

ERIA Discussion Paper Series**Strengthening Regional Cooperation,
Coordination, and Response to Health Concerns in
the ASEAN Region:
Status, Challenges, and Ways Forward**

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Abstract: *Health and well-being of the population are a precondition for any successful country or region. All regions have their specific health challenges that vary according to geographic, social, cultural, and economic conditions. The Association of Southeast Asian Nations (ASEAN), as a well-established regional actor, has a great potential to influence the health condition of its population through various measures and at different levels. Individual states have the key role to play in protecting and promoting health especially as regional cooperation for health is becoming more important. This paper examines regional and sub-regional health concerns of Southeast Asia focusing on the 10 ASEAN Member States: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam. It aims to give an overview of the Southeast Asian region's existing cooperation in health with regional and global actors; describe the current status of health – maternal and child mortality, communicable diseases, non-communicable diseases, health systems, and health financing; and provide recommendations on strengthening regional cooperation, coordination, and responses to existing and emerging health challenges, and improving health systems to meet the future needs of the region.*

Keywords: ASEAN, health status, regional cooperation for health, health services, universal health coverage, health challenges

1. Introduction

Health and well-being of the population is a precondition for any successful country or region. All regions have their specific health challenges that vary according to geographic, social, cultural, and economic conditions. Not all these characteristics can be influenced, but effective action to promote the best possible health status should be the goal: to create effective policies, networks, and institutions to promote health and well-being locally, nationally, and regionally.

The Association of Southeast Asian Nations (ASEAN) as a well-established regional actor has a great potential to influence the health condition of its population through various measures (coordinated actions and policies, peer learning, financial cooperation, etc.) and at different levels (local, national, and regional). But individual states have the key role to play in protecting and promoting health through arranging health-care facilities and work force, education, laws and policies, and a healthy living environment. At the same time, regional cooperation for health is becoming more and more important for several reasons. For example, as people increasingly travel across country borders, infectious diseases spread wider and faster. A recent example is the Ebola Virus Disease in West Africa.

Also, countries with similar geographic conditions have the potential to develop strategies to fight health-threatening natural phenomena, from parasites to disasters. According to the Intergovernmental Panel on Climate Change (IPCC, 2014), natural disasters threatening health have become more frequent due to accelerating climate change. This requires regional action from capacity building to preparedness and recovery. Moreover, countries in the same region often have similar socio-cultural habits that can either promote or hinder health, such as dietary patterns and use of alcohol or tobacco products, which can be influenced regionally. All in all, joint action as well as learning lessons and best practices from countries in the same region are mutually beneficial and support the development of national policies. Fortunately, several influential actors share the burden of health development in the ASEAN region, including the WHO Offices for the Western Pacific and the Southeast Asia regions.

Since February 2015, the United Nations (UN) has been in the process of defining a global post-2015 development agenda for the next 15 years. The agenda,

including the development goals, will be launched at a High-level Summit in September 2015, which is the target date for realising the Millennium Development Goals (MDGs). The process of arriving at the post 2015 development agenda is Member State-led with broad participation from Major Groups and other civil society stakeholders. The agenda contains numerous items, notably a set of Sustainable Development Goals (SDGs) proposed by an Open Working Group of the General Assembly, the report of an intergovernmental committee of experts on sustainable development financing, General Assembly dialogues on technology facilitation, and many others. The Open Working Group of the General Assembly has suggested 17 SDGs for the period of 2016–2030, of which one, Goal 3, focuses on health. This goal calls for ‘ensuring healthy lives and promoting well-being for all at all ages’. The health goal has nine sub-goals on maternal and child mortality, AIDS, tuberculosis and malaria, non-communicable diseases, use of harmful substances (alcohol, drugs), road traffic accidents, sexual and reproductive health, universal health coverage, and hazardous chemicals and pollution. However, all SDGs are in fact closely related to health as they address poverty, hunger, inequality, climate change, housing, water and sanitation, work, and so on. (Report of the Open Working Group on the General Assembly on Sustainable Development Goals, 2014.) The UN has played a facilitating role in the global conversation on the post-2015 development agenda and supported broad consultations. It also has the responsibility of supporting Member States by providing evidence-based inputs, analytical thinking, and field experience (Sustainable Development Knowledge Platform). This process is closely linked with the development of all countries and regions, and will in the coming years be one of the most important frameworks for the development of the policies and collaboration in health.

To reflect the global agenda, ASEAN Member States (AMS) a declaration on ASEAN Community’s Post-2015 vision in Nay Pyi Taw, Myanmar (known as the ‘Nay Pyi Taw Declaration’) on 12 November 2014. In line with the ASEAN Vision 2020, the declaration reaffirms its commitment to creating an ‘inclusive, sustainable, resilient region that benefits all the people living in the region, including promotes equal access and opportunity for all, as well as promote and protect human rights; promotes balanced social development and sustainable environment that meet the

current and future needs of the people; and enhances capacity and capability to collectively respond and adapt to emerging trends and challenges' (ASEAN, 2014a).

Against this background, this paper examines regional and sub-regional health concerns of Southeast Asia focusing on the 10 AMS: Brunei Darussalam (referred as BN in the forthcoming tables), Cambodia (KH), Indonesia (ID), Lao PDR (LA), Malaysia (MY), Myanmar (MM), the Philippines (PH), Singapore (SG), Thailand (TH), and Viet Nam (VN). It aims to (i) give an overview of the Southeast Asian region's existing cooperation in health with regional and global actors; (ii) examine the current status of health – maternal and child mortality, communicable diseases, non-communicable diseases, health systems, and health financing – of the 10 AMS using the World Health Statistics 2014 (WHO, 2014); and to (iii) give recommendations to strengthen regional cooperation, coordination, and responses to existing and emerging health challenges, as well as views on improving health systems to meet the future needs of the region.

2. ASEAN Existing Regional Cooperation for Health

AMS work in cooperation with several organisations and institutions on matters relating to health and well-being. These include global actors such as the United Nations, in the framework of the MDGs and the UN Economic and Social Commission for Asia and the Pacific, and the World Health Organization (WHO). Regional entities include the ASEAN Socio-Cultural Community (ASCC) and the Asian Development Bank (ADB), to mention the most important ones.

The ASCC is one of the three specialised entities (in addition to the Political–Security Community and Economic Community) within ASEAN. ASCC is the framework for health cooperation between AMS. ASCC 'aims to contribute to realising an ASEAN Community that is people-oriented and socially responsible with a view to achieving enduring solidarity and unity among the peoples and Member States of ASEAN. It seeks to forge a common identity and build a caring and sharing society which is inclusive and where the well-being, livelihood, and welfare of the peoples are enhanced.' Its core regional activities for health include

enhancing food security and safety, access to healthcare and promotion of healthy lifestyles, improving capability to control communicable diseases, and building disaster-resilient nations and safer communities (ASCC, 2015).

The ASEAN strategic framework on health development 2010–2015 operationalises the 55 health action lines of the ASCC Blueprint. Regional activities in health involve enhancing food security and safety, access to healthcare and promotion of healthy lifestyles, improving capability to control communicable diseases, and building disaster-resilient nations and safer communities. The broad outlines of health development are drawn by the ASEAN Health Ministers Meetings that guide the Senior Officials on Health Development (SOMHD) group. The substantial workload is further divided between working groups, task forces, and networks with specific health goals (ASEAN, 2015a).

ASEAN Plus Three (APT) cooperation, established in 1997 between ASEAN and China, Japan, and South Korea, also addresses health and well-being. APT cooperates mostly in the areas of maternal and child health as well as communicable and emerging infectious diseases, including initiatives such as Field Epidemiology Training Network (FETN), Risk Communication, Partnership Laboratories, Animal Health, and Human Health Collaboration, and specific disease interventions including malaria, rabies, and dengue. Traditional medicine is also on the agenda. In the area of social welfare and development, the APT countries have their regular exchange of views at the APT Ministerial Meeting for Social Welfare and Development (AMMSWD+3) and the APT Senior Officials Meeting on Social Welfare and Development (SOMSWD+3). APT cooperation on environment also continues to grow, particularly in addressing the issue of sustainable development. APT has, for example, been organising an annual Leadership Programme on Sustainable Production and Consumption since 2008, which is a programme for the private sector to discuss green economy. Building on the successful completion of the ASEAN Environmentally Sustainable Cities (ESC) Model Cities Programme, a continuation of the project has been proposed with participation extended to other East Asian countries and cities (ASEAN, 2015b).

Globally, the WHO is the umbrella organisation for public health as the directing and coordinating authority for health within the UN system. It is responsible for

providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries, and monitoring and assessing health trends (WHO, 2015). ASEAN's cooperation with WHO mostly occurs in the framework of the WHO Regional Offices (WHO ROs) – the Regional Office for the Western Pacific (WPRO) and the Regional Office for the South East Asia (SEARO). Seven ASEAN Member States are members of WPRO: Brunei Darussalam, Cambodia, Lao PDR, Malaysia, the Philippines, Singapore, and Viet Nam. Three AMS belong to the region of SEARO: Indonesia, Myanmar and Thailand. WHO's mission is to support all countries and peoples in their quest to achieve the highest attainable level of health, defined in the WHO Constitution as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WPRO, 2014a).

The Regional Office for the Western Pacific is one of the WHO's six regional offices located in Manila, the Philippines. It represents WHO in the Asia Pacific with 37 countries. The Western Pacific Region is home to approximately 1.8 billion people, more than one-fourth of the world's population. It stretches over a vast area, from China in the north and west, to New Zealand in the south, and French Polynesia in the east. One of the most diverse of the WHO regions, the Western Pacific constitutes some of the world's least developed countries as well as the most rapidly emerging economies. It includes highly developed countries such as Australia, Japan, New Zealand, the Republic of Korea, and Singapore; and fast growing economies such as China and Viet Nam (WPRO, 2014a). WHO SEARO is home to a quarter of the world population with 11 member states. It constitutes low-, middle-, and upper-income countries including Thailand, Myanmar, and Indonesia, and countries such as India with a massive population and huge development prospects, and DRP Korea with several internal challenges (SEARO, 2014).

WHO ROs act as the health conscience of the region, and operate semi-autonomously with their own regional budget. Their role is to act as a catalyst and advocate for action at all levels, from local to global, on health issues of public concern. Working together with a broad spectrum of partners from all sectors of society, WHO ROs are involved in a host of closely related public health activities

including research, data banking, evaluation, awareness raising, and resource mobilisation in their areas. Moreover, the offices lead the regional response to public health issues on all fronts – medical, technical, socio-economic, cultural, legal, and political – towards the achievement of WHO's global health mission (WPRO, 2014a).

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) is the regional development arm of the United Nations for the Asia-Pacific region. Made up of 53 Member States and 9 Associate Members, with a geographical scope that stretches from Turkey in the west to the Pacific island nation of Kiribati in the east, and from the Russian Federation in the north to New Zealand in the south, the region is home to 4.1 billion people, or two thirds of the world's population. This makes ESCAP the most comprehensive of the United Nations five regional commissions, and the largest United Nations body serving the Asia-Pacific region with over 600 staff. Established in 1947 with its headquarters in Bangkok, Thailand, ESCAP works to overcome some of the region's greatest challenges by providing results-oriented projects, technical assistance, and capacity building to member states for example in sustainable and social development, environment, ICT, and disaster risk reduction (UN ESCAP, 2015).

