

# BURMA (MYANMAR)

## Disaster Management Reference Handbook

2014



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# Welcome - Note from the Director



**CENTER FOR EXCELLENCE**  
IN DISASTER MANAGEMENT & HUMANITARIAN ASSISTANCE

Dear Reader,

The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DMHA) has a mandate to provide and facilitate education, training, and research in civil-military operations, particularly operations that require international disaster management and humanitarian assistance and operations that require coordination between the Department of Defense and other agencies. In line with that mandate, CFE has conducted research to create reference books on disaster management roles, processes, capabilities and vulnerabilities.

This Disaster Management Reference Handbook Series is designed to provide decision makers, planners and responders a comprehensive understanding of in-country disaster management plans and structures, including information on key domestic disaster response entities, basic country background, and local and international humanitarian organizations present in the country. CFE produces country reference books to provide a commonly available baseline of information regarding disaster management environments. Many places in the Pacific Basin are subject to a variety of disasters including floods, droughts, and landslides, and these handbooks provide a context for country-specific factors that influence disaster management.

This reference book has been compiled by CFE from publicly available sources. It is a working document and will be periodically updated to reflect changes in information. We request your feedback to improve this document and help fill any gaps to enhance its future utility. Please send any feedback or questions to [cfe-dmha.fct@pacom.mil](mailto:cfe-dmha.fct@pacom.mil).

Sincerely,

Col Joseph D. Martin  
Director



CENTER FOR EXCELLENCE  
IN DISASTER MANAGEMENT & HUMANITARIAN ASSISTANCE

## Information about the Center for Excellence in Disaster Management and Humanitarian Assistance

### Overview

The Center for Excellence in Disaster Management and Humanitarian Assistance is a U.S. Department of Defense organization that was established by U.S. Congress in 1994 and is a direct reporting unit to U.S. Pacific Command. The Center is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii. The Asia-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice.

CFE-DMHA was founded because of a worldwide need based on lessons learned in complex humanitarian emergencies that took place in the Balkans, the African Great Lakes Region, Somalia and the Middle East since the beginning to mid-1980s. The need was for integrated education, training, certification, operational research, and interagency cooperation and coordination among many agencies and organizations, both civilian and military, to provide relief and regional stability.

### Our Mission

Facilitate collaborative partnerships, conduct applied research, and develop education, training, and information sharing programs in order to enhance U.S. and international civil-military preparedness, knowledge, and performance in disaster management and humanitarian assistance.

### Vision

Promote excellence in disaster management by connecting people, improving coordination, and building capability.

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Bagan Temples at sunset.



Map of Burma (Myanmar)



## Disaster Management Reference Handbook Series Overview

The Disaster Management Reference Handbook Series is intended to provide decision makers, planners, responders and disaster management practitioners with an overview of the disaster management structure, policies, laws, and plans for each country covered in the series. Overviews of natural and man-made threats most likely to affect the country are discussed. The handbooks also provide basic country background information, including cultural, demographic, geographic, infrastructure and other basic country data. Endemic conditions such as poverty, water and sanitation, food security and other humanitarian issues are included. A basic overview of the health situation in the country and disease surveillance is also covered.

The handbooks include information on key national entities involved in disaster management, disaster response and preparation, and the military's role in disaster relief is discussed. Information on UN agencies, international Non-Governmental Organizations (NGOs), major local NGOs, and key U.S. agencies and programs

in the country, are also provided. The overall aim is to provide a guide that brings together important information about disaster management and response for each country in an effort to provide a basic understanding for the reader.

Information in the handbooks are compiled and based primarily on trusted, reliable, publicly-available sources. Much of the information used is from U.S. or other government sources, UN sources, NGO websites, scholarly references, foreign government websites, and various media sources.

Whenever further information available may be relevant, a link to the original internet source is provided. Each handbook is a working document and will be updated periodically as new, significant information becomes available. Constructive feedback is requested to further refine this document.

We hope that you find these handbooks informative, reliable and useful in understanding disaster management and response for this country. For comments, questions or to request additional printed copies of our Disaster Management Reference Handbooks please contact the Center for Excellence at: (808) 472-0518.

Please visit our website (<http://cfe-dmha.org>) to view the latest electronic versions available.

# Executive Summary

This country book focusing on Burma is intended to be a reference for individuals deploying to conduct disaster preparedness engagements or disaster response operations in Burma, but it is not meant to be a checklist or manual for all disaster response operations. The research team conducted extensive research and analysis on existing Burmese plans, policies, and capabilities related to disaster management and risk reduction. The team also reached out to United States Government (USG) stakeholders and open source research to compile this book.

Burma is exposed to natural disasters such as flooding, drought, earthquakes, cyclones, and infectious disease epidemics. Burma ranks as one of the most vulnerable countries to climate change, and the incidence and impacts of natural disasters are expected to increase in coming years. Additionally, Burma has been affected by ongoing conflicts for the past 40 years, which have resulted in large-scale population displacements and accompanying humanitarian crises.

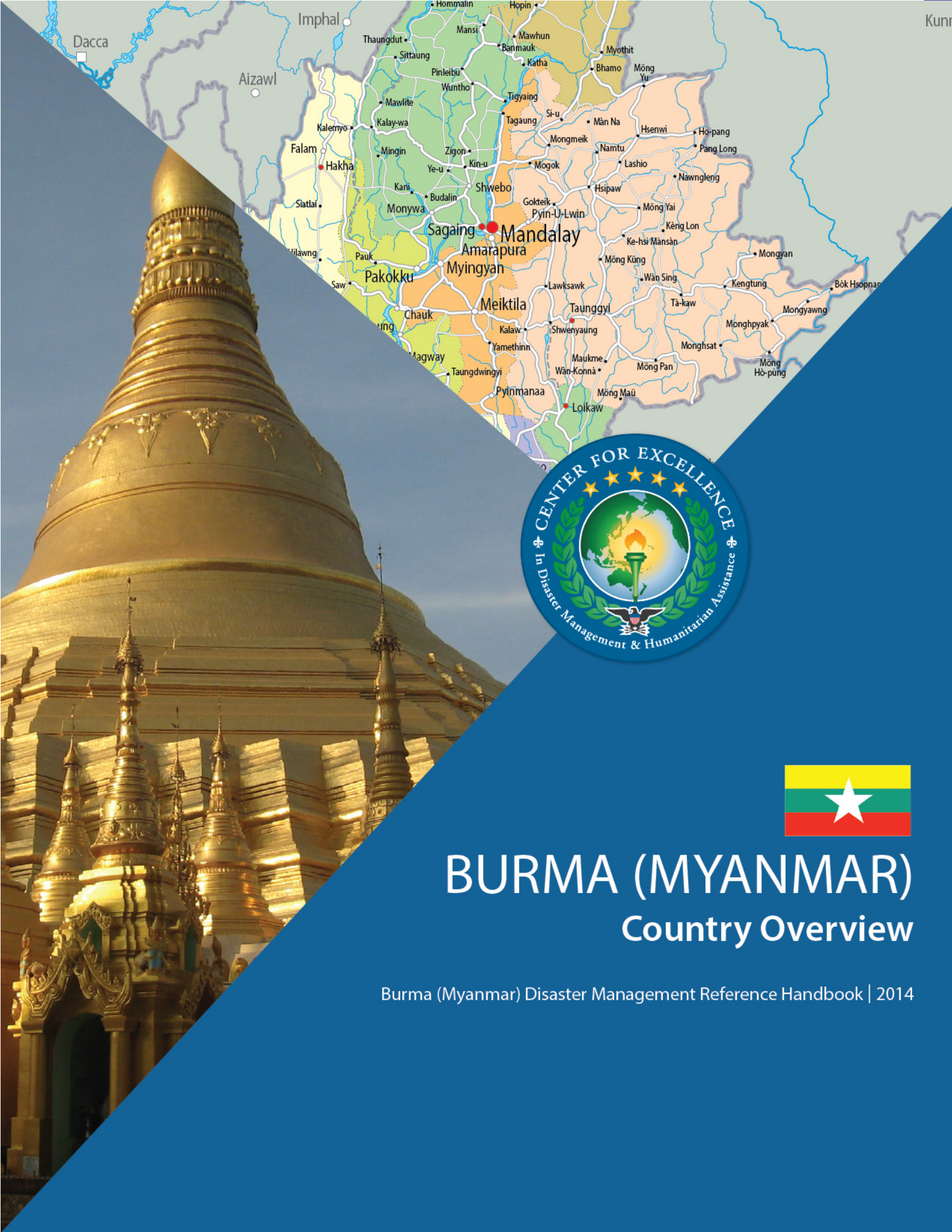
Burma has made significant progress in its disaster management policies, plans, and procedures since 2008, when Cyclone Nargis hit the country with devastating impacts. The government of Burma has modified the government structure and created new authorities and plans to improve the effectiveness of disaster management at all levels. While this progress is encouraging and shows the determination of the government to make necessary adjustments, the resources to implement the policy changes have been slower to develop. As a result, roles and responsibilities have been designated for official bodies that cannot carry out those duties.

Burma has undertaken efforts to democratize the government and improve socio-economic development since holding free elections. The progress that has been made in the political sphere in such a short time has been impressive and the political reforms have led to an influx of foreign development and investment funds. Indicators give reason for optimism, but the optimism must be tempered by the reality that the process of modernizing the country after decades of isolation will be slow and advances in one sector will be dependent on improvements in another.

The country of Burma still faces development challenges as most of the population depends

on agriculture for employment and subsistence living. The quality and availability of infrastructure, utilities, and services drop off outside of urban areas. As trade and business opportunities increase in cities, the urbanization trend of recent years will continue and possibly grow, meaning that Burma will have to learn to adapt to the demands of different socio-economic classes, an increasingly educated populace, and changing livelihoods landscapes. The conditions of growing from a least-developed country with ongoing conflicts and humanitarian issues will pose challenges that make development gains vulnerable to disaster and humanitarian hazards.





# BURMA (MYANMAR)

## Country Overview

Burma (Myanmar) Disaster Management Reference Handbook | 2014

# Country Overview

The country's official title is the Republic of the Union of Myanmar and most of the international community uses that title, but it remains U.S. policy to use the country's previous name of Burma. However, the names Myanmar and Burma are sometimes used interchangeably by U.S. officials in remarks.

Burma has made noticeable progress in the past few years in the areas of economic and social development, but basic services have yet to be expanded to the entire population and country.<sup>1</sup> For the last 30 years, the country has been ruled by an authoritarian military government that was dissolved as a result of elections in 2010. A civilian government was formed and led by President Thein Sein.<sup>2</sup> Parliaments and governments have been formed at the national and region/state levels. Reforms have been agreed on in the financial sector, media censorship, release of detainees and ceasefire agreements in conflict areas. These reforms are a sign of positive strides leading to the opening of an isolated country and more engagements with the international community.<sup>3</sup>

The estimated population in Burma is 59.1 million consisting of many ethnic groups. These diverse ethnic groups speak over a hundred languages and dialects.<sup>4</sup> Burma is rich in resources - agriculture and extractive industries including fishing, logging, mining and natural gas provide a large portion of the national income. Despite being a resource-rich country with a strong agricultural base, its population is among the poorest in the world. The country has issues with trafficking in people, narcotics, timber, wildlife, gems and other illegal imports throughout Burma's borders.<sup>5</sup>

## Culture

Burma is a multi-ethnic society with diverse local cultures. Burma has many ethnic groups speaking over one hundred languages and dialects.

The Burmese national culture is traditionally focused on family and religion. Social class structures are rigid, leaving little opportunity for social movement.<sup>6</sup> Burmese people pride themselves on proper etiquette, and public displays of emotion are inappropriate. Elders and people of high status, such as monks are addressed and treated with courtesy and respect.<sup>7</sup>

The majority of the population is Buddhist.<sup>8</sup>

Buddhism in Burma is traditional and provides the foundation for ethical behavior. Devout Buddhists keep altars in their homes and expect the sons of households to enter the monastic sangha (community of monks) for a period of time. Buddhism has been attributed with bringing all the ethnic groups in the country and making them one.<sup>9</sup>

The Muslim ethnic minority living in Rakhine State is called the Rohingya. A citizenship law passed in 1982 excluded the Rohingya from citizenship, leaving 800,000 people from this minority officially stateless. Rohingya and other Muslims make up about 4 to 8 percent of the population. The government also enacted a two-child limit for Rohingya couples and stopped issuing birth certificates. In 2012, a Buddhist woman was found raped and murdered in Rakhine with the Rohingya being blamed. This set off rioting and violence between Buddhist and the Rohingya. Since then, over 200 people, mostly Muslim were left dead and 150,000 displaced.<sup>10</sup>

The political transition in Burma presents opportunities and challenges for the country, but the effects differ between urban and rural areas, and between genders. The decades of military rule had an impact on institution building, political processes and attitudes, and the strict authoritarian leadership left a cultural legacy that has not adjusted to accommodate open socio-political discussion, representation and participation.

Politics in Burma are still male dominated and women are present more in business and professional areas. The lack of female representation and participation in peace negotiations is an on-going issue among the border region-base women's movements in country. Women in non-conflict areas are vulnerable to various forms of gender-based violence, including human trafficking, sexual abuse and violence. Migrant men and women within the country or crossing borders are at risk of becoming trafficked since most migration is illegal and migrants are vulnerable to exploitation by smugglers and employers. Women's low status, cultural and institutional limitations result in restricted rights and participation in politics, business, and disaster management. In turn, this worsens the culture of silence that surrounds gender-based violence.<sup>11</sup>

Corruption in Burma is extensive as they rank 157 out of the 177 countries on Transparency International's Corruption Perception Index (CPI) for 2013 with a score of 21 out of 100.<sup>12</sup>



## Demographics

Understanding the demographic context of Burma provides insight into socio-cultural factors that will affect disaster management effectiveness, disaster vulnerabilities, and resident capabilities. It is important to reflect gender, ethnicity, economics, and vulnerable groups in the planning and implementation of disaster preparedness, mitigation, and response activities to address gaps and risks.

Ethnic Makeup	
Bamar	68%
Shan	9%
Kayin	7%
Rakhine	3.5%
Chinese	2.5%
Mon	2%
Kachin	1.5%
Indians	1.25%
Kayah	.75%
Other	4.5%

Burma is ethnically diverse with more than 135 ethnic groups living in country, each with its own history, culture, and language. The majority of the population is Burman, which makes up two-thirds of the population. The minority ethnic nationalities make up the remaining one-third and live in the rich border areas and hills. Many of these minorities have been forced from their homes by the military-backed government because of land confiscation for development projects and exploitation of resources. As a result

of these land confiscations, millions of people have become internally displaced people (IDPs) within Burma or refugees in neighboring countries.<sup>13</sup>

The largest minority groups in Burma are: Chin, Kachin, Karenni (Kayah), Karen (Kayin), Mon, Rakhine and the Shan. The country is politically divided into seven states, each named after these ethnic nationalities. There is a small Chinese population that comes mainly from the Yunnan province in China and resides mostly in major cities such as Mandalay and Yangon. The Rohingya is a Muslim group of ethnic-Indo origin that is not recognized by the government as an ethnic nationality of Burma and withstands some of the worst discrimination and human rights abuse in the country. The Rohingya population is estimated at 2 million people, mainly living in Rakhine State and the remaining living as refugees in neighboring countries like Bangladesh, Thailand, and Malaysia. The Burmese government considers them foreigners and refuses them citizenship, which means that members of this ethnic group are unable to get jobs without permits or paying bribes and are subjected to arrests and extortion.<sup>14</sup>

Burmese government officials have hoped that economic development would help bring an end to decades of wars with ethnic armed groups. A consultant for the Myanmar Peace Support Initiative (MPSI) says there is an assumption on the government side that the main issue for ethnic communities is underdevelopment and poverty. Currently, the Burmese government is negotiating a nationwide ceasefire agreement with ethnic armed groups. As part of these negotiations, leaders of each of these groups have been offered incentives in development projects. Livelihoods in these areas are better, but political issues have not been addressed in the peace process.<sup>15</sup>

### Main Ethnic Armed Groups<sup>16</sup>

Ethnic Group	Proportion of Pop. (%)	Location	Main Armed Groups
Chin	2.5	Chin State (west); bordering India	Chin National Front (CNF)
Kachin	1.5	Kachin State (north); bordering China	Kachin Independence Army (KIA)
Karen	7	Kayin State (east); bordering Thailand	Karen National Liberation Army (KNLA)
Karenni	0.75	Kayah State; border with Thailand	Karenni Army
Mon	2	Mon State (south)	New State Mon Party (NSMP)
Rakhine	3.5	Rakhine State (west)	Arakan Liberation Army (ALA)
Shan	9	Shan State; borders Thailand	Shan State Army (SSA)
Wa	0.16	Wa Special Region; border with China	United Wa State Army (UWSA)

## Key Population Centers

Burma is a predominantly rural country, with only 8 million people living in urban areas. There are only three large cities – Yangon, Mandalay, and Mawlamyine. This is expected to change as Burma’s economy begins to grow, and the urban population is predicted to expand to 18 million by 2030. Urban planning is an important issue in Burma that has not gotten much attention, and an inability to address this need will likely result in compromised services and utilities, insufficient or substandard transportation infrastructure, and threats to cultural heritage sites as urban migration grows.<sup>17</sup> The urban population in Burma made up 32 percent of the population in 2010, according to United Nations reports. In the same year, the Ministry of Immigration and Population said that 23 percent of Burma’s population lived in cities with populations of 50,000 or more.<sup>18</sup> A 2013 McKinsey study estimates that over one billion dollars is needed in investment and aid for new urban infrastructure.<sup>19</sup> Yangon, Mandalay and population centers will new roads, residential and commercial buildings, and hospitals to support urbanization trends and support increased trade and standards of living. If urbanization is managed well, it can increase living standards and drive development, but zoning and land-use plan designed to protect historic sites have not been established.<sup>20</sup> Yangon’s historic downtown has been selected for entry in the World’s Monuments Fund (WMF) 2014 Watch List and the Burmese government would like to preserve the city’s architecture and cultural heritage.<sup>21</sup>

Urban Population <sup>22</sup>	32.6% of total population (2011)
Rate of Urbanization	2.49% annual rate of change (2010-15 est.)

Yangon, previously called Rangoon, was the capital of Burma from 1948 to 2006. It is located in the southeastern part of the country and has a population of over four million inhabitants. Yangon is the largest city in Burma and is the industrial and commercial center of the country. The major industries in this city are textiles, soap, rubber, aluminum, and iron and steel sheets. These industries are state-owned while small industries like food processing and clothing manufacturing are privately or cooperatively

owned. Yangon is the center for Burma’s transportation services.<sup>23</sup> This city is also the main hub for the country’s trade and handles 80 percent of foreign commerce for Burma.<sup>24</sup> The infrastructure of Yangon is still under-developed compared to other major cities in Southeast Asia. Yangon has a large number of colonial buildings, but many residential and commercial structures have been built or renovated over the past two decades. However, smaller towns that circle the city remain poor.<sup>25</sup>



Yangon’s population is expected to rise to 10 million by 2040, which is more than twice its current population. This growth will put stress on a city that already is struggling to fix its decaying infrastructure and improve its limited services. UN-HABITAT estimates that 40 percent of

Yangon's residents survive every day in informal homes.<sup>26</sup> Currently, only 42 percent of residents have access to running water and less than 10 percent of the city has sewage infrastructure. The Japanese International Cooperation Agency (JICA) is developing a 30 year plan for Yangon to address development concerns. This plan proposes to add 40,000 acres to the city area along with new commuter rail lines, development of sanitary waste disposal sites, upgrades to the electrical grid and the construction of overpasses to ease traffic congestion.<sup>27</sup>

Mandalay is the second largest city and is located 445 miles north of Yangon on the east bank of the Ayeyarwady River with a population is 1 million and is projected to reach 1.5 million by 2025. Mandalay is considered the economic hub for the upper part of the country and is also considered the center for Burmese culture. An influx of Chinese immigrants from Yunnan province over the last few decades has changed the ethnic makeup of the city. The Chinese account for almost 30 percent of Mandalay's population. It also remains the main commercial, education and health center for upper Burma.<sup>28</sup>

Mawlamyine is the third largest city of Burma, located 300 km southeast of Yangon. The city has a population of 300,000 and is the capital of Mon State. Mawlamyine is the main trading center and seaport in southeastern Burma.

Nay Pyi Taw, which means royal capital in Burmese, was built secretly by the military junta and was declared the capital of Burma in 2006. It is located in a location about 200 miles north of the prior capital in Yangon. As of 2009, the population of Nay Pyi Taw was 925,000.<sup>29</sup> The reason for the relocation is still unclear but one possible reason has been that the decision was based on astrological advice that the government would fail unless they setup a new capital. Nay Pyi Taw is in a more isolated location that may provide added natural protection, as demonstrated in 2008 when Cyclone Nargis hit Yangon but Nay Pyi Taw was undamaged by the storm. In the beginning, Nay Pyi Taw only consisted of a few buildings and was primarily populated by civil servants but it has had an uninterrupted supply of electricity and an airport.<sup>30</sup> It is assumed the government built Nay Pyi Taw with revenue from the sale of timber and natural gas. The total cost to relocate the capital is still unknown, but a Burmese economist estimates it at 4 to 5 billion U.S. dollars.<sup>31</sup>

## Vulnerable Groups

According to the United Nations High Commission for Refugees (UNHCR), the main groups of people of concern in Burma are people without citizenship and people displaced by conflict and inter-communal tensions. The first national census in 31 years is planned for 2014, and it remains to be seen how the census will account for displaced and stateless persons.<sup>32</sup>

<b>UNHCR Statistics (as of mid-2013)</b>	
<b>Residing in Burma</b>	
Refugees	0
Internally Displaced Persons (IDPs)	632,000
Stateless Persons	808,075
Total Population of Concern	1,440,075
<b>Originating from Burma</b>	
Refugees	415,373
Asylum Seekers	28,245
Internally Displaced Persons (IDPs)	632,000
Total Population of Concern	1,075,618

Many years of conflict and unresolved ethnic tensions have contributed to the displacement of almost 450,000 people along with refugees in bordering countries.<sup>33</sup> Decades-long conflicts have led to the displacement of populations in eastern and southeast Burma, compounding humanitarian crises where populations already face high levels of poverty and food insecurity. The UNHCR estimates that roughly 800,000 people are without citizenship in the northern part of Rakhine State and the majority of internally displaced persons (IDPs) are without citizenship. There are an estimated 230,000 IDPs in Southeast Burma.<sup>34</sup> In Shan State, people face the challenges of transitioning from opium production to alternative income sources.<sup>35</sup> The government and the Kachin Independence Organization (KIO) agreed to reduce hostilities in Kachin State. Humanitarian access to IDPs in government-controlled areas was still restricted as of the publication date of this reference book.<sup>36</sup>

Northern Rakhine State is closed to foreign journalists and humanitarian aid workers have limited access. The 1 million Rohingya living there are part of one of the most persecuted minorities in the world. The Rohingya are not allowed to travel freely, practice their religion,



or work as teachers or doctors. Additionally, they require special approval to marry and are barred from having more than two children.<sup>37</sup> In late 2013, the Burmese government rejected a U.N. resolution which would grant citizenship to the Rohingya. Clashes between the Muslim Rohingya and Rakhine Buddhists exploded in June and October of 2012, which resulted in the deaths of 700 people and the displacement of 140,000 Rohingya. These clashes and similar incidents have forced the Rohingya to flee to Malaysia, a Muslim majority country. The 1982 Citizenship Act excludes the Rohingya from Burma's official list of ethnic groups, making the Rohingya remaining in Burma effectively stateless.<sup>38</sup> In January 2014, as many as 30 Rohingya Muslims were killed by Buddhists in Rakhine State as a result of attacks that began when a local policeman was reported missing and was presumed killed by Rohingya.<sup>39</sup>

Gender quality in Burma has seen mixed results. Burma has met its Millennium Development Goal (MDG) target of eliminating gender disparity in primary, secondary, and tertiary education, but the number of women in wage employment in the non-agricultural sector has not yet reached a proportional level. Challenges remain for Burma to fully reach their 2015 MDG targets related to gender equality. The number of seats held by women in the National Parliament is lower than other countries in the region and behind the average for other developing regions. Gaps remain between men and women for high ranking positions and salaries.<sup>40</sup> Women are the victims of violence in the ethnic areas of conflict such as Kachin state. Women are subjected to rape as a form of tactic of the armed conflict showing the vulnerabilities of ethnic women. The instability, human rights, and displacement impacts of the ongoing ethnic conflicts within Burma have disproportionately affected women and children.<sup>41</sup>

The recruitment of children (under the age of 18 years) by armed forces and paramilitary groups is against the law. In June 2012, the government signed an Action Plan with Country Task Force on Monitoring and Reporting (CTFMR) to prevent the recruitment and use of children by the armed forces (Tatmadaw) and it also allows for the release and reintegration of children soldiers into civilian life.<sup>42</sup>

## GDP (PPP):

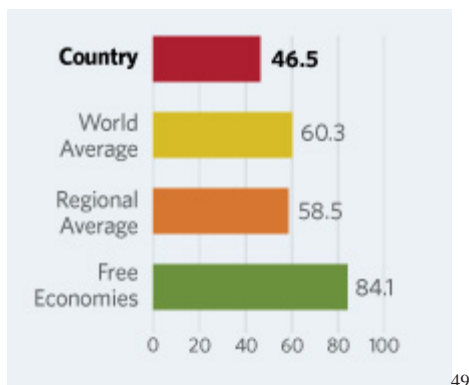
- \$89.5 billion
- 6.3% growth
- 5.2% 5-year compound annual growth
- \$1,405 per capita
- Unemployment:
- 4.0%
- Inflation (CPI):
- 6.1%
- FDI Flow:
- \$2.2 billion

## Economics

Burma is a least developed country facing food security and poverty challenges. The United Nations Development Program (UNDP) Human Development Index categorizes Burma as one of the world's least developed states and ranks 149 out of 187 in the 2012 ranking.<sup>43</sup> The World Food Programme (WFP) reported that access to adequate and nutritionally balanced food in Burma is a challenge for the poor and most vulnerable parts of the population, especially in the rural border areas. Roughly 25 percent of the population is below the poverty line and 3 million people are considered food poor. The nationwide occurrence of stunting among children under five years old is 35 percent.<sup>44</sup>

Over half of the population of Burma lives and works in rural areas and is dependent on subsistence livelihoods. Market access in rural areas is limited and costs are high.<sup>45</sup> Burma's National Strategy on Rural Development and Poverty Alleviation aims to reduce poverty by half from 32 percent in 2005 to 16% by 2015. Poverty declined quicker in urban areas versus rural areas, but people living in rural areas make up 84 percent of the poor. The highest rate of poverty is in Chin State (73 percent), followed by Rakhine State (44 percent), Tanintharyi (33 percent), Shan State (33 percent), and Ayeyarwady (32 percent).<sup>46</sup>

Burma's economic freedom score is 46.5, ranking its economy the 162<sup>nd</sup> freest in the 2014 index. Their score rose just over 7 points from the previous year due to positive changes in freedom in investment, business and labor. Burma is ranked 36 out of the 42 countries in the region in the same index, making its score lower than the global and regional averages. Changes in Burma's economic environment have been occurring since 2011. Sanctions have been eased or lifted and a new foreign investment law is in



place.<sup>47</sup> The World Bank says Burma will grow steadily in the short to medium term, with a projected 6.8 percent growth in 2013-2014. This growth forecast is based on gas production, trade and agriculture, and foreign direct investment (FDI).<sup>48</sup>

Burma's economy depends on natural resources and agriculture, while infrastructure and administrative constraints are slowing the growth of the manufacturing sector.<sup>50</sup> Agriculture is important to the country and contributes to progress toward the Millennium Development Goals, primarily goal number one which is 'Reducing Poverty and Food Insecurity'. The Food and Agricultural Organization (FAO) says Burma's agriculture potential makes it an important country in the context of regional and international food security. Agriculture provides employment for 70 percent of the population and is considered a top priority in the country's development road map. Over the past few years, steps have been taken to advance the legal environment and increase agricultural productivity, ensuring the farming sector has a key contribution to economic transition and the democratic process.<sup>51</sup> A UNDP analysis reported that focusing on agriculture could ensure that Burma's economic growth is balanced and sustainable over the long time.

A foreign investment law was passed by the government and it is expected to support improvement of Burma's foreign investment environment. A few key features of this law include: extended lease terms to 50 years, more tax incentives, and restrictions on hiring foreign employees. Foreign investment contributed to the strong growth and positive outlook for the economy. From 2012 to 2013, Foreign Direct Investment (FDI) rose to \$2.7 billion from \$1.9 billion in 2011 to 2012. The sectors receiving the most investment were energy, food and beverages, information technology, and the garment industry. Burma needs to continue

making domestic reforms to maintain growth. Factors that may have negative impacts on this growth are the decrease of Chinese investment and the decline in global commodity prices.

In 2012, the Asian Development Bank (ADB) stated that Burma was in an ideal position to benefit from the mistakes made by more advanced Southeast Asian economies like widening economic and social inequalities which cause rapid environmental degradation. Instead Burma could avoid issues like these by directing measured and sustainable development. ADB recommended that the government should invest in less polluting technology and infrastructure and focus on energy-efficient urban buildings to reduce the country's electricity demand.<sup>52</sup>

	Projected % Change <sup>53</sup>	
	2013	2014
Real GDP	6.8	6.9
Consumer Prices	5.6	6.3

In 2014, The World Bank stated concerns over Burma's rising inflations, saying price increases due to a growing economy would have a large impact on the people less well-off in the country. The International Monetary Fund (IMF) forecasts Burma's economy to grow 7-8 percent over the next three years with the current 6 percent inflation rate to continue. A 2013 McKinsey Global report stated that an expansion of the economy could quadruple in size by 2030.<sup>54</sup> Burma's interest rate is currently at 8 percent making it above the 6 percent inflation level. Inflation is going to be an issue for the majority of the population of Burma. It will be a challenge for the government as they will need to prioritize job-creating investment, policies which benefit the poor and increase health and education spending.<sup>55</sup>

## Environment

Environmental considerations influence disaster management in profound ways, from the types of risks that are prevalent to natural protections that mitigate disasters. This section outlines some of the key environmental factors that contribute to Burma's disaster hazards and affect potential response operations.



