivery. The height of woman is associated with the socioeconomic status and nutrition during childhood and adolescence. Moreover, 21% of pregnant women experienced iron deficiency anemia, which causes maternal death, premature baby, and low birth weight.

Chapter 4 Health Services

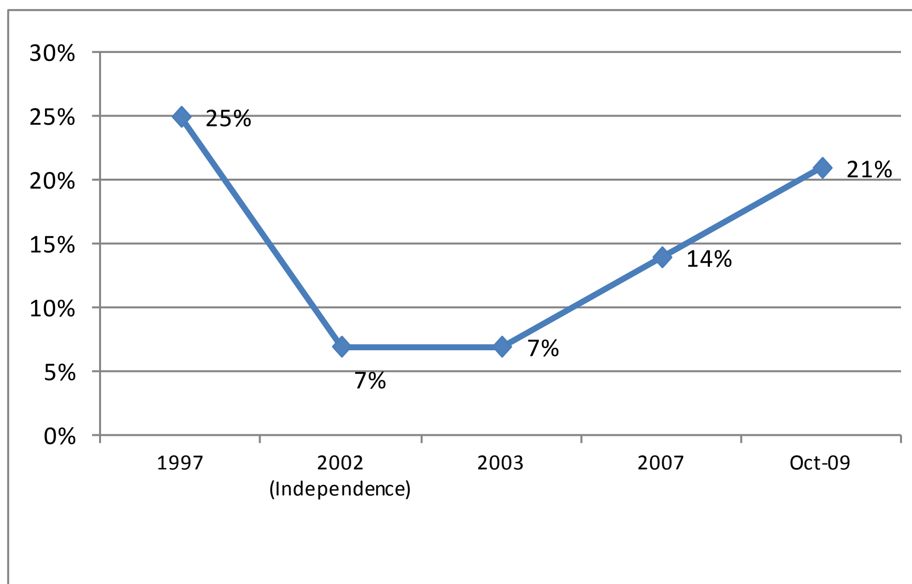
4.1 Maternal and Child Health (MCH)

4.1.1 Strategy and Actions on MCH

The overall goals of the National Reproductive Health Strategy (2004-2015) are: 1) Achieve desired number of children safely and healthy, 2) Avoid diseases related to sexuality and reproduction, and 3) Be free from violence related to sexuality and reproduction. This strategy has seven objectives such as increase in the level of knowledge, promotion of family planning to stabilize population growth, improvement of access to basic reproductive health care services, reduction of maternal mortality, and reduction of the burden of HIV/AIDS.

4.1.2 Service Provision and Utilization

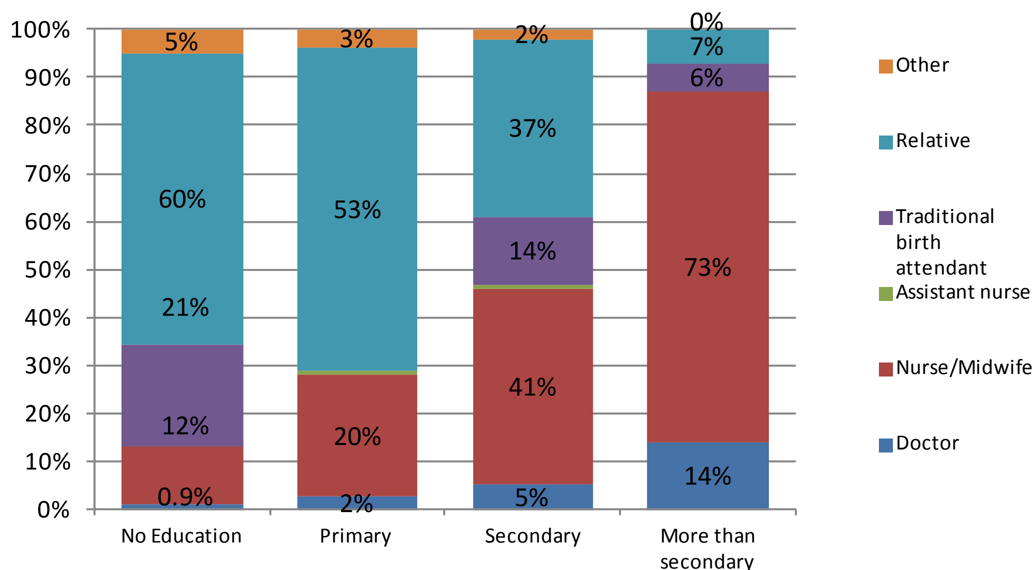
Low contraceptive prevalence is one of the reasons that contributes to high maternal mortality. The prevalence rate has not reached the level recorded during the Indonesian era when the contraception method was widely provided to the communities; however, the ratio has increased gradually after independence.



Source: 2009-10 DHS [5]

Figure 4-1 Trends in Contraceptive Prevalence Rate (Modern Method)

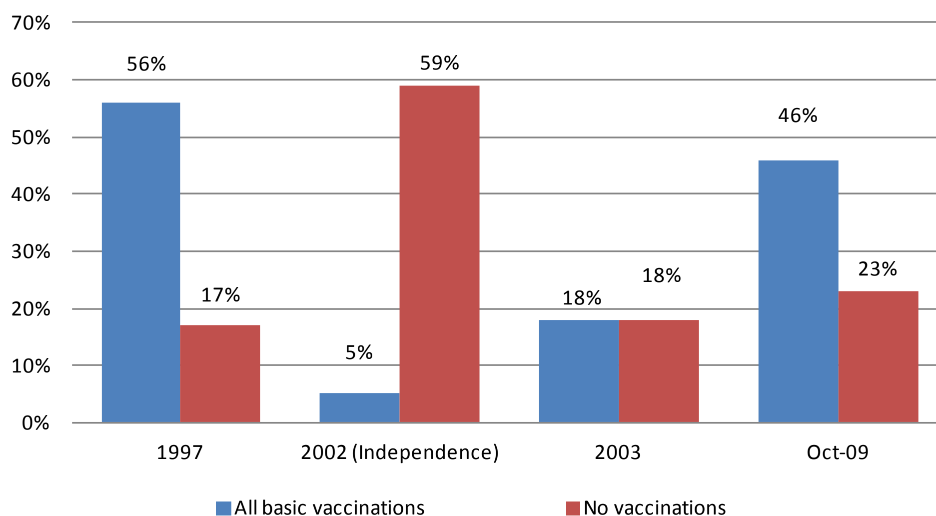
Moreover, delivery assisted by skilled birth attendant (SBA) such as doctor, nurse, midwife, assistant nurse, remained at 30% in the DHS though it was 51% in the MOH statistics. Nearly 50% of women received birth assistance from a relative, and 18% from traditional birth attendant (TBA) (Figure 4-2). The correlation with the educational level is seen as the ratio in which highly educated mothers are most likely to have their delivery assisted by skilled providers.