AMS also cooperate with the development banks, such as ADB. Since its foundation in 1966, ADB has dedicated itself to improving people's lives in Asia and the Pacific. ADB partners with developing member countries and other stakeholders to alleviate poverty and achieve sustainable and inclusive growth through investment in infrastructure, health care services, and in financial and public administration systems. The main devices for assistance are loans, grants, policy dialogue, technical assistance, and equity investments. ADB is committed to improving health in Asia and the Pacific by supporting better governance and spending, infrastructure development, and regional collaboration to control communicable diseases. ADB is focusing on its core areas of expertise to better support programmes directed at improving overall health in Asia and the Pacific. The emphasis will shift from stand-alone projects to improving the health impact of infrastructure operations, economic governance and public expenditure, regional public goods, partnerships, and knowledge management (ADB, 2014).

ASEAN as an influential regional actor needs closer cooperation with the above-mentioned and other entities and organisations in the future, to ensure the effectiveness of health interventions and to avoid duplication of efforts. Also, new financing sources should be explored and established to facilitate the implementation of health-related interventions in the Southeast Asia region.

3. Current Status of Health, Health Services, and Health Financing in the ASEAN Region

The analysis conducted in this chapter is based on the World Health Statistics (WHO, 2014a) published yearly by the WHO. We use this publication to examine the status of health, risk factors, health service coverage, and health financing of the 10 AMS. The examined indicators are life expectancy, maternal and child mortality, mortality in communicable and non-communicable diseases, injuries and suicides, non-communicable disease risk factors, health service coverage, and health financing. The cause-specific indicators have been derived from a range of sources of mortality, incidence and prevalence data. These include death-registration records, health-facility reports, household surveys, censuses, and special studies on deaths due to HIV and to conflict. Estimating cause-specific mortality is particularly difficult in developing countries where systems for counting deaths and accurately recording their causes are weak or non-existent. Due to resulting limitations in data availability, quality, and timeliness, many of the indicators shown are associated with significant uncertainty, the margins of which are available on the Global Health Observatory website (WHO, 2014b). When possible, the performance of the AMS is compared with the global trends.

It should be mentioned that, ASEAN ASCC also collected available indicators on health for 2009 and 2012 for use in this paper. However, the database had significant gaps compared with the data collected by WHO, and it was not clear how the data was collected and what were the sample sizes. For these reasons, we decided to use the WHO data for this report.

3.1. Life expectancy, maternal and child mortality, HIV/AIDS, malaria, and tuberculosis

Table 1 presents indicators on life expectancy at birth and at age 60; infant-, under five-, and maternal mortality rates; and cause-specific mortality and morbidity on HIV/AIDS, malaria, and tuberculosis in the AMS. The information is from years ranging from 1990 to 2013. The estimates of mortality were derived whenever possible from death-registration data reported annually to the WHO. For countries where such data are not available or are of poor quality, household surveys and censuses were used to prepare estimates of mortality rates and life expectancy. (WHO, 2014a.).

Table 1: Life Expectancy, Maternal and Child Mortality, and Mortality of HIV/AIDS, Malaria, and Tuberculosis in ASEAN Member States

Country / Health Variable	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
Life exp. at birth, 1990/2012 (years)	73/77	54/72	62/71	53/66	71/74	59/66	66/69	75/83	69/75	70/76
Life exp. at 60 1990/2012 (years)	18/21	17/24	16/18	15/17	17/19	16/17	18/17	20/25	18/21	20/22
Infant mortality, 1990/2000/2012 (prob. of dying by age 1 per 1,000 live births)	9/8/7	85/82/34	62/41/26	112/85/54	14/9/7	76/59/41	41/30/24	6/3/2	31/19/11	36/25/18
Under-5 mortality, 1990/2000/2012 (prob. of dying by age 5 per 1,000 live births)	12/10/8	116/111/40	84/52/31	163/120/72	17/10/9	106/79/52	59/40/30	8/4/3	38/23/13	51/32/23
Maternal mortality, 1990/2000/2013 (per 100,000 live births)	26/24/27	1200/540/170	430/310/190	1100/600/220	56/40/29	580/360/200	110/120/120	8/19/6	42/40/26	140/82/49
HIV/AIDS mortality (cause specific), 2001/2012 (per 100,000 population)	.../...	48/18	0.6/11	<2/<8	18/18	20/22	<1/<1	.../...	97/31	6.7/13
HIV/AIDS morbidity (incidence), 2001/2012	.../...	48/9.2	14/31	.../...	26/25	51/13	<1/1.8	.../...	38/13	37/15

Malaria mortality (cause specific), 2012 (per 100,000 population)	...	1.8	3.8	4.5	0.0	5.4	0.0	...	0.3	0.1
Malaria morbidity (incidence), 2012	...	1070	2278	1698	34	2743	23	...	205	29
Tuberculosis mortality (cause specific), 2000/2012 (per 100,000 population)	4.3/3.0	128/63	55/27	21/11	6.9/5.4	106/48	40/24	3.2/1.7	31/14	33/20
Tuberculosis morbidity (incidence), 2000/2012	106/68	577/411	204/185	330/204	95/80	412/377	329/265	51/50	171/119	197/147

Source: World Health Statistics 2014 (WHO, 2014).

Life expectancy at birth reflects the overall mortality level of a population and summarises the mortality pattern that prevails across all age groups – children and adolescents, adults and the elderly. The data in the Table 1 presents life expectancy at birth in both sexes from years 1990 and 2012 in the AMS. The data reveals that life expectancy increased in all AMS between 1990 and 2012. The highest life expectancy at birth is in Singapore (75/83), and the lowest in Lao PDR (53/66). The biggest improvement was made in Cambodia (+18 years), and the smallest in Malaysia (+3 years). Indonesia also achieved great progress from 1990 to 2012 (WHO, 2014a).

In 2012, life expectancy at birth for both sexes globally was 70 years, ranging from 62 years in low-income countries to 79 years in high-income countries, giving a ratio of 1.3 between the two income groups. Women live longer than men all around the world. The gap in life expectancy between the sexes was 5 years in 1990 and had remained the same by 2012. The gap is much larger in high-income countries (more than six years) than in low-income countries (around three years). From 1990 to 2012, life expectancy at birth increased globally by six years, but during the 1990s in Europe it showed stagnation, while in Africa it decreased. For Europe, this is due mainly to adverse mortality trends in the former Soviet Union countries. The decrease in Africa was caused by HIV/AIDS, but the increasing availability of antiretroviral therapy reduced the spread of the epidemic, and mortality due to HIV/AIDS decreased from about 2005, allowing life expectancy at birth to increase again: average life expectancy at birth in Africa was 50 years in 2000 and it rose to

58 years in 2012 (WHO, 2014b). The data shows that from the AMS only Lao PDR, Myanmar, and the Philippines were below the global average for life expectancy.

Life expectancy at age 60 reflects the overall mortality level of a population over 60 years. Table 1 presents the expected years of life in both sexes in 1990 and 2012 in the AMS. The highest life expectancy at 60 was in Singapore (20/25 years) and the lowest in Lao PDR (15/17 years). The biggest improvement was made in Cambodia (+7 years) and the smallest in Myanmar and in the Philippines (+1 year) (WHO, 2014a). The global trend of ageing populations is also visible in South East Asia, according to the data in Table 1.

In 2012, the global population aged 60 years could expect to live another 20 years on average, two years longer than in 1990. Life expectancy at age 60 in high-income countries (23 years) was six years longer than that in low-income and lower-middle income countries (17 years). Life expectancies at age 60 were longer and the increases larger in high-income countries. In such countries, life expectancy at age 60 had increased by almost as much as life expectancy at birth – around three years for both men and women (WHO, 2014b).

Infant mortality rate reflects the probability of dying by age 1. The first 28 days of life – the neonatal period – represent the most vulnerable time for a child's survival. In Table 1, the numbers are per 1,000 live births from years 1990, 2000, and 2012. This number describes the progress made in the framework of MDG 4 that aims to reduce child mortality by two-thirds by 2015 from the 1990 level. Infant mortality had decreased in all AMS by 2012, and there were still three years left to reach the target. Globally in 2012, around 44 percent of under-five deaths occurred during this period, up from 37 percent in 1990. Whereas overall under-five mortality rates declined, the proportion of such deaths occurring during the neonatal period increased. This highlights the crucial need for health interventions that specifically address the major causes of neonatal deaths, particularly as these typically differ from the interventions needed to address other under-five deaths (WHO, 2014a). Further decreasing the numbers of neonatal deaths should be a priority in the ASEAN region.

Under-five mortality rate describes the probability of dying by the age of five per 1,000 live births in 1990, 2000, and 2012. All AMS have made progress in under-

five mortality rates since 1990: almost all have more than halved their numbers. In 2012, Singapore had the lowest under-five mortality rate (3) and Lao PDR the highest (72). The biggest improvement occurred in Cambodia, where the number of under-five deaths per 1,000 live births decreased from 116 to 40 between 1990 and 2012.

Globally, 6.6 million children under five died in 2012. Almost 75 percent of all child deaths are attributable to six conditions: neonatal causes, pneumonia, diarrhoea, malaria, measles, and HIV/AIDS. Reaching the MDG on reducing child mortality will require universal coverage with key effective, affordable interventions: care for newborns and their mothers; infant and young child feeding; vaccines; prevention and case management of pneumonia, diarrhoea, and sepsis; malaria control; and prevention and care of HIV/AIDS. In countries with high mortality, these interventions could reduce the number of deaths by more than half. Current evidence indicates that under-nutrition is the underlying cause of death in an estimated 45 percent of all deaths among children below five years of age. The number of underweight children globally declined from 160 million in 1990 to 99 million in 2012, representing a decline in the proportion of underweight children from 25 percent to 15 percent. This rate of progress is close to that required to meet the relevant MDG target, but varies between regions. Globally, between 1990 and 2012, the number of children affected by stunting declined from 257 million to 162 million, representing a global decrease of 37 percent. In 2012, global measles immunisation coverage reached 84 percent among children aged 12–23 months. More countries are now achieving high levels of vaccination coverage, with 66 percent of WHO Member States reaching at least 90 percent coverage in 2012, up from only 43 percent in 2000 (WHO, 2014b).

Maternal mortality ratio per 100,000 live births fell massively in most AMS between 1990 and 2013. ASEAN more than halved the maternal mortality ratio from 1990 to 2011, but progress towards reducing the ratio by three quarters has been slow (ASEAN, 2011). The biggest declines from 1990 to 2012 were achieved by Cambodia (1,200/540/170) and Lao PDR (1,100/600/220), and Myanmar and Viet Nam also saw significant falls. MDG 5 – Improve maternal health – sets out the targets of reducing the maternal mortality ratio from its 1990 level by three quarters

and achieving universal access to reproductive-health services by 2015. The number of women dying due to complications during pregnancy and childbirth decreased globally by nearly 50 percent from an estimated 523,000 in 1990 to 289,000 in 2013. While such progress is notable, the average annual rate of decline (AARD) is far below that needed to achieve the MDG target (5.5 percent), and the number of deaths remains unacceptably high. In 2013, nearly 800 women died every day from maternal causes. Almost all of these deaths (99 percent) occurred in developing countries, and most could have been avoided as the necessary medical interventions exist and are well known. The key obstacle is a lack of access to quality care of pregnant women before, during, and after childbirth (WHO, 2014a).