## Borders

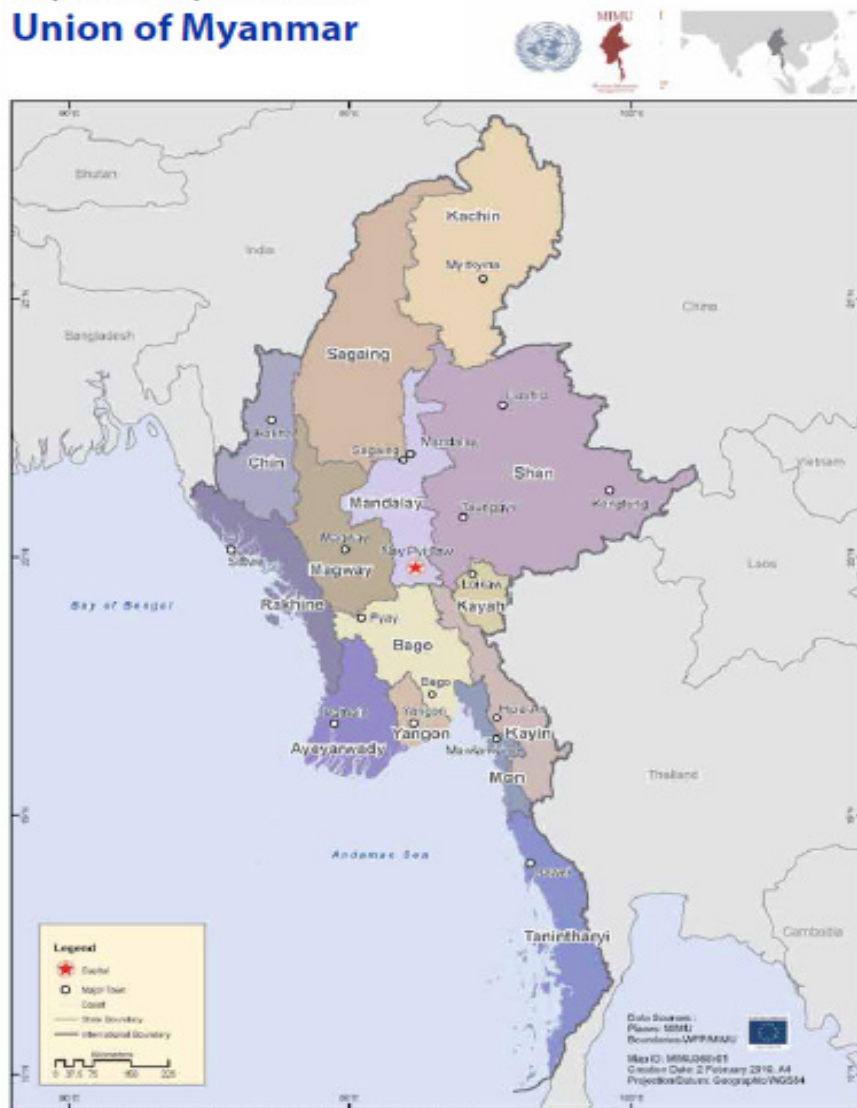
Burma is bordered by Bangladesh to the west, India and China to the north, and Laos and Thailand to the east. Southern Burma faces the Bay of Bengal and the Andaman Sea. The center of the country centers on the Ayeyarwady River. The majority of the population and agricultural land is found along the Ayeyarwady River which is navigable for one thousand miles. The western region is comprised of the Arakan, Chin, and Naga hills. The northern, western and eastern regions have mountains, high valleys and plateaus.<sup>56</sup>

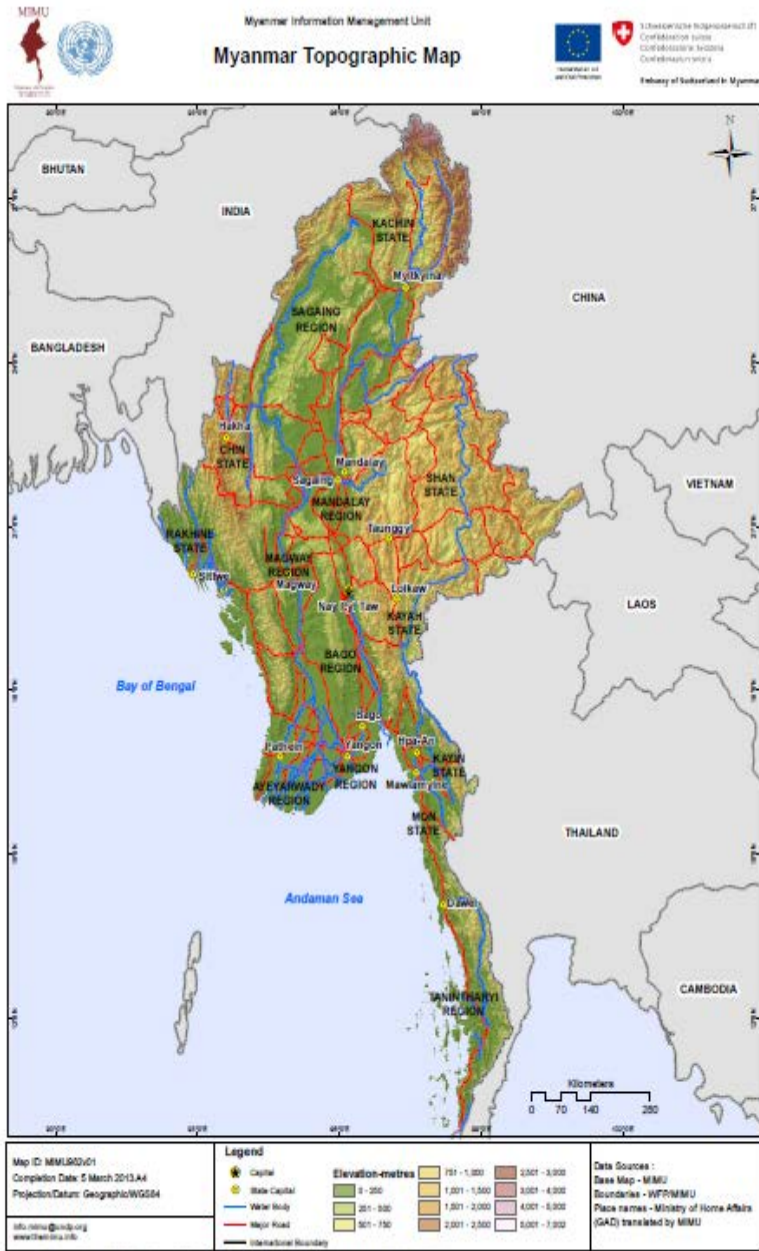
Border regions in Burma are hard to control. Some of these remote regions are active in smuggling; ethnic tensions with armed groups obstruct government control.<sup>57</sup> The northeastern region in Burma is known for rival

ethnic armies and drug trafficking gangs. Thai officials say drug traffickers smuggle heroin and methamphetamine pills into Thailand. Border areas in Burma have a history of ethnic conflict which poses an obstacle for the Burmese government for national peace. There is an ongoing struggle between the central government and ethnic groups in northern and eastern Burma. There are some improvements in northern Burma, but there are sporadic clashes between government troops and ethnic forces. Thailand is concerned due to the amount of confiscated methamphetamines and violence trickling over the Burmese border to Thailand.<sup>58</sup> There are roughly 130,000 refugees on the Thailand-Burma border residing in ten refugee camps. There are 30,000 refugees in camps in Bangladesh and up to 10,000 ethnic Kachin are seeking refuge in southwest China's Yunnan Province.<sup>59</sup> The border between China and Burma is porous. It is common for Chinese nationals to travel to towns in Burma across the border to conduct trade. Burmese ethnic minorities also illegally cross the border to China to purchase vegetables at lower prices.<sup>60</sup>

Prior to 2013, visitors entering Burma at the Kawthaung and Tachilek crossings have been restricted to just visiting just those towns before returning to Thailand. Currently, options for visitors increased with the opening of new checkpoints at Myawaddy which borders Mae Sot in Thailand along with a fourth border at Htee Khee-Sunaron. All visitors must obtain a full visa in advance and will be permitted to stay for 28 days. The Minister of Immigration and Population said this border ease “is the fruits of the peace building- there will be more benefits and opportunities from developments, jobs, trade and tourism.”<sup>61</sup>

Map of the Republic of the Union of Myanmar





north prior to spreading to one of the largest deltas in Asia. Yangon and Mandalay are both located on the Ayeyarwady River. The Ayeyarwady valleys are encircled by mountain ranges which rise in the east to the highlands of the Shan plateau.<sup>62</sup>

The north is made up of parallel chains of mountain ranges starting from the eastern end of the Himalayas and running north to south: the Rakhine Yoma and the Shan Plateau. Hkakabo-Razi is located in the northern state of Kachin and is approximately 5,881 meters making it the highest mountain in Southeast Asia. The south is home to the Thaninyharyi Yoma. The northern mountain chains divide Burma's three river systems: the Ayeyarwady (Irrawaddy), the Sittoung, and the Thanlwin. The Ayeyarwady is the most essential river at 2,170 kilometers long and its major tributary is the Chindwin (960 km) – making them the largest river system in Burma. The central dry zone receives little rain so the Ayeyarwady and the Chindwin are important for the irrigation and economy of the land.<sup>63</sup>

### 7 Major Topographic Regions in Burma: <sup>64</sup>

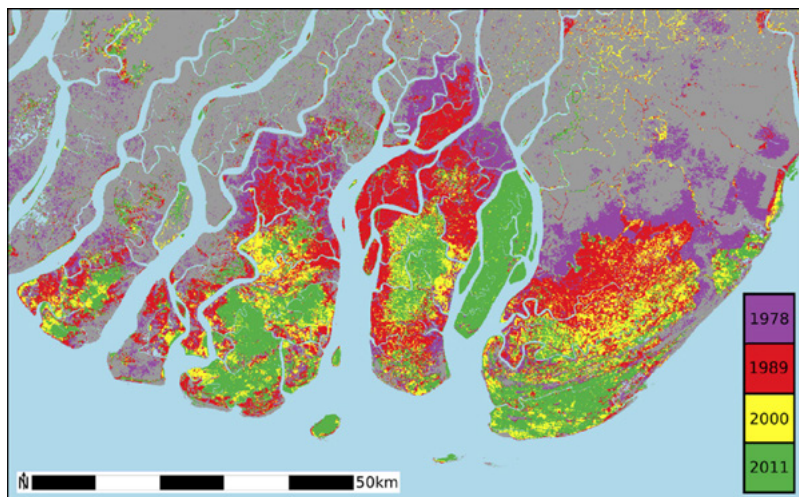
- Northern Hills
- Western Hills
- Shan Plateau
- Central Belt
- Lower Burma Delta
- Rakhine Coastal Region
- Tanintharyi Coastal Strip

## Geography

Burma has a land area of 676,577 square kilometers with almost 50 percent of the country covered by forests and a coastline of almost 3,000 kilometers. The Bay of Bengal is located on Burma's eastern coast which runs from Bangladesh to the Thai border in the southeast. Southern Burma consists of slopes of the Bilaukaung Range. The Northern area makes up the majority of the country's area, consisting of broad river valley of the Ayeyarwady. The Ayeyarwady originates in the Himalayas and comes down through mountain valleys in the

<sup>65</sup>Burma is mainly hills and valleys and surrounded in the north, east, and west by mountain ranges that are shaped like a horseshoe. Within these mountains are flat lands and river valleys which make up most of Burma's agricultural and population concentration.<sup>66</sup> As mentioned, Burma is a forest-covered mountainous country making it the most forested country in Asia. The government is pursuing the prevention of deforestation of rainforests.<sup>67</sup> A Forest Policy from 1995 ensures the sustainable development of the country and lays the ground for ecological use of the forest





resources marinating the natural ecosystem functions.<sup>68</sup> Mangroves in the Ayeyarwady Delta have declined about two-thirds over the past three decades, making coastal areas more vulnerable to disasters like Cyclone Nargis according to the Global Environmental Change. Most mangroves are credited to agricultural expansion, mainly for rice production.<sup>69</sup>

Burma has a wealth of natural resources and high biodiversity. The central plains and the Ayeyarwady River flows south through a fertile valley and finally to a delta filled with mangroves and swamps. The country has numerous endemic species – 233 globally threatened species in which 65 are classified as endangered and 37 are critical. A Wildlife Conservation Society (WCS) study’s climate change analysis found that Burma is expected to experience high exposure and vulnerability to extreme weather events along with a range of impacts on human communities and biodiversity. The study also foresees that sea level rises and storm surges will threaten coastal and estuarine ecosystems, changes in rainfall and temperature patterns which will result in increased flooding and drought.<sup>70</sup>

## Climate

Burma has several climate zones ranging from the temperate region in the north to the dry zone in central Burma and the monsoon prone areas in the northwest, west and south. The climate of Burma is broken down to three seasons: summer, rainy season and winter season. Burma’s geographic location and landscape combine to create a mixture of climatic conditions.

The end of February to the beginning of May is summer with temperatures rising into the

hundreds in the central areas. Rainy season begins in mid-May and ends in October. The central part of the country experiences an average of 40 inches of rain annually while coastal regions see up to 200 inches of rain. Winter starts in November and continues through the end of February with temperatures in the hill top areas reaching below 32 degrees Fahrenheit. Changes in the monsoon wind directions create the summer, rainy and winter seasons.

The infertile land between two higher regions, the Shan plateau to the east and the Rakhine Yoma and Chin Hills to the west are Burma’s dry zone. The Ayeyarwady and the

Chindwin flow through the dry zone from the north connecting it to the Deltaic region in the south. The hills in the dry zone are mainly low ranging to about 1,000 feet high and serve as watersheds. The local streams only contain water after rain. The rainy season is from May to late October and weather is mainly dry the remaining parts of the year. The coastal regions, the delta region and the northern part of the country get about 5,000 millimeters (mm) of rainfall. Annual rainfall in the dry zone ranges from 500 mm to 1,000 mm. The dry zone experiences temperatures ranging from 50 degrees Fahrenheit in the cool months to over a hundred degrees Fahrenheit in the dry months.<sup>71</sup>

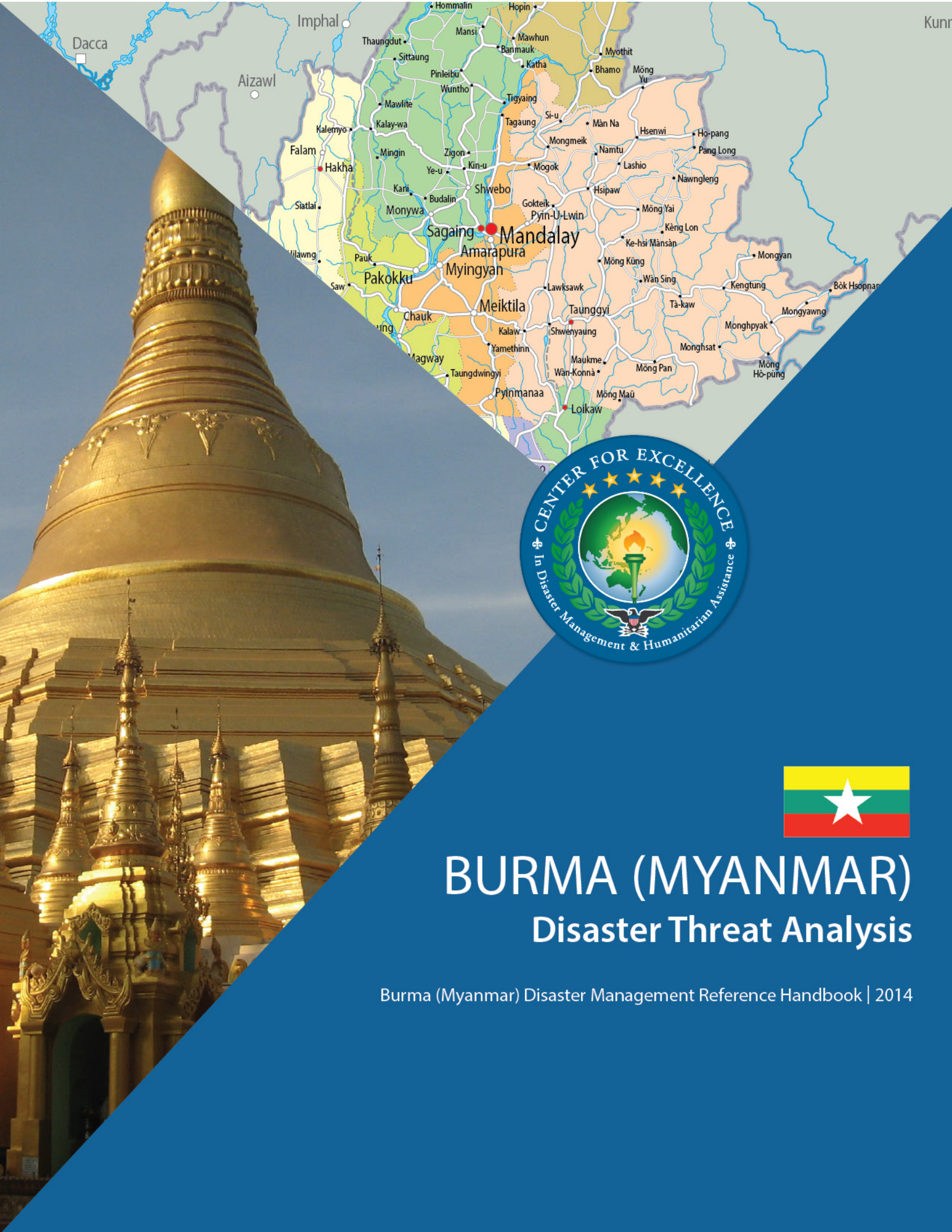
Burma’s economy is based on agriculture and the exploitation of natural resources, making it vulnerable to climate change. Increasing occurrences of climate related natural disasters are affecting Burma, and the high proportion of subsistence livelihoods is increasing the vulnerability of the population of Burma. The Myanmar Climate Change Alliance (MCCA) is the new platform to begin the development of the national strategy to address climate change. The MCCA’s goal is to assist the Burmese government in developing the national strategy on climate change, multi-sectoral action plans, and capacity enhancement on climate change in the government, private sector and civil society. This strategy is a four year project funded by the European Union (EU) through the Global Climate Change Alliance Program with implementation support from UN-Habitat and the United Nations Environmental Program (UNEP). The lead for the Burmese government is the Ministry of Environmental Conservation and

Forestry (MoECAF). The MCCA will prepare the government with the proper policy tools and plans to address climate change.

An international report on consequences for climate change says Burma is in extreme risk if temperatures rise. The Climate Change and Environmental Risk Atlas ranks Burma 16<sup>th</sup> among the world's at risk economies in terms of climate change impacts. This could put Burma in a bad position as it tries to regain its position as the top rice exporter. The United Nations and the EU are funding a research program to prepare Burma for climate change. An economist says that Burma's growing commercial interconnectivity with the region, especially Thailand where a lot of investment is originating from, will expose it to more climate change issues. The government acknowledges the need for a climate change strategy and a framework to mainstream climate change into development planning. Several ministries are working in partnership with the EU and UN in the Myanmar Climate Change Alliance which will use the US\$5.4 million of grant money to look at problems and solutions. The ministries involved are: the Ministry of Environmental Conservation and Forestry, the Department of Meteorology and Hydrology of the Ministry of Transport, and the Ministry of National Planning and Economic Development.<sup>72</sup>







# BURMA (MYANMAR)

## Disaster Threat Analysis

Burma (Myanmar) Disaster Management Reference Handbook | 2014



# Disaster Overview

## Hazards

This section provides information that can be used for disaster risk reduction and contingency planning efforts in Burma. Burma faces a range of natural and manmade hazards, and it was ranked the 42<sup>nd</sup> most at risk country in the world according to the 2012 World Risk Report.<sup>73</sup> The 2013 Global Climate Risk Index identified Burma as one of the countries most affected by severe weather disasters in the period from 1992 to 2011.<sup>74</sup>

## Natural

Burma's location, topography, climate, and geology make it a good environment for ever-present threats of large-scale natural disasters. The variety of disaster hazards in Burma pose a challenge for disaster management planners and first responders who have to account for so many types of natural threats and the possibility of disaster magnitudes that can easily overwhelm existing response capabilities.

## Floods

Historically, flooding is one of the most prevalent disasters in Burma, counting for 11 percent of all disasters and ranking second behind fires. Burma's long coastline and extensive river networks present a range of flood hazards across the country. The mountainous northern region is prone to fast running flash floods, especially in the monsoon season from May to October. The Ayeyarwady Delta is vulnerable to widespread flooding when rivers swollen by rain meet high tide. Along the coast in Rakhine State, flooding is an effect of storm surges, affecting smaller areas with more intense and persistent waves.

Seasonal flooding provides benefits to downstream farmers by clearing farm lands and pushing topsoil and silt to lower lying areas, enriching agricultural

zones. However, the washing of soil downstream also builds up river bottoms in areas, making flooding more likely in spots because the water is more easily pushed beyond the boundaries of the river banks. For example, the Ayeyarwady River has 299 tons of silt deposited from upriver floods each year, increasing flood conditions along that river.<sup>75</sup>

Riverine floods are the most common type of flood in Burma, but the causes of riverine floods differ depending on the part of the country affected. The Ayeyarwady and Chindwin rivers are flooded when sustained rains and snow melts in the northern parts of Burma produce high volumes of water. Downstream, the Ayeyarwady river catchment covers 60% of the country area in Chin, Kachin, Shan, Mandalay, Magwe, Bago, Yangon, and Ayeyarwady, meaning that floods in the delta affect a large part of the countryside. The Sittaung and Thanlwin rivers are more

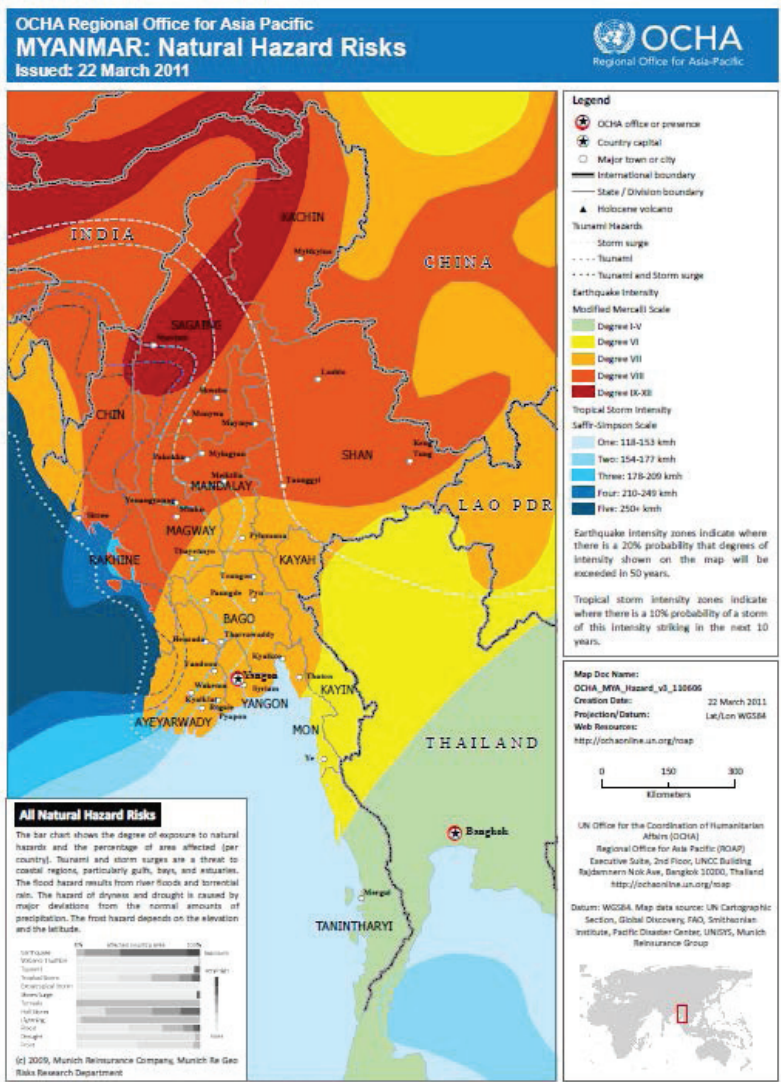


Figure 1: Burma Natural Hazards Map

affected by rain related to storms coming from the South China Sea.

Over the past 20 years, the monsoon season has been shorter in duration but more intense, resulting in greater flooding in a slightly smaller time period.

## Drought

Burma is an agriculture-based country, so drought conditions present a persistent threat to food security, health, livelihoods, and the economy. Burma's droughts are generally located in what is called the dry zone, which is located in the Central Inner Burman Basin and covers parts of three Divisions and about 10 percent of the country's total land area.<sup>76</sup> The dry zone only receives about 3.2 percent of Burma's total

rainfall, and its annual precipitation of less than 750 mm is well under the national average of 2,353 mm.<sup>77</sup>

The area that is now the dry zone was heavily forested long ago, but a combination of factors has turned the region into an arid climate with vegetation consisting of dry savanna, grasses, and shrubs. The forests that once covered the area were cut down primarily so the wood could be used as fuel for brick kilns. The expansion of livestock farms and the development of residential neighborhoods in the Districts of Magway, Mandalay, and Sagaing cleared out more of the forests. As the forests disappeared, erosion has removed the rich topsoil and livestock have eaten and trampled smaller plants, leading to further degradation of the growing environment.

The government of Burma, through the Ministry of Environmental Conservation and Forestry, has created a Dry Zone Greening Department that plans and carries out activities with the goal of improving the environment, sustainability, and development of the dry zone. These activities include establishing various types of forests that achieve different purposes, protecting the remaining forests, developing water resources, and promoting the use of wood substitutes for fuel.

## Cyclones

Given its position on the Bay of Bengal, Burma faces known cyclone hazards and the accompanying threats of high winds, heavy rain, and storm surge. The Bay of Bengal's cyclone season runs from April to December, but the most dangerous points of the season are pre-monsoon in April and May, and post-monsoon from October to December. The cyclones during the monsoon season of June through September have historically been weaker and shorter than the storms before and after the monsoons.

Cyclones in the Bay of Bengal typically start moving to the west, but when the storm track curves around to the east, Burma becomes threatened, and the stronger the



Figure 2: Burma Dry Zone Map



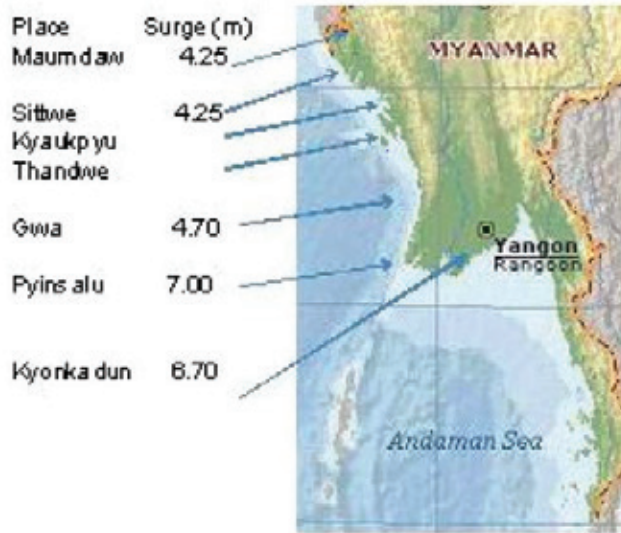


Figure 3: Storm Surge along the Burma Coast<sup>79</sup>

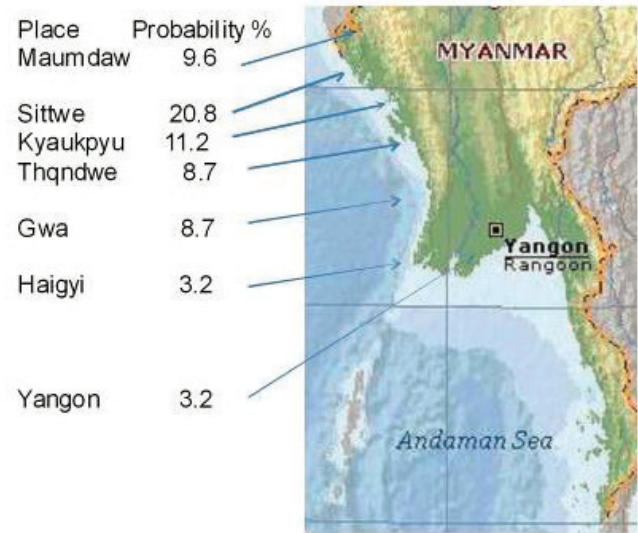


Figure 4: Probability of Cyclone Landfall in Burma<sup>80</sup>

recurvature is, the more likely the storm is to hit Burma. Burma's western coast has historically borne the brunt of the cyclones. As shown in Figure 3, the likelihood of a cyclone hitting Burma is highest on the northern part of the coast and decreases toward the south. This is to be expected since the recurvature of storms will generally not be severe enough to push the track down too far to the south. However, Cyclone Nargis in 2007 showed severe recurvature and the track took the storm across the Ayeyarwady Delta and toward Rangoon. In recent years, each storm season has showed a tendency for cyclones to curve around and hit at lower latitudes and the frequency of the storms hitting Burma has increased from once every few years to at least once a year.<sup>78</sup>

One of the more troubling aspects of this trend of cyclones hitting Burma more often and further south is reflected in Figure 4. The storm surges are highest in the Ayeyarwady Delta region because of the lower elevations and flatter topography in that part of the country. If cyclones are indeed starting to hit that part of the country more often, it is reasonable to expect to see greater impacts in the delta region in the forms of wind damage and flooding due to storm surges unless mitigation efforts are undertaken. The effect of these trends on the population is also significant in that cyclones will start to affect people who were not historically a target of storms and may not have established disaster risk reduction initiatives to improve their readiness while decreasing their vulnerability.

## Earthquakes

Burma is a seismically active country and strong earthquakes have been recorded in this country since 1839, with the strongest measured earthquake registering 8.0 on the Richter Scale in May 1912. Strong earthquakes are rare in Burma,

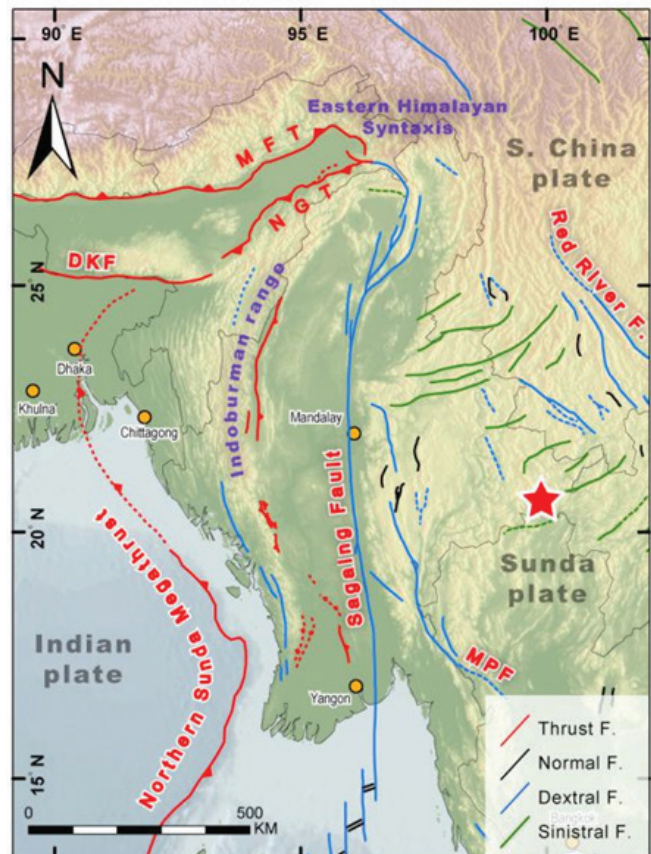


Figure 5: Burma Tectonic Map<sup>81</sup>

which can sometimes lead to an assumption that the risk of a large earthquake is low.

The country lies on the Alpide belt, which stretches from the Mediterranean through the Himalayas to Burma and down to Indonesia. As shown in Figure 5, Burma is bisected by a major slip-strike fault called the Sagaing Fault, its coastline is mirrored by the Northern Sunda Megathrust, and the country is crisscrossed by a number of smaller fault lines. The Sagaing fault passes very close to Rangoon and Mandalay, two of the country's most populous cities, as well as Nay Pyi Taw, the capital of Burma, putting some of the most important urban centers at the greatest risk.

Burma's earthquake hazards are exacerbated by the vulnerability of the infrastructure in the country. Most people in Burma live in the countryside, in buildings that are not engineered to be shake-proof or earthquake resistant.

## Tsunamis

Historically, tsunamis rarely hit Burma, but the Northern Sunda Megathrust fault located off the coast of Burma in the Bay of Bengal creates a threat for tsunamis along the 2,400 kilometer coastline of the country. Since this is a thrust fault, movement along the fault can easily create an earthquake that could result in a tsunami. Given the high speeds at which tsunami waves travel, the relatively close proximity of the Megathrust to Burma means that a tsunami could arrive quickly and potentially before most people have the opportunity to evacuate.