Source: 2009-10 DHS [5]

Figure 4-2 Persons Assisted Delivery by Mother's Educational Level

Child immunization against measles, diphtheria, whooping cough, tetanus, polio, and Hepatitis B have been promoted. The percentage of children who are fully immunized has increased to 46% while the figure is still lower than the Indonesian era, and 23% of children have not received vaccination as shown in Figure 4-3. For individual vaccines, the coverage for *Bacille Calmette–Guérin* (BCG) is 77%, polio 56%, and measles 68%. These levels are lower compared to the percentages of surrounding countries. The major constraints that affect the increase of immunization coverage are the difficulty of access to services, low educational level, and high fertility, etc.



2009-10 DHS [5]

Figure 4-3 Trends in Immunization Coverage

The Integrated Management of Childhood Illness (IMCI) was introduced in 97% of the community health centers and in 50% of the health posts. It is pointed out that general practitioners who work at the community health centers could not practice IMCI properly [7].

4.2 Communicable Diseases Control

4.2.1 Tuberculosis

(1) DOTS Implementation

The globally recommended directly observed treatment short-course (DOTS) strategy was introduced for the first time in the country in 2000 by Caritas Dili, a non-governmental organization (NGO), through a network of Catholic clinics. In 2004, DOTS Center was established in all 13 districts, and DOTS programs were organized in community health centers. The National TB Control Program was formally established within the MOH in 2006 following the handing over of the management of TB Control Services from the NGO. DOTS is included in the basic service package of the community health centers, and currently, works on the treatment for multidrug-resistant tuberculosis.

(2) Present Situation

It has already reached the targeted statistic of WHO on the treatment success rate under DOTS strategy as described in Chapter 3. The case detection rate, which remained at 60-70% level after 2005, was improved up to 84% in 2009 as a result of the strengthening of the laboratory network and training of health staff and so on.

4.2.2 HIV/AIDS

The National AIDS Committee receives the majority of its funding through the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) grant. In Timor-Leste, high risk groups include people engaged in heterosexual intercourse and female sex workers. There are 11 voluntary and confidential counseling centers (VCCT) (hospital, health center, and private clinic) in the whole country, and it formed a network with the laboratories at the district level. The National HIV program promotes the following activities; a) to increase awareness of people through health education and b) to provide high-quality treatment and support to the patient.

4.3 Nutrition Improvement

(1) Strategy and Actions

The goal of the National Nutrition Strategy 2004 is to provide direct interventions to improve the nutritional status of all citizens. Key components of the strategy are maternal and child nutrition, and food security. Maternal and child nutritional components include; nutrition surveillance and nutrition education in order to decrease anemia and underweight children. Food security components include multi-sectoral interventions with the Ministry of Agriculture and Fisheries to promote advocacy and legislation development.

(2) Present Situation

The MOH has implemented several actions to improve nutrition such as provision of supplemental food, nutritional care for mothers and children, and service improvement at the community level. As stated in Chapter 3.5, however, the nutritional status of the people has not improved in the past ten years.

4.4 Health Care Seeking Behavior of People

As shown in Table 4-1, the number of average visit in the community health centers is 2.1 visits/person/year, and 0.2 for the hospitals. Considering that every community health center has at least one medical doctor and services are free of charge, utilization level is still low.

Table 4-1 Number of Outpatient Visit per Year per Person (2011)

District	Community Health Center			Hospital *	Total
	Man	Woman	Average		
Aileu	2.2	3.7	2.9	n.a.	2.9
Ainaro	1.2	1.7	1.4	0.2	1.6
Baucau	2.2	2.9	2.6	0.6	3.1
Bobonaro	1.2	1.8	1.5	0.5	2.0
Covalima	2.5	4.0	3.2	0.2	3.5
Dili	1.9	2.8	2.3	0.3	2.6
Ermera	1.5	2.0	1.7	n.a.	1.7
Lauten	1.4	1.8	1.6	n.a.	1.6
Liquica	1.5	2.2	1.8	n.a.	1.8
Manatuto	2.2	3.1	2.6	n.a.	2.6
Manufahi	2.1	3.2	2.6	n.a.	2.6
Oecussi	0.9	1.2	1.1	0.5	1.5
Viqueque	1.7	2.0	1.8	n.a.	1.8
Timor Leste	**1.7**	**2.5**	**2.1**	**0.2**	**2.3**

*:Districts with n.a. have no hospital

Source: Health Statistics Report 2011, MOH [11]

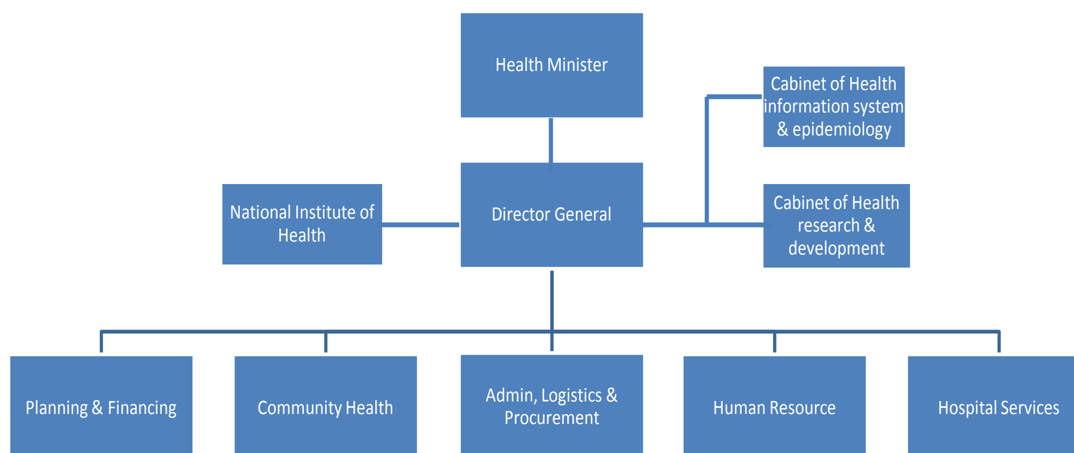
One of the reasons why citizens do not feel the necessity to use the services is because of their lack of knowledge on health. Other reasons are geographical access (bad road condition, long distance, no transportation), low quality of services (absent of staff, no medicine), economical costs (transportation cost, charge in case of overtime), and poor attitudes of staff (anger, blame) [16]. Factors affecting the low utilization rate of health care by women are the high ratio of men health staff and the history of compulsorily sterilization during Indonesian era [17]. Low utilization of health services is assumed to impede the improvement of maternal death and nutrition.