HIV/AIDS mortality and morbidity rates in Table 1 presents the situation in the AMS in 2001 and 2012, per 100,000 population. MDG 6.A is to have halted and begun to reverse the spread of HIV/AIDS by 2015. Data on the prevalence of HIV/AIDS was not available from all AMS, but according to the available information, cause-specific HIV/AIDS mortality decreased in Cambodia (48/18) and Thailand (97/31) between 2001 and 2012. In Malaysia, the situation remained the same and in Indonesia (0.6/11), Myanmar (20/22), and Viet Nam, the HIV/AIDS mortality increased. *HIV/AIDS morbidity* rate declined in all AMS where data was available (7 out of 10) from 2001 to 2012, except in Indonesia.

HIV continues to be a major global public health issue, having claimed more than 39 million lives as of 2013. Globally in 2013, approximately 1.5 million people died from HIV-related causes. There were approximately 35.0 million people living with HIV at the end of 2013, with 2.1 million becoming newly infected with HIV in 2013 globally. Sub-Saharan Africa is the most affected region, with 24.7 million people living with HIV in 2013, and accounts for almost 70 percent of the global total of new HIV infections (WHO, 2014c). The UNAIDS report ‘HIV in Asia and the Pacific’ (UNAIDS, 2013) shows that while important gains have been made in the region’s response, the pace of progress is too slow and significant challenges remain. According to the report, an estimated 4.9 million people were living with HIV in Asia and the Pacific in 2012. Regionally, numbers of new HIV infections fell by 26 percent from 2001 to 2012, with a number of countries reducing infections by over 50 percent during that period. However, the overall number of new HIV

infections across the region remained largely unchanged during the years of 2009–2014. The number of people accessing antiretroviral treatment in the region had gradually increased to 1.25 million people by the end of 2012, but the rate of increase in access to treatment has slowed in recent years (UNAIDS, 2013).

Malaria mortality and morbidity rates in Table 1 are for 2012 per 100,000 population. Among the AMS, the malaria mortality rate in 2012 was highest in Myanmar (5.4) and lowest in Malaysia and the Philippines (both 0.0). Information is not available from all AMS. *Malaria morbidity* in 2012 was highest in Myanmar (2,743 per 100,000 population) and Indonesia (2,278), and lowest in the Philippines (23) and Viet Nam (29). MDG target 6.C is to have halted malaria by 2015 and for the incidence of malaria and other major diseases to have begun to reverse.

According to the Roll Back Malaria Partnership’s press release at the 11th ASEAN health ministers meeting held in Thailand in July 2014, around 330 million people in the ten ASEAN nations are at some risk of malaria exposure, but the situation varies among countries. With 6 percent of the global malaria death toll, Southeast Asia is the second most-affected region in the world. Malaria has declined where economic development, urbanisation, and deforestation have changed the face of some nations in recent decades. As countries grow more prosperous, they also invest more in health services and malaria control programmes, helping to reduce the malaria burden even further. But as the disease retreats, it persists in many remote rural communities and border areas, partly because of less development and poorer access to health services, but also because infections are easily introduced across borders. Most of the remote areas in Thailand are free of malaria. Only the border areas of Thailand with Myanmar, Cambodia, and Malaysia still have malaria cases resulting from the movement of people. Malaria transmission in remote, forested areas in the region is high due to the presence of highly efficient mosquito vectors. Indigenous tribal minorities represent a major malaria risk group with poor access to and use of health care facilities (WHO, 2014d). According to the World Malaria Report launched by WHO in December 2014, global malaria mortality rates decreased by 47 percent between 2000 and 2013. The report also revealed that parasite prevalence rates declined significantly, which means that fewer people are carriers of symptomatic or asymptomatic infections. (WHO, 2014e.)

Tuberculosis (TB) mortality and morbidity (among HIV negative people) decreased in all AMS between 2000 and 2012, most sharply in Cambodia (128/63 per 100,000 population) and Myanmar (106/48). *Tuberculosis morbidity* decreased in all countries. Tuberculosis (TB) remains one of the world's deadliest communicable diseases and is addressed in MDG 6. Globally in 2013, an estimated nine million people developed TB and 1.5 million died from the disease, 360,000 of whom were HIV-positive. TB is slowly declining each year and it is estimated that 37 million lives were saved between 2000 and 2013 through effective diagnosis and treatment. However, given that most deaths from TB are preventable, the death toll from the disease is still unacceptably high and efforts to combat TB must be accelerated if 2015 global targets are to be met. It should also be noted that the number would be much higher if HIV positive people would be included (WHO, 2014f).

The world is on track to reach the MDG target of reversing the incidence of TB, but it has been falling very slowly. Of the estimated nine million people who developed TB in 2013, more than half (56 percent) lives in the South East Asia and Western Pacific regions. A further one quarter lives in the African region, which also had the highest rates of cases and deaths relative to population. An estimated 1.1 million (13 percent) of the 9 million people who developed TB in 2013 were HIV-positive. The number of people dying from HIV-associated TB has been falling for almost a decade. The African Region accounts for about four out of every five HIV-positive TB cases and TB deaths among people who were HIV positive. The MDG of halting and reversing the incidence of TB has been achieved globally in all six WHO regions and in most of the 22 high TB burden countries. Worldwide, the incidence of TB fell at an average rate of about 1.5 percent per year between 2000 and 2013. Globally, the TB mortality rate fell by an estimated 45 percent between 1990 and 2013 and the TB prevalence rate fell by 41 percent during the same period. Progress needs to be made to reach the Stop TB Partnership targets of a 50 percent reduction in the coming years. Two out of six WHO regions, the Americas and the Western Pacific, have achieved all three 2015 targets for reductions in TB disease burden in terms of incidence, prevalence, and mortality. The Southeast Asia Region (AMS Indonesia, Myanmar, and Thailand) appears on track to meet all three targets. Incidence, prevalence, and mortality rates are all falling in the African, Eastern

Mediterranean, and European Regions, but not fast enough to meet the targets (WHO, 2014f).

3.2. Communicable and non-communicable diseases, injuries, and suicides

Table 2 brings together indicators on the levels of age-standardised mortality rates by cause in the AMS for both sexes per 100,000 population, from 2012. They are classified according to broad categories of mortality of communicable diseases, non-communicable diseases, and deaths caused by injuries and suicide. Communicable diseases refer to infectious or contagious diseases, whereas non-communicable diseases for this classification are chronic diseases such as cardiovascular disease, cancer, respiratory disease, and diabetes. Injuries include accidents leading to death such as road traffic accidents, drowning, and falls.

Table 2: Age-standardised Mortality Rates by Cause in 2008 and 2012, per 100,000 Population

Country / Mortality (2008/2012)	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
Communicable diseases, 2008/2012	55/56	478/27	244/62	376/329	185/17	461/316	231/27	66/68	153/23	122/96
Non-communicable diseases (NCDs), 2008/2012	520/475	748/394	647/680	771/80	526/563	667/709	599/720	313/264	675/49	607/435
Injuries, 2008/2012	24/45	65/62	70/49	107/75	51/63	347/102	55/54	21/17	106/73	66/59
Suicides, 2012	6.4	9.4	4.3	8.8	3.0	13.1	2.9	7.4	11.4	5.0

Sources: WHO's World Health Statistics 2011 and 2014; Preventing Suicide: A Global Imperative (WHO, 2014g).

Communicable disease mortality rate declined in all AMS from 2008 to 2012, except in Brunei. In 2012, communicable disease mortality was highest in Lao PDR (329 per 100,000 population), and lowest in Brunei (56/100,000). The data shows that communicable diseases continue to be a serious public health problem in the

SEA region, despite observed declines. The challenges arise from ancient diseases such as malaria, measles, leprosy, cholera, hepatitis B, and tuberculosis to more recent infections, including HIV, and re-emerging diseases such as dengue. Some regional problems, such as resistance to the antimalarial drug artemisinin and the burden of multidrug-resistant tuberculosis, also pose significant global threats. In the face of these challenges, there is a need for greater capacity to respond effectively, with initiatives proven to be successful in other regions that have contributed significantly to global responses. Examples include the region's maintenance of its poliomyelitis-free status, the achievement of leprosy elimination as a public health problem, and the movement towards the elimination of several other diseases, including measles, maternal and neonatal tetanus, lymphatic filariasis, and, in some areas, malaria. Communicable diseases not only cause illness and death, but can also disrupt the socioeconomic progress of nations (WPRO, 2014). Socioeconomic, environmental, and behavioural factors, as well as international travel and migration, foster and increase the spread of communicable diseases. Vaccine-preventable, foodborne, zoonotic, health care-related, and communicable diseases pose significant threats to human health and may sometimes threaten international health security, as happened with the Ebola Virus Disease outbreak in West Africa in 2014 (WHO, 2014h). The emerging infectious diseases are discussed in more detail in chapter 4.

Non-communicable disease (NCD) mortality declined in six AMS between 2008 and 2014, but rose in four. In 2012, the NCD mortality rate was highest in the Philippines (720/100,000), and lowest in Singapore (264/100,000) of all AMS. Reflecting the global situation, the data indicates that NCDs are a bigger cause of death than communicable diseases in the Southeast Asia region. Non-communicable diseases, principally cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases, place a major and growing burden on health and development worldwide. NCDs are the leading causes of death and disability in the SEA region, responsible for 80 percent of all deaths, which reflects the global situation. Globally, NCD deaths are projected to increase by 15 percent between 2010 and 2020 (to 44 million deaths), with the highest numbers predicted in the WHO regions of Western Pacific (12.3 million deaths) and South-East Asia (10.4 million deaths). Of particular

concern is the high level of premature mortality from NCDs (deaths before 70 years of age) in several low- and middle-income countries. (WPRO, 2014b.)

Injury mortality among the AMS remained relatively stable between 2008 and 2012: it rose in two countries and slightly declined in eight. In 2012, the injury mortality was highest in Myanmar (102 per 100,000 population) and lowest in Brunei (45). Injuries kill more than five million people worldwide annually and cause harm to millions more. Road crashes, drowning, burns, falls, and poisoning are the top five causes of injury deaths worldwide. Injuries account for 9 percent of global mortality, and are a threat to health in every country of the world. For every death, it is estimated that there are dozens of hospitalisations, hundreds of emergency department visits, and thousands of doctors' appointments. A large proportion of people surviving their injuries incur temporary or permanent disabilities (WHO website, accessed 10 December 2014). Violence and injuries each year kill nearly a million people in the WHO Western Pacific Region, to which 7 out of 10 AMS belong. Among people 5 to 49 years old in the WPRO region, violence and injury are the leading cause of death (WPRO, 2014b).