Burma's coastline has some natural obstacles that can slow a tsunami. Islands along the northern part of the Rakhine Coast and the southern section of the Taninthayi Coast provide barriers. The northern Rakhine Coast, the southern Taninthayi Coast, and the Ayeyarwady Delta have wetlands and mangrove forests that provide some protection against tsunamis. The remaining coastal areas without natural barriers are more vulnerable to tsunamis.

## Landslides

Burma's monsoons and flash floods make landslides in the mountainous and hilly regions in the northern and central areas of the country a major hazard. Landslides have been common in the Western Ranges and Eastern Highland provinces of Burma, where monsoon rains, unstable land, and steep mountains create

the perfect conditions for landslides. As infrastructure and residential development have expanded into these areas, populations become more likely to be affected by this type of disaster.

## Forest Fires

Forest fires are a hazard throughout the country, but the predominant threat of forest fire is in the upland regions and the dry zone. The most frequent timeframe for forest fires is during the dry season that runs from December to May. Natural causes for wild fires are rare in Burma, and most fires are caused by people through slash and burn agricultural practices, negligence, and intentional fires for hunting or to collect lacquer. Wild fires present threats to wildlife and to natural environments, but they also have economic impacts as wood harvested for markets and exports is destroyed.

## Man-Made

While natural disasters are common in Burma, manmade disasters have had some of the most devastating impacts to the country.

## Conflict

Burma has been plagued by internal conflicts since gaining independence in the post-World War II years as ethnic minorities have fought for autonomy from the central government. The conflicts with the greatest impacts in terms of people affected have mainly involved the Rohingya and the Karen, but additional minorities have been fighting the government through armed conflict. The Country Overview section of this book provides additional information on vulnerable groups and armed groups.

## Urban Fires

Urban fires make up 70 percent of Burma's disasters, and about two-thirds of all urban fires happen in Yangon, Mandalay, Ayeyarwady, Sagaing, and Bago.<sup>82</sup> The number of fire cases grew throughout the 1980s but the number of cases has dropped since the early 1990s. Kitchen fires and negligence are generally cited as the two most common causes of fires in Burma. Additionally, fires can be attributed to higher incidence during the dry season and the use of

highly flammable construction materials like bamboo and Nipa palm leaves. The reasons for citing negligence as a cause include improper care and extinguishing of cooking fires, leaving candles burning while not being used, and improper storage of fuels in ways that leave them exposed to open flames.

## Ferry Accidents

Ferry accidents are unfortunately frequent occurrences in Burma. Heavy water-borne traffic and over-crowding on ferries are common contributing factors according to media reports. Ferry accidents generally will not require a large scale response from international parties, but search and rescue operations can involve the closest vessels and may lead to a localized international response effort. Many of the ferry accidents have been on the Ayeyarwady Delta where people use boat transportation because it is cheap, plentiful, and able to reach areas that are inaccessible by road, so these accidents also seem to involve larger ferries with a greater number of passengers. Ferry accidents also occur upriver in the northern parts of the country on larger rivers.

## Infectious Disease

Burma's population is susceptible to several infectious disease threats. Multiple disease vectors, compromised sanitation, and resource gaps in the health system are factors that contribute to an environment in which certain communicable diseases thrive.

## Tuberculosis

Burma was reported to be "one of the world's 22 high tuberculosis burden countries" and from 2007 to 2012, the National Tuberculosis Program examined over 1.2 million people, diagnosed and provided treatment for more than 630,000 people, and saved at least 100,000 lives.<sup>83</sup> In 2010, Burma had 180,000 new cases of tuberculosis, and over 40,000 of those cases were children. Burma has approximately 9,000 cases of multidrug-resistant tuberculosis reported annually, and there have been cases detected with extensively drug-resistant tuberculosis in recent years.<sup>84</sup> Urban areas have more cases than rural areas, and males present more cases than females in Burma.

The Ministry of Health has established

programs to combat multidrug-resistant TB and the initial results show encouraging cure rates of 71 percent. Tuberculosis is one of the three top priority diseases in Burma's National Health Plan, and the National TB Programme has developed a National Strategic Plan with the goal of meeting the Millennium Development Goals targets and indicators connected to TB under Goal 6 by 2015.

## HIV/AIDS

In 2011, Burma had approximately 216,000 cases of HIV with about 18,000 deaths from AIDS-related illnesses and more than 8,000 new cases identified.<sup>85</sup> As could be expected, cases typically involve transmission either through sex or intravenous drug users. Given the case profiles, it is not surprising to find that most HIV/AIDS cases in Burma are in urban areas. Among the general adult population aged 15 or older, HIV prevalence is about .5 percent. However, as researchers break down the prevalence among at risk populations, the prevalence jumps to 9.6 percent for female sex workers and 21.9 percent for male intravenous drug users.<sup>86</sup> The good news is that prevalence and the number of cases has dropped in recent years, but the continuing high rate of incidence each year demonstrates the need for ongoing prevention programs.

## Malaria

Malaria is one of the main causes of morbidity and mortality in Burma, and Burmese malaria cases comprise the majority of cases in the Greater Mekong Subregion. From 1998 to 2006, the number of cases reported and the incidence of confirmed cases rose substantially, but over the same time period, the mortality rate for malaria had a dramatic drop. The highest percentage of malaria cases in Burma is in the forest areas and border areas. Rakhine State has by far the highest percentage of cases and incidence rate out of all states and divisions, with 32 percent of all suspected cases in 2006.

## Endemic Conditions

Burma has several natural and manmade conditions that are persistent and prevalent enough that planners and responders should have situational awareness to consider them in



the development of engagements and response plans.

## Displaced Populations

Ongoing conflicts in Burma have resulted in over 140,000 internally displaced persons (IDP) in Rakhine State, another 100,000 IDPs in Kachin State, and an additional 230,000 IDPs in southeast Burma.<sup>87</sup> Compounding this problem is the fact that more than 800,000 people in Rakhine State have no citizenship in Burma. Over 415,000 people are across the border in Thailand in refugee status. In total, Burma has over 1 million displaced persons.

## Communicable and Infectious Diseases

In 2012, Burma had approximately 200,000 people living with HIV/AIDS, with about 12,000 deaths from AIDS-related illnesses. Cholera, malaria, dengue fever, leptospirosis, and shigellosis are endemic. The Health Section of this reference book contains more information on specific disease conditions and the means of surveillance and response the Burmese government uses.

## Deforestation

According to the United Nations Reducing Emissions from Deforestation and Degradation (UN-REDD) Program, almost half of Burma's total land area is covered with forests, but the country is still subjected to one of the highest forest loss rates in the world.<sup>88</sup> Burma lost an average of 18 percent of its forests from 1990 to 2005, and the rate of deforestation grew by 13.5 percent since 2000.<sup>89</sup> The main causes of deforestation in Burma are rubber and oil palm plantation farming, illegal logging, firewood harvesting, and insufficient replanting of trees. Logging of valuable wood like teak for export purposes is overseen by the government, but the granting and enforcement of logging concessions is considered by many external sources to be suspect. To stem over-logging and deforestation, the government of Burma has declared a freeze on raw log exports starting in April 2014. This initiative may help slow the rate of deforestation, but it will have economic and livelihoods repercussions since Burma had \$453 million in finished wood exports in 2008-2009.<sup>90</sup>

## Landmines

Burma's conflicts have led to the widespread use of landmines by government military forces and armed groups not associated with the Burmese government. The eastern part of Burma is "one of the most landmine contaminated places in the world" because of the conflicts there, and the landmines present obvious challenges to land access and use, impacting villagers and agriculture.<sup>91</sup> Interestingly, the perception villagers have of landmines is not entirely negative because many people view the landmines as protection. The villagers know and avoid "no-go" areas where landmines have been placed.





# BURMA (MYANMAR)

## Government

Burma (Myanmar) Disaster Management Reference Handbook | 2014



# Government Structure for Disaster Management

The disaster management structure began with the constitutional creation of the National Disaster Preparedness Central Committee in 2005 and definition of disaster management roles and responsibilities for ministries and committees under the Standing Order on Natural Disaster Management in Myanmar, 2009. The Standing Order clearly delineates responsibilities during the Normal, Alert/Warning, During Disaster, and Rehabilitation stages. After Cyclone Nargis in 2008, the government concentrated on disaster risk reduction strategies and plans. The institutional arrangements have continued to evolve as disaster committee membership components have changed such as the dissolution of the State Peace and Development Council in March 2011. The Myanmar Disaster Preparedness Agency supplanted the National Disaster Preparedness Committee in disaster management structure from April 2011 however the government will reform the Preparedness Committee as necessary for disaster emergencies such as Cyclone Mahasen.

## National:

### National Disaster Preparedness Central Committee

The Government of Burma established the institutional basis and center of disaster management when the National Disaster Preparedness Central Committee (NDPCC) was constituted in 2005. The NDPCC developed the Standing Order on Natural Disaster Management in January 2009, a key document which defined the roles and responsibilities for the ministries, departments, and Disaster Preparedness Committees during the disaster phases of Normal Times, Warning Stage, Disaster Stage, and Rehabilitation Stage. The central committee chaired by the Prime Minister consisted of 37 members to include State Peace and Development Council Division chairmen and Ministry heads. The primary roles and responsibilities for the NDPCC encompassed:

- To constitute committees at various (government) levels to implement disaster management, develop disaster management policy, guidelines, and review progress
- To formulate policy and guidelines for the utilization of natural resources for emergency relief measures
- To provide basic principles for receiving foreign aid
- To provide relief assistance where it is necessary by managing State budgets and resources
- To enact/issue laws, acts, decrees, rules and regulations for effective disaster management activities<sup>92</sup>

### National Disaster Preparedness Management Working Committee

The National Disaster Preparedness Management Working Committee was formed to supervise the implemented disaster management activities in support of NDPCC and to coordinate the NDPCC activities. The Working Committee consisted of ten Sub-Committees with the following specific responsibilities:

- Formulate plans for the four phases of Mitigation and Prevention, Early Warning, Disaster, and Reconstruction and Rehabilitation and implement guidelines from higher authorities
- Manage foreign and local aid for Relief, Resettlement and Rehabilitation
- Educate people on disaster preparedness, organize and implement programs for improvement for public
- Prepare quarterly reports for NDPCC and identify reporting organizations and reporting systems
- Set up early warning system and ensure dissemination of early warning to grassroots level
- Assign tasks to Ministries and Organizations dependent on disaster requirements
- Oversee and facilitate coordination between Sub-committees
- Directly supervise management of Relief and Resettlement during disasters<sup>93</sup>



Figure: 4.1 Organizational Structure for Disaster Management in Burma<sup>94</sup>

**Sub-Committees Major Responsibilities Overview<sup>95</sup>:**

The ten Sub-committees implement specific activities as defined by the National Disaster Preparedness Management Working Committee.

Sub-Committees	Major Responsibilities
<b>Information and Education</b>	<ul style="list-style-type: none"> <li>Educate public on disaster preparedness through multiple media avenues – publications, radio, T.V.</li> <li>Disseminate information through all phases of disaster (pre, onset, post)</li> <li>Manage and oversee information and education activities</li> </ul>
<b>Emergency Communication</b>	<ul style="list-style-type: none"> <li>Set-up emergency and auxiliary communications systems (auxiliary system to ensure receipt of information from international organizations for weather forecasts) and conduct drills</li> <li>Conduct communications training for the organizations</li> <li>Set-up communications system to be utilized in the field in disaster affected areas by supervisory organizations</li> </ul>
<b>Search and Rescue</b>	<ul style="list-style-type: none"> <li>Prepare for search and rescue activities in disaster prone regions based on population and disaster types</li> <li>Develop and train Regional Search and Rescue teams</li> <li>Train team members on rescue for fires and earthquakes (with special equipment for rescue in collapse buildings) and for flood prone regions (with use of boats)</li> </ul>



<b>Information of Losses and Emergency Assistance</b>	<ul style="list-style-type: none"> <li>• Assess damages and losses for affected region and human toll</li> <li>• Assess relief materials needs based on disaster types and prepare for emergency period and regional transportation arrangements</li> <li>• Arrange for distribution of relief materials in coordination with Regional authorities and Security and Police forces and form relief materials distribution teams at Township Wards/Village Tract levels</li> <li>• Ensure availability of drinking water, water, fuel, and emergency medicines</li> <li>• Arrange for family services related to treatment, handling of deaths, and other activities</li> </ul>
<b>Assessment of Losses</b>	<ul style="list-style-type: none"> <li>• Collect, analyze, and confirm data on death, damages and losses</li> <li>• Estimate and verify data on requirements for relief and rehabilitation activities</li> <li>• Keep records of long-term damages</li> </ul>
<b>Route Clearance and Transportation</b>	<ul style="list-style-type: none"> <li>• Maintain resource inventory of regional transportation vehicles, boats, equipment, and machinery</li> <li>• Maintain lists of transportation infrastructure such as roads, waterways, airports and helipads</li> <li>• Maintain equipment and vehicle inventory information</li> <li>• Arrange for fuel support</li> </ul>
<b>Mitigation and Establishment of Emergency Shelter</b>	<ul style="list-style-type: none"> <li>• Identify disaster risk reduction activities required</li> <li>• Select emergency shelters for use during disasters</li> </ul>

<b>Sub-Committees</b>	<b>Major Responsibilities</b>
<b>Health</b>	<ul style="list-style-type: none"> <li>• Develop and execute emergency health care</li> <li>• Prepare healthcare facilities for affected regions</li> <li>• Stock medications and have storage and distribution plan</li> <li>• Take measures for epidemic prevention</li> </ul>
<b>Rehabilitation and Reconstruction</b>	<ul style="list-style-type: none"> <li>• Collect damage and loss data</li> <li>• Clear debris and conduct relief activities</li> <li>• Coordinate repair and reconstruction activities for sectors (education, health, agriculture, etc.)</li> <li>• Provide technical advice for early warning systems and emergency plans</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Perform security measures/activities in disaster affected areas and report to Regional authorities</li> <li>• Prepare actions plans on security and organize drills</li> </ul>

**Other National Level Committees:**

The Standing Order on Natural Disaster Management, January 2009 stated the formation of three more national level bodies in addition to the NDPCC. Specific responsibilities were dictated for each committee although the roles may have evolved and would be documented in the revised Standing Order. The committees are noted as examples of the Government of Burma’s disaster management planning. These committees involved representation from the government, military, private and public sector and NGOs.

**1. National Committee for Natural Disaster Management**

The National Committee for Natural Disaster Management is chaired by the Prime Minister and has representatives from the ministries (ministers or deputies), and Armed Forces (Army, Navy, and Air Force) and has been tasked to

- Develop disaster management policy and guidelines to support the policy

- Review of recommendations of the two national committees and support with implementation directives, legislation and finances
- Review Standing Orders on Disasters and National Disaster Management plans
- Coordinate between Armed Forces, civil administration and NGOs for disaster management planning
- Prepare guidelines for distribution of relief materials
- Prioritize measures to be taken for pre-disaster, disaster, and post-disaster periods<sup>96</sup>

## 2. Inter-Ministerial Coordination Committee for Disaster Management

The Inter-Ministerial Coordination Committee for Disaster Management is chaired by Minister for Social Welfare, Relief and Resettlement with representatives from the ministries (deputy ministers), Staff Officers from the Armed Forces (Army, Navy, Air Force), Division Chief responsible for NGO supervision, Director Generals from Fire Services Department, Department of Social Welfare, Relief and Resettlement Department, Myanmar Red Cross Chairman, Representative of the Union of Myanmar Federation of Chambers of Commerce and Industries, trade association professionals, and academic institutions. The committee has been tasked to:

- Implement the policy and decisions of the National Committee for Disaster Management, monitor disaster related plans and keep the National Committee informed
- Coordinate disaster management activities of government agencies and evaluate the Departments' disaster management activities
- Review disaster preparedness of the ministries and agencies every 6 months
- Coordinate operations for the post-disaster emergency rescue and relief period
- Issue guidelines and recommendations for disaster management and other related issues
- Fulfill specific disaster prevention and natural disaster risk mitigation responsibilities (details in Standing Order)

- Fulfill disaster preparedness responsibilities, disaster alert/warning stage, disaster stage (details in Standing Order)<sup>97</sup>

## 3. Advisory Committee for Natural Disaster Management

The Advisory Committee for Natural Disaster Management is chaired by a specialist designated by the Prime Minister with representatives from the State/Divisions vulnerable to natural disasters, specialists from government departments and universities, Department of Meteorology and Hydrology, specialists on storms, floods, earthquakes, NGOs, Myanmar Red Cross Society, Union of Myanmar Federation of Chambers of Commerce and Industries, bankers, and insurance enterprises. The committee is tasked to

- Compile information, study and submit recommendations on technical management, disaster prevention/mitigation, preparedness, emergency response system and activities for recovery and rehabilitation to the National Committee and Inter-Ministerial Committee and Ministry for Social Welfare, Relief, and Rehabilitation
- Promote awareness of disaster risks and mitigation and associated training and education
- Create cooperative efforts to identify solutions to disaster management problems
- Support Ministry of Social Welfare, Relief and Rehabilitation with solutions and recommendations for problems identified by the Ministry
- Prepare and propose long-term rehabilitation plans for areas affected by natural disasters
- Evaluate disaster preparedness programs<sup>98</sup>

## Myanmar Disaster Preparedness Agency

As of April 2011, the Myanmar Disaster Preparedness Agency (MDPA) chaired by the Union Minister for Social Welfare, Relief and Resettlement was created together with the Myanmar Disaster Preparedness Management Working Committee. The MDPA and Working Committee structure appears to have replaced the NDPCC and National Disaster Preparedness Management Working Committee. The NDPCC

membership contained representatives from the State Peace and Development Council which was dissolved in March 2011. The Myanmar Action Plan on Disaster Risk Reduction 2012 references the MDPA as well as briefings on the HFA implementation presented by Burma officials at regional conferences.

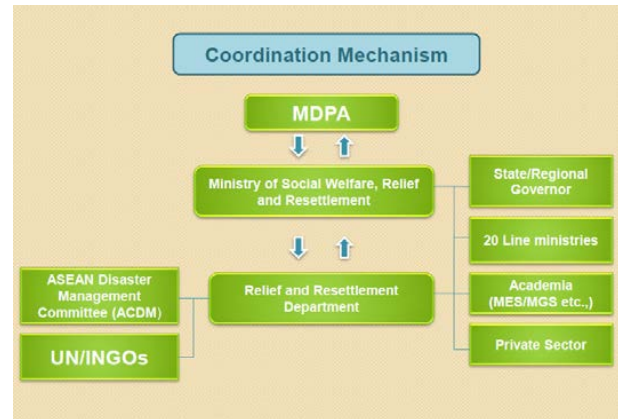
While the MDPA exists, the NDPCC has been resurrected by the Burma Government as necessary. It has been reported that a 23-member NDPCC was formed in preparation for the May 2013 Cyclone Mahasen. The committee was chaired by the Second Vice President and contained 19 ministers as members. The NDPCC was charged with the responsibilities of preparedness and safety, ensuring prompt and effective response, formation of policy and directives for domestic response and appealing for international assistance due to the impending emergency.<sup>99</sup>

The Myanmar Disaster Preparedness Agency (MDPA) has been constituted as of April 20, 2011 and is chaired by the Union Minister for Social Welfare, Relief, and Resettlement.<sup>100</sup> The MDPA is responsible for instituting systematic disaster preparedness measures and effective relief activities in response to disasters. The MDPA is a 13-member agency with the Union Ministers for Defense and Home Affairs as co-chairs and Deputy Ministers of designated ministries as members. The Secretary of MDPA is the Deputy Minister of the Ministry of Social Welfare, Relief and Resettlement (MSWRR) and the Joint Secretary is the Director General, Relief and Resettlement.<sup>101</sup> The MDPA structure reported under the HFA implementation in Burma resembles the previous organizational structure of the NDPCC.

The MDPA coordinates with the Ministry of Social Welfare, Relief and Resettlement and ministry in turn can coordinate with the Relief and Resettlement Department. The coordination mechanism allows the Ministry of Social Welfare, Relief and Resettlement to connect with the State/Regional Governor, 20 line ministries, academia, and private sector. The Relief and Resettlement Department is responsible for coordinating with the Association of Southeast Asian Nations (ASEAN), United Nations (UN), and non-governmental organizations (NGOs).

**Myanmar Disaster Preparedness Management Working Committee**

The Deputy Minister for Social Welfare,



Relief, and Resettlement is the chairman of the 11-member Management Working Committee. Under constitution, the committee supervises the implementation of disaster management activities in accordance with MDPA guidelines and coordinates the MDPA activities. The Deputy Minister of Defense and Deputy Minister for Home Affairs perform as the co-chairs. The Director General, Relief and Resettlement Department is the Secretary and the Director General, Fire Services Department is the Joint Secretary of the Working Committee.<sup>102</sup>

The committees exist at the government levels of:

- Region/State Disaster Preparedness Committee
- District Disaster Preparedness Committee
- Township Disaster Preparedness Committee
- Village Tract/Village Disaster Preparedness Committee

**Myanmar National Search and Rescue Committee April 2011**

The Myanmar National Search and Rescue Committee was constituted on April 20, 2011, the same date as the MDPA. The committee is tasked with implementing national level search and rescue measures and coordinating search and rescue efforts with countries in South East Asia and the Pacific.<sup>104</sup>

**Ministries and Disaster Management Responsibilities**

The ministries are involved in disaster management with varying degrees of responsibilities as detailed in the Standing Order on Natural Disaster Management in Myanmar,

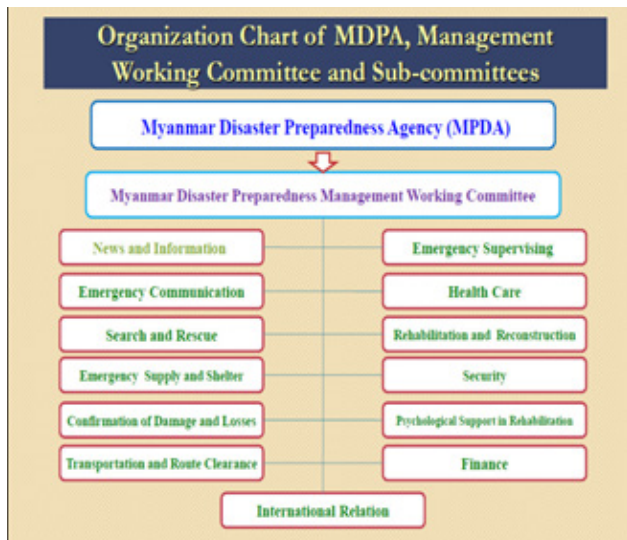


Figure 2: Myanmar Disaster Preparedness Agency and Management Working Committee and Sub-Committees Organizational Chart<sup>103</sup>

Myanmar Action Plan on Disaster Risk Reduction, ministry and departmental plans and governmental reports. Overall responsibilities for some of the key ministries are highlighted in this section with more details provided for the ministries and reporting departments with greater disaster management roles. The Ministry of Defence fulfills a major role as well and information on the ministry's responsibilities are described under the "Military Role in Disaster Relief" section. The comprehensive description for every ministry tasked with responsibilities at the normal times, alert/warning stage, during natural disasters and rehabilitation stage can be reviewed in the Standing Order.

### Ministry of Social Welfare, Relief and Resettlement:

The Ministry of Social Welfare, Relief and Resettlement is the central government ministry for natural disaster matters. One of the key disaster management duties of the ministry is to resettle and rehabilitate disaster victims. The ministry is comprised of three departments, the Relief and Resettlement Department, Fire Services Department, and Department of Social Welfare. Each department has specific disaster related duties.

Major responsibilities for the ministry from the Standing Order involve coordination and support of activities for the national level preparedness committee and the issuance of standing orders for the various government levels of State/Division, District, Township, and Village.

The identification of shelters and development of evacuation plans, development of required action plans, set-up of an emergency center, and assisting the Ministry of Education with public education on disaster preparedness are some of the pre-disaster roles for the ministry. During a disaster, surveillance and rescue operations support, and coordination and distribution of relief supplies and funding from domestic and international support are assigned tasks.<sup>105</sup> The three departments within the ministry have specific supporting roles.

#### 1. Relief and Resettlement Department

The Relief and Resettlement Department (RRD) was established to provide relief to disaster victims and to take action to minimize loss of lives and property. Major tasks for the RRD include

- To deliver relief to people, monks and nuns who face disasters to include insurgency
- To deliver relief to victims of storms at sea or river or stranded people even in foreign countries
- To provide aid to victims who evacuated their regions or were moved to safe locations due to armed insurgency
- To provide aid to people suffering from hunger due to severe drought, climate change, or crops destroyed by pestilence

As a part of the relief assistance, the department provides affected people with rice for 3 to 5 days or up to 7 days as needed. The duties of the RRD include conducting Disaster Management Training courses at the Division and State levels to help people in disaster preparedness and management.

On an international level, the RRD sends relief to disaster affected areas in other countries and to United Nations bodies. The RRD interfaces with the ASEAN Committee on Disaster Management (ACDM). As of 2009, the department had at least 19 warehouses which are used to stockpile relief materials.<sup>106</sup>

#### 2. Fire Services Department

The Fire Services Act of 1963 merged the multiple entities at the Directorate, Municipal, and local levels into the one central body of the Fire Services Department. Fire hazards are the primary concern of the department together with major duties which encompass



- Fire precaution, Fire prevention, and Fire extinguishing
- Social humanitarian services
- Develop and train firemen as a reserve force

The Fire Services Department exists through the township level and Fire Brigade is composed of the Government Fire Brigade, Auxiliary Fire Brigade, and Reserve Fire Brigade. Statistics from 2009 documents 550 fire stations of which 222 are government and 328 are auxiliary fire stations. The fire brigade includes 3680 fire personnel, 230,000 auxiliary firemen, and 1608 fire appliances. Fire Services training school courses include basic and advanced firefighting, vehicle driving, rescue techniques, aircraft fire fighting, rescue, and volunteer refresher classes.<sup>107</sup>

### 3. Department of Social Welfare

Established in 1953, the Department of Social Welfare is responsible for implementing activities focused protecting the vulnerable population of children, women, elderly, and physically challenged. The services include rehabilitation, grants to voluntary organizations and population specific programs such as Child Welfare, Care of Aged, etc.<sup>108</sup>

### Ministry of Transport

The Ministry of Transport is comprised of 5 departments; Department of Transport, Department of Civil Aviation, Department of Marine Administration, Department of Meteorology and Hydrology and Directorate of Water Resources and Improvement of River Systems. The ministry also operates 5 enterprises which include Inland Water Transport, Myanmar Airways, Myanmar Five Star Line, Myanmar Port Authority, and Myanmar Shipyards.<sup>109</sup>

### Department of Meteorology and Hydrology

The Department of Meteorology and Hydrology (DMH) fulfills a major disaster management role in the government. One of the key objectives of the department is “to take precautionary measures against and to minimize the effects of natural disasters.” DMH provides services on all aspects of meteorology, hydrology, aviation-meteorology, agro-meteorology, and seismology. The technical expertise of the department is relied upon to provide data, consultation, forecasts, warnings, joint surveys

and investigations for meteorology, hydrology, agro-meteorology, and seismology. Early warning information is generated by DMH which collects information from internal and external sources and issues weather forecasts at pre-determined times throughout the day.<sup>110</sup>

### Ministry of Agriculture and Irrigation

Agriculture accounts for 34 percent of the country’s GDP therefore the Ministry of Agriculture’s primary objective is to “increase crop production” with strategies of expanding agricultural land resources, providing sufficient irrigation water, increasing use of agricultural machinery, improving technology, and producing and improving crop varieties and seeds. The ministry has 11 departments which include the Irrigation Department, Department of Agriculture and Planning, Myanmar Agriculture Service, Agricultural Mechanization Department, Settlement and Land Records Department, Water Resources Utilization Department, Myanmar Agricultural Development Bank, Department of Agriculture Research, Survey Department, Yezin Agricultural University, and Myanmar Industrial Crops Development Enterprise.<sup>111</sup>

For key disaster preparedness activities, the ministry identifies disaster prone areas and maintains awareness of crop production with cultivation and harvest schedules, and information on location and maintenance of dams and reservoirs. Post-disaster, the ministry is involved in providing assistance to ensure crops or substitute crops are still planted and cultivated to keep the agriculture infrastructure viable.<sup>112</sup> The Irrigation Department has the disaster risk reduction initiative to systematically monitor the strength of dams and irrigation facilities and to renovate as required. The Irrigation Department and the Forest Department construct check dams to control sediment and build weirs to trap moving sediment in the watershed. The greening of arid zones occurs through the construction of weirs and tanks.<sup>113</sup>

### Ministry of Construction

The Ministry of Construction has the primary responsibility of construction, maintenance, and upgrading of the roads and bridges. The Ministry has one enterprise and two departments which are Public Works, Department of Human Settlement and Housing Development (DHSHD)

and Department of Works Inspection. For disaster management, DHSHD manages town plans for urban and rural areas as well as post disaster resettlement of disaster victims in towns with reduced vulnerability to disasters such as fire, flood, etc.<sup>114</sup> The Public Works has critical responsibilities to repair roads and bridges or construct detours due to a disaster, identify road networks to access affected areas, designate safe shelters for use in disasters provide generators and assist with evacuation and resettlement activities.<sup>115</sup>

### **Ministry of Education**

The Ministry of Education is responsible for creating an education system that will generate a society capable of facing the challenges of this age. The management of the school system is the primary focus and the ministry also shares a role in the higher education institutions of universities and colleges with twelve other ministries. There are nine departments within the ministry to include the Departments of Basic Education (1), (2), and (3), Department of Educational Planning and Training, Department of Myanmar Educational Research Bureau, Departments of Higher Education for Lower and Upper Myanmar, Department of Myanmar Language Commission, and Myanmar Board of Examinations.

### **Department of Educational Planning and Training (DEPT)**

The Department of Educational Planning and Training has the primary role of developing and implementing basic education plans in coordination with the basic education departments, building of school curriculum, and supervision of teacher education. The Ministry of Education is designated by the Standing Order to develop an institutional plan to minimize the negative impacts of natural disasters. The DEPT executes the standing order in conjunction with the Departments of Basic Education, and the United Nations Educational Scientific and Cultural Organization (UNESCO) Disaster Preparedness Response Education (DPRE) Working Group by collecting and explaining applicable guidelines and support materials for the schools to conduct school based risk assessments, prepare school preparedness plans, develop drills, support learning activities and advise on approaches to psycho-social recovery

and support. Through this department, two thousand resource packs which included a radio for tracking of warnings were distributed to 9 townships in the Ayeyarwady, Yangon, and Mandalay Divisions prior to 2009.<sup>116</sup> The Standing Order delegates responsibilities to the different departments which in general are responsible for tracking damage to their facilities, preparing plans, maintaining the facilities which are used for relief or shelter locations, and supporting relief efforts.<sup>117</sup>

### **Ministry of Foreign Affairs**

According to the Standing Order, the Ministry of Foreign Affairs will communicate and share information with the Burma embassies, consulates, foreign embassies, United States, ASEAN, United Nations, and international relief and aid organizations. Several of the departments within the Ministry connect with different ASEAN departments. The ministry has responsibilities during the normal times, pre and post disaster, and rehabilitation stage. There is no mention of roles during the onset of a disaster however this would be consistent with the coordination flow described under the Myanmar Disaster Preparedness Agency in the Foreign Assistance section. The MDPA coordination flow links the Relief and Resettlement Department from the Ministry of Social Welfare, Relief and Resettlement with the ASEAN, UN, and NGOs.<sup>118</sup>

### **Ministry of Health**

The Ministry of Health is the focal point for health facilities and health services. The ministry has 7 departments and 7 divisions. Prior to disasters, the ministry identifies hazard prone areas with information on the population and communicable diseases, cooperates with regional and international entities such as the UN agencies and ASEAN, established an emergency operation center, develops a data management system, identifies facilities to use for emergency health services, trains mobile medical squads, trains health staff, NGOS and community on first aid and emergency relief. During a disaster, the ministry will coordinate with other committees for search, rescue and relief efforts, provide health care through the emergency clinics and mobile medical squads, triages patients, provides health care at shelters, collects data on the injured, missing and deceased, treats water

for consumption, and manages sanitary waste disposal.<sup>119</sup>

**Ministry of Home Affairs**

The Ministry of Home Affairs is responsible for security, law and order, and peace and tranquility. The four departments within the ministry include the Myanmar Police Force, General Administration Department, Bureau of Investigation, and Correctional Department.