Chapter 5 Health System

5.1 Governance

5.1.1 Health Administration

The Ministry of Health has five directorates under the Director General (Figure 5-1): 1) Planning and Financing Directorate is responsible for the health policy, budget, and international cooperation, 2) Community Health Directorate is responsible for the communicable diseases, non-communicable diseases, MCH, and nutrition, 3) Human Resource Directorate is responsible for the planning and management of human resources, 4) Hospital Services Directorate is responsible for the clinical services, support for hospitals including referral system, 5) Logistics and Procurement Directorate is responsible for the management of facilities and equipment. Also, the MOH Directory supervises several organizations namely: the Institute of Health Sciences, the Cabinet of Health Information System and Epidemiology, and the National Laboratory.



Source: Health Sector Strategic Plan 2008-2012 and MOH [7]

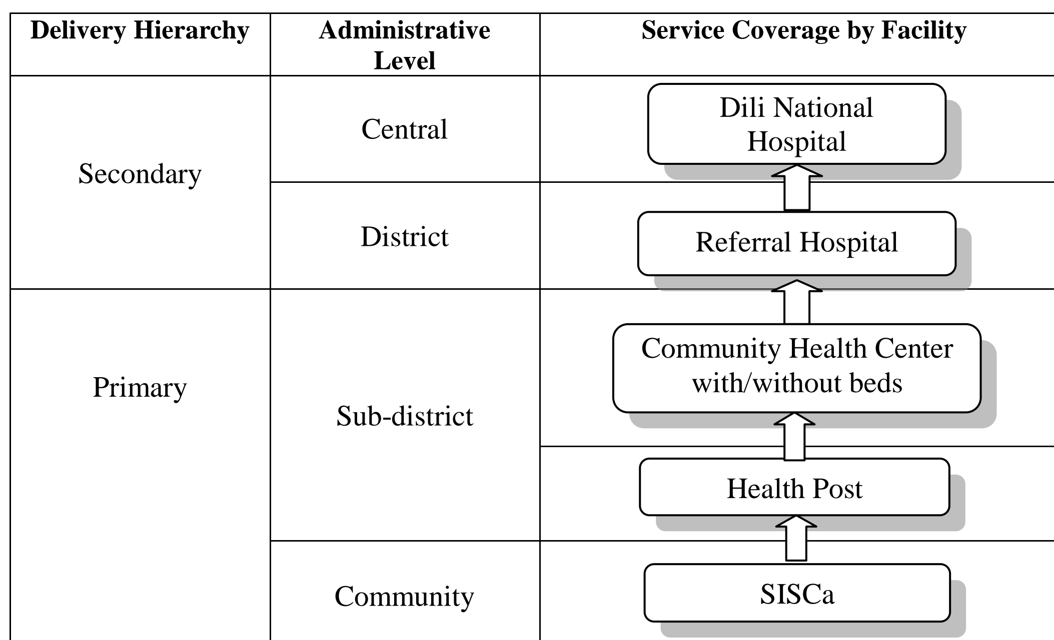
Figure 5-1 Organizational Chart of MOH

Among the central government offices in Timor-Leste, the MOH has the stronger leadership. The present Health Minister has promoted the activity of the Servico Integrado de Saude Comunitaria (SISCa is an integrated community health services) since 2008 to strengthen the PHC in the whole nation. Each district has district health office which implements health programs, and manages health facilities and operates SISCa.

5.1.2 Service Provision and Referral System

The state has six hospitals (one national hospital and five referral hospitals), 66 community health centers, and 216 health posts as of 2012 (Table 5-1). Hospital Service Directorate of the MOH manages hospitals and community health centers, while the district health offices manage health posts (Figure 5-2). There are 47 private clinics operated by private organizations and non-profit organizations such as Cafe Timor. Moreover, the approach to provide health service to communities by mobile clinics and SISCa has extended gradually. The state has no tertiary hospital yet, as the Dili National Hospital stays at the secondary level. Since advanced treatment like major operations cannot be provided partly due to the shortage of medical

equipment, the patient is transferred to foreign countries such as Indonesia and Australia. The MOH has a plan to construct the tertiary level hospital in the near future, and each district will have a referral hospital.



Source: Making from National Health Sector Strategic Plan 2011-2030 and MOH [8]

Figure 5-2 Health Service Provision of Timor-Leste

A lot of communities are isolated and attended by limited number of health staff, the activity of SISCa was introduced to extend the services to the community level. Like Posyandu of Indonesia, health staff of the nearby facility and health volunteers are responsible for SISCa implementation. The activity of SISCa is held once a month which includes resident registration, growth monitoring, care for pregnant women, hygiene education, treatment of diseases, and health education.

Table 5-1 Number of Health Facilities by District (2011)

District	Hospital	Community Health Center	Health Post	Private Clinic
Aileu		4	10	1
Ainaro	1	4	11	3
Baucau	1	6	25	3
Bobonaro	1	6	19	2
Covalima	1	7	13	3
Dili	1	6	14	14
Ermera		6	18	8
Lauten		5	19	3
Liquica		3	18	2
Manatuto		6	18	0
Manufahi		4	14	6
Oecussi	1	4	17	0
Viqueque		5	20	2
TimorLeste	6	66	216	47

Source: Health Statistics Report 2011, MOH [11]

The Dili National Hospital has six departments (internal medicine, surgery, pediatrics, obstetrics and gynecology, ophthalmology, and dental) and an emergency and intensive-care unit (ICU), also, it has a

workforce of international medical specialists. Referral hospitals in five districts have medical specialists that provide emergency services, as well as conduct training for the staff who works at the lower health facilities.

Table 5-2 Bed Occupancy and Average Length of Stay (2011)

Hospital	Number of Beds	Bed Occupancy Rate	Average Length of Stay
Dili National Hospital	264	82%	4
Baucau Hospital	114	75%	9
Maliana Hospital	24	110%	5
Covalima Hospital	24	47%	4
Maubesi Hospital	24	46%	5
Oecus Hospital	24	74%	6
Total	**474**	**78%**	**6**

Source: Health Statistics Report 2011, MOH [11]

Though the number of health facility has increased gradually, not all health posts and SISCa are functioning, and many cars and ambulances are broken. Health services have not reached the community as well.