Suicide rate was highest in Myanmar (13.1 per 100,000 population) and lowest in Malaysia (3.0) in 2012. There is no data on suicide rates in previous years. An estimated 804,000 suicide deaths occurred worldwide in 2012, representing an annual global age-standardised suicide rate of 11.4 per 100,000 population (15.0 for males and 8.0 for females). However, since suicide is a sensitive issue, and even illegal in some countries, it is very likely to be under-reported. In countries with good vital registration data, suicide may often be misclassified as an accident or another cause of death. Registering a suicide is a complicated procedure involving several different authorities, often including law enforcement. And in countries without reliable registration of deaths, suicides simply die uncounted. In richer countries, three times as many men die of suicide than women do, but in low- and middle-income countries the male-to-female ratio is much lower, at 1.5 men to each woman. Globally, suicides account for 50 percent of all violent deaths in men and 71 percent in women. In terms of age, suicide rates are highest among people aged 70 years or over for both men and women in almost all regions of the world. In some

countries, suicide rates are highest among the young, and globally suicide is the second cause of death in 15–29-year-olds (WHO, 2014g).

The data indicates that all AMS are afflicted with a triple burden of disease – infectious diseases, NCDs, and injuries. Since NCDs are the biggest killer in the Southeast Asia region and globally, it is clear that there is an urgent need to monitor the trends in the causes of these diseases and related premature deaths. Most NCDs are largely preventable by enabling health systems to respond more effectively and equitably to the health-care needs of people with NCDs, and influencing public policies in sectors outside health that tackle shared risk factors – tobacco use, unhealthy diet, physical inactivity, and the harmful use of alcohol. As the ultimate guardians of a population’s health, governments have the lead responsibility for ensuring that appropriate institutional, legal, financial, and service arrangements are provided for the prevention and control of NCDs and ensuring the highest possible quality of life. NCDs undermine the achievement of the MDGs and contribute significantly to poverty and hunger. Strategies to address NCDs need to deal with health inequities arising from the societal conditions in which people are born, grow, live, and work and to mitigate barriers to childhood development, education, economic status, employment, housing, and environment. Upstream policy and multisectoral action to address these social determinants of health will be critical for achieving sustained progress in prevention and control of non-communicable diseases. Universal health coverage (UHC), people-centred primary health care and social protection mechanisms are important tools to protect people from financial hardship related to NCDs and to provide access to health services for all, in particular for the poorest segments of the population (WHO, 2013).

3.3. Non-communicable disease risk factors

Table 3 draws together information on indicators for certain risk factors that are associated with increased mortality and morbidity of NCDs. These risk factors include the prevalence of raised blood pressure, obesity in adults over 20 years, harmful consumption of alcohol among adults over 15 years, and the prevalence of smoking among adolescents aged 13–15 years and adults over 15 years. In adults, diabetes, hypertension, and being overweight or obese increase the risk of cardiovascular disease and several types of cancer. These risks also contribute to

non-fatal diseases such as arthritis and loss of vision due to diabetic retinopathy. Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings. The prevalence of hypertension is highest in some low-income countries, whereas public health interventions have reduced its prevalence in many high-income countries. The prevalence of tobacco smoking is an important predictor of the future burden of tobacco-related diseases. Harmful use of alcohol can cause alcohol dependence, hepatic cirrhosis, cancer, and injuries. Data on risk factors and health-related behaviour are generally drawn from household surveys. It is important to note that the reliability of these estimates depends upon the overall quality of the sampling frames and methods used; on interviewer training, data-quality assurance procedures, and statistical data analyses; and on the ability and willingness of respondents to provide accurate responses. Where data from household surveys are not available, statistical techniques may be used to develop estimates.

Table 3: NCD Risk Factors in the ASEAN Member States

Country / NCD Risk Factor	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
Blood pressure, 2008 (male/female, %)	23.6/16.9	22.5/16.8	32.5/29.3	28.1/24.0	28.8/24.6	34.0/29.2	28.7/23.6	24.3/18.5	24.6/20.2	29.1/23.3
Obesity, 2008 (male/female, %)	8.5/7.2	1.6/2.8	2.5/6.9	1.7/4.1	10.4/17.9	2.0/6.1	4.5/8.3	6.6/6.2	4.9/11.8	1.2/2.0
Alcohol, 2010 (l/year)	0.9	5.5	0.6	7.3	1.3	0.7	5.4	2.0	7.1	6.6
Smoking, over 15, 2011 (male/female, %)	32/4	42/3	67/3	48/4	43/1	38/7	44/10	.../...	46/3	46/2
Smoking, under 15, 2006–2012 (male/female, %)	.../...	8/5	41/6	19/6	35/9	30/7	19/9	.../...	27/9	7/2

Prevalence of raised blood pressure among adults aged 25 or older was highest in Indonesia and Myanmar in both men (34 percent) and women (29.2 percent) in 2008, and lowest in Cambodia in both men (22.5 percent) and women (16.8 percent). Globally, the overall prevalence of raised blood pressure in adults aged 25 and over was around 40 percent in 2008. Because of population growth and ageing, the number of people with uncontrolled hypertension rose from 600 million in 1980 to nearly 1 billion in 2008. Raised blood pressure is a major risk factor for coronary heart disease and ischemic as well as haemorrhagic stroke. Blood pressure levels have been shown to be positively and continuously related to the risk of stroke and coronary heart disease. In some age groups, the risk of cardiovascular disease doubles for each increment of 20/10 mmHg of blood pressure, starting as low as 115/75 mmHg. In addition to coronary heart diseases and stroke, complications of raised blood pressure include heart failure, peripheral vascular disease, renal impairment, retinal haemorrhage, and visual impairment. The proportion of the world's population with high blood pressure, or uncontrolled hypertension, fell modestly between 1980 and 2008 (WHO, 2014b).

The prevalence of obesity among adults in the ASEAN region is highest in Malaysia (male 10.4 percent/ female 17.9 percent) and lowest in Viet Nam (male 1.2 percent/female 2.0 percent). Globally, in 2008, 35 percent of adults aged 20 and over were overweight in 2008, and 11 percent were obese. Sixty-five percent of the world's population lives in countries where overweight and obesity kills more people than underweight. Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in metres). A person with a BMI equal to or more than 25 is considered overweight and with a BMI 30 or more, obese. Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases, and cancer (WHO, 2014i).

The consumption of alcohol was highest in Lao PDR (7.3 litres of pure alcohol per person per year) and lowest in Indonesia (0.6 litres) in 2010. Worldwide consumption in 2010 was equal to 6.2 litres of pure alcohol consumed per person aged 15 years or older. In 2012, about 3.3 million deaths, or 5.9 percent of all global

deaths, were attributable to alcohol consumption. There are significant sex differences in the proportion of global deaths attributable to alcohol — for example, in 2012, 7.6 percent of deaths among males and 4.0 percent of deaths among females were attributable to alcohol. In 2012, 139 million disability-adjusted life years (DALYs), or 5.1 percent of the global burden of disease and injury, were attributable to alcohol consumption. There is also wide geographical variation in the proportion of alcohol-attributable deaths and DALYs, with the highest alcohol-attributable fractions reported in the WHO European Region (WHO, 2014j).

The prevalence of smoking among people over 15 years of age in the ASEAN region in 2011 was highest in men in Indonesia (67 percent), and lowest in men in Brunei (32 percent) in 2011. In women over 15 years of age, the prevalence was highest in the Philippines (10 percent) and lowest in Malaysia (1 percent). *The prevalence of tobacco use among youth* between 13–15 years in men was highest in Indonesia (41 percent) and lowest in Cambodia (8 percent) during 2006–2012, and in women highest in Malaysia, the Philippines, and Thailand (all 9 percent), and lowest in Viet Nam (1 percent). Tobacco kills nearly 6 million people each year, up to half of its users. More than five million of those deaths are the result of direct tobacco use while more than 600,000 are the result of non-smokers being exposed to second-hand smoke. Unless urgent action is taken, the annual death toll could rise to more than eight million by 2030. Nearly 80 percent of the world's one billion smokers live in low- and middle-income countries (WHO, 2014k).

The Global Adult Tobacco Survey (GATS) is a nationally representative household survey launched in February 2007 by WHO as a new component of the ongoing Global Tobacco Surveillance System (GTSS). The GATS enables countries to collect data on adult tobacco use and key tobacco control measures. Results from the GATS assist countries in the formulation, tracking, and implementation of effective tobacco control interventions, and countries are able to compare results of their survey with results from other countries. Initially, the GATS will be established in 16 low- and middle-income countries where more than half of the world's smokers live and that bear the highest burden of tobacco use. From the AMS, Indonesia, Philippines, Thailand, and Viet Nam are among these 16 countries. GATS collects information, i.e. on tobacco use prevalence (smoking and smokeless tobacco

products), second-hand tobacco smoke exposure and policies, as well as attitudes and perceptions towards tobacco and smoking (WHO, 2014l).

3.4. Health systems

Table 4 presents data on the resources available to health systems, such as workforce (density of physicians, nurses, and midwives per 100,000 population), infrastructure (density of hospitals and hospital beds per 100,000 population), and access to essential medicines in the public and private sectors (percent) in the AMS. Data on health systems are essential in enabling governments to determine how to best meet the health-related needs of their populations. Estimates of health personnel densities refer to the active health workforce – i.e. those currently participating in the health labour market. Data are derived from multiple sources, including national population censuses, labour-force and employment surveys, health-facility assessments, and routine administrative information systems. Due to the wide diversity of available information sources, there is considerable variability in the coverage and quality of data. Figures may be underestimated or overestimated where it is not possible to determine whether or not they include health workers in the private sector, or to identify the double counting of health workers holding two or more jobs at different locations. In addition, health service providers may be working outside the health-care sector, working unpaid and/or in unregulated conditions, or not currently engaged in the national health labour market. The density of hospital beds can be used to indicate the availability of inpatient services. Statistics on hospital-bed density are generally drawn from routine administrative records, but in some settings only public-sector beds are included. Data on the availability of medicines are poor in most developing countries, and therefore information from only four AMS was available (WHO, 2014a).

Table 4: Density of Physicians, Nurses and Midwives, Hospitals and Hospital Beds, and Availability of Essential Medicines in ASEAN Member States

Country / Health Service	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
Physicians, 2006–2013	15.0	2.3	2.0	1.8	12.0	6.1	...	19.2	3.9	11.6
Nurses/midwives, 2006–2013	77.3	7.9	13.8	8.8	32.8	10.0	...	63.9	20.8	11.4
Hospitals, 2013	1.4	0.6	0.4	2.2	0.5	0.6	1.8	0.5	1.8	...
Hospital beds, 2006–2012	28	7	9	15	19	6	5	20	21	20
Medicines, 2001–2009 (public/private, %)	...// ...	65.5/57 .8	.../ ...	25.0/43 .8	.../ ...	15.4/26 .5	.../ ...	75.0/28 .6	.../ ...

Source: World Health Statistics 2014 (WHO, 2014).

Density of physicians from 2006 to 2013 was highest in Singapore (19.2/100,000 population), and lowest in Lao PDR (1.8), whereas the *density of nurses and midwives* was highest in Brunei (77.3/100,000 population), and lowest in Cambodia (7.9). *Number of hospitals* per 100 000 population was highest in Lao PDR (2.2), and lowest in Indonesia (0.4), whereas *number of hospital beds per 100,000 population* was highest in Brunei (28), and lowest in the Philippines (5). Information on the *availability of generic medicines* in public and private sectors was only available in four countries, making the comparison difficult. Of the countries where information was available, generic medicines were most easily accessed in Thailand (75.0/28.6) and were least accessible in the Philippines (15.4/26.5).