**General Administration Department (GAD)**

The General Administration Department focuses on maintaining the rule of law and a peaceful state with representation at the State/Division, District and Township levels. The GAD is involved in identifying relief camps, arranging disaster management training, and disseminating early warning information to the grass-root levels at the districts and townships.<sup>120</sup>

**Ministry of National Planning and Economic Development**

The Ministry of National Planning and Economic Development has seven departments and is responsible for the social and economic development policy for the country. Within this ministry, the Planning Department fulfills a key role in the disaster management structure at the State/Division, District, and Township levels. Members of the planning department serve on

the Disaster Preparedness Committees at the stated levels.<sup>121</sup>

**Disaster Management Committees at State/Division, District, Township and Ward/Village Tracts**

Burma is administratively divided into seven Divisions and seven States. Divisions are predominately home to the Bamar or Burman population. States are divisions populated by particular ethnic minorities. Divisions and States are subdivided into Districts and Districts are comprised of Townships. Townships are separated into Wards, and Village Tracts. Village Tracts are groups of Villages.<sup>122</sup> Disaster Management Committees were created at the State/Division, District, Township and Ward/Village Tracts under guidance from the NDPCC.

Mandalay and Yangon Disaster Management Committees (DMC) are examples of the State/Division level. The Action Plan on Disaster Management of Mandalay Division existed since 2005 as decreed by the NDPCC. The Mandalay Division has Disaster Management Committees at the Division, District, Township and Ward/Village Tract levels. Mandalay Division DMC is supported by 10 sub-committees which follow the same categories as the National Sub-Committees. The Yangon Division titles their committees Disaster Preparedness Management Committees for the Division, District, Township, and Ward/Village Tract levels. The Division Management Committee is supported by 10 working committees structured along the

Division/State	Districts	Townships	Sub-townships	Wards	Village Tracts	Villages
Kachin State	4	18	9	143	597	2583
Kayah State	2	7	1	31	79	620
Kayin State	3	7	6	74	374	2161
Chin State	2	9	3	37	471	1352
Mon State	2	10	2	80	383	1200
Rakhine State	4	17	3	133	1040	3860
Shan State	12	55	20	432	1629	15387
Bago Division	4	28	-	254	1423	6452
Sagaing Division	8	37	3	187	1768	6087
Tanintharyi Division	3	10	6	83	264	1230
Magway Division	5	25	1	163	1541	4771
Mandalay Division	8	36	2	297	1597	5424
Yangon Division	4	45	1	742	620	2089
Ayeyarwady Division	6	26	7	235	1912	11701
<b>TOTAL</b>	<b>67</b>	<b>330</b>	<b>64</b>	<b>2,891</b>	<b>13,698</b>	<b>64,917</b>

Table: 1 Administrative Units of Burma



same lines as the National Sub-committees.<sup>123</sup>

## Laws, Policies, and Plans on Disaster Management

### Standing Order on Natural Disaster Management in Myanmar

The Standing Order on Natural Disaster Management in Myanmar finalized in January 2009 was the critical document which assigned roles and responsibilities to the ministries, departments, and disaster committees. The Standing Order identified the natural disaster preparedness factors, hazards, risks, factors in natural disaster risk reduction, and different governmental measures in the form of committees. The main committees detailed included the 1) National Committee for Natural Disaster Management, 2) Inter-Ministerial Coordination Committee for Disaster Management, 3) Advisory Committee for Natural Disaster Management, and 4) Order for the Formation of the Myanmar Natural Disaster Preparedness Committee. The importance of committee functions were outlined at the National, State and Division, and District and Township levels for the administrative structure of the government. Ministerial Management Committees shared obligations for disaster preparedness and response categorized by the disaster phases of Normal Times, Alert and Warning, During Natural Disasters, and Relief and Rehabilitation stages. The Ministerial Management Committees existed within the different ministries such as Ministry of Defense (Army, Navy, and Air Force), Ministry of Social Welfare, Relief and Resettlement, Ministry of Health, Ministry of Information, etc.<sup>124</sup>

The Standing Order has been scheduled for revision to include the new institutional framework for the Myanmar Disaster Preparedness Agency, Management Working Committee, and Sub-Committees. The MDPA will lead the revision of the Standing Order.<sup>125</sup> The Myanmar Action Plan on Disaster Risk Reduction 2012 stated an estimated duration of 2 years to complete the plan which should be 2014.

### National Disaster Management Law

The Myanmar Action Plan on Disaster Risk Reduction (described later in this section)

denotes future plans to draft a National Disaster Management Law. The law will be the legal instrument to support actions and strategic decision-making taken by the government to reduce negative disaster effects.<sup>126</sup>

### Emergency Management Action Plan, Yangon General Hospital

The Emergency Management Action Plan, Yangon General Hospital written in the mid 1990's is noted in the plans section due to it being recognized as a model plan for hospitals as of 2009. The plan described an emergency at the hospital if more than 3 people were seriously injured for a 200-bed facility. The plan described a hospital management committee with roles and responsibilities. The Yangon Hospital has mobile teams and conducts mock drills for preparedness. The plan writes about "Triage" and categories to classify the injured. The small number of seriously injured creating an emergency at the hospital demonstrates the challenge at the division level to administer medical support for large scale disasters.<sup>127</sup>

### National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response

The National Strategic Plan for Prevention and Control of Avian Influenza and Human Pandemic Preparedness and Response was prepared by the Ministry of Health with assistance from the Ministry of Livestock and Fisheries in January 2004. The plan was written as a preventive measure after the SARS outbreak in Southeast Asia in 2003 which did not directly impact Burma. The plan encompassed five chapters covering Background, National Preparedness and Response on Avian Influenza, Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response, Conclusion and Budgetary Requirement. The response phases were described as Inter Pandemic phase, Avian Influenza Phase (Pandemic Alter Phase I), Human Influenza Pandemic Alter Phase II, Human Influenza Pandemic Phase, and Post Pandemic Phase.<sup>128</sup>

### Implementation Plan for Preparedness and Protection from Future Natural Disasters

The Implementation Plan for Preparedness



and Protection from Future Natural Disasters was developed by the National Preparedness Central Committee and launched on August 15, 2008. The plan addressed the third guideline for relief and rehabilitation tasks Post Nargis. The Third Phase centered on prevention of disasters in the future.<sup>129</sup>

### **Post Nargis Recovery and Preparedness Plan (PONREPP)**

The Post Nargis Recovery and Preparedness Plan (PONREPP) was written in February 2009 to address recovery responses from 2009-2011 in the areas impacted by Cyclone Nargis. The intent of the PONREPP was to promote productive, healthy, and protected lives and disaster risk reduction was integrated as one of the sectors within the protected lives objective.<sup>130</sup> As a joint report from the Government of Burma, United Nations, and ASEAN, the document provided a framework for international assistance to address the transition from early recovery to medium and long term recovery efforts. The PONREPP included the disaster risk reduction strategy of strengthening the capacities of the disaster risk reduction systems and procedures. Disaster risk reduction was planned through the 1) improvement of community engagement in disaster risk reduction measures, 2) improvement of early warning dissemination and action by the communities and institutions, 3) locally adaptation of mitigation measures in vulnerable areas, 4) better integration of disaster mitigation in Post Nargis recovery and reconstruction efforts, and 5) improvement of preparedness and mitigation policies and response mechanisms by national and local institutions. Implementation of the measures involved local government at the village, and village tract/township level with national and NGO partnerships.<sup>131</sup>

### **Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2012**

The Myanmar Action Plan on Disaster Risk Reduction 2012 is the current version of the MAPDRR, the previous version was dated 2009. The Government took meticulous measures to prepare a thorough plan to capture the nation's disaster risk reduction initiatives and implement the Five Priorities for Action under the Hyogo Framework for Action (HFA). An Inter-Agency Task Force was constituted to write the plan and the force included members

the Burma Departments and Ministries, United Nation (UN) Agencies (UNDP and UNOCHA), professional institutions, Myanmar Red Cross and Asian Disaster Preparedness Center (ADPC).<sup>132</sup>

The goal of the MAPDRR is "To make Myanmar Safer and more resilient against Natural Hazards, thus Protecting Lives, Livelihood, and Development Gains." The MAPDRR aligns the seven components of the plan with the five HFA Priorities and the Articles of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER).<sup>133</sup> The plan provides information on the rationale for each Component along with the current status and plans for the Sub-Components to achieve the related Component. Each Component is further detailed in a table which describes the Sub-Component, objectives, activities, expected outcomes, estimated duration, lead agency, supporting government agencies, potential partners (INGOS, NGOS, etc.) and priorities. Thus the plan provides a comprehensive road map for the nation's disaster risk reduction efforts.

### **Government Capacity and Capability (reference Hyogo interim reports as to their status for the different sections)**

The Government of Burma started the country's disaster management structure in 2005 with the formation of a national level disaster preparedness committee. Since 2005, the nation experienced the devastating effects of Cyclone Nargis which served as a catalyst to further motivate the government in disaster management and disaster risk reduction. Capability and capacity building efforts in Burma has continued to progress through the involvement of domestic and international partners. Many assistance programs were enhanced or initiated due to the Cyclone Nargis disaster.

The November 2010 Interim National Progress Report for 2009 to 2011 documents the Burma Government's disaster management actions against the Hyogo framework with progress levels ratings. The Priority for Action items and the ratings provide insight on the government's progress.<sup>134</sup>

A summarization of the results is detailed below:

**Priority for Action 1:** Ensure that disaster risk reduction is a national and a local priority with a

S/N	Component	HFA Priorities	AADMER	No. of Projects
1	Component 1: Policy, Institutional arrangements and further institutional development	Priority 1	Article 6, 10	4
2	Component 2: Hazard, vulnerability and risk assessment	Priority 2	Article 5	8
3	Component 3: Multi-hazard Early Warning Systems	Priority 2	Article 7	10
4	Component 4: Preparedness and Response Programs at National, State/Region, District and Township levels	Priority 5	Article 6, 8	10
5	Component 5: Mainstreaming of Disaster Risk Reduction into Development	Priority 4	Article 6	13
6	Component 6: Community based Disaster Preparedness and Risk Reduction	Cross-cutting	Article 6, 7	9
7	Component 7: Public Awareness, Education and Training	Priority 3	Article 6, 7	11
<b>Total</b>				<b>65</b>

Table: 2 Component-wise numbers of projects and its linkage to HFA and AADMER

strong institutional basis for implementation

**Core Indicator 1:** *National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels*

**Level of Progress Achieved: 3** Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Description:** The Government of Burma constitutionally created the National Disaster Preparedness Committee (NDPCC) which is chaired by the Prime Minister to serve as the apex body for disaster management. The disaster management structure encompasses the ministries to the local administrative level and involves Disaster Preparedness Committees at the Division/State, District, Township, and Village levels. The roles and responsibilities have been defined in the Standing Order on Natural Disaster Management according to the disaster phases of normal, warning, disaster onset, and rehabilitation stages. Disaster management training and plans such as the National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response were completed.

**Discussion on Context and Constraints:** Two key challenges are identified as the lack of an overarching disaster management law and lack of guidance on how to integrate disaster risk reduction into each of the ministries. The recommendation is to develop a country Disaster Management Law/Policy which will mainstream disaster

risk reduction into the ministries.

**Core Indicator 2:** *Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels*

**Level of Progress Achieved: 2** Some progress, but without systematic policy and/or institutional commitment

**Description:** The Government of Burma allocates funding for rehabilitation under the Special Fund, and the State budget provides the ministry budgets which includes disaster risk reduction. The disaster risk reduction addresses mainly relief funding with some capacity building. Some donor resources are received through the United Nations and other humanitarian organizations.

**Discussion on Context and Constraints:** A policy directive for the allocation of disaster risk reduction funding is absent and in general financial resources are inadequate. Plans have been drafted at all of the administrative levels but need more details on activities and implementation which will help to identify the resources required and subsequent funding. The State budget should attend to disaster risk reduction allocation and consolidate efforts between ministries and capacity development.

**Core Indicator 3:** *Community participation and decentralization is ensured through the delegation of authority and resources to local levels*

**Level of Progress Achieved: 2** Some progress,

but without systematic policy and/or institutional commitment

**Description:** Disaster Preparedness Committees exist from the national to village tract level with roles and responsibilities outlined in the Standing Order for Natural Disaster Management. The legal framework to support disaster management at the district to village levels is in place and the associated roles and responsibilities defined for the local government authorities. While responsibilities are decentralized the finance arrangements are not adequately decentralized through the government. Community disaster risk management is supported through initiatives from UN agencies and local and international nongovernmental organizations.

**Discussion on Context and Constraints:** Financial resources need to be decentralized to support the local level government disaster risk reduction responsibilities. The community involvement can be expanded to include the ward/village grassroots level organizations as identified in the Standing Order.

**Core Indicator 4:** *A national multi-sector platform for disaster risk reduction is functioning*

**Level of Progress Achieved:** 3 Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Description:** Different stakeholders are involved in the disaster risk reduction process through committees and forums. The Advisory Committee for Natural Disaster Management is comprised of representatives from the government, NGOs, academia, industries, private sector and disaster specialists. The Monsoon Forum, Civil Society Forum, and Recovery Forum were also identified as entities which involve representatives across the sectors.

**Discussion on Context and Constraints:** The existence of numerous multi-stakeholder platforms lessens the impact of the collaborative efforts which can be corrected by activating the Advisory Committee for National Disaster Management and gathering the stakeholders under a national platform.

## Education Programs

### Ministry of Social Welfare, Relief and Resettlement, Relief and Resettlement Department

The Relief and Resettlement Department has been conducting disaster management training courses at the Division and State levels since 1977. The program by the RRD incorporates a five-day training schedule which teaches the Burma history of disasters and hazard information and preparation for fire, earthquake, cyclone, tsunami, landslide, etc.<sup>135</sup> As of 2011, over 77 training sessions have been conducted and more than 1,500 government officials have received professional training. A unique aspect of the training involves training based on Burma's disaster history and lessons learned that are continually refreshed as the country responds to current disaster situations. As of 2011, the curriculum was in review for revamping with assistance from CARE and ADPC to improve the level of information provided in the courses.<sup>136</sup>

### Education Sector

The Government of Burma has recognized the importance of mainstreaming disaster risk reduction and established training and education into the Education sector as stated in the MAPDRR. The Guidance for Mainstreaming Disaster Risk Reduction in the Education Sector, Myanmar – Rural Settings was developed by the Ministry of Social Welfare, Relief and Resettlement and Ministry of Education in association with ASEAN, UN, and ADPC to identify key approaches. After Cyclone Nargis, the Ministry of Education (MOE) issued standing orders to all schools to prepare school preparedness plans. Disaster risk reduction components have been integrated into the life skills and science subjects under the school curriculum. The challenge is to expand learning priorities beyond the formal syllabus and test structure to include disaster information. The document acknowledges it is essential to promote education on the disaster related topics due to the importance of the children as a vulnerable population and also as messengers of disaster preparedness to their families and communities.<sup>137</sup>

Disaster risk reduction measures in education encompass the intent to raise awareness and



build knowledge about disaster situations, empower communities to make well-informed decisions to reduce their vulnerability to disasters, and build a culture of prevention. This intent can be expressed through the following actions:

- Integrate disaster risk reduction into school curricula
- Identify and disseminate good practices and exchange of experiences
- Train teachers and community leaders
- Conduct mock drills, awareness-raising campaigns, commemorate disaster reduction days/weeks
- Conduct informal educational activities (games, comics, TV programs, family activities, etc.)
- Build on traditional knowledge for disaster risk reduction<sup>138</sup>

The guidance document delineates two main approaches to mainstream disaster risk reduction in school curriculum. Approach one is the development of disaster risk reduction curriculum. One of the most effective means of disseminating disaster risk reduction concepts is to integrate the information into the primary and secondary levels. Basic curriculum materials for Grades 5-11 on disaster risk reduction have been developed and integrated in formal and non-formal education as led by the MoE with United Nations Children's Fund (UNICEF) and United Nations Educational, Scientific and Cultural Organization (UNESCO) support.<sup>139</sup>

#### **Recommended actions:**

- Review current curriculum, hold series of workshops to develop specific disaster risk reduction content and lessons
- Develop material as either a new subject or integrate into current program
- Materials could include modules and teaching aids for basic education schools and teachers colleges

Approach two involves capacity building for teachers to enable teaching of disaster risk reduction lessons. The mainstreaming program implemented by the MOE, UNICEF, and UNESCO has trained over 10,000 teachers up to 2010.

#### **Recommended actions:**

- Expand teacher training and target institutionalizing disaster risk reduction training in the teacher training system
- Train teachers in pre-service and in-service teacher trainings

Another important aspect of mainstreaming disaster risk reduction involves school preparedness and emergency planning. Teachers and Principals have received disaster risk reduction training various programs sponsored by the MOE and UNESCO. The Myanmar Red Cross and French Red Cross have a teachers training program as well. The guidance document outlines basic steps to be taken from the development of guidelines on how to prepare the plan with details on the essential components.

#### **Early Warning**

Two main ministries are involved in the early warning process. The technical expertise for meteorology, hydrology and seismology resides with the Ministry of Transport, Department of Meteorology and Hydrology. The DMH collects and provides the disaster warning information for dissemination and the Ministry of Information is responsible for state owned media venues which circulate the information to the public.

DMH has had the capability for seismological monitoring since 1963 and additional seismographs have been incorporated through the years. Burma also expanded the number of seismic networks by using digital broadband stations in 2011. The department also has an internal capability for a communication warning system with Single Side Band which supplements the government owned TV and radio stations that do not broadcast 24 hours. As of 2004, DMH established the tsunami early warning and information system which receives tsunami information from the Japan Meteorological Agency (JMA) and Pacific Tsunami Warning Center (PTWC).<sup>140</sup>

Two Early Warning Centers exist under the Department of Meteorology and Hydrology. One center is located in Yangon and one in Nay Pyi Taw. DMH collects information from several internal and external sources and issues weather forecasts four times a day at set times. As of 2008, advisory messages are disseminated



with information on the onset of a storm. The advisory message recommends vessels and fishing boats to avoid sea passage 48 hours from the designated time. The messages help to increase the level of safety for the public. As of 2009, the intensity of cyclones are graded with a four color system of yellow, orange, red, and green stages.

**Yellow Stage:** Defined as the stage when a tropical storm develops in the Bay of Bengal. Weather reports would be broadcast 2 to 3 times a day by the Myanmar Radio and City FM and by the MRTV and Myawaddy (MWD) Television. The location of the storm in the Andaman or in the Bay of Bengal should also be reported. Maritime Weather Forecast and Storm Warning information would be provided to the Myanmar Five-Star Line Ship.

**Orange Stage:** Defined as the stage when the storm is moving towards the Burma coastal areas after passing through the Bay of Bengal or Andaman Sea. The weather reports increase in frequency and be broadcast 3 to 4 times a day by Myanmar Radio. The MRTV and MWD television should broadcast the weather information scrolling during the regular broadcast programs. The weather report would include the stage of the storm, location, and forecast of landfall with direction, time, and area together with rain, wind and tidal surge information.

**Red Stage:** Defined as the stage when the storm is 12 hours away from landfall on the Burma coastal area. Weather report frequency will increase to 3 to 6 times a day by Myanmar Radio. Television broadcast methods will be similar to the orange stage with scrolling information during regular broadcast programs. The weather report would include stage, location of anticipated landfall with forecasts on the direction and rain of the storm.

**Green Stage:** Defined as the stage when the storm weakens and diminishes. After the storm passes, weather report broadcasts should occur 2 to 3 times a day by Myanmar Radio. MRTV-4 and MWD should continue scrolling information during broadcast programs.<sup>141</sup>

The Ministry of Information utilizes several methods to distribute disaster information to educate the public and to provide real-time updates in the event of a disaster. Information is published in daily newspapers, journals and magazines, broadcast on radio and television or by loud speakers, shown in cinemas and theaters, shared in field activities at the districts and townships, distributed in pamphlets, wall posters and leaflets, or air dropped from aircraft and helicopters if necessary.<sup>142</sup> The primary media sources are state-run newspapers, television, and radio.

**State-run media<sup>143</sup>:**

Print	<ul style="list-style-type: none"> <li>• Kyehmon (The Mirror), daily</li> <li>• Myanmar Times, weekly</li> </ul>
Television	<ul style="list-style-type: none"> <li>• TV Myanmar operated by Myanmar TV and Radio Department with broadcasts in Bamar, Arakanese (Rakhine), Shan, Karen, Kachin, Kayah, Chin, Mon, and English</li> <li>• Myanmar International TV – English</li> <li>• Myawaddy TV – army run network</li> <li>• TV5 – State-private joint pay TV venture</li> </ul>
Radio	<ul style="list-style-type: none"> <li>• Radio Myanmar operated by Myanmar TV and Radio Department</li> <li>• City FM – entertainment station operated by Rangoon (Yangon) City Development Committee</li> </ul>
Other News Agency	<ul style="list-style-type: none"> <li>• Myanmar News Agency (MNA)</li> </ul>

Improvements on the early warning system have been in progress since Post Nargis when the Disaster Risk Reduction Working Group (DRR WG) addressed the concern of strengthening the early warning system for cyclones. The DRR WG consisted of a partnership of agencies between local and international NGOs, UN, donors, professional institutions and government departments. The DRR WG was formed through the Standing Committee Cluster Approach for Cyclone Nargis to coordinate response and reported to the Early Recovery Cluster. Community level organizations had raised the need for warning information to reach communities in a simple and quick coordinated fashion. The Working Group platform was used to bring the issue to the government departments involved in the issuance of the Early Warning and to address the system's gaps. Roles were clarified for the General Administration Department, Department of Meteorology and Hydrology, and broadcasting services from the Ministry of Information. Recommendations were raised to the central level government and improvements in the early warning were seen in Cyclone Giri in 2010.<sup>144</sup>

### **Military Role in Disaster Relief**

The Ministry of Defense and the Armed Forces (Army, Navy, and Air Force) have performed an integral role in disaster management in Burma and are constitutionally designated specific responsibilities based on the capabilities of the components. The Ministry of Defense also supports national level committees as stated in the Standing Order for the National Committee for Natural Disaster Management and Inter-Ministerial Committee for Natural Disaster Management.<sup>145</sup>

The country's defense budget has been reported as over 4% of GDP for 2010-2012 which has been the highest in Asia. Military expenditures of \$2,273M or 4.21% of GDP in 2012 have been recorded. Military forces were numbered at 406,000 and 107,000 paramilitary.<sup>146</sup>

The Tatmadaw, (Myanmar Armed Forces) have been actively involved in disaster response as documented in the PONJA. Substantial assistance was provided by the Myanmar Armed Forces in the overall relief and recovery phases of Cyclone Nargis. The first field inspection of the affected disaster areas by the Prime Minister was supported by senior military officials on May 3. The military was involved in security for the region, search and rescue, evacuation of

the injured, setting up shelter for the displaced population, collection, identification of the deceased, debris removal and clearing of roads, distribution of relief goods, and support of relief assistance for the public. The Defense Services Medical Corps provided doctors and nurses for emergency medical care to the impacted areas. Military ground transportation was used to move relief goods, agriculture machinery and even water buffaloes for the planting season. The Air Force provided helicopters and the Navy deployed boats and crew for relief operations. The basic response efforts of the military are captured in the Standing Order developed in 2009.<sup>147</sup>

The responsibilities of the Ministry of Defense and armed forces are delineated by the four disaster phases as stated in the Standing Order.

**Ministry of Defence Responsibilities Overview<sup>148</sup>:**

Note: Armed Forces refer to the Army, Navy, and Air Force unless otherwise designated.

Normal Times	Alert and Warning Stage	During Natural Disasters	Relief and Rehabilitation
Designate disaster communication focal point	Set-up 24 hr control centers at Division Command HQ	Monitor natural disaster situation	Assist military families with food and accommodation
Maintain contact and work with National Committee for Natural Disaster Management	Issue hourly warning updates to the military units	Assign relief and rehabilitation duties to the Military Command HQ as appropriate	Conduct field assessments in disaster-affected areas and identify requirements for recovery
Form natural disaster protection committees at all headquarters	Ensure military families have access to disaster information	Provide coordination to local authorities in disaster prone areas	Assist with the deceased and debris removal
Develop plans for areas vulnerable to cyclones, floods, tsunamis, dam failure due to earthquakes for transportation of people and property for evacuation	Collect news and information on natural disasters from Dept. of Meteorology and Hydrology and disseminate to Armed Forces	Transmit guidance and messages between Office of the Commander-in-Chief (Army, Navy, Air Force), Military Command HQ, and local authorities during disaster	Assist local administration to obtain drinking water
Coordinate with Armed Forces for early warning, evacuation, and relief and rehabilitation and form coordination teams	Prepare an surface and air transport evacuation plan to transport people and other priority items	Review committees and the disaster protection activities and provide guidance	Assist disaster victims with construction of temporary shelters
Organize and equip for search and rescue	Assist public in evacuations		Set-up field hospitals as needed
Understand natural disaster management and hazards of floods, river erosion, earthquakes and storms	Ensure Navy, Air Force and Division Command HQ have prepared disaster calendar, hazard maps, and risk maps		Assist to set-up relief camps and provision of shelter, food, water, clothing and essential services
Conduct drills			Document and analyze disaster
Allocate funding for disaster response			
Identify risk areas and supervise construction of disaster resistant housing for military families			

## The Armed Forces – Army Responsibilities Overview<sup>149</sup>:

Normal Times	Alert and Warning Stage	During Natural Disasters	Relief and Rehabilitation
Identify transport vehicles from units under Division Command HQ for sustained relief operations and projects	Issue disaster warnings to affected commands, issue orders for rapid mobilization of armed forces, evacuate military families and provide shelters	Forward news and weather information from Division Command HQ to Office of the Commander-in-Chief (Army)	Provide medical services to villages and remote areas using specialist teams, mobile medical teams and hospital ships arranged by the Directorate of Medical Corps
Provide natural disaster management training to officers and personnel from all training institutes	Supervise and form working groups with representatives from designated Directorates	Send relief teams to disaster-affected areas in coordination with NDPCC, MS-WRR, Ministry of Defence, and Ministry of Home Affairs	Sanitize wells and ponds, install water purifiers, spray insecticide to prevent infectious diseases
Conduct disaster preparedness and response drills	Directorate of Communications set-up comm. outposts	Assist in search and rescue operations	Ensure systematic disposal of sewage and waste and raise health awareness
Work with NDPCC and Dept. of Meteorology and Hydrology	Directorate of Medical Corps form medical teams with supplies and meds	Maintain 24 hr availability of supervisory staff for natural disasters	Ensure military units are providing food supplies for military and police
Install infrastructure needed to protect against natural disasters and for use in relief operations	Directorate of Public Relations and Psychological Warfare and units educate public and armed forces personnel (TV and written materials)	Deploy trained search and rescue teams to disaster-affected areas	Coordinate with Directorate of Communications units and the ministry for debris removal (trees, poles, power lines, cables, etc.)
Prepare an action plan for protection against natural disasters	Directorate of Engineering Corps form engineering units and equip for search and rescue and construction	Assist local authorities with search and rescue activities	Ensure local area commanders are taking relief and recovery measures and supporting continuity of livelihood
Form natural protection committees at the Division Command HQ	Keep ground transport ready with staff and fuel		Assist in damage surveys and identification of response requirements
Keep search and rescue equipment ready	Form back-up teams and deploy as needed		Assist local authorities with care of disaster victims and provision of food and water
Educate military units to help military families prepare for disasters	Evacuate military families, public and priority items from disaster prone areas to safe locations		Support relief and rehabilitation activities requested at the township level
			Designate liaison officer to coordinate between military units and with other organizations for relief operations



**The Armed Forces – Navy Responsibilities Overview<sup>150</sup>:**

Normal Times	Alert and Warning Stage	During Natural Disasters	Relief and Rehabilitation
Ensure naval bases coordinate with the Dept. of Meteorology and Hydrology, Ministry of Defence, Office of Commander-in-Chief (Army and Navy) to receive storm and tsunami warnings	Issue warning orders to all Naval Bases	Assign officers and personnel to natural disaster management centers at Naval Bases as needed	Take recovery measures to provide food and housing to military families
Establish a water transport system for use during relief and rehabilitation operations	Set-up natural disaster management centers at Naval bases and designate duty officers to liaison with the Ministry of Defence, and Office of the Commander-in-Chief (Army and Navy)	Launch search and rescue operations without delay	Provide assistance to authorities for relief and rehabilitation programs in disaster-affected areas
Provide training and education of officers and staff on relief and rehabilitation operations	Take necessary measures for the safety of naval vessels, equipment, and staff in disaster-prone areas	Coordinate with local authorities and take all possible security measures	Provide assistance to authorities for the distribution of relief supplies in disaster-affected areas
Prepare a plan which will ensure safety of naval vessels, equipment and personnel against disaster impacts	Set-up an effective information network to disseminate information for natural disasters	Deploy vessels to disaster-affected areas and carry out relief operations and transport as directed by the Office of the Commander-in-Chief (Navy) and when conditions allow	
Ensure naval bases prepare contingency and action plans for natural disasters which account for vulnerable areas and review and revise plans, and provide training.	Move self-powered vessels to safe locations outside the vulnerable locations and dock or beach less sturdy vessels	Provide assistance to local authorities and public as directed by the Naval Bases	
Secure vessels during storms and tsunamis to prevent damage and loss	Evacuate military families and public to safe areas	Submit regular reports to the Office of the Commander-in-Chief (Navy and Army)	
Designate emergency anchor points and ensure systematic waterway traffic			
Prepare for evacuation, search and rescue, and relief and rehabilitation for public and military families			

## The Armed Forces – Air Force Responsibilities Overview<sup>151</sup>:

Normal Times	Alert and Warning Stage	During Natural Disasters	Relief and Rehabilitation
Ensure Air Bases and Air Force Units regularly collect and report data on natural disasters	Issue early warning and directives to Air Base and Air Force Units as received	Continuously monitor the disaster situation	Take aerial photographs for disaster assessment and conduct aerial patrols as directed by the Ministry of Defence
Map disaster impacts and compile airfield and helipad information	Set-up natural disaster management centers at Air Bases and designate duty officers to liaison with the Ministry of Defence, and Office of the Commander-in-Chief (Army and Navy)	Keep aircraft and helicopters ready for disaster assessments and for relief operations	Deploy aircraft/helicopters for search and rescue and removal and evacuation of patients to safe locations
Establish arrangements for the collection of weather news from the various departments	Evacuate military families and public from disaster-affected areas to safe locations	Expedite rescue operations as directed by the Ministry of Defence	Deploy aircraft/helicopters to transport staff from other organizations for field tours
Prepare action plans to protect aircraft, helicopters, equipment, machinery, and buildings against natural disasters	Take measures for the safety of aircraft, helicopters, equipment, and staff in disaster-prone areas	Assign officers and personnel to disaster management centers at Air Bases	Deliver relief supplies, medicine, food supplies, and relief teams to disaster-affected areas
Ensure air-to-air and air-to-ground communication systems and back-up systems are operable	Move aircraft and helicopters from disaster-prone areas to safer locations	Launch search and rescue operations without delay	Designate liaison officers for aircraft crew transporting relief teams from supporting countries
Develop plans to effectively use Air Force based on flexibility and mobility strengths	Assign staff duties and keep aircraft and helicopters on standby for transport	Coordinate with local authorities to take all possible security measures	Deploy officers and personnel from Air Force to disaster-affected areas for rehabilitation work
	Exchange information with other departments	Deploy aircraft and helicopters to disaster-affected areas and carry out relief operations and transport as directed by the Office of the Commander-in-Chief (Air Force) and when conditions allow	Perform other functions as directed by the Ministry of Defence
		Provide assistance to local authorities and public as directed by the Office of the Commander-in-Chief (Air Force)	Keep detailed records of disaster protection activities and review for lessons learned
		Submit regular reports to the Office of the Commander-in-Chief (Air Force and Army)	Take recovery measures to provide food and housing to military families