5.2 Human Resources for Health (HRH)

5.2.1 Present Situation

Health human resources or health workforce of Timor-Leste heavily depends on foreign doctors (Table 5-3). The number of medical doctors, which was only 11 at the time of independence, has increased to 71 in 2011. About 450 medical students who studied medicine in Cuba under the Cuban Medical Cooperation returned in 2010 and 2011, and started working at the community health centers together with 47 doctors who graduated from the National University of Timor-Leste. More than 500 doctors will be deployed at the community health centers in 2013. As a result, Cuban medical doctors, who supported both the hospital care and community health services, have started to decrease in numbers, but nearly 180 foreign doctors including Cuban, Chinese, Australian, and Filipino still presently working at the hospitals due to shortage of Timorese specialists. The number of doctors will be sufficient while midwives, nurses, and dentists are short in supply. There is an acute shortage of qualified personnel on all the categories of the health workforce.

Table 5-3 Number of Medical Personnel by District (2011)

District	Community Health Center					Hospital				
	Doctor			Nurse	Midwife	Doctor			Nurse	Midwife
	Timorese	Foreigner	Total			Timorese	Foreigner	Total		
Aileu	0	3	3	29	20					
Ainaro	0	2	2	13	12	4	6	10	6	7
Baucau	0	6	6	59	34	3	20	23	79	27
Bobonaro	1	5	6	48	16	4	18	22	77	25
Covalima	0	4	4	26	10	3	10	13	18	12
Dili	6	12	18	47	32	44	51	95	194	44
Ermera	3	6	9	37	19					
Lauten	0	6	6	55	20					
Liquica	0	3	3	19	15					
Manatuto	0	7	7	36	33					
Manufahi	0	5	5	36	18					
Oecussi	2	0	2	8	16					
Viqueque	0	4	4	74	22					
TimorLeste	12	63	75	487	287	59	116	175	383	123

Source: Health Statistics Report 2011, MOH [11]

5.2.2 Human Resources Development

The government has established the Faculty of Health Sciences in the National University of Timor-Leste for training medical doctors, nurses, and midwives. About 450 doctors who studied medicine in Cuba returned already and will be deployed at the community health centers. Since the graduate school for specialists' training has not been established more than 100 medical personnel (at the time of 2009) studied abroad like in Australia, Indonesia, Malaysia, and Fiji, etc. depending on the scholarship from the MOH and development partners. The MOH has the policy that specialists' training will be conducted mainly in foreign countries due to the limited Timorese lecturers even though the course for specialists' training for the four main departments (internal medicine, surgery, pediatrics, and obstetrics and gynecology) has started in 2012.

The National Institute of Health is in charge of in-service training for doctors, nurses, midwives, laboratory technicians, and radiologists. The curriculum necessary for each occupation like IMCI and nutrition was already developed but since the number of Timorese lecturers/specialists are limited, lecturers are mainly foreigners.

5.3 Health Financing

Table 5-4 shows indicator of health financing in Timor-Leste. Public health expenditure has increased in 2005, however, the health sector's share in the national budget and GDP are both decreasing recently. Donor funds supplemented the decrease, and its share of public health expenditure was 40% in 2009. Health services are free of charge in Timor-Leste but patients have to pay for the transportation cost to reach the facility and overtime charges.

Table 5-4 Indicator of Health Financing

	2000	2005	2010
Ratio of health expenditure in GDP (%)	8.8	13.7	9.1
Ratio of public expenditure in the total health expenditure (%)	74.0	-	55.8
Ratio of out-of-pocket payment in the private expenditure (%)	-	-	25.0
Ratio of public health expenditure in the total health expenditure (%)	12.7	-	4.7
Health expenditure per person (USD)	32	-	56

Source: Health Nutrition and Population Statistics (HNP Stats) [1]

The MOH budget is allocated into the following items; health program expense is 38%, labor cost is 36%, and transportation expenditure is 20% for fiscal year 2012.

5.4 Health Management Information System

The Cabinet of Health Information System and Epidemiology is responsible for the health information system and health statistics. Each district health office has one information officer who reports and collects data and information from community health centers and health posts. There are three kinds of epidemiological information that reach the MOH: 1) Emergent report on the epidemic of disease, 2) Weekly report of all health facilities, and 3) Monthly report of all 18 health programs (EPI, family planning, nourishment, and tuberculosis, etc.).

The World Bank provided 60 computers, and the Australian NGO introduced the database for establishing the health information system in Timor-Leste. The operation of the system has just started and still has a problem on the accuracy of data below the district level, and a gap of motivation between the persons in charge.

5.5 Health Facilities and Equipment

In 1999, most health facilities were destroyed in Timor-Leste. Through the World Bank and EU support, many health facilities were constructed and renovated gradually. However, there are a lot of facilities whose supply of electricity and water are unstable, especially majority of health posts still need repair [18].

As for the advanced medical equipment in the hospitals, Dili National Hospital has one computed tomography (CT) scan (broke down) and two artificial dialyses (one broke down). It was reported that there are no technicians who can repair the equipment in case of breakdown/malfunctioning. In Timor-Leste there are only two foreign medical engineers (Australian and Indonesian) and currently, there are eight Timorese medical engineers undergoing training in Indonesia.

Chapter 6 Development Assistance and Partnership

6.1 Framework of Donor Coordination

Development partners' meeting is held once a year to report the number of support programs and evaluation of the past activities, and to share the development goals in each sector. Quarterly regular conferences are held with the government and partners to report the progress of development programs in the priority areas.

As the MOH receives a huge volume of assistance from development partners, the Department of Partnership Management was recently established in the Ministry in order to effectively manage these assistances. The main responsibilities of this department include registry of partners, organization of regular meetings, management of projects, donor coordination and information sharing. The Ministry has also established the Health Sector Coordination Group for strengthening donor coordination in the health sector. The group consists of 15 members including the World Bank, WHO, AusAID and one representative from the NGO sector. In addition, many partners finance the Trust Fund for East Timor (TFET) which was set up after independence [13]. Major development partners in the health sector are as follows:

Table 6-1 Main Development Partners and its Priority Areas

	Water and hygiene	Child health	Maternal health	Nutrition	TB and malaria	HIV/AIDS	Human resources	PHC/ Community health	Health promotion	Health information	Facilities/ equipment	Hospital/ Referral system
WHO	○	○	○	○	○	○	○	○	○	○		
WB				○			○	○		○	○	
AusAID	○		○	○			○	○			○	
UNICEF	○	○	○	○		○		○	○			
USAID		○	○					○				
UNFPA			○				○	○	○			
EU												○

Source: Interviews with the MOH and development partners

6.2 Framework of Donor Coordination

6.2.1 United Nations Children's Fund (UNICEF)

UNICEF started its support to Timor-Leste in 2002, and its priority areas are MCH and nutrition in the health sector. The programs of community IMCI (improvement of diagnostic ability of health volunteers working in the community, improvement of community awareness) and nutrition activity for children are implemented due to limited access to health services in the community.