A good health system delivers quality services to all people, when and where they need them. The exact configuration of services varies from country to country, but in all cases requires a robust financing mechanism; a well-trained and adequately paid workforce; reliable information on which to base decisions and policies; well-maintained facilities and logistics to deliver quality medicines and technologies. National and sub-national data on the health workforce is a pre-requisite for evidence-informed policy. Many countries and sub-national authorities face challenges in reporting and publishing a full account of the health workforce situation: the information is often dispersed across institutions, with incomparable infrastructure and capacity constraints (especially in data collection and utilisation). Amid these challenges future health and social protection systems are evolving,

demanding new, intelligent responses to drive efficiency and improve outcomes (WHO, 2014m). Moreover, all over the world, the problem is that doctors and nurses are concentrated in capital cities and there is a lack of health personnel in rural areas. The data presented here does not take into account the accessibility of health services, and therefore more information and disaggregated data is needed on the availability of health services globally.

As acknowledged by WHO (WPRO, 2007), health is influenced by a complex interplay of physical, social, economic, cultural, and environmental factors, and therefore must be seen in a broader context, with all stakeholders involved. There is a need to re-establish the core value of health care, which is health and well-being of all people as the central goal. This entails a more holistic and people-centred approach to health care, and a balanced consideration of the rights and needs as well as the responsibilities and capacities of all health constituents and stakeholders. Health systems, therefore, need to change to be more responsive to the participation of local communities. Community participation means active involvement of local people concerned in analysis, decision-making, planning, and programme implementation, as well as in disaster activities, from search and rescue to reconstruction. While the opportunities for community participation may vary greatly depending on place, process, and situation, a participatory approach should be promoted to achieve sustainable development of the health systems. Moreover, community participation reflects a need for the development of active communities in their own right: people seeing a need, and acting upon it, for example as advocates, pressure groups, or self-help groups. According to WHO, community participation is also the basis of successful health promotion. In the context of disaster management, health promotion involves working with people to prevent, prepare for, and respond to disasters to reduce risk, increase resilience, and mitigate the impact of disasters on health.

To achieve holistic health care with effective partnerships between people who need care and people who provide care, action is required to support capacity-building for better-informed and more empowered individuals, families, and communities who are able of actively participating in health systems development.

Strategic responses, suggested by the WHO Regional Office for the Western Pacific, could include:

- a) *Increasing health literacy* through community and mass media education campaigns; skills-oriented health education programmes in schools; written information in conjunction with verbal information in clinical consultations; and evidence-based health education through the Internet;
- b) *Providing communication and negotiation skills that lead to meaningful participation in decision-making*, such as personalised and comprehensive decision-making aids, including computer-based and Internet-based health education packages; and access to health records, including audio recordings and written summaries of clinical consultations;
- c) *Improving capacity for self-management and self-care*, e.g. through chronic disease management training programmes; computer or Internet-based targeted health education programmes; referral to appropriate patient or peer support groups; and interventions that promote patient adherence to medication regimes, e.g. providing explicit written instructions about taking prescribed medicines;
- d) *Increasing capacity of the voluntary sector, community-based organisations and professional organisations to extend mutual assistance*, including volunteer training and support programmes; funding for self-help programmes; and funding mechanisms for nongovernmental organisations;
- e) *Promoting social infrastructure that supports community participation in health services planning and facilitates greater collaboration between local governments and communities*, such as participation and collaboration mechanisms for local governments, communities, health-oriented groups and consumer organisations; and funding and training for consumer organisations and their representatives; and
- f) *Developing community leaders who advocate and support community involvement in health service delivery*, for example including identification of suitable leaders in local communities; leadership development programmes; and mechanisms for participation in hospital boards, health care advisory panels, and community health programmes (WPRO, 2007).

3.5. Health financing

Table 5 presents data on government expenditure on health and on private expenditure on health in the AMS for 2000 and 2011. The most comprehensive and consistent data on health financing are generated from national health accounts

(NHAs) that collect expenditure information within an internationally recognised framework. NHAs trace financing as it flows from funding sources to decision-makers (who decide on the use of the funds) and then to the providers and beneficiaries of health services. Not all countries maintain or update NHAs – in such cases, data are obtained through technical contacts in the country or from publicly available documents and reports. Missing values are estimated using various accounting techniques depending on the data available for each country. WHO sends all such estimates to the respective ministries of health every year for validation (WHO, 2014a).

Table 5: Health Expenditure according to GDP, Government Expenditure, and Out-of-pocket Health Expenditure in 2000 and 2011 in ASEAN Member States

Country / Health Expenditure	BN	KH	ID	LA	MY	MM	PH	SG	TH	VN
Total exp. on health GDP, 2000/2011 (%)	3.0/2.2	6.3/5.6	2.0/2.9	3.3/2.8	3.0/3.8	2.1/1.8	3.2/4.4	2.7/4.2	3.4/4.1	5.3/6.8
General govt. exp. on health, 2000/2011 (%)	6.3/6.2	8.7/6.2	4.5/6.2	5.8/6.1	5.2/6.2	8.6/1.5	8.4/10.2	6.2/8.9	11.0/15.3	6.6/10.1
Out-of-pocket, 2000/2011 (%)	98.8/97.8	89.6/80.3	72.9/76.3	91.8/88.2	77.6/79.0	100/93.7	77.2/83.5	95.7/94.1	76.9/55.8	95.6/83.2

Source: World Health Statistics 2014 (WHO, 2014).

Total expenditure on health as a percent of gross domestic product increased in six AMS (ID, MY, PH, SG, TH, VN) between 2000 and 2011, and decreased in four (BN, KH, LA, MM). *General government expenditure on health as a percent of total government expenditure* increased in seven countries (ID, LA, MY, PH, SG, TH, VN) between 2000 and 2011, and decreased in three (BN, KH, MM). This development is extremely positive, since government expenditure on health should increase globally to reflect the adoption of the universal health coverage (UHC)

model. UHC is defined as ensuring that all people globally can use the promotive, preventive, curative, rehabilitative, and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship. The availability of funds for health is a fundamental issue for all countries. For poorer countries, the challenge is to increase the funding available for health so that they are able to provide and make accessible the needed set of health services of sufficient quality to the most vulnerable population groups. For richer countries, the challenge is to protect the current levels of health expenditure while responding to the challenge of an ageing population and cost pressures from technological advances. (WHO, 2014n.)

Direct, out-of-pocket expenditure as a percentage of private expenditure on health has decreased in seven AMS (BN, KH, LA, MM, SG, TH, VN) and increased in three (ID, MY, PH). Out-of-pocket health payments, including payments for medicines, fees for consultations and procedures, and, sometimes, informal payments, are barriers to access to health services and cause financial hardship to those who have to resort to paying them to get the services they need. Reducing the reliance on out-of-pocket payments will lower the financial barriers to access and reduce the impoverishing impact of health payments (WHO, 2014n). Following the UHC model, direct expenses on health are to be reduced worldwide, and increases of these expenses should be addressed urgently. Also, more information and analysis is needed on how many people are pushed into poverty in the ASEAN region and globally.

ASEAN Plus Three (APT) countries commit to actively accelerate the progress towards universal health coverage (UHC) in all countries and agree to share and collectively build up the national and regional capacity to assess and manage the equitable and efficient health systems to support UHC. Seven countries in APT have already achieved UHC (Japan, China, Korea, Thailand, Singapore, Brunei, and Malaysia) with more than 95 percent of the population covered, while the other six countries are moving towards UHC with specific targeted years. Health financing indicators are developed, accessible, and comparable worldwide. Mobilising more domestic resources is the priority. The government commitment to spend on health at equal or greater than 50 percent of total health expenditure can be seen a significant

indicator for accelerate UHC achievement. Innovative health financing models such as ‘value-added tax’ and ‘sin tax’ for products harmful to health such as tobacco are applied in many countries and can replicated elsewhere, as appropriate. The aim is also that out-of-pocket payment of health services will be reduced to less than 20 percent of total health expenditure (ASEAN Plus Three UHC network, 2015).

UHC outcome indicators like increased access to health services and financial risk protection are limited and cannot be easily used for cross-country comparisons. As agreed by the Steering Committee of the ASEAN Plus Three UHC Network, three important tasks included in the action plan of the Network for 2014–2016 are measuring UHC baseline, strengthening data systems, and monitoring UHC progress. The Network aims to have comparable indicators of UHC outcomes in the near future. Given the diversity among ASEAN Plus Three countries, experiencing sharing, learning together, and supporting each other are worthy strategies for pursuing UHC together through the ASEAN Plus Three UHC Network. An ultimate goal of UHC is not for the health sector itself, but a better health of the population (ASEAN Plus Three UHC network, 2015).

In recent years, the WHO Regional Office for the Western Pacific has developed six regional strategies and action frameworks related to health systems. The strategies recommend actions for member states and include indicators for reviewing progress in the areas of human resources, health financing, medicines, laboratory services, traditional medicines, and health systems strengthening. WPRO (2013) recommends that its member states, seven of them belonging to ASEAN:

- Identify and continue to strengthen the areas in which progress is being made and ensure balance in functioning across health system components and programmes.
- Take active leadership in implementing national health plans to achieve realistic, ambitious progress in all areas necessary for universal health coverage and equity in health outcomes.
- Progressively integrate health service delivery towards a seamless continuum of quality care for patients and greater efficiency in the use of health system resources – whole-of-system approaches.
- Improve actions in areas of weakness identified, such as strengthening civil registration and vital statistics, and consistently collecting data disaggregated by social stratifiers on a small set of key indicators to routinely monitor equity in health outcomes.

- Improve education and distribution of the health workforce, and take action to reduce antimicrobial resistance, including control of the use of antimicrobial medicines.
- Engage more fully with non-health sectors so that health is reflected in all policies to minimise negative impacts of social and environmental determinants of health.
- Engage more fully with non-state sectors in health to harness their potential in contributing to national health objectives while also enacting sufficient controls to mitigate negative effects on health equity (WPRO, 2013).

Of the AMS, Thailand has made most progress in public health care by adopting a universal health-care coverage scheme (UCS). This was a long process: It took four decades of health insurance development and three decades of designing and implementing a number of different financial risk protection schemes. Thailand achieved UCS in 2002, meaning that all Thais were covered by health insurance guaranteeing them access to a comprehensive package of health services. Adoption of the UCS resulted in a significant increase in government health spending and a marked decline in out-of-pocket expenditure and, importantly, the rich-poor gap in out-of-pocket expenditure was eliminated. Thailand extended the scope of health coverage to 18 million people who had previously been uninsured and to a further 29 million who had previously been covered by less-comprehensive schemes (Thailand's Universal Coverage Scheme booklet, 2011).

ThaiHealth Promotion Fund was established in 2001, just a year before an introduction of UHC in Thailand. A 2 percent additional 'sin tax' on tobacco and alcohol was pooled at ThaiHealth Promotion Fund for the purpose of empowering civil society and promote the well-being of Thai citizens. This tax is used to support programmes and activities related to health and social determinant of health. The main portfolios were broad based community and civil society campaigns against health risk factors like alcohol, tobacco, obesity, physical inactivity and actions to promote healthy life style, active living, sexuality and HIV/AIDS prevention. It plays a supplementary role to health promotion and disease prevention activities by healthcare providers under the UC scheme in Thailand (ASEAN Plus Three UHC network, 2015).