**Foreign Military Assistance**  
(this is a sub-heading under military)

At the time of Cyclone Nargis, the Government of Burma was an isolated regime, wary and suspicious of receiving Humanitarian Assistance/ Disaster Relief (HA/DR) support from Asian countries and the United States. The persistent efforts from China, the United States, and other international entities to change the government's stance led to halting acceptance of assistance with conditions from the government. While supplies were eventually flown into the country, the Burma government did not change its stance regarding support from the sea except for India. Navy support from several countries such as the United States, Britain, and France were offered however the Burma Government declined to authorize ship-to-shore operations. The government did accept support from India and two warships under the code Operation Sahayata. India has observed that its regional capability for Humanitarian Assistance/Disaster Relief (HA/DR) is substantive and there are several navy platforms which allow them to offer the needed assistance to Burma.<sup>152</sup>

**Foreign Assistance**

The Association of Southeast Asian Nations (ASEAN) has played a major role in regional response to Burma as seen in Cyclone Nargis. ASEAN fully implemented the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) which has been instituted since 2005. The AADMER aimed to provide effective mechanisms to reduce disaster losses in lives and in the social, economic, and environmental assets of the Parties and to jointly respond to disasters with regional and international cooperation. Until Cyclone Nargis, ASEAN had not leveraged the full force of the agreement.<sup>153</sup>

ASEAN was also instrumental in creating the Tripartite Core Group. The Burma Government constitutionally established the Tripartite Core Group (TCG) on May 30, 2008, to improve coordination and collaboration between the country and the international community in humanitarian relief and recovery work post Cyclone Nargis. The TCG membership comprised of the Government of Burma, ASEAN, and UN Agencies.<sup>154</sup> The TCG structure operated effectively in facilitating initial relief efforts as reported in the Post Nargis Joint Assessment (PONJA).<sup>155</sup>

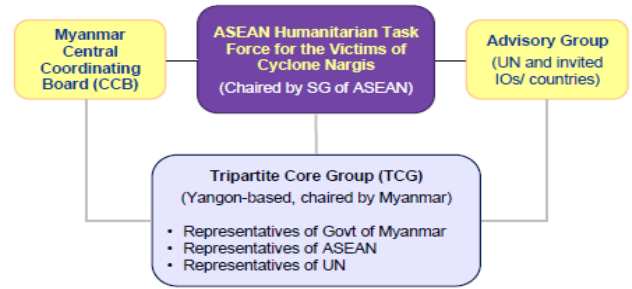
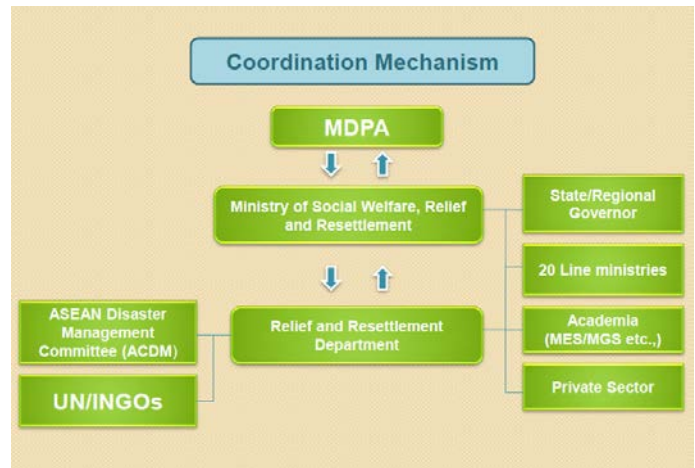


Figure: 7 ASEAN-led Coordination Mechanism<sup>156</sup>

In the aftermath of Cyclone Nargis, the Burma Government initially declined foreign assistance even though the international community responded with deployed relief supplies at the country's doorstep. The United Nations was able to support under the relief efforts as a member of the TCG. Eleven clusters were formed to support Burma.

According to the MDPA coordinating mechanism, the Relief and Resettlement Department will interact with the international community through the ASEAN Disaster Management Committee (ACDM) and through the United Nations/NGOs. The Ministry of Foreign Affairs also works with ASEAN, United Nations and other international entities during pre-disaster and post-disaster time frames.



**Foreign Assistance Logistics**  
**Humanitarian Transportation - Air**

The Department of Civil Aviation, Ministry of Transport abides by the Standards and Recommended Practices of the International Civil Aviation Organization and the Union of Myanmar Aircraft Act, Rules and Procedures. The department fulfills the functions for the safe, smooth

and secure operations for domestic and international air transport according to the following policies:

- Safe operation
- Regular flights
- Economical operation
- Efficient operation
- Secure operation<sup>157</sup>

Aircraft rules and regulations have been in place since 1934 with the Burma Aircraft Act and Burma Aircraft Rules of 1937. The Union of Myanmar (Adaptation of Laws) Order substituted the Act and Rules in 1948. Primary legislation is in place for the specific areas:

- The Union of Myanmar Aircraft Act, 1934 (XXII of 1934)
- The Union of Myanmar Aircraft Carriage by Air Act, 1934 (XX of 1934) Subsidiary Legislation
- The Union of Myanmar Aircraft Rules, 1920 (Aerodromes)
- The Union of Myanmar Aircraft Rules 1937 (Aircraft)
- The Union of Myanmar Aircraft Rules, 1946 (Public Health)<sup>158</sup>

Foreign aircraft can operate in Burma by abiding by the international and national laws and agreements required by Burma.

- Burma agreed to the terms in the Convention on International Civil Aviation (1944) which includes articles related to health measures for aircraft.
- The Union of Myanmar Aircraft Rules, 1937 requires aircrafts flying within Burma's airspace Law to be registered and have nationality and registration marks and the required documents. The Rules do not stipulate specific requirements for the use of foreign aircraft in emergency situations.
- Foreign military aircrafts cannot fly over or land in Burma except with invitation or per-

mission in writing of the President.

- Aircrafts not registered in Burma shall carry the personnel prescribed by the law of the State in which it is registered and such personnel shall be licenses in accordance with the laws of that State.<sup>159</sup>
- Air Service Agreements (ASA) are needed for foreign commercial aircrafts to fly and land in Burma.
- Burma has Bilateral/Multilateral Air Agreements (Air Service and Air Transport) and MOUs in place with other countries.<sup>160</sup>

Guidelines and Processes for emergency situations

- Burma signed the ASEAN Multilateral Agreement on Air Services which assists in granting approval for overflight and landing permission for recognized ASEAN air services.

Driving License:

- Only a Burmese driver's license will be recognized in country.
- Burma does not acknowledge an International Driving License nor accept any individual Western country's license. It is recommended to hire a local driver for transportation.
- A Burmese driver's license can be applied for at the Department for Myanmar Road Transport and Administration located in Yangon. No test is required. Documentation that must be provided includes a valid international license, three passport photos and a copy of your passport. The license should be processed in 14 days.<sup>161</sup>

### Customs

Air cargo not destined for government use will require prior approval before landing from the Ministry of Foreign Affairs. Required documentation includes an Import Declaration Form (CUSDEC-1), import license, invoice, bill of lading, and packing list. The Ministry of Health will also issue a health certificate after inspection of the food imports.



There are five Declaration forms and specific processes for each type of cargo arriving in Burma.

1. **Import Declaration Form:** Cargo will be registered and opened at the airport warehouse. Documentation will be reviewed by several personnel. The Import Declaration and Import License must be in order before release of cargo.
2. **Special Order:** Government department goods that cannot be declared due to incomplete documentation will be expedited by special order of the head office. The Examination Officer will inspect the cargo and documentation for special order, import declaration, invoice and packing list before approving cargo release.
3. **Clearance Application Form:** Personal effects, and commercial samples under the value of \$50 US, and unaccompanied manifested baggage will be released according to procedure.
4. **Military Cargo:** Upon presentation of the military import form, the Ministry of Directorate will clear cargo for release after inspection at the airport warehouse.
5. **DHL:** The Duty Officer will check the DHL cargo and documentation for import declaration, invoice, packing list, and airway bill.<sup>162</sup>



Dacca

Imphal

Aizawl

Kunm



# BURMA (MYANMAR) Infrastructure

Burma (Myanmar) Disaster Management Reference Handbook | 2014



# Infrastructure

After decades of isolation, infrastructure in Burma is in poor shape. Vulnerabilities to disaster are substantial due to the need to develop all types of infrastructure throughout the country.





## Airports

There are 69 airports in Burma, but only 32 of them are operational. There are 3 international airports located in Yangon, Mandalay and Nay Pyi Taw. Burma has 10 immigration checkpoints across the country.<sup>164</sup> Foreigners entering Burma must have a passport valid for six months, one blank passport page for entry stamp, and a visa (can be obtained on arrival).<sup>165</sup> The Burmese government has plans to transform more domestic airports into international airports to better serve the growing number of foreign investors.<sup>166</sup> Burmese airports were neglected and poorly managed for decades under the military junta. The government spends about \$12 million annually to operate all 69 of its airports, but the budget does not permit the airports to be sufficiently maintained.

Yangon International Airport is the main international airport of Burma. The airport was built in 1947 and is currently being used for domestic flights. In 2007, a new terminal was built to handle international flights. Yangon can handle almost three million passengers and year. The airport has an extended runway which is double the size of the runway to accommodate larger aircrafts.<sup>168</sup> Mandalay International Airport is located approximately an hour from the heart of the city. Built in 2000, the airport can handle up to three million passengers a year and has a runway built for all commercial aircrafts. The terminal is equipped with fire protection and emergency power generating systems. Nay Pyi Taw International Airport is the newest international airport and is capable of handling up to five million passengers. FMI Air Charter operates weekly between Yangon and Nay Pyi Taw and also provides private charters to over 20 airports in Burma.<sup>169</sup>

The government is welcoming private investors to upgrade 30 of its 69 domestic airports to improve its capacity and infrastructure. The Department of Civil Aviation (DCA) says Burma had about 4.2 million air traffic passengers in 2013 and that number is expected to rise to 30 million by 2030. The DCA plans to sign public-private partnership agreements with investors. Airport security and air traffic control will be the responsibility of the DCA and airport management and upgrades to the infrastructure and technology will be controlled by the private sector.<sup>170</sup> Foreign investment is not allowed in air navigation services per the Foreign Investment Law.



Foreigners may only invest in domestic and international air transport services only if they are in joint ventures with Burmese nationals.<sup>171</sup>

Below are airports with passenger service:<sup>172</sup>

Region	Airport Name	ICAO	IATA	Usage	Customs	Runway Length
Mandalay	Mandalay	VYMD	MDL	Civ.	Yes	14000ft
Nay Pyi Taw	Nay Pyi Taw	VYNT	NYT	Civ.	Yes	12000ft
Yangon	Yangon	VYYY	RGN	Civ.	Yes	11200ft
Madalay	Nyaung U	VYBG	NYU	Civ.	No	8500ft
Kachin State	Bhamo	VYBM	BMO	Civ.	No	5502ft
Tanintharyi	Dawei	VYDW	TVY	Civ.	No	7005ft
Shan State	Heho	VYHH	HEH	Civ.	No	8500ft
Sagaing	Kalaymyo	VYKL	KMV	Civ.	No	5502ft
Tanintharyi	Kawthaung	VYKT	KAW	Civ.	No	6000ft
Shan State	Kengtung	VYKG	KET	Civ.	No	7815ft
Sagaing	Khamti	VYKI	KHM	Civ.	No	4200ft
Rakhine State	Kyaukpyu	VYKP	KYP	Civ.	No	4600ft
Shan State	Lashio	VYLS	LSH	Civ.	No	5285ft
Kayah State	Loikaw	VYLK	LIW	Civ.	No	5000ft
Mon State	Mawlamyaing	VYMM	MNU	Civ.	No	5260ft
Shan State	Monghsat	VYMS	MOG	Civ.	No	5000ft
Tanintharyi	Myeik	VYME	MGZ	Civ.	No	8795ft
Kachin State	Myitkyina	VYMK	MYT	Civ.	No	6100ft
Magway	Pakokku	VYPU	PKK	Civ.	No	4000ft
Ayeyarwady	Patheingyi	VYPN	BSX	Civ.	No	4400ft
Kachin State	Putao	VYPT	PBU	Civ.	No	7002ft
Rakhine State	Sittwe	VYSW	AKY	Civ.	No	6001ft
Shan State	Tachilek	VYTL	THL	Civ.	No	7002ft
Rakhine State	Thandwe	VYTD	SNW	Civ.	No	5502ft

Military Air Bases:<sup>173</sup>

Region	Airport Name	ICAO	IATA	Usage	Customs	Runway Length
Yangon	Hmawbi Air Base	VYHB		Mil.	No	5000ft
Mandalay	Meiktila Air Base	VYML		Mil.	No	5400ft
Mandalay	Shante Air Base	VYST		Mil.	No	8501ft
Kachin State	Nampong Air Base	VYNP		Mil.	No	11025ft
Bago Division	Taungoo Air Base	VYTO	TGO	Mil.	No	12005ft

## Seaports

Burma has an abundance of water sources. The country has over 5,000 kilometers of navigable rivers and over 2,000 kilometers of coastline. The Bay of Bengal is located in the southwest and the Andaman Sea in the south. Burma is situated between the major markets of China and India, putting the country in a strategic position and making it a vital link between the Middle East and Southeast Asia. Ports are critical to aid Burma in moving forward to compete in the global market. These ports support a considerable amount of international import/export and domestic cargo along with housing cruise terminals to support the growing tourism industry.<sup>174</sup> Burma currently has 9 ports along the western and southeastern coast with its major port being Yangon.<sup>175</sup>

The Port of Yangon is located on the Yangon River and has been managing the country's cargo

since colonial times. The port can only handle small ships up to 15,000 dead weight tons (DWT) because it does not have deep water access close to the city. However, the port is being upgraded into a modern harbor and the renovations are set to be completed in 2015. Thilawa is the second port in Yangon located near the Andaman Sea at the mouth of the Yangon River. The port can accommodate larger vessels up to 20,000 DWT that are unable to dock at Yangon Port. Thilawa Port is also the location of the future Thilawa Special Economic Zone (SEZ).<sup>177</sup> Myanmar Five Star Line (MFSL) is the state-owned shipping line which runs the coastal and overseas transport services.<sup>178</sup>

Burma has an extensive inland water transport network. The Inland Water Transport (IWT) under the Ministry of Transport is responsible for providing river transport of passengers and freight along the waterways of the Ayeyarwady River, Chindwin River, and also Rakhine, Mon, and Kayin State delta areas.<sup>179</sup>





Navigable Stretch <sup>180</sup>		
Ayeyarwady River	1,550 km	From Yesagyto to Hkamti
Chindwin River	792 km	From Yesagyto to Hkamti
Sittoung River	Not navigable due to strong currents, but useful for rafting logs	
Thanlwin River	89 km	From Mawlamyine to Shwegun
Kaladan River	177 km	From Sittway to Paletwa
Saing Tin River	129 km	From Sittway to Buthidaung

In 2011, Burma’s ports handled 24 million tons of import and export freight. Deep water ports are being developed in Dawei located in the south and in Kyaukpyu in the north. Under the new Foreign Investment Law, construction of new facilities at ports needs to be conducted as a joint venture with a Burmese national. All ports will need to go through an environmental and social impact study.<sup>181</sup> New special economic zones are being built alongside ports to function as development areas and attract investments from overseas. Many manufacturing and processing industries are located near these ports to ship finished products to international and domestic markets, and transport raw materials arriving at lower costs.<sup>182</sup>

### Land Routes

Road transport is the most primary means for people of Burma. Many towns and cities are only accessible this way with few having access to railway lines. Although, some who are connected to rail find the condition of services to difficult to use. The majority of the country depends on road transportation.<sup>183</sup>

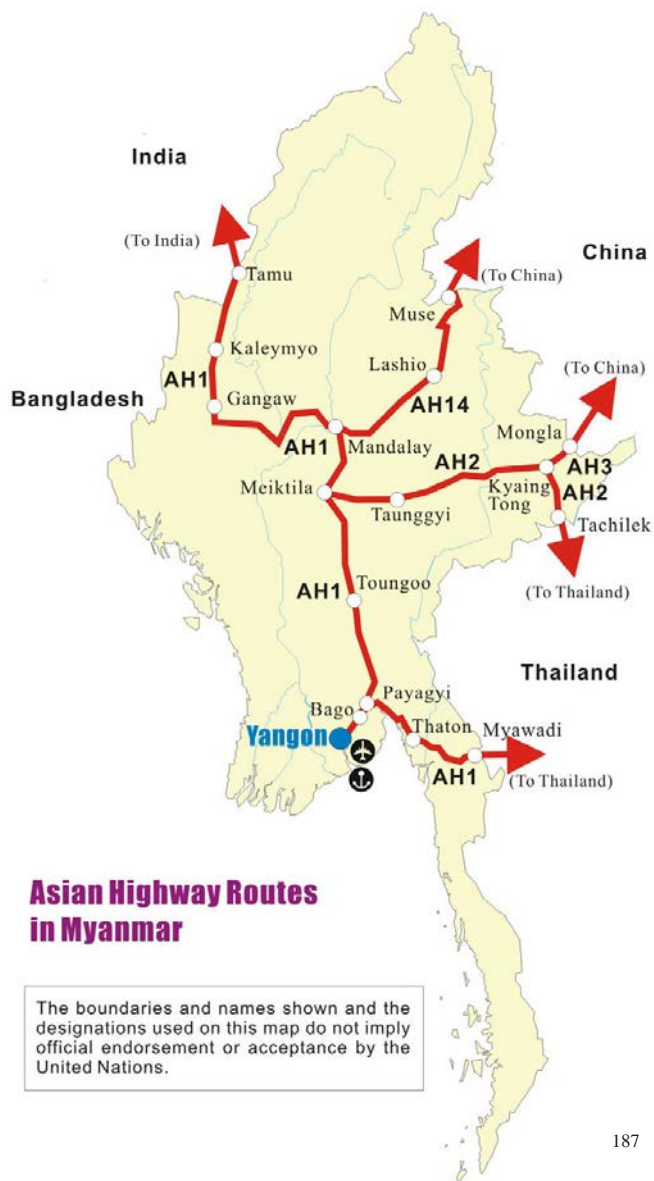
### Roads

Burma has 50,816 kilometers of road length and of that only 33,014 kilometers are paved. The structure of the transport sector is complex due to no single agency having

oversight. Responsibilities are shared between six ministries, various city development committees and state-owned transport enterprises. Between them there is no formal coordinating tool to develop a strategy for the structure and no clear lines of responsibility. The government agencies include: the Ministry of Transport (MOT), the Ministry of Rail Transportation (MORT), and the Ministry of Construction (MOC).<sup>184</sup>

Road transportation in Burma is the most important means as most towns and cities are only accessible by land routes. Highway conditions in Burma are poor except for the Yangon-Pyay Highway which was built with the aid of the Japanese government. This is a major highway in the country, but it is small with only two lanes and is exhibiting signs of wear and tear due to the lack of maintenance. The Yangon-Mandalay Highway is two lanes and expands to four in areas near Yangon and Mandalay. The Western Union Highway is the worst highway in Burma; the roads are either stone or dirt in most places. There are many parts where it is difficult for cars and buses to drive. Many people use the highway to drive short distances between towns along the western bank of the Ayeyarwady.<sup>185</sup> Most of the other highways in Burma are in very poor or extremely poor condition. Most roads are full of holes and bumps and have very little maintenance. The Asian Highway links Burma to China, India and Thailand. This highway is a key linkage for South and Southeast Asia as shown in the map below.<sup>186</sup>

Route No.	Route	Length
AH1	Myawadi-Payagyi-(Yangon)-Meiktila-Mandalay-Tamu	1,650km
AH2	Tachilek-Kyaning Tong-Meiktila-Mandalay-Tamu	807km
AH3	Mongla-Kyaning Tong	93km
AH14	Muse-Lashio-Mandalay	453km



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### The three main highways running north-south in Burma:

- Yangon-Mandalay Highway (695 kilometers): Passes through Bago, Taungoo, Nay Pyi Taw and Meikhtila
- Yangon-Pyay (288 kilometers): Considered the best highway in Burma, runs west of the Pegu Range
- Western Union Highway (under construction): Part of the proposed Patheingyi-Monywa Highway which connect towns west of the Ayeyarwady River

There are a number of important roads that extend from these three main highways. The Mandalay-Lashio Road has been improved

over the last decade to handle heavy traffic from trading at the Burma-China border. This is considered one of the most important trade routes in Burma.<sup>188</sup>

### Major roads which extend from highways:

- Mandalay-Lashio Road (262 kilometers): Most important road for China-Burma border trade route; Begins in Mandalay and ends in Lashio, which another road extends to Muse which borders China
- Meikhtila-Taunggyi (205 kilometers): An extension from the Yangon-Mandalay Road
- Pyay-Magway Road (202 kilometers): Runs along the east bank of the Ayeyarwady ; A continuation of the Yangon-Pyay Highway



<sup>189</sup> Another road to note is Stilwell Road (Ledo Road), which spans 1726 kilometers, was built in 1944 by Western Allies and was seen as a lifeline to China during the war with Japan. Over 1,000 Americans and locals died during the construction of the road due to the mountainous terrain and malaria-ridden forests.<sup>190</sup> The road has been reconstructed and reopened and links India and China through northwest Burma. This passage runs through Kachin State which is home to ethnic insurgents where Burma's military has limited control. The reopening of this road brings a new trade route in the northwest between the three countries and could cut cost and time.<sup>191</sup>

The Framework for Economic and Social Reforms indicates infrastructure projects be given priority to improve transportation links to help boost economic integration along with fulfilling ASEAN's Master Plan on Connectivity. Existing road links with Burma's

neighbors – China, Thailand and India are poor, presenting investment opportunities.<sup>192</sup> The goal of ASEAN’s plan is to bring people, goods, and services closer together. It will develop infrastructure by the opening of remote inland and less developed parts of the country. During disasters, these new roads will be able to provide assistance to the people in these remote areas of the county.<sup>193</sup>

## Bridges

The Thai-Burma Friendship Bridge is located in the western Burmese town of Myawaddy and the Thai town of Mae Sot. This one lane road between the two countries continues to other towns in Burma via a mountain route which is dangerous. Myawaddy is the second-largest border zone in Burma and benefits 24-hour electricity from Thailand. Thousands of people and over 500 cars cross the bridge everyday which takes just about 10 minutes. People opt to ride by boat by crossing under the bridge via the Moei River for a cost of 1,000 kyat. Some people cross illegally from a road under the bridge, paying a bribe of 1,000 kyat to guards from the Democratic Karen Buddhist Army (DKBA) rather than the border fee.<sup>194</sup>

## Railways

<sup>195</sup>The railway sector in Burma is a monopoly operated by the state-owned Myanmar Railways

(or Myanama Railways). The rail network 5,403 kilometers and consists of 858 stations, it extends north to south and with branch lines going east and west. Myanmar Railways also operates Yangon Circular Railway line, a 45.9 kilometers line with 39 stations which connects Yangon’s downtown, satellite towns and suburban areas. The Asian Development Bank says the rail network is in poor condition and basic infrastructure has been inadequate. However, the government is devoted to improving the quality of rail sections that connect key economic hubs in the country such as: Yangon-Mandalay-Myitkyina and Bago-Mawlamyine. More attention will be given to regional connectivity and linking the gaps in operations. There is also a demand to link Burma’s rural population (about 70 percent) with urban centers though efficient transportation networks.<sup>196</sup>



### Lower Burma, Yangon Central

Line	Route
Yangon-Mandalay	Yangon-Bago-Nay Pyi Taw-Thazi-Mandalay
Yangon-Mawlamyaing	Yangon-Bago-Theinzayat-Kyaikhto-Thaton-Mottama-Mawlamyaing
Yangon-Bagan	Yangon-Taungoo-Leway-Taungdwingyi-Kyaukpadaung-Bagan
Yangon-Aunglan-Bagan	Yangon-Letbadan-Paugde-Aunglan-Kyaukpadaung-Bagan
Yangon-Pyay	Yangon-Pyay
Mawlamyaing-Dawei	Mawlamyaing-Ye-Dawei

### Upper Burma, Mandalay Central

Line	Route
Mandalay-Myitkyina	Mandalay-Sagaing-Shwebo-Myitkyina
Mandalay-Lashio	Mandalay-Pyinoowin-Kyaukme-Thibaw-Lashio
Mandalay-Thazi	Mandalay-Thedaw-Dahuttaw-Hanza-Ywapale-Thazi
Monywa-Pakkoku	Monywa-Khinu-Mandalay-Pakkoku



There are plans to build a high-speed railway to connect Kunming, China with mainland Southeast Asia. This project is a priority under the ASEAN transport cooperation and three routes going through Vietnam, Laos and Burma have been planned. Once complete, it will be part of the Trans-Asian Railway network across Europe and Asia.<sup>197</sup> Under the new Foreign Investment Law, foreign investment in construction of railways can only be effected through a joint venture with a Burma national. Construction of underground railways also requires the satisfactory completion of an environment and social impact study.<sup>198</sup>

The Goteik Viaduct is located in Nawnghkio, about 100 kilometers northeast of Mandalay. The rail was built in 1900 by the British as a way to expand their influence in the region. The viaduct spans 2,260 feet and is supported by 15 towers. The bridge is a century old with its traffic moving at a walking speed to avoid the rocking motion and possibly dropping into the river below. It takes just under a half hour to cross the bridge.<sup>199</sup>

## Schools

An assessment conducted after Cyclone Nargis concluded that around 50 schools were either damaged or destroyed. These losses indicate the need for better disaster preparedness and improved school facilities which could withstand disasters. A project was started to build multi-purpose buildings which would serve as schools and shelters which could hold between 700 and 1,000 people. These buildings would incorporate climate responsive construction which requires little maintenance. The floor of the buildings would be built at eleven feet about the ground and they would be able to withstand earthquakes due to the Ayeyarwady being located in Zone III.<sup>200</sup>

Swiss Development Cooperation – Humanitarian Aid (SDC-HA) In the Ayeyarwady Delta, a project was started to rebuild schools and use them as storm shelters. The design phase included input from local knowledge, structural engineering and quality standards. The communities and their needs were also addressed.<sup>201</sup>

## Communications

The Ministry of Communications and Information Technology has worked with foreign

companies to develop Burma's emergency communications network improvement plan. This network will improve the country's communications infrastructure. The project focuses on building a high-speed, high-capacity core optical transmission network capable of transmitting 30Gbps between Yangon, Mandalay and Nay Pyi Taw. Along with a LTE communications, fixed-line telephones and optical transmission networks capable of 10Gbps internet transmissions.<sup>202</sup>

## Utilities

Although Burma has moved forward with advancing some development within the country, they are still facing some challenges.

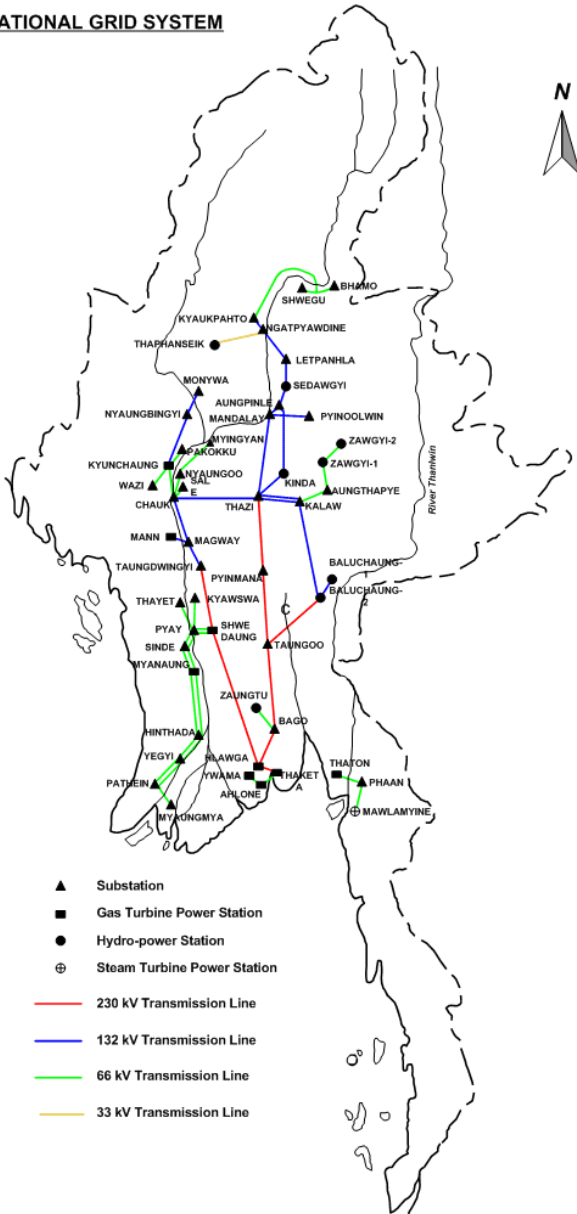
## Power

In Burma, only a quarter of the population has access to electricity. Electricity is vital for the country as they pursue reforms to accelerate poverty reduction and build shared success. The World Bank is providing credit to aide in the installation of a modern, high efficiency power plant at Thaton Gas Turbine Station in Mon State. This 106 megawatt plant will provide electricity to both national and local grids which covers 5 percent of peak demand in Burma and 50 percent of peak demand in Mon State making electricity supply more reliable.<sup>203</sup>

The country has a wealth of energy resources which include renewable alternatives like hydro, biomass, wind and solar located throughout the country as shown in the picture below. There is no national grid in Burma, hydropower is the main source of fuel in Burma and electricity from these hydropower plants contribute almost 70 percent of the total electricity generated in the country. In the past decade, electricity use in Burma has doubled from 3,303 Gigawatt hours (GWh) to 6,093 GWh.<sup>204</sup>

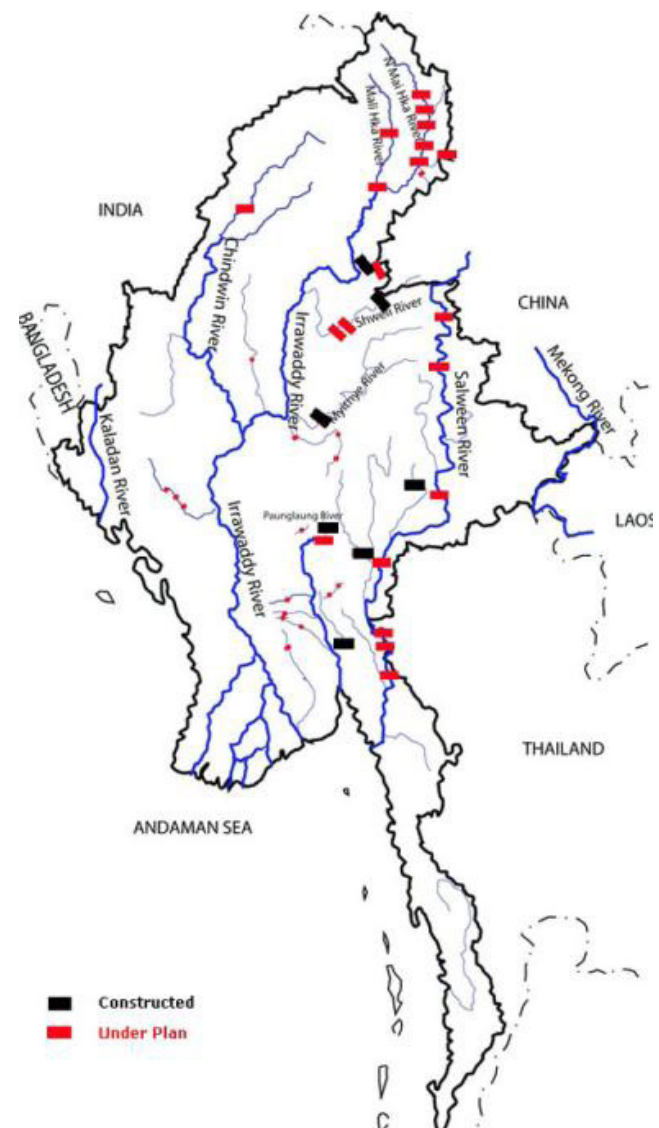
During the dry season, capacity drops severely, resulting in numerous and long-lasting power cuts. Electricity is limited in rural areas, with less than 15 percent of people having access.<sup>205</sup> During the dry season, power supply becomes more infrequent. Water levels in the hydropower dam<sup>206</sup> reservoirs drop and the output from the dams drop. During the hot season, the Yangon Electricity Supply Board (YESB) has difficulty supplying Yangon residents and needs to ration the electricity supply. Some parts of the city only

## NATIONAL GRID SYSTEM



represents over half of Burma's energy demand. Current energy supply is about 2,000 megawatts per day and set to grow to 4,900 megawatts per day in 2015. The Minister of Electric and Power said that as Burma needs more electricity supply nationwide, they need to produce more electricity through various ways of production, hydropower, gas turbines, as well as cleaner coal power plants.<sup>209</sup>

The country has a large reserve of natural gas, but most of it was sold on long-term contracts to Thailand and China under the military rule. Currently, the government is trying to renegotiate those contracts to meet the needs of its people and businesses. The Ministry of Energy (MOE) is responsible for the exploration of crude oil and natural gas, the manufacturing and distribution of petroleum. Output should increase quickly over the next ten years and global companies



receive 6 hours of power and day.<sup>207</sup>

The World Bank has helped the government upgrade an old power station in Thaketa which is located in Yangon. In Yangon, only pagodas and modern high rises are lit once the sun goes down. Hospitals and clinics are underfunded with no power, leaving medicines to spoil since they cannot be kept cool.<sup>208</sup> The World Bank says Burma is rich in energy resources, but only a quarter of Burmese people have access to reliable energy and to improve the supply requires investments from public and private sectors. The limited reliable power supply is preventing foreign investment into the country.