6.2.2 Australian Agency for International Development (AusAID)

AusAID mainly supports health, education, agriculture, local infrastructure (water, hygiene, road) and governance sectors in Timor-Leste. AusAID has contributed to a steady rise in the proportion of immunization coverage for under-five, and delivery assisted by skilled birth attendants by previous projects. AusAID presently works with the World Bank through the Health Sector Strategic Plan Support Project, aiming at improving the MOH capacity for service provision, family planning services, and diagnosis skills. Also

Australian surgeons provide medical services at the Dili National Hospital, and supporting OJT for medical doctors and nurses.

6.2.3 World Health Organization (WHO)

WHO began its humanitarian assistance in 1999 in Timor-Leste. Its priority areas are the following; support for health policy and act as the policy adviser of the MOH. WHO continues to support the health system development, health policy and legislation development, and donor coordination from 2008 to 2013. WHO supports curriculum development for the school of nursing and midwifery, in-service training assessment, and workforce performance analysis as part of the component of health system development.

6.2.4 The World Bank

Health Sector Strategic Plan-Support Project (2008-2013) is co-financed by AusAID and the overall framework of this project is based on the recently completed health sector plan (Health Sector Strategic Plan). The project has three components: 1) Health Service Delivery Component includes planning and management capacity development of health staff, improving community nutrition, improving hospital care and the referral system, and rehabilitation and equipment provision to PHC for its improvement at the district level, 2) Human Resource Development and Management Component includes capacity development of the Institute of Health Sciences, capability trainings, strengthening procurement and management of essential drugs, and 3) Coordination, Planning and Monitoring Component includes donor coordination and improvement of planning capacity of the MOH through the Department of Partnership Management..

6.2.5 The United States Agency for International Development (USAID)

USAID implements program to improve MCH services, and activities to expand knowledge of family planning methods and child spacing. The 2009 DHS（Demographic and Health Survey） was funded by USAID.

6.3 Outline of Japanese Cooperation

6.3.1 Cooperation in the Health Sector

Japanese government mainly supports the PHC, MCH, and school health through JICA partnership programs and grant assistance for Japanese NGO projects (Table 6-2).

Table 6-2 Past Health Programs by Japan's Cooperation (Programs for the last five years after 2009)

Modality	Name of Program	Cooperation Period
Grant Aid	Mother and Child Health Improvement (partnership with UNICEF)	2008-2010
Grassroots Technical Co-operation	Support to Health Hygiene	2008-2012
Grant Assistance from Japanese NGO	Maternal and Child Health (NGO Share)	2009-
	Health Education (NGO Share)	2009-
JOCV	Dietitian Dispatch to the MOH	2013-

Sources: ODA data book, MOFA [19], Country Assistance Strategy, MOFA [20]

6.3.2 Japan's Cooperation Policy to Timor-Leste and Place of the Health Sector

Priority areas of Japan's cooperation to Timor-Leste are: 1) Basic infrastructure for economic activity, 2) Agriculture and community development, and 3) Capacity development of government sectors. The health sector is placed in the third priority area [21].

Chapter 7 Priority Health Issues and Recommendations

7.1 Priority Health Issues

7.1.1 Serious Problems and Factors in the Health Sector

As Timor-Leste achieved independence ten years ago, the state faces several critical challenges for nation building, and institutions of health system are still fragile. It was analyzed that problems in the health sector are not only internal factors but also external factors as well. The relation between these factors and problems is summarized in Figure 7-1.

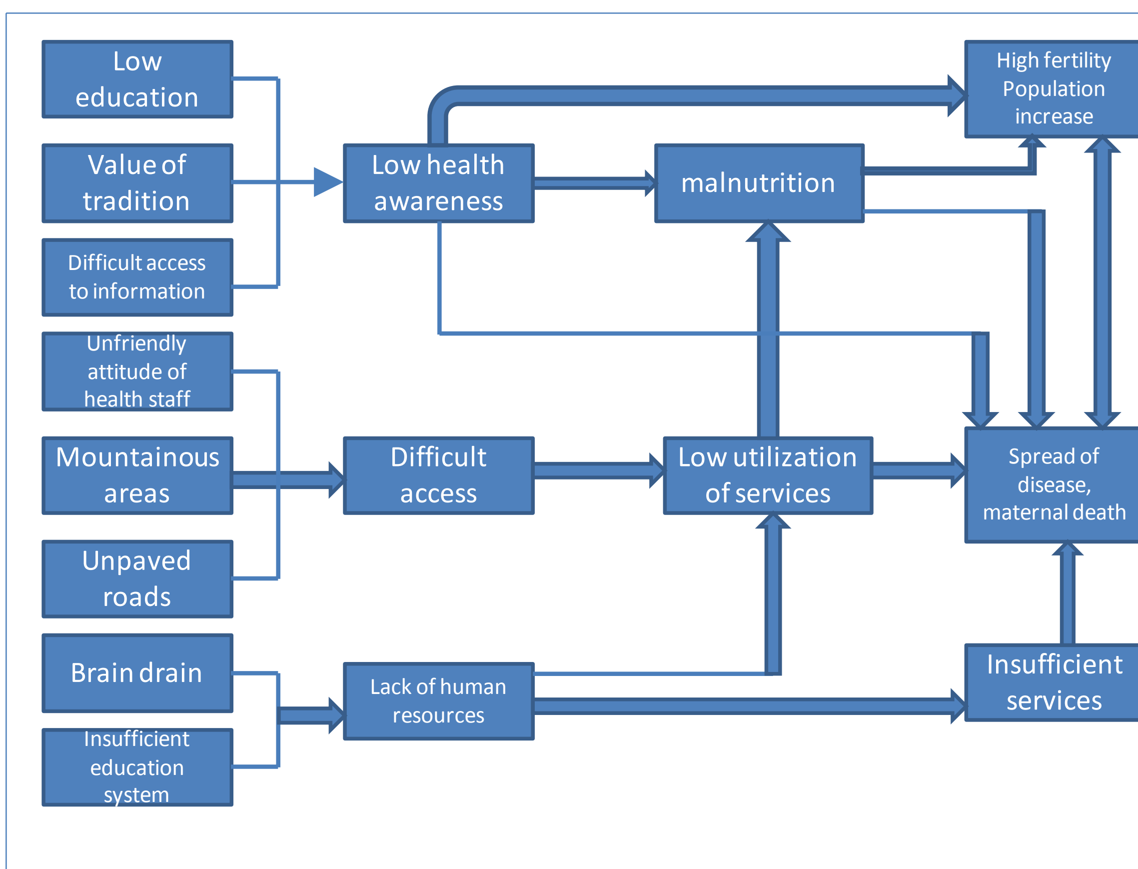


Figure 7-1 Problem Structure Analysis of the Health Sector in Timor-Leste

- Low health awareness of the people

People who do not have awareness on their health have no sufficient knowledge on hygiene due to the following external factors; low educational level, adherence to tradition, and limited health information from the media. Lack of nutritional knowledge causes malnutrition and lack of contraceptive knowledge causes high fertility. People cannot prevent death and diseases of children and pregnant women due to the lack of basic knowledge on health.