Malaysia has achieved health gains for its population through general revenue collection that provides universal health coverage and comprehensive health services for the population. Nevertheless, the current system may not be sustainable and thus Malaysia is planning to reform the healthcare system and is looking into several options and models of health financing. The country is moving towards implementation of other sources of revenue such as goods and services tax (value-added tax), which will strengthen its public finances, enabling it to provide better services for its population, including healthcare. Malaysia is also considering improved financing mechanisms to ensure resources are better targeted. Malaysia does not use sin tax as a mechanism to fund healthcare (ASEAN Plus Three UHC network, 2015).

In the Philippines, approximately 85 percent of Incremental Revenues from sin tax are earmarked for health – 80 percent of these revenues will be allocated for universal health care under the National Health Insurance Program, the attainment of MDGs, and health awareness programmes; and 20 percent for a medical assistance and health enhancement facilities programme (ASEAN Plus Three UHC network, 2015).

4. Emerging Health Challenges for the ASEAN Region

As noted above, the AMS face several challenges relating to their national health systems, health service coverage, and financing for health services. Emerging diseases such as the Ebola Virus Disease, climate change, and natural disasters add to the burden. In this chapter we discuss these challenges and suggest possible solutions.

4.1. Emerging diseases

In recent years, the Asia Pacific region has been an epicentre of emerging diseases, which have had a significant impact on health and social and economic development. Protecting the region from acute public health threats is a top priority, therefore. The Asia Pacific Strategy for Emerging Diseases (APSED) was launched

by WPRO and SEARO in 2005 as a common strategic framework for the countries and areas of the region to build sustainable national and regional capacities and partnerships in the Asia Pacific region with a view to ensuring public health security. The strategy has been used to guide countries' actions to strengthen their capacities and to rally and coordinate the support of partners. In June 2007, the revised International Health Regulations (2005), known as IHR, entered into force, calling on countries and WHO to strengthen their core capacities to detect, report, and respond to acute public health events to build a global public health defence system. APSED serves as a regional tool and road map to help and guide all countries in the region towards meeting the IHR core capacity requirements, thus ensuring regional and global health security. (WPRO, 2014c.)

APSED pursues five interrelated objectives – reducing the risk of emerging diseases, strengthening the early detection of and rapid response to these diseases, strengthening effective preparedness, and building sustainable partnerships to fight these diseases. To work towards achieving these objectives and defining activities for capacity development at local, national, and regional levels, APSED recommends priority actions to be taken. It suggests a step-wise approach, under which member states first build individual technical areas, subsequently strengthen the capabilities that link these areas, and then reinforce the system as a whole (WPRO, 2014c).

APSED is intended to further support progress towards meeting the obligations under the IHR and consolidate gains already made in establishing collective regional public health security. APSED continues to focus on emerging diseases, but also seeks to maximise the benefits already achieved by widening its scope to include other acute public health threats such as food safety and natural disasters and by identifying additional areas of synergy and special situations to which the strategy can make important contributions. While APSED is a common framework for all countries and areas in the region, differing national situations and contexts must be taken into account in implementing the strategy. This will necessitate the development of country-specific APSED work plans to suit national needs and capacity gaps. In 2010, APSED expanded its focus to include eight focus areas: 1) surveillance, risk assessment, and response; 2) laboratory; 3) zoonoses; 4) infection prevention and control; 5) risk communications; 6) public health emergency

preparedness; 7) regional preparedness, alert, and response; and 8) monitoring and evaluation (WPRO, 2014c).

Another future challenge for the ASEAN region, as for the whole world, is to develop effective preparedness for diseases such as the Ebola virus. This issue has been addressed within the ASEAN: the group held an ‘ASEAN plus Three Health Ministers Special Meeting on Ebola Preparedness and Response’ in Bangkok, Thailand, on 15 December 2014. The plus three states are China, Japan, and the Republic of Korea. The meeting produced a declaration in which the states agreed to broaden the scope of existing emerging infectious disease preparedness plans at national level to cover potential pandemics and Ebola; to ensure appropriate assessments of national capacity to respond to emerging infectious disease outbreaks including potential pandemics; and to provide policy and resource support for the implementation of emerging infectious diseases including Ebola preparedness planning. At the regional level, these countries agreed to enhance collaboration in prevention and control of trans-boundary emerging infectious diseases, e.g. through sharing and exchanging of information, expertise, and training; to strengthen regional mechanism including those under the ASEAN Plus Three framework to ensure proper preparedness and response to emerging infectious diseases; to strengthen effective communication channels between health ministers, and senior health officials, and key contact points of the ASEAN Plus Three Member States; and strengthening the existing IHR communication mechanism (ASEAN, 2014b).

Box 1: Avian Influenza A (H5N1), Cambodia and Viet Nam

In Cambodia and Viet Nam, the avian influenza A (H5N1) virus continues to be the avian influenza subtype causing a substantial disease burden among humans. In Cambodia, the capacity to detect human cases is evident from numerous surveillance mechanisms, including the National Influenza Virology Analysis, influenza-like illness (ILI) sentinel surveillance, and severe acute respiratory infections (SARI) surveillance. All nine H5N1 cases detected in 2014 were confirmed by the national influenza centres (NICs). Timely information sharing under IHR (2005) for cases of human influenza continues to occur, coinciding with press releases issued by the Ministry of Health, which include risk communication messages on prevention. In Viet Nam, two fatal H5N1 cases occurred in 2014. Surveillance is conducted through sentinel sites for ILI, SARI, and severe viral pneumonia (SVP) to allow for the detection of infection. Both cases were diagnosed by the national influenza centre and notified under IHR (2005), promptly contributing to information-sharing with other National IHR Focal Points and facilitating risk assessments.

From 2003 to 2013, Cambodia reported 56 cases of human infection caused by avian influenza A. Nearly 50 percent (n=26) of cases were reported in 2013, accounting for over two thirds (26/39) of global cases that year. As part of the rapid response protocol to a suspected or confirmed human case of H5N1, a team is immediately mobilised to the field and enhanced surveillance is implemented in the affected community. The ability to mobilise rapid investigations and response at the local level demonstrates the strength of a country's rapid response capacity, a key capacity under APSED. Enhanced surveillance for H5N1 aims to ensure that people with symptoms and their close contacts who live in the affected community are tested and rapidly treated. In February 2014, following the detection of the 49th laboratory-confirmed case of human infection with H5N1, a rapid response team travelled to Snuol district, Kratie province in Cambodia to conduct an outbreak investigation. After initial contact tracing and information gathering, the team set up a mobile clinic and conducted both daily surveillance of close contacts and enhanced surveillance of unwell community members in the village. Despite the increase in detected human cases of H5N1 infection in Cambodia and the number of investigations conducted so far, this had been the first time further confirmed cases within a community were detected by enhanced surveillance. Enhanced surveillance enables early detection and is also providing invaluable training to fellows of the Applied Epidemiology Training initiative in Cambodia, a modified Field Epidemiology Training Programme (FETP). Fellows have

Box 2: Dengue Epidemic in Lao PDR, July 2013

In 2013, Lao PDR had the worst dengue epidemic in its history, with 44,171 cases and 95 deaths. Following consultation with stakeholders, the Ministry of Health declared a dengue epidemic on 5 July 2013. The epidemic generated strong political attention as it affected all 17 provinces of the country, 15 of which reached epidemic levels. The Prime Minister's office issued a decree urging all provincial governors to take decisive action for dengue prevention and control. The health minister and vice health minister made several visits to the dengue-prone and epidemic provinces to advocate community-based clean-up campaigns and encourage health-seeking behaviour to control the disease. From the onset of the outbreak, the government knew that addressing the dengue epidemic would entail action from all stakeholders and the community. They asked for international support and help poured in. WHO worked closely with the Ministry of Health in implementing prevention and control measures and provided financial and technical support to the government. The dengue surveillance and laboratory systems played a key role in generating information that provided intelligence for risk assessments and decision-making and for targeting of further investigations. The National Centre for Laboratory and Epidemiology (NCLE) reported data on a daily basis, and managed initial case investigations and deployments of rapid response teams. It also coordinated all major health facility laboratories for dengue diagnosis, data collection and analysis, and monitoring of serotypes. The Emergency Operations Centre (EOC), located within the Ministry of Health, was activated for the first time and used as the operations hub to manage the government response. It became the centre of coordination where meetings of the outbreak response teams were held and the daily surveillance data were presented and discussed. It demonstrated that the mechanism put in place for emergency preparedness at the behest of APSED can be utilised to effectively respond to acute public health emergencies of national or international concern (WPRO, 2014c).

4.2. Zoonoses

Emerging zoonoses are serious public health threats in the Asia Pacific region. The emergence of avian influenza A(H7N9) virus – an avian influenza virus infecting people for the first time – along with the first imported cases of human infection with Middle East Respiratory Syndrome (MERS-CoV) reported in the Western Pacific Region, have kept animal-related outbreaks at the forefront. About 75 percent of emerging diseases that have affected humans over the last three decades are of animal origin, and approximately 60 percent of all human pathogens are zoonotic. The recent Ebola virus outbreak in Western Africa has underlined the threat of animal-related outbreaks.

Given the unique nature of zoonotic diseases, ensuring sustainable and effective coordination and collaboration mechanisms between the human and animal health sectors is vitally important. Under the tripartite partnership of WHO, UN Food and

Agriculture Organization (FAO), and World Organization for Animal Health (OIE), these organisations are working together and in partnership with member states and other implementing partners at regional and national levels, to strengthen collaborative work at the human-animal ecosystem interface. Recently, the collaborative network for the prevention and control of zoonosis has been expanded to involve other key stakeholders including the environmental sector and the food safety sector. The main areas for collaboration include sharing of information, conducting surveillance and joint risk assessment, coordinated response, and risk reduction and research. Working collectively during outbreaks and on a routine basis in prevention and preparedness will improve the effectiveness of combating zoonoses, demonstrated in the coordinated response to avian influenza A(H7N9) and A(H5N1), rabies, and other important zoonoses in the Asia Pacific region (WPRO, 2014c).

In Cambodia, an inter-ministerial committee called Zoonosis Technical Working Group is in place to facilitate coordination of the surveillance of and response to zoonotic events by the human health and animal health sectors. The Zoonosis Technical Working Group meetings are held once a month to address the key issues in preventing and controlling zoonoses. In 2013, an urgent call to strengthen multisectoral collaboration was raised in the directives released by the national government following a surge in human cases of H5N1 infection. Effective information sharing was demonstrated between the animal and human health sectors in response to the call for action. The Ministry of Health and the Ministry of Agriculture of Cambodia worked together to develop joint standard operating procedures (SOPs) on outbreak investigation and response to avian influenza that provided practical guidance in outbreak response for local level staff (WPRO, 2014c).