The government is working with the private sector to improve energy supply in Yangon which

are bidding to expand Burma's gas fields.<sup>210</sup> The Great Petroleum Terminal run by Apex Gas & Oil Public Company Limited is the first standard private petroleum terminal in Burma making it the largest importer, distributor, trading and nationwide terminal in the country. It operates storage tank services, diesel, gasoline and lubricant distribution, filling stations along with domestic and international logistics services. The terminal has capacity for five million gallons of storage and expanding its capacity to twenty six million gallons for gasoline.<sup>211</sup> The Myanmar Port Authority provides land for fuel importers to setup fuel depots at Thilawa Port located in Yangon.

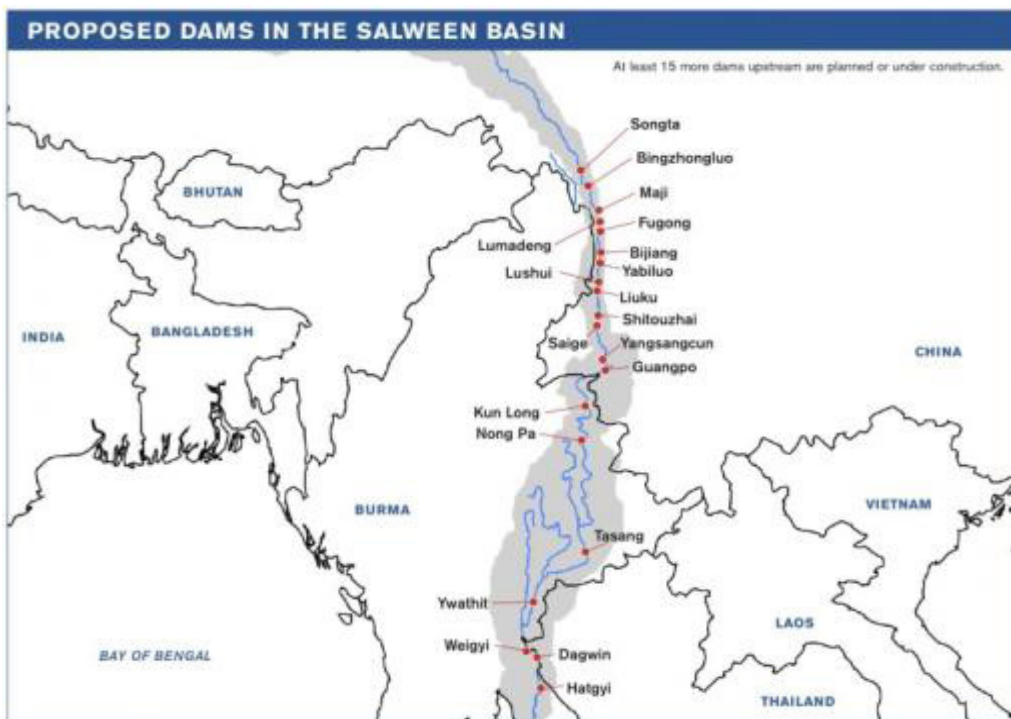
Salween River had gained approval. The projects have a combined capacity of 15,000 megawatts. The Salween originates in the Tibetan Himalayas and flows through China's Yunnan province into Burma and Thailand, then down to the Andaman Sea. The Salween is a rich ecological center in the region and is home to 13 indigenous groups.<sup>213</sup> The dam would submerge rainforests, displace villagers, and affect fisheries and ecosystems.<sup>214</sup>

The Tasang Dam along the Thanlwin River in eastern Burma, is to generate 35,446 GWh annually with a capacity of 7,110 MW and will be 228 meters high. It will be the highest dam in Southeast Asia.<sup>215</sup> The Myitsone Dam was originally designed as a 6,000 megawatt dam to

be located at the convergence of the N'Mai and Mali rivers, the source of the Ayeyarwady River, with completion planned for 2019. In September 2011, President Thein Sein announced that in response to public concern, the construction would be postponed until the end of the government's term in 2015. Public concerns over this project included:

destruction of the natural beauty of

the Myitsone, flooding and destruction of villages along the upper reaches of the Ayeyarwady, destruction of rubber and teak plantations, potential consequences of flooding or earthquake in the dam region, and environmental impacts on the Ayeyarwady.<sup>216</sup> The Ayeyarwady River could be affected by weather inconsistency during monsoon season could lead to droughts which will reduce the dams' capacity to generate electricity significantly.<sup>217</sup>



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## Hydro-Power (Dams)

Burma has an abundance of hydropower potential. The Burma Electric Power Ministry (EPM) said the hydropower potential is around 100,000 megawatts, of that, roughly 39,000 megawatts has been identified for development which includes over 200 hydropower sites. The country's water resources such as the Ayeyarwady, Chindwin, Sittang and Salween rivers are a huge resource. The EPM has acknowledged that hydropower is a priority for sustainable power development in Burma.<sup>212</sup>

In February 2013, six dam projects on the



## Water and sanitation

Water infrastructure needs to be enhanced to further economic development in Burma.<sup>219</sup> Burma is endowed with rich water sources. The reservoir for the country's river basins totals about 737,800 square kilometers. Potential water volume is about 1,082 square kilometers and surface water is 495 cubic kilometers. Water utilization for the agriculture sector is 90 percent while industry and domestic use is 10 percent. The total utilization of the nation's water is only about 5 percent of the potential. As the population increases, there is a need for water for economic activities and increasing stress on the use of surface water and extraction of groundwater. The management and control of surface and ground water is key for sustainable development in the future.<sup>220</sup>

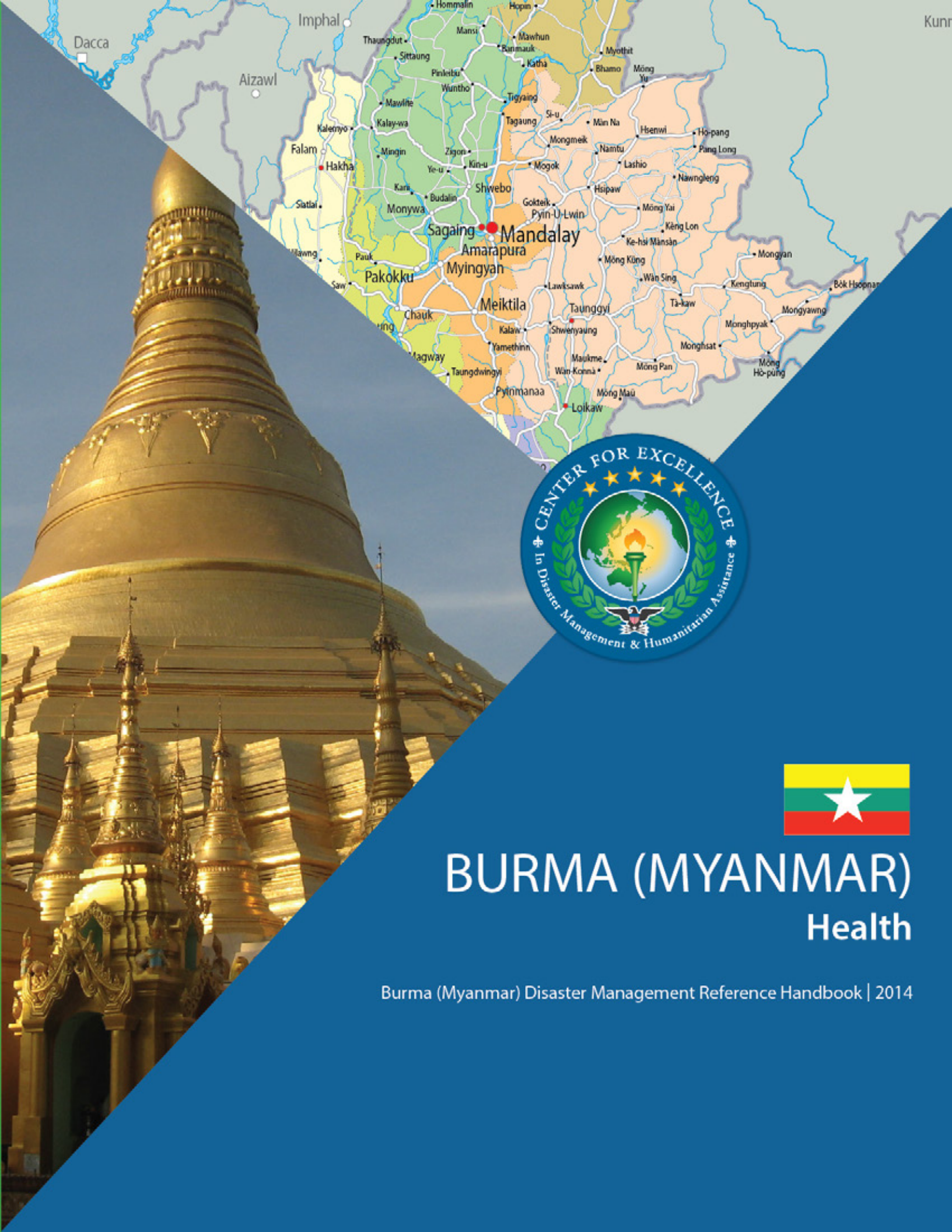
In 2010, around 79 percent of urban residents had access to sanitation versus 56 percent of rural residents. And 85 percent of urban residents had access to water supply versus 60 percent in urban areas. The water quality in urban areas is poor due to underinvestment in infrastructure. The water in urban areas is dispersed through colonial age pipes, which occasionally extends to informal settlements. Water quality likely does not meet international standards since the treatment processes do not include chlorination. In rural areas of the country, the main water supply is household rainwater collecting systems, hand dug wells and communal ponds. There are no drainage and sewer networks, no systematic collection and treatment of domestic wastewater. People living in formal housings may have a septic tank, but service and cleaning of it could be inadequate. Those in informal housing have makeshift latrines. Waste that accumulates in them can cause standing wastewater which lead to mosquito breeding.<sup>221</sup>

A 2013 pilot project in Dawbon Township shows the urgency and complexity of Burma's reemergence. In Dawbon, the conditions are sad which is home to 80,000 people. Many of them are immigrants from rural areas and seeking refuge from conflicts and violence from regions like the Shan, Kayin, Rakhine and Mon. Many of them built their own homes and have not access to services like running water, garbage collection and basic household sanitation. It will take several years before the effects of the development agenda will be seen. This small scale ADB \$50,000 pilot sanitation project in Dawbon, demonstrates that local infrastructure

and services can be developed by communities and city governments in the settlements where they are mostly needed. ADB is providing a waste collection system and providing garbage bins to select households in Dawbon. A formal waste system is now in place in which waste is collected and brought to a dump nearby. Workshops have also been conducted to promote hand washing and diarrhea.<sup>222</sup>

## Systemic Factors

In 2013, the Provisional Myanmar National Building Code (MNBC) was completed. This document contains new building codes and develops federal guidelines for land use planning in Burma. It was completed in cooperation with the Myanmar Engineering Society (MES) along with national stakeholders and international experts.<sup>223</sup>



# BURMA (MYANMAR)

## Health

Burma (Myanmar) Disaster Management Reference Handbook | 2014



# Health

## Overview

Roughly 27% of Burma's population is under the age of 15, and about 5% of the population is over the age of 65. At birth, the average life expectancy in the country is 66 years of age. Non-communicable diseases cause about 40% of the deaths throughout Burma.<sup>224</sup>

There are hospitals in major cities throughout the country, yet geographical challenges render such facilities inaccessible to much of the Burmese population. Most of the country's people depend on what is called the Township Health System. This system was established in 1964 and now comprises the backbone of the Burmese Health System. Under this structure, the Township Health Department provides both primary and secondary health care services down to the grassroots level. In urban areas, township health care services are delivered via Urban Health Centers. In rural regions, Rural Health Centers provide the majority of health care services.<sup>225</sup>

Traditional medicine remains the primary methodology behind medical care throughout the country. Traditional medicine has been practiced throughout Burma for thousands of years, and remains both popular and affordable. There are a total of 15 traditional medicine hospitals and over 200 traditional medicine clinics throughout the country. In 2012, over 11,000 traditional medicine kits were distributed throughout Burma. These kits were distributed in order to make essential traditional medicines easily accessible to people in remote areas.<sup>226</sup> There are about 16,000 indigenous medical practitioners throughout Burma that administer traditional medicine.<sup>227</sup>

## Challenges in the Healthcare System

In 2013, the Burmese government increased spending on healthcare to 3.9 percent of the country's total budget. Despite this, Burma remains one of the world's lowest-ranking countries in terms of total money allocated to healthcare. In fact, Burma is the only developing country in Southeast Asia where military spending is higher than spending on healthcare and education combined.<sup>228</sup>

Burma has some of the worst health indicators in the world. Life expectancy is 66 years and Burma is the home of more than 50% of all malaria-related deaths in Southeast Asia.<sup>229</sup> In fact, in 2000, the WHO ranked Burma second-to-last out of 191 countries surveyed for "overall health system performance."<sup>230</sup>

While the majority of Burma's population lives in rural regions of the country, most health services are concentrated in large towns and cities. Despite great need in non-urban areas, the total number of rural health centers has only increased from 1,337 to 1,565 since 1988. Health facilities lack basic supplies, medication, and equipment. Patients with complex medical conditions are required to travel great distances to major health facilities only to find that treatment is unaffordable.<sup>231</sup>

Despite improvement and investment, Burma faces many challenges when it comes to healthcare. One key challenge is widespread corruption that may result in the disappearance or misuse of healthcare funds. According to the World Bank, Burma ranks in the lowest percentile when it comes to government effectiveness, regulatory quality, and control of corruption.<sup>232</sup>

Patients are expected to make under-the-table payments to ensure quality care. In addition to up-front costs, patients report having to pay for things like extra blankets, and even using the bathroom. Those who are unable to pay the expected bribes suffer from longer wait times and poor care.<sup>233</sup>

Another challenge for Burma's healthcare system is the lack of reliable health indicators. Ineffective data collection over recent years has made it nearly impossible to assess and respond to challenging health issues. The availability of reliable data is likely to increase as more health and humanitarian organizations enter the country.<sup>234</sup>

## Outbreaks

Burma has experienced a total of four waves of Avian Influenza outbreaks between 2006 and 2011.<sup>235</sup> Despite several waves, avian influenza only resulted in one human case and zero deaths.<sup>236</sup>

Starting in 2006, as an Avian Influenza outbreak became more likely, the Burmese Ministry of Health began preparing for an H5N1 pandemic. The preparedness was implemented in accordance with existing Strategic Plan for



Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response, which had been endorsed by the National Health Committee in 2006. Burmese officials began conducting table top exercises and

simulation exercises on pandemic preparedness and response, they updated the National Influenza Preparedness Plan and Pandemic Vaccine Deployment Plan, and ensured adequate stockpiles of necessary drugs.<sup>237</sup>

Table 1: Avian Influenza Outbreaks

Wave	Date	Location
1	March/April 2006	Sagaing, Mandalay
2	February/March 2007	Yangon, Bago, Mon
3	November/December 2007	Eastern Shan
4	February/March 2010	Yangon, Sagaing

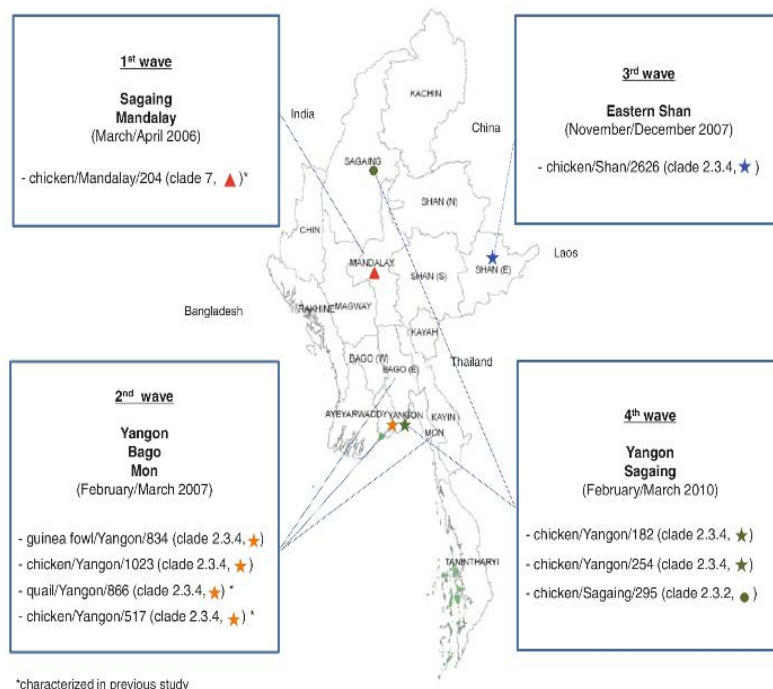


Figure 6: Avian Influenza Waves

The World Health Organization has provided technical and logistical support to Burma's Ministry of Health for surveillance, investigation, early warning, and response activities related to AI. The Field Epidemiology Training Programme (FETP) was started in 2008, and 93 disease control staff have been trained. The WHO country office in Burma has also provided support to the National Influenza Laboratory and the Department of Medical Research laboratory for Influenza Like Illness (ILI) surveillance and diagnosis of avian and human pandemic influenza.<sup>238</sup>

## Structure

## Administration

Burma's healthcare system is structured alongside the country's administrative divisions. The country is divided into:

- 14 States and Regions
- 67 districts
- 330 townships

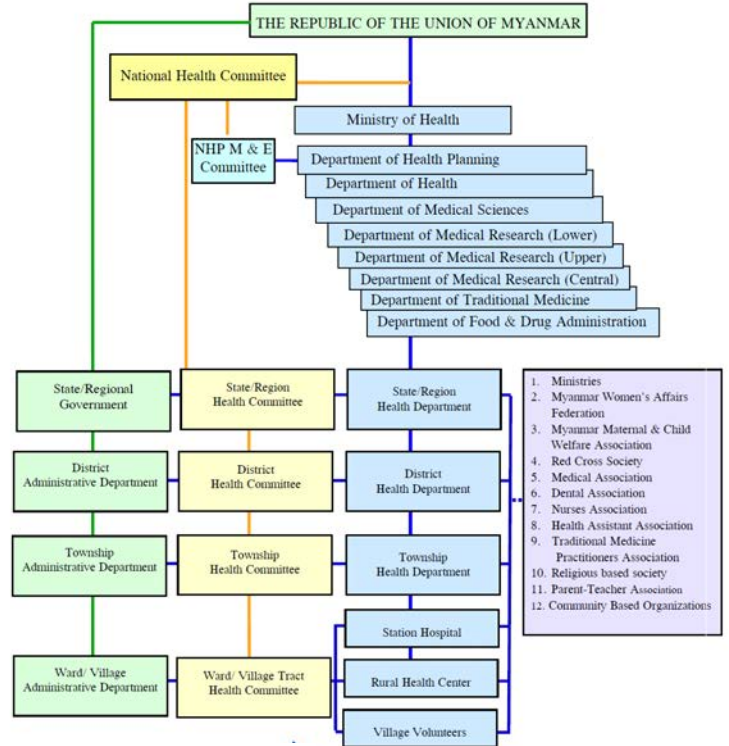
- 64 sub-townships
- 2891 wards
- 13698 village tracts
- 64817 villages

There are a number of mechanisms that allow for communication and coordination between each of the administrative levels. Such mechanisms allow for the dissemination of health information and surveillance data. The chart below indicates the flow of information regarding communicable disease surveillance, and serves as an indication of the reporting structure between the administrative levels.

### Public Healthcare

The Ministry of Health provides comprehensive healthcare services and undertakes activities for promoting health, preventing diseases, providing effective treatment and rehabilitation to raise the health status of the population. The MoH is headed by the Union Minister, who is in charge of the eight functioning departments including the Department of Health Planning, the Department of Health, the Department of Medical Science, the Department of Traditional Medicine, and the Department of Food and Drug Administration, and three Departments of Medical Research (Lower Myanmar, Central Myanmar, and Upper Myanmar).

The Ministry of Labour also participates in healthcare activities and has set up three general hospitals to render services to those entitled un-



der the social security scheme. Additionally, the Ministry of Industry operates a pharmaceutical factory and produces medicine and therapeutic agents.

Communicable diseases prevention and control is one of the priority tasks of Ministry of Health. The Communicable Disease Control Programme is designed to minimize the effects of communicable diseases. Under the Disease Control Division and Central Epidemiological Unit, disease control teams are able to supervise, monitor and offer technical support at central level and state/regional levels.<sup>239</sup>

The Myanmar Red Cross Society is one of 14 national nongovernmental organizations working in Burma.<sup>240</sup> The Myanmar Red Cross Society is taking a role in the provision of healthcare and its role is becoming more important as the need for collaboration increases. Recognizing need to involve sectors at all administrative levels, health committees have been established down to the wards and village tracts.<sup>241</sup> Sectoral collaboration and community participation has also strengthened since the establishment of the National Health Committee in 1989.<sup>242</sup> In fact, the President of the Myanmar Red Cross Society is a composing member of Burma's National Health Committee.<sup>243</sup>

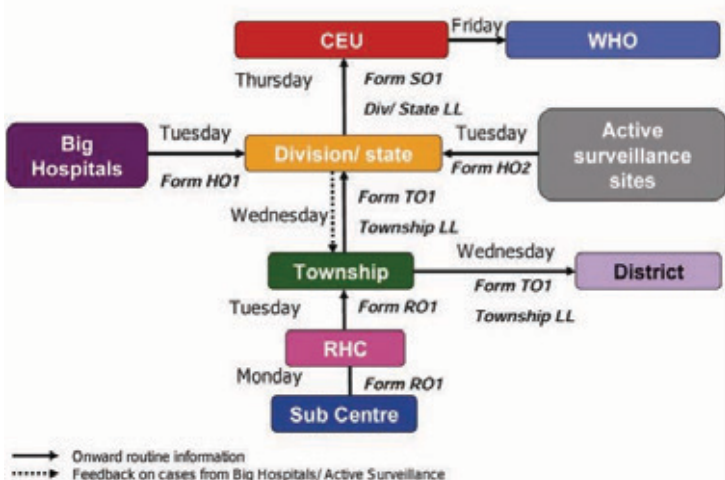


Figure 7: Integrated weekly reporting of AFP, NNT, Measles and ILI

## Private Healthcare

Although the Ministry of Health is the major provider of healthcare, Burma's healthcare system is comprised of both public and private systems. Healthcare is not only organized, but is also practiced by public and private providers.<sup>244</sup>

The private, for profit, sector mainly provides ambulatory and institutional care. Private practitioners update and exchange their knowledge and experiences by holding seminars and discussions on emerging issues and therapeutic measures. The Medical Association provides a link between the private healthcare sector and its counterparts in the public sector, so that private entities can also participate in public healthcare activities.

Currently, the government accounts for only 12% of the Burma's entire healthcare spending. The vast majority of Burmese visit private-pay polyclinic or monastery to receive very basic primary care services. If medicine is required, the individual must pay 100% of the costs. In cases where surgery is required, the patient or their family must purchase the required disposable instruments at a local wholesaler before coming back for the procedure.<sup>245</sup>

## Hospitals

As of March 2013, there were 944 hospitals under the Ministry of Health.<sup>246</sup> As the budget for the Ministry of Health increases, so too does the health infrastructure. In 2012, 23 new hospitals, 70 new RHCs, and 282 new sub-centres were established. There are just over 300 hospitals throughout the country with more than 25 beds.<sup>247</sup> There are about 17,000 doctors throughout the country (6,000 state service and 11,000 private practice).<sup>248</sup> Despite the growing healthcare infrastructure, healthcare, hospitals and medical supplies are often inadequate for disaster situations.<sup>249</sup>

Burma is currently implementing a contingency plan that calls for the installation of temporary schools and health facilities immediately after a hazardous event.<sup>250</sup> This plan goes along with measures designed to integrate disaster risk reduction methodologies in schools and healthcare facilities.<sup>251</sup> Such measures include ensuring that schools and health facilities are constructed in structurally sound ways, and that can withstand hazards and take on the dual roles of temporary shelter and service provider

The 2011 Hyogo Framework for Action

Progress Report for Burma indicates that there are no national programs or policies in place to make health facilities safe during emergencies.<sup>252</sup> However, Burma understands that it is important to ensure availability of medicines and healthcare during and after a disaster, and appears to be making necessary efforts.<sup>253</sup>

The activities associated with this effort are:

- Developing a contingency plan where temporary facilities are provided for education and health services during the reconstruction phase
- Considering hazard proneness during site selection for school and health facilities.
- Developing standardized school and health facility design specifications (for each hazard) and method of retrofitting existing structures and organize workshop
- Enforcing the usage of design specifications
- Constructing of multi-hazard resistant schools and health facilities

These measures are expected to have the following outcomes:

- Hazard resistant schools and health facilities constructed/ reconstructed
- Existing structures retrofitted to withstand the hazards

There are several large hospitals in the new capital city, Nay Pyi Taw. The Nay Pyi Taw Hospital opened in 2006, and the city also has the Defence Services Obstetric, Gynecological and Children's Hospitals.<sup>254</sup> There are also a wide variety of public and private hospitals in Yangon, the former capital of the country.

There are a number of military hospitals called Defense Services Hospitals throughout the country. These facilities are open to the civilian public for care.

## Health Access

Burma is quickly becoming a priority country for foreign investment. Some international organizations, such as Thailand's largest private hospital group, are ready to invest, but are



waiting for the Burmese government to make investment laws more clear. A Singapore healthcare provider signed an initial joint venture agreement with a Burma company to invest more than US\$3.0M to provide medical equipment to two hospitals.<sup>255</sup>

The government has increased health spending annually since 2000. The table below demonstrates the increase in government health expenditures over the past three fiscal years:

Fiscal Year	Government Health Expenditures as % of GDP	Government Health Expenditures as % of General Expenditures
2010-2011	0.20	1.03
2011-2012	0.21	1.05
2012-2013	0.76	3.14

As recently as FY 2009/2010, patients in Burma had to cover 81 percent of their healthcare costs themselves (the highest of any country in Asia). By 2013, out-of-pocket expenses for healthcare had already dropped to 60 percent. This is particularly bothersome as about 33 percent of the population lives below the poverty line.<sup>256</sup>

Burma's primary healthcare objective is to achieve universal health coverage by 2030.<sup>257</sup> Article 367 of the Constitution of the Republic of the Union of Myanmar states that "every citizen shall, in accord with the health policy laid down by the Union, have the right to health care."<sup>258</sup>

Burma's drug policy document indicates that the government has a commitment to ensure the quality of drugs available on the market. However, there does not appear to be a legal requirement or guidelines for the manufacture of drugs. Compliance with the any regulations involved double standards in that industries owned by nationals were required to meet only a few of the conditions, whereas those owned by foreign investors were required to meet all of them.

Due to these challenges, drug regulation is ineffective in Burma. Drug regulation activities are widely distributed among different agencies at central, provincial/state and peripheral levels without any clear definition of responsibilities, accountability, or powers of enforcement. There is also a shortage of trained staff and equipment. It is not uncommon for people without a license to manufacture and distribute drugs. Vendors have also been known to repack drugs in plastic bags and sell them without labels.<sup>259</sup> For these reasons and several others, over-the-counter medication is not recommended for travelers.

There is a network of about 350 hospital-based blood banks throughout the country. There is also a demand of roughly 200,000 units of blood.

There are six teaching hospitals, 28 general hospitals, 45 district hospitals, 19 specialty hospitals, and over 324 township/station level hospitals that perform blood transfusions. Many voluntary organizations assist in donor recruitment and blood donation.<sup>260</sup>

## Laboratories

Two Bio-safety Level 3 laboratories were opened in Yangon and Mandalay in 2010 as a part of Burma's battle to combat tuberculosis. Burma is one of the 22 countries in the world with the prevalence of the disease with 130,000 people infected annually. The Foundation for Innovative New Diagnosis helped to sponsor the laboratories.<sup>261</sup>

## Training for Health Professionals

Traditional medical practitioners are often trained at an Institute of Traditional Medicine. There are also many private licensed traditional practitioners.<sup>262</sup> Several Universities of Medicine also offer healthcare programs throughout the country.