- Difficult access to health services

As Timor-Leste is a mountainous country, a lot of residents who live in far flung areas take more than a few hours to reach the nearest health facilities, and the national average of time to reach the health facilities is 70 minutes. Also people hesitate to go to health facilities because of the attitude of health staff who scolds them.

- Lack of skilled health personnel

The best human resources often study abroad because of the limited higher educational institution available in the country. Also there are no available jobs in the country for the specialists and therefore opted not to return home. Timor-Leste has only one national university to educate medical doctors, but the quality of education seems low. Though the number of doctor is increasing, most of them are general practitioners and only few are specialists. Still provision of health care depends on the foreigner doctor has not changed.

7.1.2 Actions by the Government and Development Partners with Problems, Strategy and Support

The key problem of the health sector in Timor-Leste can be summarized into four: 1) Low health awareness of the people, 2) Malnutrition, 3) High fertility rate and population increase, and 4) Insufficient health service and access.

The Health Minister shows a strong leadership to combat these issues placed in the priority areas and requests development partners to support programs based on the national priority. Development partners work to realign their priorities with the national priorities.

Timor-Leste is, however, only ten years from the independence, government services and support from development partners reached limited areas where accessibility is good. Support programs were not suitable to the needs of the people. Lots of aid projects since the independence pampered the population.

Considering these situation, strategies to solve problems and expected assistance by Japanese government are summarized in Table 7-1.

Table 7-1 Problems, Strategies, and Assistance of the Health Field

Health Issue	Strategy to Solve Problems	Expected Assistance
Low health awareness of the people	Health education in the communities. Strengthening of SISCa.	JOCV Health volunteer training support Community IMCI Program
Malnutrition	Comprehensive survey and analysis of the nutrition problem. Hygiene and sanitary education in the communities.	Nutrition specialist dispatch and survey Community nutrition programs (breast feeding, improvement of nutrition knowledge, etc.)
High fertility rate and population increase (high maternal mortality)	Dissemination of information on contraceptive method. Health education in the communities.	Information transmission tool improvement related to contraception TBA training Midwife kits provision
Insufficient health services and access (lack of skilled human resources, lack of health infrastructure, and geographical constraints)	Strengthening of pre-service and in-service training. Professional education according to occupational category. Provision of medical equipment.	Training lecturers' dispatch Training curriculum and materials development Provision of equipment and engineer's training Vehicle mechanic training

- Strategy for Problem 1: Low health awareness of the people

Raising awareness and behavioral change of the people on health are important. Health education and service provision at the community level is essential to change their behavior. Dispatchment of JOCV who will work in the communities can provide trainings to SISCa volunteers who have insufficient knowledge and skill. Community IMCI program is among the expected assistance programs which will enhance the knowledge of people in preventing and diagnosing diseases by themselves.

- Strategy for Problem 2: Malnutrition

Malnutrition is a risk factor for non-communicable and communicable diseases. It is also a risk factor or caused of death of pregnant women and children. However, the MOH doesn't have sufficient ability to study and analyze factors affecting malnutrition, thus the causes of malnutrition could not be comprehensively understood. Moreover, it seems that health education on hygiene and good diet will be an effective strategy. Dispatch of a nutrition specialist and nutrition programs in the community can be expected.

- Strategy for Problem 3: High fertility rate and high population growth

Factors affecting high fertility are: adherence to the traditional belief that having more children is good, the baby boom period after the disputes, low level of education, and limited information on contraceptives. Thus information dissemination on health services and implementation of health education in the highlands and isolated communities will be effective to improve the current situation. Training of TBAs who assist delivery in communities, provision of midwife kits, and improvement of the contraceptive information transmission tool are expected assistance.

- Strategy for Problem 4: Insufficient health service and access

It is important to strengthen human resource development because the access to services is poor mainly due to geographical constraints and limited number of skilled health personnel. Dispatch of trainers for in-service training, development of the training curriculum and materials, provision of medical equipment, and training of medical engineers and vehicle mechanic are necessary.

7.2 Recommendations

Up to now, Japan has emphatically supported the construction of infrastructure and agriculture in Timor-Leste, and the priority areas will remain as a means to promote and strengthen the key industries of the nation in the near future. However, the shortage of human resources is a bottleneck to the economic growth in Timor-Leste. Assistance to the health sector by the education sector on health education and nutritional improvement incorporated in agriculture programs is a great importance in order to promote human resource development of the future industry. The experience of Japan can be utilized in human resource field since there is still a great need for assistance in the health sector especially in the communities of Timor-Leste, despite the abundance of assistance provided by the development partners in the health sector.

ATTACHMENTS

Attachment 1: Major Health Indicators

Attachment 2: References

Attachment 1: Major Health Indicators (The Democratic Republic of Timor-Leste)