In Lao PDR, an agreed zoonotic diseases coordination mechanism supported by government decrees has been in place since April 2010. A multiagency response involving the Ministry of Health, the Ministry of Agriculture, and a number of non-governmental organisations was carried out to address rabies outbreaks in June 2013 and March 2014, including control measures for human and animal vaccination, and health promotion. During the avian influenza A (H5N6) outbreak in poultry, rapid

response teams from the animal health and human health sectors at national and local levels conducted response operations, including destruction of poultry and enhancing human surveillance. Coordinated efforts in responding to zoonotic disease threats were also seen in the joint survey on exposure assessment of potential zoonotic risks from wildlife in markets. In Malaysia, the existing zoonosis coordination mechanism has continuously been strengthened in recent years with interagency meetings at both national and state levels. A list of priority zoonotic diseases has been identified and shared between the sectors and a mechanism for sharing surveillance information has also been created. To strengthen coordinated response to avian influenza, a national joint simulation exercise on the response to avian influenza was conducted in June 2014 (WPRO, 2014c).

Ebola Virus Disease

The Ebola Virus Disease (EVD) outbreak in the West Africa in 2014 is a recent example of the serious global threat posed by zoonotic diseases. The Ebola virus causes an acute, haemorrhagic illness which is often fatal if untreated. Ebola first appeared in 1976 in two simultaneous outbreaks, one in Nzara, Sudan, and the other in Yambuku, Democratic Republic of Congo. The latter occurred in a village near the Ebola River, from which the disease takes its name. The outbreak in West Africa – first cases notified in March 2014 – is the largest and most complex Ebola outbreak since the virus was first discovered in 1976. There have been more cases and deaths in this outbreak than in all others combined. As of 6 May 2015, 26,593 people in total had been affected by Ebola, 11,005 of were reported to have died (WHO Ebola Situation Report, 2015).

The most severely affected countries — Guinea, Sierra Leone, and Liberia — have very weak health systems, lacking human and infrastructural resources, having only recently emerged from long periods of conflict and instability. These three countries experienced more than a decade of civil unrest, resulting in weak and damaged health infrastructures. There is also a lack of health care workers in these countries. Moreover, these countries have porous borders and cultural practices that contributed to the spreading of the disease.

As a result of the Ebola outbreak, these countries suffer from high levels of fear, anxiety, misconception, and stigma, causing social and economic turmoil. On 8

August 2014, the WHO Director-General declared this outbreak a Public Health Emergency of International Concern. A separate, unrelated Ebola outbreak began in Boende, Equateur, an isolated part of the Democratic Republic of Congo. The virus family Filoviridae includes three genera: Cuevavirus, Marburgvirus, and Ebolavirus. There are five species that have been identified: Zaire, Bundibugyo, Sudan, Reston, and Tai Forest. The first three – Bundibugyo ebolavirus, Zaire ebolavirus, and Sudan ebolavirus – have been associated with large outbreaks in Africa. The virus that caused the 2014 West African outbreak belongs to the Zaire species. Given the 2014–2015 EVD situation, there is a considerable risk of cases appearing in currently unaffected countries. With adequate levels of preparation, however, such introductions can be contained before they develop into large outbreaks.

WHO leads and coordinates preparedness missions by deploying international preparedness teams to ensure immediate Ebola outbreak response capacity. The agreed Ebola preparedness efforts follow the capacity building recommendations of the International Health Regulations (IHR) and are supported by the UN Mission for Emergency Ebola Response (UNMEER). Following a UN General Assembly resolution, UNMEER was launched in September 2014 to coordinate the vast resources of the UN agencies, civil society, and private sector to address the social, economic, development and security challenges. This is the first time in history that the UN has created a mission for a public health emergency. The UNMEER set twin targets of isolating and treating 100 percent of EVD cases, and conducting 100 percent of burials safely and with dignity by 1 January 2015 in Guinea, Liberia, and Sierra Leone. Through UNMEER sufficient numbers of Ebola treatment units with capacity to isolate and treat patients were constructed and countries have the capacity to bury all people known to have died from EVD. However, the uneven geographical distribution of beds and cases, and the under-reporting of cases and deaths, means that the UNMEER targets were not met. In addition to these targets, several other crucial aspects of the response, including rigorous contact tracing, access to laboratory services, and community engagement need to be strengthened.

It is crucial to ensure that any country is as operationally ready as possible to effectively and safely detect, investigate, and report potential Ebola cases and to mount an effective response that will prevent a larger outbreak from developing. This

includes in-country training and capacity building activities, including technical working group meetings, field visits, table top exercises, and hospital based simulation exercises. At the end of each mission, at least one technical expert remains on the ground to support and maximise capacity building efforts for a strengthened country response in preparedness for public health events and emergencies, including Ebola.

Box 3: Key Lessons Learned from the 2014–2015 Ebola Outbreak

The 2014–2015 Ebola Virus Disease outbreak in West Africa has taught important lessons for the whole world. The most important lesson is that health systems of every individual country should be able to respond to possible future disease outbreaks through adequate infrastructure and preparedness. Disease outbreaks and catastrophes can affect countries at any time, causing substantial human suffering, deaths, and economic losses. If health systems are ill-equipped to deal with such situations, the affected populations can be very vulnerable. The recent outbreak highlights how an epidemic can proliferate rapidly and pose huge problems in the absence of a strong health system capable of a rapid and integrated response. At the time the outbreak began, the capacity of the health systems in Guinea, Liberia, and Sierra Leone was limited. Several health-system functions that are generally considered essential were not performing well and this hampered the development of a suitable and timely response to the outbreak. There were inadequate numbers of qualified health workers. Infrastructure, logistics, health information, surveillance, governance, and drug supply systems were weak. A lack of balanced investment in the health systems has contributed to the challenges of controlling the current Ebola outbreak (Kieny et al., 2014).

The key lessons of the Ebola outbreak are:

- a) Tremendous international solidarity to support the West African nations resulted in rapid global response to address the outbreak. It involved a number of partners working together in unprecedented ways and brought together the strengths and expertise of various agencies to join forces and mount a coordinated effort;
- b) Strong community ownership and active engagement of key local influencers – political, tribal, religious, women, youth – is required to enable high levels of community awareness and behaviour change needed to address the ongoing objections, and in some areas outright hostility, and reporting, treatment/isolation, contact tracing, and safe burials. The capacity to systematically engage all major leaders and influencers must be established, right down to the community level, in all affected geographies with utilisation of anthropologists to better understand and address the underlying factors affecting persistent risk behaviours; and
- c) Building resilient national and sub-national systems in countries will be a key mechanism for providing integrated, good-quality health services. This requires a robust health workforce through investments training and retaining larger numbers of competent health workers, health managers, and community health workers in underserved communities. Core public health capacities for surveillance and response are essential to enable the countries to fulfil their obligations under the International Health Regulations (IHR). Building on national and international existing preparedness efforts, a set of tools has been developed to help any country identify opportunities for improvements to intensify and accelerate their readiness. One of these tools is a comprehensive checklist of core principles, standards, capacities, and practices, which all countries should have or meet. The checklist will help countries to assess and test their level of readiness, and will be used as a tool for identifying concrete action to be taken by countries, and how they will be supported by the international community, to close potentially existing gaps.

4.3. Climate change

It is generally acknowledged that the global climate is changing as the earth becomes warmer. This change has the potential to affect human health in a number of ways, for instance by altering the geographic range and seasonality of certain infectious diseases, disturbing food-producing ecosystems, and increasing the frequency of extreme weather events, such as hurricanes. Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food, and secure shelter. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea, and heat stress. The direct damage costs to health (i.e. excluding costs in health-determining sectors such as agriculture and water and sanitation), is estimated to be between US\$2–4 billion per year by 2030. Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond. Reducing emissions of greenhouse gases through better transport, food, and energy-use choices can result in improved health, particularly through reduced air pollution (WHO, 2014o).

Although global warming may bring some localised benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall health effects of a changing climate are likely to be overwhelmingly negative. Extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease, particularly among elderly people. In the heat wave of summer 2003 in Europe, for example, more than 70,000 excess deaths were recorded. High temperatures also raise the levels of ozone and other pollutants in the air that exacerbate cardiovascular and respiratory disease. Pollen and other aeroallergen levels are also higher in extreme heat. These can trigger asthma, which affects around 300 million people worldwide. Ongoing temperature increases are expected to increase this burden (WHO, 2014o). All these challenges are future threats for the ASEAN region.

Climatic conditions strongly affect water-borne diseases and diseases transmitted through insects, snails, or other cold blooded animals. Changes in climate are likely to lengthen the transmission seasons of important vector-borne diseases and to alter their geographic range. Malaria is strongly influenced by climate. Transmitted by

Anopheles mosquitoes, malaria kills almost 800,000 people every year – mainly African children under 5 years old. The Aedes mosquito vector of dengue is also highly sensitive to climate conditions. Studies suggest that climate change could expose an additional two billion people to dengue transmission by 2080. Measuring the health effects of climate change can only be very approximate. Nevertheless, a WHO assessment, taking into account a subset of the possible health impacts, and assuming continued economic growth and health progress, concluded that climate change is expected to cause approximately 250,000 additional deaths per year between 2030 and 2050 – 38,000 due to heat exposure in elderly people, 48,000 due to diarrhoea, 60,000 due to malaria, and 95,000 due to childhood undernutrition (WHO, 2014o).

The Fourth Assessment Report of the IPCC states that Southeast Asia is expected to be seriously affected by the adverse impacts of climate change since most of the economies in the region are relying on agriculture and natural resources. Southeast Asia is annually affected by climate extremes, particularly floods, droughts, and tropical cyclones, while large areas of the region are highly prone to flooding and influenced by monsoons. Such climatic impacts will severely threaten the livelihood of poor people living in rural areas with limited adaptive capacity (IFAD & UNCCD, 2014).

Climate change is expected to affect agriculture in the ASEAN region in several ways. For example, irrigation systems will be affected by changes in rainfall and runoff, and subsequently, water quality and supply. Yet the region already faces water stresses, and future climate change effects on regional rainfall will therefore have both direct and indirect effects on agriculture. Faced with a 2–4°C temperature increase, studies suggest the potential for both gains and losses. For example, for less than 2 °C, agricultural losses are expected in the Philippines, while rice yields in Indonesia and Malaysia are projected to increase. In fact, although climate change impacts could result in significant changes in crop yields, production, storage, and distribution, the net effect of the changes around the region is uncertain because of local differences in growing season, crop management, etc. However, climate studies generally indicate increasing rainfall throughout much of the region. But even with rainfall increases, temperature increase may threaten agricultural productivity,

stressing crops and reducing yields. In particular, scientific studies document a high sensitivity of major cereal and tree crops to changes in temperature, moisture, and carbon dioxide concentration of the magnitudes projected for the region. For example, projected impacts on rice and wheat yields suggest that any increases in production associated with CO² fertilisation will be more than offset by reductions in yield resulting from temperature and/or moisture changes. Such agricultural impacts particularly affect low-income rural populations that depend on traditional agricultural systems or on marginal lands (IFAD and UNCCD, 2014).