Table 2: Medical Training Facilities<sup>263</sup>

Sr.	No.	University/ Training Schools Degree/ Diploma/ Certificate Conferred
1.	University of Medicine (1), Yangon	M.B., B.S., Dip.Med.Sc. (Tuberculosis & Chest Diseases), Dip. Med.Sc. (Sexually Transmitted Diseases), Dip.Med.Sc. (Family Medicine) M.Med.Sc., Ph.D., Dr.Med.Sc.
2.	University of Medicine, Mandalay	M.B., B.S., Dip.Med.Sc. (Family Medicine) M.Med.Sc., Ph.D., Dr.Med.Sc.
3.	University of Medicine (2), Yangon	M.B., B.S., Dip.Med.Sc. (Family Medicine) M.Med.Sc., Ph.D., Dr.Med.Sc.
4.	University of Medicine, Magway	M.B.,B.S., M.Med.Sc.
5.	University of Public Health, Yangon	Dip. Med.Sc. (Hospital Administration), Dip.Med.Ed, MPH, Ph.D.
6.	University of Dental Medicine, Yangon	B.D.S., Dip.D.Sc., M.D.Sc., Dr. D.Sc.,Ph.D, Diploma in Dental Technology
7.	University of Dental Medicine, Mandalay	B.D.S., Dip.D.Sc.
8.	University of Pharmacy, Yangon	B.Pharm., M.Pharm.
9.	University of Pharmacy, Mandalay	B.Pharm.
10.	University of Medical Technology, Yangon	B.Med.Tech., M.Med.Tech.
11.	University of Medical Technology, Mandalay	B.Med.Tech., M.Med.Tech.
12.	University of Nursing, Yangon	B.N.Sc., M.N.Sc., Diploma Speciality Nursing (Dental, EENT, Mental Health, Paediatrics, Critical Care, Orthopaedics)
13.	University of Nursing, Mandalay	B.N.Sc., M.N.Sc.
14.	University of Community Health, Magway	B.Comm.H.
15.	Nursing Training Schools	Diploma
16.	Midwifery Training Schools	Certificate
17.	Lady Health Visitor Training School	Certificate
18.	Nursing Field Training School	-
19.	Domiciliary Midwifery Training School	-







# BURMA (MYANMAR)

## Conclusion

Burma (Myanmar) Disaster Management Reference Handbook | 2014

# Conclusion

The CFE-DMHA Burma Country Book revealed a number of significant findings in Burma's disaster management systems, authorities, capabilities, and vulnerabilities. These findings have been outlined in each of the sections of the report, but a summarization of key findings is captured here in the conclusion for quick reference. This country reference book is an important step in developing a common understanding of the disaster management context in Burma and to identify Burma's strengths and vulnerabilities for future disaster responses and capability-building engagements.

Finding #1: Cyclone Nargis in 2008 was a turning point in Burma's disaster management and risk reduction programs.

Cyclone Nargis hit Burma in 2008, resulting in devastating impacts that affected much of the southeastern part of the country, including Yangon and the Ayeyarwady Delta region. The overwhelming impacts of the Cyclone led the Government of Burma to put greater emphasis on preparedness and mitigation. The Government conducted assessments in line with the Hyogo Framework for Action to identify vulnerabilities and capabilities in its own systems and processes, and then took direct action to address the gaps that it could.

The large international humanitarian response to Cyclone Nargis also contributed to greater cooperation between the Government of Myanmar and the international community for disaster risk reduction programs. The involvement of the United Nations and the Association of Southeast Asian Nations (ASEAN), along with bilateral aid from countries including France, Thailand and the United States, appears to have had an effect of opening the Government of Burma to possibilities of external assistance that could not only be used for disaster responses, but also could be applied to improving Burma's resiliency to disasters.

The plans and governmental decrees establishing lines of authority and protocols have increased in number and improved in quality over

recent years, but they do present occasionally confusing scenarios caused by conflicting guidance and language. Finding the whole picture requires piecing together various documents and understanding the line of succession and which guidance supersedes others. Donors and partner organizations may have difficulty in understanding the complete system, or they may act on outdated information because they do not realize a newer law, plan, or decree has provided changes.

Finding #2: Burma has made initial progress in disaster management mechanisms, but still has gaps in resources and institutional capabilities.

The Government of Burma has created the Myanmar Disaster Preparedness Agency (MDPA) as the lead for disaster management, and has established similar organizations at the division and state, district, and community levels. The government, through its responsible agencies, has created disaster preparedness and response plans and guidelines and continues to update or create the policies and plans needed to drive government coordination and programs. The establishment of multi-agency coordination mechanisms for disaster management is a positive step. Unfortunately, the government still has shortfalls in resources and capabilities to implement programs.

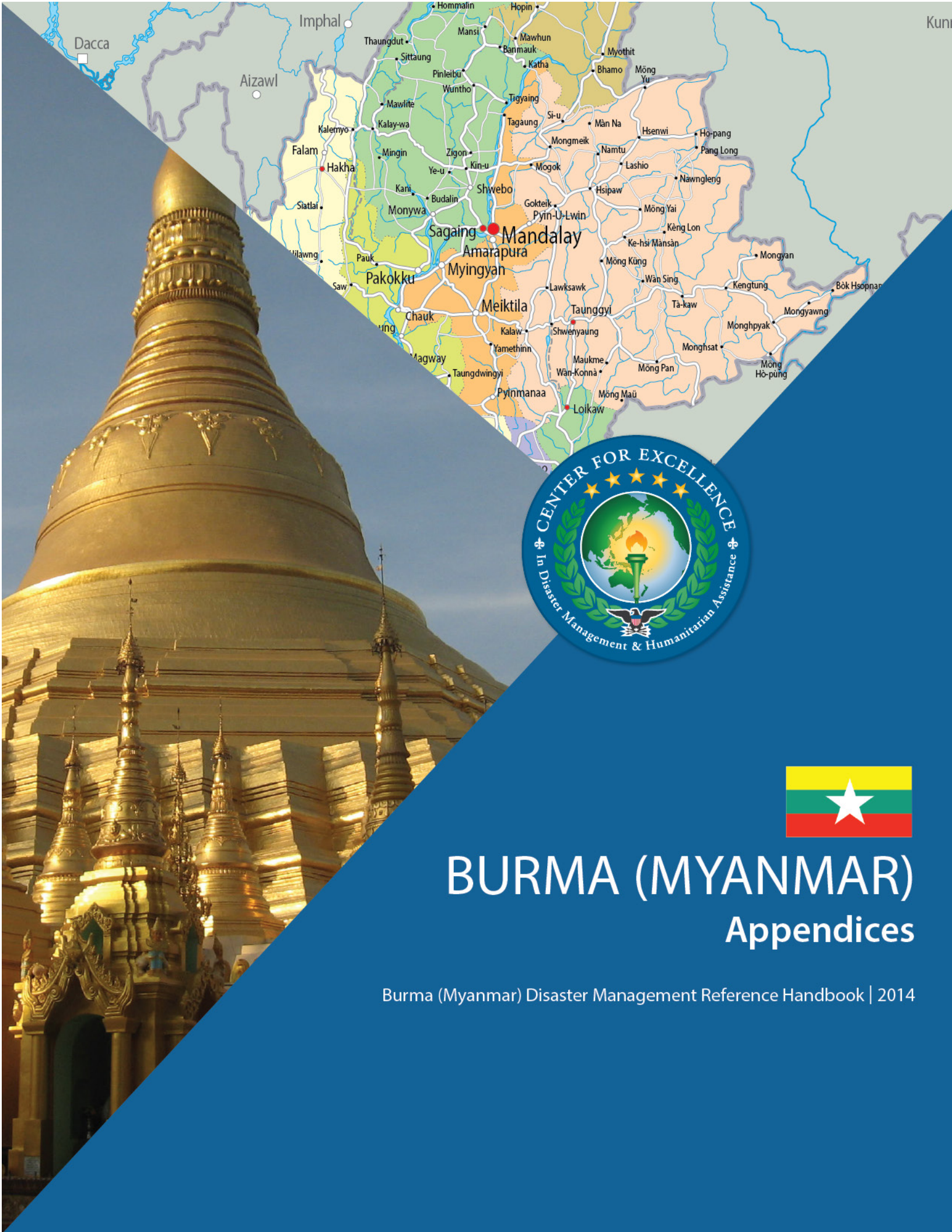
While the policies and plans have been written, revised, and updated, the implementation of those plans has been slower due primarily to resource constraints. Burma does not have set budgets for disaster risk reduction and preparedness, especially at the state and community levels. Program requirements have been identified, but the funding is not available to address known gaps. Burma is dependent on assistance from external organizations to fully implement new programs. The government's budgets do not have set funding lines to help agencies fulfill their disaster management roles and responsibilities.

Finding #3: Burma is one of the most at-risk countries for disasters in the world because of hazards and vulnerabilities, making disaster risk reduction and preparedness a priority for international programs.

Burma faces a formidable range of natural disasters and an ongoing set of manmade conflict-related humanitarian crises. In fact, the UN reported that Burma is the most at risk country in the Asia-Pacific region. Burma is forced to be ready for these disasters and their impacts with mostly outdated and under-maintained infrastructure and limited government resources and capacity that can quickly be overwhelmed by a large disaster. Large segments of the population of Burma are already in a steady state of need or vulnerability due to endemic diseases and health conditions, compromised nutrition and hygiene, and displacement. Burma also has economic vulnerabilities from widespread subsistence living and majority dependence on agriculture and natural resources for livelihoods and trade. A combination of these factors means that much of the population of Burma would be severely affected by a large-scale disaster. Traditional means of preparedness and close community support networks help mitigate the severity of some impacts, but the capacity of the country to be resilient to disasters by withstanding the effects and rebounding quickly is limited. Outside assistance to build sustainable disaster management capabilities is still necessary and will help protect development and democratization gains.







# BURMA (MYANMAR)

## Appendices

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# Appendices

## Disaster Statistics

Table 3: Statistical Disaster Information for Burma from 2003 to 2013

Disaster type	Occurrence	Deaths	Total affected	Total damage (USD)
Earthquake (seismic activity)	3	183	38,463	\$504,770
Epidemic	1	30	0	\$0
Flood	8	190	370,698	\$1,700
Mass movement wet	4	125	146,367	\$0
Storm	4	138,681	2,765,155	\$4,057,688
Total	20	139,209	3,320,683	\$4,564,158

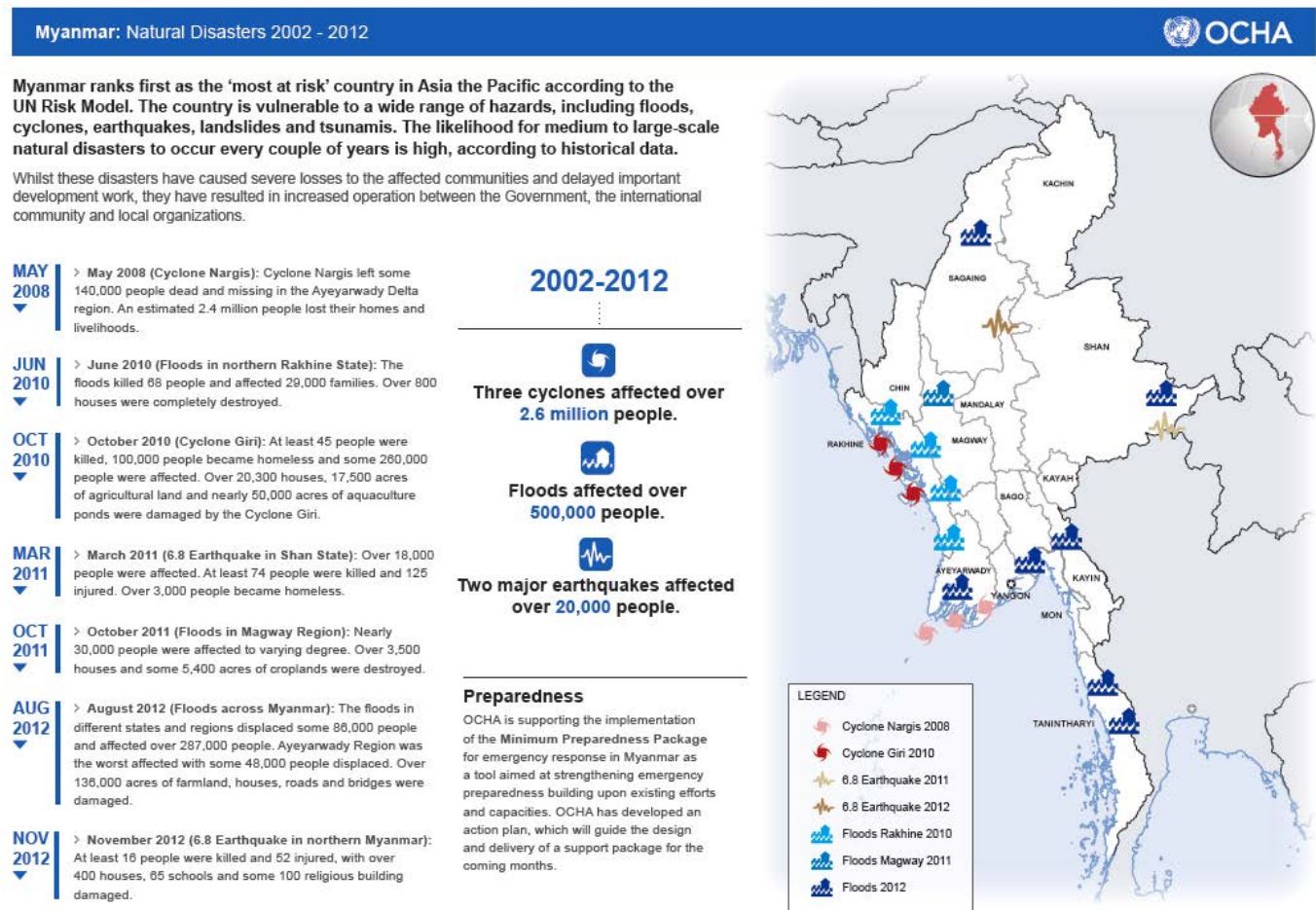


Figure 8: Disasters in Burma between 2002 and 2012<sup>264</sup>



## Disaster Management Laws and Guidelines

No appropriate disaster management legislation currently exists. However, appropriate legislation in the form of a national disaster management law would behoove disaster management activities throughout Burma. Such legislation would support necessary actions and decision-making processes. Structured disaster management legislation would also assist government departments' and ministries' efforts to efficiently allocate responsibilities related to disaster management. Lastly, a structured disaster management legal framework would engender enhanced inter-ministerial/departmental coordination.

## Department of Defense DMHA Engagements in the Past Five Years (FY 2009-2013)

The following list contains US DoD engagements related to disaster management that involved Burma from 2009 to 2013.

**August 2013:** A Defense Tri-lateral between the United States, Burma, and Thailand was held in Bangkok, Pattaya, and Sattahip, Thailand. This event is the first step in building trust and relationships with the Burmese military. The primary subjects were HA/DR and military medicine.

**June 2013:** The Multinational Communications Interoperability Program (MCIP) will bring nations together in the Asia-Pacific Region, allowing them to integrate their communications and information systems, test compatibility and interoperability, provide a forum for the professional discussion of interoperability issues, and aid the development of regional standards/common architecture in support of Humanitarian Assistance and Disaster Relief Operations, conduct communication systems interoperability assessment, and populate the Multinational Communications Interoperability Guide (MCIG).

**May 2013:** The ASEAN Regional Forum (ARF) Disaster Relief Exercise (DIREX) was an event co-hosted by Thailand and the Republic of Korea. The exercises' them was enhancing national and regional civil-military cooperation during disaster response operations. ARF DIREX provided the opportunity for 29 countries and other organizations

to enhance cooperation, coordination, and interoperability at the national, regional, and international level. Participating countries included: Australia, Brunei, Burma, Cambodia, Indonesia, Japan, Korea, S., Laos, Malaysia, New Zealand, Philippines, Singapore, Thailand, United States and Vietnam.

## Annual HADR Exercises






**Lower Mekong Initiative (LMI) Disaster Response Exercise and Exchange (DREE):** The LMI DREE is an annual civil-military disaster preparedness and response initiative between the governments of Cambodia, Lao PDR, Burma, Thailand, Vietnam and the United States. The focus is regional readiness to all-hazard situations in the Lower Mekong area. The LMI DREE provides a framework for civil-military authorities to develop best practice, engage in collaborative dialog, exercise plans and procedures to enhance HA/DR capabilities.<sup>265</sup>





**Pacific Airlift Rally (PAR):** The Pacific Airlift Rally is a biennial, military airlift symposium sponsored by U.S. Pacific Air Forces for nations in the Indo-Pacific region since 1997. PAR advances military airlift interoperability and cooperation among the nations of the Indo-Pacific region, and provides a venue to exchange humanitarian airlift, air-land and air delivery techniques specific to the Indo-Pacific region. Participating countries include: Bangladesh, Brunei, Cambodia, Canada, India, Indonesia, Laos, Maldives, Malaysia, Mongolia, Nepal, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, Tonga, United States and Vietnam.

**ASEAN Defence Ministers' Meeting (ADMM) Humanitarian Assistance and Disaster Response (HADR)/Military Medicine (MM) Exercise:** The first exercise was held in 2013, and was hosted by Brunei with over 3,000 troops from 18 countries along with seven ships, 15 helicopters. Scenarios related to collapsed buildings, landslides and flash flood. The multi-national forces exercised the evacuation of casualties and displaced personnel, as well as the delivery of aid to affected communities. The exercise provided a forum for the 18 countries to come together and participate constructively and demonstrate practical cooperation.<sup>266</sup>

## Disaster Management Partners in Burma

The following contact list is included with the intent to provide planners and deploying personnel initial contacts for disaster management-related organizations in Burma. Out of consideration for privacy concerns, this list does not contain individual contact information, but instead has email addresses and telephone numbers for offices.

Org.	Office	Email	Phone	Description	Logo
ADB	ADB Burma Resi- dent Mission		+95 67 810 8066	In 2013, ADB resumed operations in Burma, with an assistance package for social and economic development that is designed to build a solid foundation for further reforms to alleviate poverty and foster growth. <sup>267</sup>	
ADB	ADB Yangon Liaison Office		+95 1 255 023	In 2013, ADB resumed operations in Burma, with an assistance package for social and economic development that is designed to build a solid foundation for further reforms to alleviate poverty and foster growth. <sup>268</sup>	
UN Develop- ment Pro- gramme	Coun- try Office	<a href="mailto:registry.mm@undp.org">registry. mm@ undp.org</a>	+95 1 542 910	UNDP has been providing development assistance to the people of Burma since the 1950s. Through the 2013-2015 programme developed in partnership with the Burma Government, UNDP aims help Burma manage a “triple transition”: nation-building; state-building; and economic liberalization, moving the country from a closed, command economy to an open and transparent market. <sup>269</sup>	
UNICEF	Burma Coun- try Office	<a href="mailto:yangon@unicef.com">yangon@ unicef. com</a>	+95 1 230 5959	The overriding goal of UNICEF’s current program in Burma is to protect and further children’s rights to survival, development, protection and participation. Recognizing that the wellbeing of children is closely linked to the health and wellbeing of their mothers, UNICEF also works to help women in Burma realize these fundamental rights. <sup>270</sup>	
Red Cross	Burma Red Cross Society	<a href="mailto:ed-mrcs@myanmarredcross.org.mm">ed- mrcs@ myan- marred- cross.org. mm</a>	+95 1 383 684	Aims to be the leading humanitarian organization in Burma, acting with and for the most vulnerable at all times. Through its nationwide network of volunteers, the Myanmar Red Cross Society works to promote a more healthy and safe environment for the people of this country, giving priority to the most vulnerable communities and individuals. In times of distress and disaster, MRCS also assists those affected and help them return to their normal lives. <sup>271</sup>	

USAID	USAID Contact	sstone@usaid.gov	(202) 712-4997	USAID has been providing humanitarian assistance to Burma since 2000. In 2008, our efforts scaled up in response to the devastation of Cyclone Nargis. Since 2008, USAID has managed a program focused on humanitarian assistance along the Thai-Burma border, in the Ayeyarwady delta and in Central Burma. We have also provided assistance to U.S. and international organizations supporting human rights and independent media in the country. <sup>272</sup>	
WB	Country Office	myanmar@worldbank.org	+95 1 654 824	The World Bank has fully reengaged with the Government to support reforms that will benefit all of the people of Burma, including the poor and vulnerable. <sup>273</sup>	
WFP	Yangon Country Office		+95 1 230 597	WFP is the food aid arm of the United Nations system. Food aid is one of the many instruments that can help to promote food security, which is defined as access of all people at all times to the food needed for an active and healthy life. <sup>1</sup> The policies governing the use of World Food Programme food aid must be oriented towards the objective of eradicating hunger and poverty. The ultimate objective of food aid should be the elimination of the need for food aid. <sup>274</sup>	
WHO	Regional Office	whomr@searo.who.int	+95 1 650 416	WHO is the directing and coordinating authority for health within the United Nations 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. <sup>275</sup>	



## Force Protection/Pre-Deployment information

The following information is provided for pre-deployment planning and preparations. Visit [www.travel.state.gov](http://www.travel.state.gov) prior to deployments for further up-to-date information.

## Passport/Visa

- The Government of Burma strictly controls travel within Burma. Have a valid passport with at least six month remaining validity and a visa to enter Burma. Apply for a visa at a Burmese embassy or consulate abroad before arrival in Burma.

## Emergency Contact Information

For U.S. Citizens, contact the U.S. Embassy in Rangoon:

- Kamayut Township, Rangoon, Burma
- Telephone: +95 1 536 509
- Duty Officer Emergency Telephone: +95 9 512 4330
- Twenty-Four Hour Embassy Telephone: +95 1 500 547
- Embassy Fax Number: +95 1 511 069

## Airport Fees

- Business Visa (valid for 70 days): US\$50
- Entry Visa – Meetings/Workshops/Events (valid for 28 days): US\$40
- Transit Visa (valid for 24 hours): US\$20

## Currency Information

- The currency in Burma is the Burmese Kyat

## Additional Information

- Before visiting Burma, the CDC advises travelers get the following vaccinations:
  - Standard routine vaccinations (all travelers)
  - Hepatitis A (most travelers)
  - Typhoid (most travelers)
  - Hepatitis B (some travelers)
  - Japanese Encephalitis (some travelers)
  - Malaria (some travelers)
  - Rabies (some travelers)
  - Yellow Fever (some travelers)
- Rangoon: +95 1
- Burma Time Zone is UTC +06:30

## Burma Characteristics

- Official Name: Union of Burma
- Government: A parliamentary government took power in March 2011
- Language: Burmese
- Geography: Burma has an area of 676,000 sq. kilometers, which makes it slightly smaller than the size of Texas. The Capital of Burma is Rangoon.
- People: There are more than 55 million people living in Burma. The national language is Burmese. Burma has a variety of ethnic groups including: Burman (68%), Shan (9%), Karen (7%), Rakhine (4%), Chinese (3%), Indian (2%), Mon (2%), and other (5%). The country's primary religious groups include: Buddhism (89%), Christianity (4%) (Baptist 3%, Roman Catholic 1%), Muslim (4%), Animist (1%), and other (2%).
- Climate: tropical monsoon; cloudy, rainy, hot, humid summers (southwest monsoon, June to September); less cloudy, scant rainfall, mild temperatures, lower humidity during winter (northeast monsoon, December to April).
- Military Branches: Burma Armed Forces (Tatmadaw): Army (Tatmadaw Kyi), Navy (Tatmadaw Yay), Air Force (Tatmadaw Lay) (2013).

## Health Information

### Medicines/Items:

- The prescription medicines. Have enough to last during the trip. Keep them in their original prescription bottles and always in carry-on luggage.
- Medicine for diarrhea, usually over-the-counter.
- Iodine tablets and portable water filters to purify water if bottled water is not available.
- Antibacterial hand wipes or alcohol-based hand sanitizer containing at least 60% alcohol.
- To prevent insect/mosquito bites, bring:
  - Lightweight long-sleeved shirts, long pants, and a hat to wear outside, whenever possible.
  - Flying-insect spray to help clear rooms of mosquitoes.

### During the Trip:

Many diseases, like malaria and dengue, are spread through insect bites. One of the best protections is to prevent insect bites by:

- Using insect repellent (bug spray) with 30%-50% DEET. Picaridin, available in 7% and 15% concentrations, needs more frequent application.
- Wearing long-sleeved shirts, long pants, and a hat outdoors.
- Remaining indoors in a screened or air-conditioned area during the peak biting period for malaria (dusk and dawn).
- Food and Water:

Diseases from food and water are the leading cause of illness in travelers. Follow these tips for safe eating and drinking:

- Wash hands often with soap and water, especially before eating. If soap and water are not available, use an alcohol-based hand gel (with at least 60% alcohol).
- Drink only bottled or boiled water, or carbonated (bubbly) drinks in cans or bottles. Avoid tap water, fountain drinks, and ice cubes. If this is not possible, learn how to make water safer to drink.
- Do not eat food purchased from street vendors.
- Make sure food is fully cooked.
- Avoid dairy products, unless they have been pasteurized.
- Check bottles for cracked seals.

## **Traveling with Medications**

When medications are necessary for travel, it is important to remember the following:

- **Original containers:** All medications should be carried in their original containers with clear labels, so the contents are easily identified. Although many travelers like placing medications into small containers or packing them in the daily-dose containers, officials at ports of entry may require proper identification of medications.
- **Prescriptions:** Travelers should carry copies of all prescriptions, including their generic names.
- **Physician notes:** For controlled substances and injectable medications, travelers are advised to carry a note from the prescribing physician on letterhead stationery.
- **Restricted medications:** Travelers should be aware that certain medications are not permitted in certain countries. If there is a question about these restrictions, particularly with controlled substances, travelers are recommended to contact the embassy or consulate of the destination country.



## Acronyms and Abbreviations

Acronym	Definition
AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ACDM	ASEAN Committee on Disaster Management
ADB	Asian Development Bank
ADMM	ASEAN Defense Ministers' Meeting
ADPC	Asian Disaster Preparedness Center
ALA	Arakan Liberation Army
ARF	ASEAN Regional Forum
ASA	Air Service Agreement
ASEAN	Association of Southeast Asian Nations
CCB	Central Coordinating Board
CFE-DMHA	Center for Excellence in Disaster Management and Humanitarian Assistance
CNF	Chin National Front
CPI	Corruption Perception Index, Consumer Price Index
CTFMR	Country Task Force on Monitoring and Reporting
DCA	Department of Civil Aviation
DEPT	Department of Educational Planning and Training
DHSHD	Department of Human Settlement and Housing Development
DIREX	Disaster Relief Exercise
DMC	Disaster Management Committee
DMH	Department of Meteorology and Hydrology
DPRE	Disaster Preparedness Response Education
DREE	Disaster Response Exercise and Exchange
DRR WG	Disaster Risk Reduction Working Group
DWT	Dead Weight Tons
EPM	Electric Power Ministry
EU	European Union
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
FETP	Field Epidemiology Training Programme
GAD	General Administration Department
GDP	Gross Domestic Product
GWh	Gigawatt hours
HA/DR	Humanitarian Assistance and Disaster Relief
HFA	Hyogo Framework for Action
HIV	Human Immuno-deficiency Virus
HQ	Headquarters
IDP	Internally Displaced Person
ILI	Influenza Like Illness

Acronym	Definition
IMF	International Monetary Fund
IWT	Inland Water Transport
JICA	Japan International Cooperation Agency
KIA	Kachin Independence Army
KIO	Kachin Independence Organization
KNLA	Karen National Liberation Army
LMI	Lower Mekong Initiative
MAPDRR	Myanmar Action Plan on Disaster Risk Reduction
MCCA	Myanmar Climate Change Alliance
MCIP	Multinational Communications Interoperability Program
MDG	Millennium Development Goal
MDPA	Myanmar Disaster Preparedness Agency
MES	Myanmar Engineering Society
MFSL	Myanmar Five Star Lines
MM	Military Medicine
MNA	Myanmar News Agency
MNBC	Myanmar National Building Code
MOC	Ministry of Construction
MOE	Ministry of Education, Ministry of Energy
MoECAFF	Ministry of Environmental Conservation and Forestry
MORT	Ministry of Rail Transportation
MOT	Ministry of Transport
MOU	Memorandum of Understanding
MPSI	Myanmar Peace Support Initiative
MSWRR	Ministry of Social Welfare, Relief and Resettlement
NDPCC	National Disaster Preparedness Central Committee
NGO	Non-Governmental Organization
NLD	National League for Democracy
NSMP	New State Mon Party
PAR	Pacific Airlift Rally
PONJA	Post Nargis Joint Assessment
PONREPP	Post Nargis Recovery and Preparedness Plan
RRD	Relief and Resettlement Department
SDC-HA	Swiss Development Cooperation – Humanitarian Aid
SEZ	Special Economic Zone
SSA	Shan State Army
TB	Tuberculosis
TCG	Tripartite Core Group
USG	United States Government

<b>Acronym</b>	<b>Definition</b>
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UN-REDD	United Nations Reducing Emissions from Deforestation and Degradation
USAID	United States Agency for International Development
UWSA	United Wa State Army
WB	World Bank
WCS	Wildlife Conservation Society
WFP	World Food Program
WHO	World Health Organization
WMF	World's Monuments Fund
YESB	Yangon Electricity Supply Board



## HFA Country Progress Report

The Hyogo Framework for Action (HFA) was adopted as a guideline to reduce vulnerabilities to natural hazards. The HFA assists the efforts of these countries to become more resilient to, and manage better the hazards that threaten their development. Below is a summarization of the interim 2009-2011 results of the HFA for Burma. The full report is available at [http://www.preventionweb.net/files/16315\\_mmr\\_NationalHFAprogress\\_2009-11.pdf](http://www.preventionweb.net/files/16315_mmr_NationalHFAprogress_2009-11.pdf).



### Burma's Summary of the Hyogo Framework for Action (2009- 2011) - interim: Building the Resilience of Nations and Communities to Disasters (Hyogo Framework)



#### Expected Outcome

The substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries

#### Burma's challenges in implementing the HFA are:

- Lack of an overarching disaster management law
- Lack of clarification on how to integrate DRR into each ministry
- Absence of a policy directive for allocation of funds specifically for DRR
- Need to define village level organizations as stated in the Standing Order
- Absence of a centralized system for consolidating data for all types of disasters
- Web-based information system is not effective due to internet access in Burma
- Early warning system does not reach remote areas of country
- Insufficient DRR teaching materials for students

#### Strategic Goals

The integration of disaster risk reduction into sustainable development policies and planning

Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards

The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programs

#### Burma's Priorities for Action

1. Ensure that DRR is a national and a local priority with a strong institutional basis for implementation

2. Identify, assess and monitor disaster risks and enhance early warning

3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels

4. Reduce the underlying risk factors

5. Strengthen disaster preparedness for effective response at all levels

#### To address these priorities Burma is taking the following action:

- Establish the Standing Order on Natural Disaster Management
- Ministry of Social Welfare, Relief and Resettlement budget covers disaster risk reduction
- Disaster preparedness committees have been formed from national to village level

- DRR Working Group serve as a platform for facilitating of policy of work and sharing experiences
- Encourage dialogue between forecast producers and users to enhance uptake of weather and climate forecasts
- Make disaster management information accessible at all levels

- Mainstream DRR in school curricula and in the health sector
- Develop vulnerability and risk assessment for disaster prone areas
- Grow scenarios and conduct simulation exercises
- Develop guidelines for integration of DRR into local development plans

- Provide and build capacity at different levels with co-ordination reaching public
- Improve DRR in education training modules
- Develop formal public awareness strategy
- Develop preparedness and response plans for all hazards

- Introduce program to reduce vulnerability of economic activities at community level
- Improve building codes to promote safer construction
- Integrate DRR in school and health sectors
- Establish community-based DRR programs
- Create reference on hazard profiles and maps

#### Burma's lessons learned in implementing the HFA:

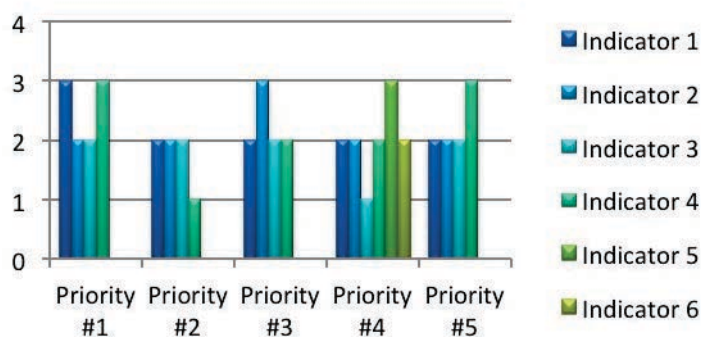
Major success factors driving progress of the implementation of the HFA in Burma include: Establishment of the National Disaster Preparedness Central Committee (NDPCC); Development of the Standing Order on Natural Disaster Management; Local government authority have clear defined roles and responsibilities for disaster management; Involvement of various stakeholders in DRR working groups has been influential

## Summarization of the Burma National Progress Report on the Implementation of Hyogo Framework for Action (2009-2011) – Interim

The Hyogo Framework for Action (HFA) was adopted as a guideline to reduce vulnerabilities to natural hazards. The HFA assists the efforts of these countries to become more resilient to, and manage better the hazards that threaten their development. Below is a summarization of the interim 2009-2011 results of the HFA for Burma. The full report is available at [http://www.preventionweb.net/files/16315\\_mmr\\_NationalHFAprogress\\_2009-11.pdf](http://www.preventionweb.net/files/16315_mmr_NationalHFAprogress_2009-11.pdf).