The Democratic Republic of Timor-Leste				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	743,145	830,089	1,124,000	2010	1,961,558,757	(2010)	East Asia & Pacific (developing only)
		0.1.02	Population growth (annual %)		WDI	3.0	1.0	2.0	2010	0.7	(2010)	East Asia & Pacific (developing only)
		0.1.03	Life expectancy at birth, total (years)		WDI	46.0	56.0	62.0	2010	72.2	(2010)	East Asia & Pacific (developing only)
		0.1.04	Birth rate, crude (per 1,000 people)		WDI	43.0	43.0	38.0	2010	14.2	(2010)	East Asia & Pacific (developing only)
		0.1.05	Death rate, crude (per 1,000 people)		WDI	18.0	11.0	8.0	2010	7.0	(2010)	East Asia & Pacific (developing only)
		0.1.06	Urban population (% of total)		WDI	21.0	24.0	28.0	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			2200	2010	3,695.8	(2010)	East Asia & Pacific (developing only)
		0.2.02	GNI growth (annual %)		WDI					10.0	(2010)	East Asia & Pacific (developing only)
		0.2.03	Total enrollment, primary (% net)	2.1	WDI			86.0	2010	94.4	(2007)	East Asia & Pacific (developing only)
		0.2.04	Ratio of female to male primary enrollment (%)	3.1	WDI			96.0	2010	101.0	(2009)	East Asia & Pacific (developing only)
		0.2.05	Literacy rate, adult total (% of people ages 15 and above)		WDI			51.0	2007	93.5	(2009)	East Asia & Pacific (developing only)
		0.2.06	Human Development Index		HDR			0.50	2011	0.67	(2011)	East Asia and the Pacific
		0.2.07	Human Development Index (rank)		HDR			147	2011			
		0.2.08	Poverty gap at $1.25 a day (PPP) (%)		WDI			9.0	2007	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		54	69	2010	89.9	(2010)	East Asia & Pacific (developing only)
		0.3.02	Improved sanitation facilities (% of population with access)	7.9	HNP Stats		379	47	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			444	2008	334	(2008)	South-East Asia
		1.1.02	Age-standardized mortality rate by cause (per 100,000 population) - Noncommunicable		GHO			560	2008	676	(2008)	South-East Asia
		1.1.03	Age-standardized mortality rate by cause (per 100,000 population) - Injuries		GHO			51	2008	101	(2008)	South-East Asia
		1.1.04	Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)		HNP Stats			60.2	2008	13.4	(2008)	East Asia & Pacific (developing only)
		1.1.05	Cause of death, by non-communicable diseases (% of total)		HNP Stats			34.4	2008	76.3	(2008)	East Asia & Pacific (developing only)
		1.1.06	Cause of death, by injury (% of total)		HNP Stats			5.5	2008	10.3	(2008)	East Asia & Pacific (developing only)
		1.1.07	Distribution of years of life lost by broader causes (%) - Communicable		GHO			76	2008	49	(2008)	South-East Asia
		1.1.08	Distribution of years of life lost by broader causes (%) - Noncommunicable		GHO			18	2008	36	(2008)	South-East Asia
		1.1.09	Distribution of years of life lost by broader causes (%) - Injuries		GHO			6	2008	15	(2008)	South-East Asia
	1.2 Maternal and Child Health	1.2.01	Maternal mortality ratio (modeled estimate, per 100,000 live births)	5.1	MDGs	650	520	370	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		70.8	57.7	2010	18.8	(2010)	East Asia & Pacific (developing only)
		1.2.03	Mortality rate, under-5 (per 1,000)	4.1	MDGs	168.7	103.5	80.5	2010	24.3	(2010)	East Asia & Pacific (developing only)
		1.2.04	Mortality rate, infant (per 1,000 live births)	4.2	MDGs	127.1	81.6	56.2	2010	19.9	(2010)	East Asia & Pacific (developing only)
		1.2.05	Low-birthweight babies (% of births)		HNP Stats			12	2003	6.4	(2010)	East Asia & Pacific (developing only)
		1.2.06	Fertility rate, total (birth per woman)		HNP Stats	5.3	7.1	5.6	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							
			b) Prevalence of HIV, female (% ages 15-24)	6.1	MDGs							
		1.3.02	Notified cases of malaria per 100,000 population	6.6	MDGs Database			46,380	2008			
		1.3.03	a) Malaria death rate per 100,000 population, all ages	6.6	MDGs Database			108	2008			
			b) Malaria death rate per 100,000 population, ages 0-4	6.6	MDGs Database			41	2008	6	(2009)	South-Eastern Asia
		1.3.04	Tuberculosis prevalence rate per 100,000 population (mid-point)	6.9	MDGs Database			643	2010	18	(2009)	South-Eastern Asia
		1.3.05	Incidence of tuberculosis (per 100,000 people)	6.9	MDGs			498	2010	123	(2010)	East Asia & Pacific (developing only)
		1.3.06	Tuberculosis death rate (per 100,000 people)	6.9	MDGs			46	2010	12	(2010)	East Asia & Pacific (developing only)
		1.3.07	Prevalence of HIV, total (% of population ages 15-49)		HNP Stats					0.2	(2009)	East Asia & Pacific (developing only)
		1.3.08	AIDS estimated deaths (UNAIDS estimates)		HNP Stats							
		1.3.09	HIV incidence rate, 15-49 years old, percentage (mid-point)		MDGs Database					0.04	(2009)	South-Eastern Asia
		1.3.10	Paritial Prioritization Score by the Global Fund (HIV)		GF			4	2012			
			Paritial Prioritization Score by the Global Fund (Malaria)		GF			7	2012			
			Paritial Prioritization Score by the Global Fund (TB)		GF			9	2012			
	1.4 Nutrition	1.4.01	Prevalence of wasting (% of children under 5)		HNP Stats			18.9	2010			
2 Service Delivery	2.1 Maternal and Child Health	2.1.01	Births attended by skilled health personnel, percentage	5.2	MDGs Database			29.3	2010	72.0	(2009)	South-Eastern Asia
		2.1.02	Birth by caesarian section		GHO			1.7	2010	8.9	(2011)	South-East Asia
		2.1.03	Contraceptive prevalence (% of women ages 15-49)	5.3	MDGs			22.3	2010	77.0	(2010)	East Asia & Pacific (developing only)
		2.1.04	Pregnant women receiving prenatal care (%)	5.5	HNP Stats			84.4	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			55.1	2010			East Asia & Pacific (developing only)
		2.1.06	Unmet need for family planning, total, percentage	5.6	MDGs Database			30.8	2010			South-Eastern Asia
		2.1.07	1-year-old children immunized against: Measles	4.3	Childinfo			66	2010	95	(2010)	East Asia & Pacific
		2.1.08	1-year-old children immunized against: Tuberculosis		Childinfo			71	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			75	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			72	2010	94	(2010)	East Asia & Pacific
		2.1.10	1-year-old children immunized against: Polio		Childinfo			72	2010	96	(2010)	East Asia & Pacific
		2.1.11	Percentage of infants who received three doses of hepatitis B vaccine		Childinfo			72	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							
		2.2.02	Condom use with non regular partner, % adults (15-49), female	6.2	MDGs							

Attachment 1: Major Health Indicators (The Democratic Republic of Timor-Leste)