The coastlines of the Southeast Asia region are highly vulnerable to the effects of climate change due to the geology and geography of some of the region's coastal areas, and the growing density of population and infrastructure in the coastal zone. Moreover, large tidal variations, tropical cyclones, coupled with a potential increase in regional rainfall, suggest a potential for increased coastal hazard. Sea-level rise and increases in sea-surface temperature are the most probable major climate change-related stresses on coastal ecosystems. In particular, sea-level rise is the most obvious climate-related impact in coastal areas. Densely settled and intensively used low-lying coastal plains, islands, and deltas are especially vulnerable to coastal erosion and land loss, inundation and sea flooding, upstream movement of the saline/freshwater front, and seawater intrusion into freshwater lenses. Especially at risk are the large deltaic regions of Myanmar, Viet Nam, and Thailand, and the low-lying areas of Indonesia, the Philippines, and Malaysia. International studies have projected the displacement of several million people from the region's coastal zone in the event of a one meter rise in sea level. The costs of response measures to reduce the impact of sea-level rise in the region could amount to millions of dollars per year (IFAD and UNCCD, 2014).

Ecosystems in the Southeast Asia region represent a key asset contributing to the regional economy by providing food and water that sustain human life as well as natural resources such as timber and fisheries that support commercial enterprises. Degradation and loss of ecosystems pose a serious threat to the economic, social, and cultural stability of the region since poor communities are dependent on such ecosystems. Maintaining the security of water resources is a key priority for the Southeast Asian poor rural population. The region already faces water stresses, and

many areas are often dependent on limited groundwater and rainfall collection. Climate change will further aggravate water shortage by extreme events such as droughts which undermine food security, or extreme rainfall events which increase the risk of flooding. Challenges to water resources management will therefore be exacerbated by sea-level rise which contributes to salt-water intrusion into available freshwater resources (IFAD and UNCCD, 2014).

In August 2014, WHO organised a First Global Conference on Health and Climate in Geneva, Switzerland. The conference discussed two main topics – strengthening health system resilience to climate risks and promoting health while mitigating climate change. Increasing health system resilience to climate-sensitive health risks such as extreme weather events, climate-sensitive communicable diseases, and threats to food, water and food security is crucial. It includes a focus on targeting protection towards the most vulnerable populations and stages of the life course, and identification of effective interventions. Increasing health system resilience will work towards developing consensus on an operational framework defining the main health system functions to increase health system resilience to climate variability and change. Moreover, opportunities to improve health while controlling climate pollutants is central for the future development. It will focus on key sectors such as health, energy, and transport, and include specific consideration of the extent to which the health sector can lead by example in providing better services while reducing its own environmental impact, and the potential for economic savings through reduction in the large burden of non-communicable disease associated with air pollution. It will also cover opportunities to further advance collaborative mechanisms, such as the Climate and Clean Air Coalition (WHO, 2014o). The conference made recommendations on policy options to maximise health benefits and suggested specific contributions of the health sector to the objectives of the Coalition.

4.4. Natural disasters

Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s. Every year, these disasters result in over 60,000 deaths, mainly in developing countries. Rising sea levels and increasingly extreme weather events will destroy homes, medical facilities and other essential services. More than

half of the world's population lives within 60 kilometres of the sea. People may be forced to move, which in turn heightens the risk of a range of health effects, from mental disorders to communicable diseases. Increasingly variable rainfall patterns are likely to affect the supply of fresh water. A lack of safe water can compromise hygiene and increase the risk of diarrhoeal disease, which kills almost 600,000 children under five years of age, every year. In extreme cases, water scarcity leads to drought and famine. By the 2090s, climate change is likely to have widened the area affected by drought, to have doubled the frequency of extreme droughts and have increased their average duration six-fold. Floods are also increasing in frequency and intensity. Floods contaminate freshwater supplies, heighten the risk of water-borne diseases, and create breeding grounds for disease-carrying insects such as mosquitoes. They also cause drowning and physical injuries, damage homes, and disrupt the supply of medical and health services. Rising temperatures and variable precipitation are likely to decrease the production of staple foods in many of the poorest regions – by up to 50 percent by 2020 in some African countries. This will increase the prevalence of malnutrition and undernutrition, which currently cause 3.1 million deaths every year (WHO, 2014o).

Box 4: Typhoon Haiyan in the Philippines, November 2013

Super typhoon Haiyan hit the Philippines on 8 November 2013. Storm surges caused widespread flooding in coastal areas and caused damage in 41 provinces in many Regions in Central Philippines. The severely affected areas were Tacloban City, Leyte, and Northern Iloilo. Many people living in these affected areas were injured and the devastating effects of this typhoon left already vulnerable health facilities damaged or completely destroyed. As a result, health services in the worst-affected areas no longer existed or were severely stretched, with medical supplies in very short supply. The Government of the Philippines declared a State of National Calamity (through Presidential Proclamation dated 11 November) in the Samar provinces of Leyte, Cebu, Iloilo, Capiz, Aklan, and Palawan. A state of calamity was also declared in Dumangas, Iloilo, Janiuay, Mina, Palawan, Bacolod, and Zarraga. In support of the Government of the Philippines, WHO coordinated all health-related aspects of the emergency response to ensure the supplies were moved quickly to where health facilities and supplies were most damaged. WHO also activated an organisation-wide mobilisation to work closely with the Department of Health to organise relief efforts for the typhoon survivors. Haiyan damaged over 2,000 health facilities in the Visayas island group of the Philippines. In collaboration with the Department of Health, WHO coordinated the deployment of foreign medical teams. Health services were increasingly caring for both acute and chronic conditions. With many foreign medical teams completing their missions, the Health Cluster assisted the Department of Health in coordinating the handover to local health teams and functioning health facilities. A national health cluster was set up in Manila and sub-national health clusters were established in Tacloban, Ormoc, Borongan, Roxas, and Cebu. The Global Health Cluster and the Global Outbreak Alert and Response Network (GOARN) mobilised support. WHO co-led the Health Cluster with the Department of Health and facilitated daily coordination meetings with about 30 health cluster partners (WPRO, 2013b).

5. Ways Forward and Recommendations

This paper aims to examine the status of health and well-being of the AMS, to highlight the current and future challenges, and to give ideas for ways forward. Based on the observations made, seven key recommendations are presented.

- 1) The globally increased life expectation means that the people live longer and the ageing population is growing. Population ageing requires action and careful planning of activities at the national level in all ASEAN countries, as well as worldwide. It is crucial to establish the necessary services and facilities for the elderly to provide quality of life, and to promote active ageing. Active ageing is the process of optimising opportunities for health, participation, and security to enhance quality of life as people age. It applies both to individuals and population groups. It allows people to realise their potential for physical, social, and mental

well-being throughout the life course and to participate in society, while providing them with adequate protection, security, and care when they need it.

- 2) It is crucial to sustain the health progress achieved in the framework of the UN Millennium Development Goals (MDGs). The AMS have made significant improvements in maternal and child mortality (MDG 4 and 5) and in HIV/AIDS, malaria, and tuberculosis morbidity and mortality (MDG 6). However, these conditions still kill a considerable amount of people, and therefore measures to fight these causes of deaths and diseases should be continued until global standards are reached.
- 3) The currently negotiated post-2015 United Nations development agenda, including the proposed 17 sustainable development goals, needs to be implemented and included in the ASEAN framework. In this process, engagement with new stakeholders and networks within and outside the Southeast Asia region is crucial to effectively start the implementation of the new agenda. As a health actor, ASEAN has the advantage it can fund and cooperate with NGOs and the private sector, whereas the WHO mostly deals at the member state level. To take advantage of this flexibility for the post-2015 era, ASEAN could strengthen its cooperation with various non-governmental actors, and thereby add to the work in improving regional health conditions and engaging new partners.
- 4) Universal Health Coverage should be considered as a goal of the national health policies since it is a powerful concept and mechanism to achieve sustainable development in health. UHC means implementing changes in health financing, strengthening national health systems, increasing health workforce and the availability of essential medicines and health products, and ensuring service delivery and safety for the entire population. Several AMS have succeeded in implementing UHC, which can be used as an encouraging example, but it should be remembered that there is no 'one-size fits all' model in this regard. Health systems strengthening are also a pre-requisite for responding to disease outbreaks, climate change and natural disasters. Country-level actions to strengthen health facilities and to increase the number of health personnel is crucial.

- 5) Financial safety nets for the poorest population should be established or strengthened, to prevent problems of growing health inequities within and among countries.
- 6) Strengthening the collection of health data should guide the development of policies. Disaggregated data at sub-national, district, and community levels is needed to assess the penetration of health providers and accessibility to population and quality of services, since monitoring of health variables is only possible with adequate data and information.
- 7) Strengthening regional and sub-regional cooperation on health and well-being is crucial. ASEAN health entities (ASCC, etc.) would benefit from working more closely with the WHO regional offices for the Western Pacific and for Southeast Asia, for example in preparedness and collection of health data and information. At the same time, it is essential to avoid establishing new duplicating structures for health, but instead increase coordination among different actors and entities and share tasks when possible. As an example, the regional directors of SEARO and WPRO meet regularly to discuss technical issues, and this kind of regional dialogue should be strengthened with the AMS. It is important not to create parallel health frameworks, but try to use the existing bodies more effectively.

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ANNEX: Examined Indicators

Source: World Health Statistics 2014.

Table 1: Life Expectancy, Maternal and Child Mortality and Mortality of HIV/AIDS, Malaria, and Tuberculosis in the ASEAN Member States.

- Life expectancy at birth, both sexes (years, 1990/2012)
- Life expectancy at 60, both sexes (years, 2012)
- Under-five mortality rate (probability of dying by age 5 per 1,000 live births) (1990/2000/2012)
- Maternal mortality ratio (per 100,000 live births) (1990/2000/2013)
- HIV/AIDS cause-specific mortality rate per 100,000 population (2001/2012)
- HIV/AIDS incidence rate (2001/2012)
- Malaria cause-specific mortality rate per 100,000 population (2012)
- Malaria incidence rate (2001/2012)
- Tuberculosis cause-specific per 100,000 population (2000/2012)
- Tuberculosis incidence rate (2000/2012)

Table 2: Age-standardised Mortality Rates by Cause

- Communicable diseases per 100,000 population (2008/2012)
- Non-communicable diseases per 100,000 population (2008 /2012)
- Injuries per 100 000 population (2008/2012)
- Suicides per 100 000 population (2008/2012)

Table 3: NCD Risk Factors in the ASEAN Member States

- Prevalence of raised blood pressure among adults aged ≥ 25 years (2008, male/female, %)
- Adults aged ≥ 20 years who are obese (2008, male/female, %)
- Alcohol consumption among adults ≥ 15 years (2010, litres of pure alcohol per person per year)
- Prevalence of smoking any tobacco product among adults ≥ 15 years (2011, male/female, %)
- Prevalence of current tobacco use among adolescents 13–15 years (2006–2012, male/female, %)

Table 4: Health Systems

- Density of physicians (2006–2013, per 10,000 population)
- Density of nursing and midwifery personnel (2006–2013, per 10,000 population)
- Hospitals (2013, per 10,000 population)
- Hospital beds (2006–2012, per 10,000 population)
- Median availability of selected generic medicines (2001–2009, public/private sectors, %)

Table 5: Health Financing

- Total expenditure on health as a percentage of gross domestic product (2000/2011)
- General government expenditure on health as a percentage of total government expenditure (2000/2011)
- Out-of-pocket expenditure as a percentage of private expenditure on health (2000/2011)

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