The Democratic Republic of Timor-Leste				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			19.7	2010			
		2.2.04	Women 15-24 years old with comprehensive correct knowledge of HIV/AIDS, percentage	6.3	MDGs Database			12	2010	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			0.75	2010			
		2.2.06	Use of insecticide-treated bed nets (% of under-5 population)	6.7	HNP Stats			41.0	2010			
		2.2.07	Children under 5 with fever being treated with anti-malarial drugs, percentage	6.8	MDGs Database			6	2010			
		2.2.08	Tuberculosis treatment success rate under DOTS, percentage	6.10	MDGs Database			85	2008	89	(2008)	South-Eastern Asia
		2.2.09	Antiretroviral therapy coverage (% of people with advanced HIV infection)	6.5	MDGs							
		2.2.10	People aged 15 years and over who received HIV testing and counselling, estimated number per 1,000 adult population		GHOr			2.5	2010			
		2.2.11	Testing and counselling facilities, estimated number per 100,000 adult population		GHOr			3.5	2010			
		2.2.12	Pregnant women tested for HIV, estimated coverage (%)		GHOr			1<	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			87.0	2009	76	(2010)	East Asia & Pacific (developing only)
		2.2.15	Tuberculosis treatment success rate (% of registered cases)	6.10	MDGs			85.0	2008	92	(2008)	East Asia & Pacific (developing only)
	2.3 Nutrition	2.3.01	Vitamin A supplementation coverage rate (% of children ages 6-59 months)		HNP Stats			47.9	2010			East Asia & Pacific (developing only)
		2.3.02	Consumption of iodized salt (% of households)		HNP Stats		72	59.9	2007	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			53.7		85.8		Countries of very high vulnerability
		2.4.03	Population not covered (%) due to professional health staff dificit		ILO			57.9		74.6		Countries of very high vulnerability
3 Health System	3.1 Human Resources	3.1.01	Physicians (per 1,000 people)		HNP Stats			0.1	2004	1.2	(2010)	East Asia & Pacific (developing only)
		3.1.02	Midwives (per 1,000 people)		HNP Stats					0.04	(2002)	East Asia & Pacific (developing only)
		3.1.03	Nurses (per 1,000 people)		HNP Stats			1.8	2004	1	(2001)	East Asia & Pacific (developing only)
		3.1.04	Dentistry personnel density (per 10,000 population)		GHO			0.5	2004	1	(2007)	South-East Asia
		3.1.05	Density of pharmaceutical personnel (per 10,000 population)		GHO			0.2	2004	4.0	(2007)	South-East Asia
	3.2 Health Financing	3.2.01	Health expenditure, total (% of GDP)		HNP Stats		8.4	9.1	2010	4.8	(2010)	East Asia & Pacific (developing only)
		3.2.02	Health expenditure, public (% of total health expenditure)		HNP Stats		74.9	55.8	2010	53.4	(2010)	East Asia & Pacific (developing only)
		3.2.03	Health expenditure, private (%) of total health expenditure)		HNP Stats		25.1	44.2	2010	46.6	(2010)	East Asia & Pacific (developing only)
		3.2.04	Out-of-pocket health expenditure (% of private expenditure on health)		HNP Stats		30.9	25.6	2010	67.0	(2010)	East Asia & Pacific (developing only)
		3.2.05	Health expenditure, public (% of government expenditure)		HNP Stats		12.7	4.7	2010	9.3	(2010)	East Asia & Pacific (developing only)
		3.2.06	External resources for health (% of total expenditure on health)		HNP Stats		55.6	33.7	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	0.0	2010	14.4	(2009)	South-East Asia
		3.2.08	a) Health expenditure per capita (current US$)		HNP Stats		32.5	56.9	2010	182.8	(2010)	East Asia & Pacific (developing only)
			b) Per capita total expenditure on health (PPP int. $)		GHO		24	32	2010	120	(2009)	South-East Asia
		3.2.09	Per capita government expenditure on health at average exchange rate (US$)		GHO		64.0	84	2010	19	(2009)	South-East Asia
	3.3 Facilities, Equipments and Supplies	3.3.01	a) Median availability of selected generic medicines (%) - Public		GHO							South-East Asia
			b) Median availability of selected generic medicines (%) - Private		GHO							South-East Asia
		3.3.02	a) Median consumer price ratio of selected generic medicines - Public		GHO							South-East Asia
			b) Median consumer price ratio of selected generic medicines - Private		GHO							South-East Asia
		3.3.03	Hospital beds (per 1,000 population)		HNP Stats			5.9	2010	3.9	(2009)	East Asia & Pacific (developing only)

WDI: World Development Indicators & Global Development Finance (http://databank.worldbank.org/ddp/home.do) (Accessed 07/2012)
HDR: Human Development Reports (http://hdr.undp.org/) (Accessed 07/2012)
HNP Stats: Health Nutrition and Population Statistics (http://databank.worldbank.org/ddp/home.do) (Accessed 07/2012)
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 07/2012)
GHO: Global Health Observatory Country Statistics (http://www.who.int/gho/countries/en/) (Accessed 07/2012)
GHOr: Global Health Observatory Repository (http://apps.who.int/ghodata/) (Accessed 07/2012)
MDGs: Millennium Development Goals (http://databank.worldbank.org/ddp/home.do) (Accessed 07/2012)
MDG database: Millennium Development Goals Indicators (http://mdgs.un.org/unsd/mdg/) (Accessed 07/2012). Regional data is available on The Millennium Development Goals Report Statistical Annex 2011 (United Nations).
Childinfo: Childinfo UNICEF (http://www.childinfo.org/) (Accessed 07/2012)
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 (The Democratic Republic of Timor-Leste)

	TITLE	AUTHOR	URL	YEAR
1	Health Nutrition and Population Statistics	World Data Bank	http://databank.worldbank.org/ddp/home.do?Step=2&id=4&hActiveDimensionId=HNP_Series	2012
2	Human Development Report	UNDP	http://hdr.undp.org/en/reports/global/hdr2011/	2011
3	Timor Leste Multiple Indicator Cluster Survey	UNICEF	http://aidsdatahub.org/dmdocuments/Timor_Leste_MICS_2002.pdf.pdf	2002
4	Population and Housing Census	MOF	http://dne.mof.gov.tl/published/2010%20and%202011%20Publications/Wall%20Chart%20English/Wall%20Chart%20English%209%20June%202011.pdf	2010
5	Timor-Leste Demographic and Health Survey 2009-10	National Statistics Directorate Ministry of Finance and ICF Macro	http://www.measuredhs.com/pubs/pdf/fr235/fr235.pdf	2010
6	World Health Statistics 2011	WHO	http://www.who.int/gho/publications/world_health_statistics/EN_WHS2011_Full.pdf	2011
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20	Country Assistance Strategy 【In Japanese】	Ministry of Foreign Affairs of Japan		
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22	Connecting the East Timor and Japan. A Study on Fair Trade of Coffee	Yamamoto J., Keio University	http://web.sfc.keio.ac.jp/~llamame/FTP/yamamoto_report.pdf	2008