Overall, the level of HFA progress reported for Burma matched most of the regional averages for Asia-Pacific. Burma generally scored at the regional average on having frameworks, systems, and assessments in place. The areas where Burma scored below the regional average were risk assessment and early warning systems.

**Level of Progress\* Achieved for HFA Priorities**



**Future Outlook Area 1: *Integration of disaster risk considerations into sustainable development policies, planning and programming at all levels.***

**Challenges:** Lack of comprehensive Disaster Management Law; integration of DRR in development policies

**Future Outlook Priorities:** Development and enactment of DM law. DRR will be integrated into sustainable development policies, planning and programmes at all levels.

**Future Outlook Area 2: *Development and strengthening of institutions, mechanisms, and capacities at all levels to build resilience to hazards.***

**Challenges:** School and community linkage and coordination among organizations are weak. Outreach at village level is weak.

**Future Outlook Priorities:** Introduce system which will strengthen school and community linkage for DRR activities. Need commitment to DRR in every institution, government and private sector.

**Future Outlook Area 3: *Incorporation of risk reduction approaches in the preparedness, response, and recovery programs during the reconstruction of affected communities.***

**Challenges:** Operational procedures on emergency response have not been explained. Action Plans on emergency preparedness, response and recovery programmes up to village level are not based on formal assessments.

**Future Outlook Priorities:** Implementation of Standing Order to ensure DRR is integrated into the disaster management cycle.

## Burma National Progress Report on the Implementation of Hyogo Framework for Action (2009-2011) – Interim

Many countries around the world are committed to taking action to reduce disaster risk. The Hyogo Framework for Action (HFA) was adopted as a guideline to reduce vulnerabilities to natural hazards. The HFA assists the efforts of these countries to become more resilient to, and manage better the hazards that threaten their development. Below are the interim 2009-2011 results of the HFA for Burma:

<b>Priority for Action #1: Making disaster risk reduction a policy priority, institutional strengthening</b>			
Core Indicator	Indicator Description	Level of Progress Achieved*	Regional Average Score
1	National policy and legal framework for disaster risk reduction exists with decentralized responsibilities and capacities at all levels.	3	3.48
2	Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels	2	3.03
3	Community Participation and decentralization is ensured through the delegation of authority and resources to local levels	2	3.11
4	A national multi sectoral platform for disaster risk reduction is functioning.	3	3.11
<b>Priority for Action #2: Risk assessment and early warning systems</b>			
1	National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.	2	3.14
2	Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities.	2	3.07
3	Early warning systems are in place for all major hazards, with outreach to communities.	2	3.29
4	National and local risk assessments take account of regional / trans-boundary risks, with a view to regional cooperation on risk reduction.	1	3.29
<b>Priority for Action #3: Education, information and public awareness</b>			
1	Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems etc).	2	3.03
2	School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices.	3	3.03
3	Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened.	2	2.55
4	Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.	2	3.44
<b>Priority for Action #4: Reducing underlying risk factors</b>			
1	Disaster risk reduction is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change.	2	3.14
2	Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.	2	2.74
3	Economic and productive sectorial policies and plans have been implemented to reduce the vulnerability of economic activities.	1	2.88

4	Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.	2	2.84
5	Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation processes.	3	3.0
6	Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.	2	2.73
<b>Priority for Action #5: Preparedness for effective response</b>			
1	Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.	2	3.29
2	Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programs.	2	3.42
3	Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.	2	3.33
4	Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews.	3	3.34

\*Level of Progress:

- 1 – Minor progress with few signs of forward action in plans or policy
- 2 – Some progress, but without systematic policy and/ or institutional commitment
- 3 – Institutional commitment attained, but achievements are neither comprehensive nor substantial
- 4 – Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
- 5 – Comprehensive achievement with sustained commitment and capacities at all levels



## Country Profile

Sourced directly from: *Central Intelligence Agency World Factbook*.<sup>276</sup>

### Introduction: Burma

**Background:** Various ethnic Burmese and ethnic minority city-states or kingdoms occupied the present borders through the 19th century. Over a period of 62 years (1824-1886), Britain conquered Burma and incorporated the country into its Indian Empire. Burma was administered as a province of India until 1937 when it became a separate, self-governing colony; in 1948, Burma attained independence from the Commonwealth. Gen. NE WIN dominated the government from 1962 to 1988, first as military ruler, then as self-appointed president, and later as political kingpin. In response to widespread civil unrest, NE WIN resigned in 1988, but within months the military crushed student-led protests and took power. Multiparty legislative elections in 1990 resulted in the main opposition party - the National League for Democracy (NLD) - winning a landslide victory. Instead of handing over power, the junta placed NLD leader (and Nobel Peace Prize recipient) AUNG SAN SUU KYI (ASSK) under house arrest from 1989 to 1995, 2000 to 2002, and from May 2003 to November 2010. In late September 2007, the ruling junta brutally suppressed protests over increased fuel prices led by prodemocracy activists and Buddhist monks, killing at least 13 people and arresting thousands for participating in the demonstrations. In early May 2008, Burma was struck by Cyclone Nargis, which left over 138,000 dead and tens of thousands injured and homeless. Despite this tragedy, the junta proceeded with its May constitutional referendum, the first vote in Burma since 1990. Parliamentary elections held in November 2010, considered flawed by many in the international community, saw the ruling Union Solidarity and Development Party garner over 75% of the seats. Parliament convened in January 2011 and selected former Prime Minister THEIN SEIN as president. Although the vast majority of national-level appointees named by THEIN SEIN are former or current military officers, the government has initiated a series of political and economic reforms leading to a substantial opening of the long-isolated country. These reforms have included allowing ASSK to contest parliamentary by-elections on 1 April 2012, releasing hundreds

of political prisoners, reaching preliminary peace agreements with 10 of the 11 major armed ethnic groups, enacting laws that provide better protections for basic human rights, and gradually reducing restrictions on freedom of the press, association, and civil society. At least due in part to these reforms, ASSK now serves as an elected Member of Parliament and chair of the Committee for Rule of Law and Tranquility. Most political parties have begun building their institutions in preparation for the next round of general elections in 2015. The country is preparing to chair the Association of Southeast Asian Nations (ASEAN) in 2014.

### Geography: Burma

**Location:** Southeastern Asia, bordering the Andaman Sea and the Bay of Bengal, between Bangladesh and Thailand

**Geographic coordinates:** 22 00 N, 98 00 E

**Map references:** Southeast Asia

#### Area:

total: 676,578 sq km

country comparison to the world: 40

land: 653,508 sq km

water: 23,070 sq km

**Area - comparative:** slightly smaller than Texas

#### Land boundaries:

total: 5,876 km

border countries: Bangladesh 193 km, China 2,185 km, India 1,463 km, Laos 235 km, Thailand 1,800 km

**Coastline:** 1,930 km

#### Maritime claims:

territorial sea: 12 nm

contiguous zone: 24 nm

exclusive economic zone: 200 nm

continental shelf: 200 nm or to the edge of the continental margin

**Climate:** Tropical monsoon; cloudy, rainy, hot, humid summers (southwest monsoon, June to September); less cloudy, scant rainfall, mild temperatures, lower humidity during winter (north-

east monsoon, December to April)

**Terrain:** Central lowlands ringed by steep, rugged highlands

**Elevation extremes:**

lowest point: Andaman Sea 0 m

highest point: Hkakabo Razi 5,881 m

**Natural resources:** petroleum, timber, tin, antimony, zinc, copper, tungsten, lead, coal, marble, limestone, precious stones, natural gas, hydro-power

**Land use:**

arable land: 15.94%

permanent crops: 2.16%

other: 81.89% (2011)

**Irrigated land:** 21,100 sq km (2004)

**Total renewable water resources:**

1,168 cu km (2011)

**Freshwater withdrawal (domestic/industrial/agricultural):**

total: 33.23 cu km/yr (10%/1%/89%)

per capita: 728.6 cu m/yr (2005)

**Natural hazards:** destructive earthquakes and cyclones; flooding and landslides common during rainy season (June to September); periodic droughts

**Environment - current issues:** deforestation; industrial pollution of air, soil, and water; inadequate sanitation and water treatment contribute to disease

**Environment - international agreements:**

party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Law of the Sea, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94

signed, but not ratified: none of the selected agreements

**Geography - note:** strategic location near major Indian Ocean shipping lanes

**People and Society: Burma**

**Nationality:**

noun: Burmese (singular and plural)

adjective: Burmese

**Ethnic groups:**

Burman 68%, Shan 9%, Karen 7%, Rakhine 4%, Chinese 3%, Indian 2%, Mon 2%, other 5%

**Languages:** Burmese (official)

note: minority ethnic groups have their own languages

**Religions:** Buddhist 89%, Christian 4% (Baptist 3%, Roman Catholic 1%), Muslim 4%, Animist 1%, other 2%

**Population:** 55,167,330 (July 2013 est.)

country comparison to the world: 25

note: estimates for this country take into account the effects of excess mortality due to AIDS; this can result in lower life expectancy, higher infant mortality, higher death rates, lower population growth rates, and changes in the distribution of population by age and sex than would otherwise be expected

**Age structure:**

0-14 years: 26.7% (male 7,514,233/female 7,227,893)

15-24 years: 18.6% (male 5,183,653/female 5,060,385)

25-54 years: 42.8% (male 11,724,297/female 11,879,420)

55-64 years: 6.7% (male 1,754,397/female 1,963,051)

65 years and over: 5.2% (male 1,244,758/female 1,615,243) (2013 est.)

**Dependency ratios:**

total dependency ratio: 43.1 %

youth dependency ratio: 35.7 %

elderly dependency ratio: 7.5 %

potential support ratio: 13.4 (2013)

**Median age:**

total: 27.6 years

male: 27 years

female: 28.2 years (2013 est.)

**Population growth rate:**

1.05% (2013 est.)

country comparison to the world: 110

**Birth rate:**

18.89 births/1,000 population (2013 est.)

country comparison to the world: 97

**Death rate:**

8.05 deaths/1,000 population (2013 est.)

country comparison to the world: 97

**Net migration rate:**

0.3 migrant(s)/1,000 population (2013 est.)

country comparison to the world: 124

**Urbanization:**

urban population: 32.6% of total population (2011)

rate of urbanization: 2.49% annual rate of change (2010-15 est.)

**Major urban areas - population:**

Yangon 4.259 million; Mandalay 1.009 million; Nay Pyi Taw 992,000 (2009)

**Sex ratio:**

at birth: 1.06 male(s)/female

0-14 years: 1.04 male(s)/female

15-24 years: 1.02 male(s)/female

25-54 years: 0.99 male(s)/female

55-64 years: 0.9 male(s)/female

65 years and over: 0.77 male(s)/female

total population: 0.99 male(s)/female (2013 est.)

**Maternal mortality rate:**

200 deaths/100,000 live births (2010)

country comparison to the world: 53

**Infant mortality rate:**

total: 46.31 deaths/1,000 live births

country comparison to the world: 46

male: 52.91 deaths/1,000 live births

female: 39.31 deaths/1,000 live births (2013 est.)

**Life expectancy at birth:**

total population: 65.6 years

country comparison to the world: 170

male: 63.24 years

female: 68.09 years (2013 est.)

**Total fertility rate:**

2.21 children born/woman (2013 est.)

country comparison to the world: 102

**Contraceptive prevalence rate:**

46% (2009/10)

**Health expenditures:**

2% of GDP (2011)

country comparison to the world: 189

**Physicians density:**

0.5 physicians/1,000 population (2010)

**Hospital bed density:**

0.6 beds/1,000 population (2006)

**Drinking water source:**

improved:

urban: 94% of population

rural: 79.3% of population

total: 84.1% of population

unimproved:

urban: 6% of population

rural: 20.7% of population

total: 15.9% of population (2011 est.)

**Sanitation facility access:**

improved:

urban: 83.9% of population

rural: 74.1% of population

total: 77.3% of population

unimproved:

urban: 16.1% of population

rural: 25.9% of population

total: 22.7% of population (2011 est.)

**HIV/AIDS - adult prevalence rate:**

0.6% (2009 est.)

country comparison to the world: 64

**HIV/AIDS - people living with HIV/AIDS:**

240,000 (2009 est.)

country comparison to the world: 24

**HIV/AIDS - deaths:**

18,000 (2009 est.)

country comparison to the world: 17

**Major infectious diseases:**

degree of risk: very high

food or waterborne diseases: bacterial and protozoal diarrhea, hepatitis A, and typhoid fever

vectorborne diseases: dengue fever, malaria, and Japanese encephalitis

water contact disease: leptospirosis

animal contact disease: rabies

note: highly pathogenic H5N1 avian influenza has been identified in this country; it poses a negligible risk with extremely rare cases possible among US citizens who have close contact with birds (2013)

**Obesity - adult prevalence rate:**

4% (2008)

country comparison to the world: 172

**Children under the age of 5 years under-weight:**

22.6% (2010)

country comparison to the world: 26

**Education expenditures:**

0.8% of GDP (2011)

country comparison to the world: 172

**Literacy:**

definition: age 15 and over can read and write

total population: 92.7%

male: 95.1%

female: 90.4% (2011 est.)

**School life expectancy (primary to tertiary education):**

total: 9 years (2007)

**Government: Burma****Country name:**

conventional long form: Union of Burma

conventional short form: Burma

local long form: Pyidaungzu Myanma Naing-gandaw (translated by the US Government as Union of Myanmar and by the Burmese as Union of Myanmar)

local short form: Myanma Naingngandaw

former: Socialist Republic of the Union of Burma

note: since 1989 the military authorities in Burma, and the current parliamentary government, have promoted the name Myanmar as a conventional name for their state; the US Government has not adopted the name, which is a derivative of the Burmese short-form name Myanma Naingngandaw

**Government type:**

parliamentary government took power in March 2011

**Capital:**



name: Rangoon (Yangon)

geographic coordinates: 16 48 N, 96 09 E

time difference: UTC+6.5 (11.5 hours ahead of Washington, DC during Standard Time)

note: Nay Pyi Taw is the administrative capital

### **Administrative divisions:**

7 regions (taing-myar, singular - taing) and 7 states (pyi ne-myar, singular - pyi ne)

regions: Ayeyarwady (Irrawaddy), Bago, Magway, Mandalay, Sagaing, Taninthayi, Yangon

states: Chin, Kachin, Kayah, Kayin, Mon, Rakhine (Arakan), Shan

union territory: Nay Pyi Taw

### **Independence:**

4 January 1948 (from the UK)

### **National holiday:**

Independence Day, 4 January (1948); Union Day, 12 February (1947)

### **Constitution:**

previous 1947, 1974 (suspended until 2008); latest approved by referendum 29 May 2008; approved 15 May 2008; reformed 2011 (2011)

### **Legal system:**

mixed legal system of English common law (as introduced in codifications designed for colonial India) and customary law

### **International law organization participation:**

has not submitted an ICJ jurisdiction declaration; non-party state to the ICC.

### **Suffrage:**

18 years of age; universal

### **Executive branch:**

chief of state: President THEIN SEIN (since 4 February 2011); Vice President SAI MOUK KHAM (since 3 February 2011); Vice President NYAN HTUN (since 15 August 2012)

head of government: President THEIN SEIN

(since 4 February 2011)

cabinet: cabinet is appointed by the president and confirmed by the parliament

(For more information visit the World Leaders website )

elections: THEIN SEIN elected president by the parliament from among three vice presidents; the upper house, the lower house, and military members of the parliament each nominate one vice president (president serves a five-year term)

### **Legislative branch:**

bicameral, consists of the House of Nationalities [Amyotha Hluttaw] (224 seats, 168 directly elected and 56 appointed by the military; members serve five-year terms) and the House of Representatives [Pythu Hluttaw] (440 seats, 330 directly elected and 110 appointed by the military; members serve five-year terms)

elections: last held on 7 November 2010 (next to be held in December 2015)

election results: House of Nationalities - percent of vote by party - USDP 74.8%, others (NUP, SNDP, RNDP, NDF, AMRDP) 25.2%; seats by party - USDP 129, others 39; House of Representatives - percent of vote by party - USDP 79.6%, others (NUP, SNDP, RNDP, NDF, AMRDP) 20.4%; seats by party - USDP 259, others 71

### **Judicial branch:**

highest court(s): Supreme Court of the Union (consists of the chief justice and 7-11 judges)

judge selection and term of office: chief justice and judges nominated by the president, with approval of the Pythu Hluttaw, and appointed by the president; judges normally serve until mandatory retirement at age 70

subordinate courts: High Courts of the Region; High Courts of the State; Court of the Self-Administered Division; Court of the Self-Administered Zone; district and township courts; special courts (for juvenile, municipal, and traffic offenses); courts martial

### **Political parties and leaders:**

All Mon Region Democracy Party or AMRDP [NAING NGWE THEIN]

National Democratic Force or NDF [KHIN

MAUNG SWE, Dr.THAN NYEIN]

National League for Democracy or NLD [AUNG SAN SUU KYI]

National Unity Party or NUP [TUN YE]

Rakhine Nationalities Development Party or RNDP [Dr. AYE MG]

Shan Nationalities Democratic Party or SNDP [SAI AIKE PAUNG]

Shan Nationalities League for Democracy or SNLD [HKUN HTUN OO]

Union Solidarity and Development Party or USDP [SHWE MANN, HTAY OO]

numerous smaller parties

Political pressure groups and leaders:

**Thai border:**

Ethnic Nationalities Council or ENC

Federation of Trade Unions-Burma or FTUB (exile trade union and labor advocates)

National Coalition Government of the Union of Burma or NCGUB (self-proclaimed government in exile) [“Prime Minister” Dr. SEIN WIN] consists of individuals, some legitimately elected to the People’s Assembly in 1990 (the group fled to a border area and joined insurgents in December 1990 to form a parallel government in exile)

National Council-Union of Burma or NCUB (exile coalition of opposition groups)

United Nationalities Federal Council (UNFC)

**Inside Burma:**

Karen National Union or KNU

Karenni National People’s Party or KNPP

United Wa State Army or UWSA

88 Generation Students (pro-democracy movement)

several other Chin, Karen, Mon, and Shan factions

note: freedom of expression has been highly restricted in Burma; the restrictions are being relaxed by the government; political groups, other than parties approved by the government, are

limited in number

**International organization participation:**

ADB, ARF, ASEAN, BIMSTEC, CP, EAS, FAO, G-77, IAEA, IBRD, ICAO, ICRM, IDA, IFAD, IFC, IFRC, IHO, ILO, IMF, IMO, Interpol, IOC, IOM, IPU, ISO (correspondent), ITU, ITUC (NGOs), NAM, OPCW (signatory), SAARC (observer), UN, UNCTAD, UNESCO, UNIDO, UNWTO, UPU, WCO, WHO, WIPO, WMO, WTO

**Diplomatic representation in the US:**

chief of mission: Ambassador KYAW MYO HTUT (since 3 December 2013)

chancery: 2300 S Street NW, Washington, DC 20008

telephone: [1] (202) 332-3344

FAX: [1] (202) 332-4351

consulate(s) general: none; Burma has a Mission to the UN in New York

**Diplomatic representation from the US:**

chief of mission: Ambassador Derek J. MITCHELL (since 11 July 2012)

embassy: 110 University Avenue, Kamayut Township, Rangoon

mailing address: Box B, APO AP 96546

telephone: [95] (1) 536-509, 535-756, 538-038

FAX: [95] (1) 511-069

**Flag description:**

design consists of three equal horizontal stripes of yellow (top), green, and red; centered on the green band is a large white five-pointed star that partially overlaps onto the adjacent colored stripes; the design revives the triband colors used by Burma from 1943-45, during the Japanese occupation

**National symbol(s):** chinthe (mythical lion)

**National anthem:**

name: “Kaba Ma Kyei” (Till the End of the World, Myanmar)

lyrics/music: SAYA TIN

note: adopted 1948; Burma is among a handful of non-European nations that have anthems rooted in indigenous traditions; the beginning portion of the anthem is a traditional Burmese anthem before transitioning into a Western-style orchestrated work

## **Economy: Burma**

### **Economy - overview:**

Burma is a resource-rich country but still suffers from pervasive government controls, inefficient economic policies, corruption, and rural poverty. Burma is the poorest country in Southeast Asia; approximately 32% of the population lives in poverty. Corruption is prevalent and significant resources in the extractive industries are concentrated in a few hands. The Burmese government has initiated notable economic reforms. In October 2011, 11 private banks were allowed to trade foreign currency. On April 2, 2012, Burma's multiple exchange rates were abolished and the Central Bank of Myanmar established a managed float of the Burmese kyat. In November 2012, President THEIN SEIN signed a new Foreign Investment Law. Despite these reforms, the Burmese government has not yet embarked on broad-based macro-economic reforms or addressed key impediments to economic development such as Burma's opaque revenue collection system. Key benchmarks of economic progress would include steps to ensure the independence of the Central Bank, provide budget allocation for social services, and enact laws to protect intellectual and real property. In recent years, foreign investors have shied away from nearly every sector except for natural gas, power generation, timber, and mining. The exploitation of natural resources does not benefit the population at large. The most productive sectors will continue to be in extractive industries - especially oil and gas, mining, and timber - with the latter two causing significant environmental degradation. Other areas, such as manufacturing, tourism, and services, struggle in the face of poor infrastructure, unpredictable trade policies, undeveloped human resources (the result of neglected health and education systems), endemic corruption, and inadequate access to capital for investment. The US initially imposed sanctions on Burma in response to the 1988 military crackdown and the regime's refusal to honor the democratic opposition National League for Democracy's 1990 landslide election victory under the leadership of

AUNG SAN SUU KYI. In 2003, the US moved from broad-based to more targeted sanctions. In July 2012, as a result of reforms undertaken by President THEIN SEIN and his nominally civilian government, the US broadly eased restrictions on new investment in and the export of financial services to Burma. In November 2012, the US eased the import ban on Burmese products to the US with the exception of jadeite and rubies. Although the Burmese government has good economic relations with its neighbors, significant improvements in economic governance, the business climate, and the political situation are needed to promote serious foreign investment.

### **GDP (purchasing power parity):**

\$102.6 billion (2012 est.)

country comparison to the world: 74

\$96.48 billion (2011 est.)

\$91.1 billion (2010 est.)

note: data are in 2012 US dollars

### **GDP (official exchange rate):**

\$54.53 billion (2012 est.)

### **GDP - real growth rate:**

6.4% (2012 est.)

country comparison to the world: 37

5.9% (2011 est.)

5.3% (2010 est.)

### **GDP - per capita (PPP):**

\$1,600 (2012 est.)

country comparison to the world: 201

\$1,500 (2011 est.)

\$1,500 (2010 est.)

note: data are in 2012 US dollars

### **Gross national saving:**

12.9% of GDP (2012 est.)

country comparison to the world: 116

13.7% of GDP (2011 est.)

20% of GDP (2010 est.)

**GDP - composition, by end use:**

household consumption: 80.8%

government consumption: 3.8%

investment in fixed capital: 16.6%

investment in inventories: 0.4%

exports of goods and services: 18.9%

imports of goods and services: -20.4%

(2012 est.)

**GDP - composition, by sector of origin:**

agriculture: 38.8%

industry: 19.3%

services: 41.8% (2012 est.)

**Agriculture - products:**

rice, pulses, beans, sesame, groundnuts, sugarcane; fish and fish products; hardwood

**Industries:**

agricultural processing; wood and wood products; copper, tin, tungsten, iron; cement, construction materials; pharmaceuticals; fertilizer; oil and natural gas; garments, jade and gems

**Industrial production growth rate:**

8.6% (2012 est.)

country comparison to the world: 24

**Labor force:**

33.41 million (2012 est.)

country comparison to the world: 20

**Labor force - by occupation:**

agriculture: 70%

industry: 7%

services: 23% (2001 est.)

**Unemployment rate:**

5.4% (2012 est.)

country comparison to the world: 51

5.5% (2011 est.)

**Population below poverty line:**

32.7% (2007 est.)

**Household income or consumption by percentage share:**

lowest 10%: 2.8%

highest 10%: 32.4% (1998)

**Budget:**

revenues: \$2.271 billion

expenditures: \$4.487 billion (2012 est.)

**Taxes and other revenues:**

4.2% of GDP (2012 est.)

country comparison to the world: 214

Budget surplus (+) or deficit (-):

-4.1% of GDP (2012 est.)

country comparison to the world: 146

**Fiscal year:**

1 April - 31 March

**Inflation rate (consumer prices):**

1.5% (2012 est.)

country comparison to the world: 31

5% (2011 est.)

**Central bank discount rate:**

9.95% (31 December 2010 est.)

country comparison to the world: 18

12% (31 December 2009 est.)

**Commercial bank prime lending rate:**

13% (31 December 2012 est.)

country comparison to the world: 32

16.33% (31 December 2011 est.)

**Stock of narrow money:**

\$11.54 billion (31 December 2012 est.)



country comparison to the world: 75

\$8.91 billion (31 December 2011 est.)

### **Stock of domestic credit:**

\$13.51 billion (31 December 2012 est.)

country comparison to the world: 89

\$15.59 billion (31 December 2011 est.)

Market value of publicly traded shares:

\$NA

### **Current account balance:**

\$-1.791 billion (2012 est.)

country comparison to the world: 137

\$-1.424 billion (2011 est.)

### **Exports:**

\$7.82 billion (2012 est.)

country comparison to the world: 102

\$7.699 billion (2011 est.)

note: official export figures are grossly underestimated due to the value of timber, gems, narcotics, rice, and other products smuggled to Thailand, China, and Bangladesh

### **Exports - commodities:**

natural gas, wood products, pulses, beans, fish, rice, clothing, jade and gems

### **Exports - partners:**

Thailand 40.7%, India 14.8%, China 14.3%, Japan 7.4% (2012)

### **Imports:**

\$7.998 billion (2012 est.)

country comparison to the world: 108

\$7.491 billion (2011 est.)

note: import figures are grossly underestimated due to the value of consumer goods, diesel fuel, and other products smuggled in from Thailand, China, Malaysia, and India

### **Imports - commodities:**

fabric, petroleum products, fertilizer, plastics, machinery, transport equipment; cement, construction materials, crude oil; food products, edible oil

### **Imports - partners:**

China 36.9%, Thailand 20.2%, Singapore 8.7%, South Korea 8.7%, Japan 8.2%, Malaysia 4.6% (2012)

### **Reserves of foreign exchange and gold:**

\$6.977 billion (31 December 2012 est.)

country comparison to the world: 82

\$7.017 billion (31 December 2011 est.)

### **Debt - external:**

\$5.591 billion (31 December 2012 est.)

country comparison to the world: 118

\$7.766 billion (31 December 2011 est.)

### **Exchange rates:**

kyats (MMK) per US dollar -

853.48 (2012 est.)

815 (2011 est.)

5.58 (2010 est.)

1,055 (2009)

1,205 (2008)

### **Energy: Burma**

#### **Electricity - production:**

7.346 billion kWh (2010 est.)

country comparison to the world: 104

#### **Electricity - consumption:**

6.093 billion kWh (2010 est.)

country comparison to the world: 107

#### **Electricity - exports:**

0 kWh (2012 est.)

country comparison to the world: 168

**Electricity - imports:**

0 kWh (2012 est.)

country comparison to the world: 164

Electricity - installed generating capacity:

1.713 million kW (2010 est.)

country comparison to the world: 108

**Electricity - from fossil fuels:**

53.3% of total installed capacity (2010 est.)

country comparison to the world: 147

**Electricity - from nuclear fuels:**

0% of total installed capacity (2010 est.)

country comparison to the world: 51

**Electricity - from hydroelectric plants:**

46.7% of total installed capacity (2010 est.)

country comparison to the world: 47

**Electricity - from other renewable sources:**

0% of total installed capacity (2010 est.)

country comparison to the world: 158

**Crude oil - production:**

20,830 bbl/day (2012 est.)

country comparison to the world: 76

**Crude oil - exports:**

0 bbl/day (2010 est.)

country comparison to the world: 88

Crude oil - imports:

0 bbl/day (2010 est.)

country comparison to the world: 162

**Crude oil - proved reserves:**

50 million bbl (1 January 2013 es)

country comparison to the world: 78

**Refined petroleum products - production:**

18,920 bbl/day (2010 est.)

country comparison to the world: 95

**Refined petroleum products - consumption:**

40,620 bbl/day (2011 est.)

country comparison to the world: 107

**Refined petroleum products - exports:**

0 bbl/day (2010 est.)

country comparison to the world: 153

**Refined petroleum products - imports:**

4,855 bbl/day (2010 est.)

country comparison to the world: 153

**Natural gas - production:**

11.91 billion cu m (2011 est.)

country comparison to the world: 40

**Natural gas - consumption:**

3.24 billion cu m (2010 est.)

country comparison to the world: 71

**Natural gas - exports:**

8.57 billion cu m (2011 est.)

country comparison to the world: 31

**Natural gas - imports:**

0 cu m (2011 est.)

country comparison to the world: 163

**Natural gas - proved reserves:**

283.2 billion cu m (1 January 2013 es)

country comparison to the world: 41

**Carbon dioxide emissions from consumption of energy:**

13.67 million Mt (2011 est.)

country comparison to the world: 94

**Communications: Burma****Telephones - main lines in use:**

556,000 (2012)

country comparison to the world: 95

### **Telephones - mobile cellular:**

5.44 million (2012)

country comparison to the world: 106

### **Telephone system:**

general assessment: meets minimum requirements for local and intercity service for business and government

domestic: system barely capable of providing basic service; mobile-cellular phone system is grossly underdeveloped

international: country code - 95; landing point for the SEA-ME-WE-3 optical telecommunications submarine cable that provides links to Asia, the Middle East, and Europe; satellite earth stations - 2, Intelsat (Indian Ocean) and ShinSat (2011)

### **Broadcast media:**

government controls all domestic broadcast media; 2 state-controlled TV stations with 1 of the stations controlled by the armed forces; 2 pay-TV stations are joint state-private ventures; access to satellite TV is limited; 1 state-controlled domestic radio station and 9 FM stations that are joint state-private ventures; transmissions of several international broadcasters are available in parts of Burma; the Voice of America (VOA), Radio Free Asia (RFA), BBC Burmese service, the Democratic Voice of Burma (DVB), and Radio Australia use shortwave to broadcast in Burma; VOA, RFA, and DVB produce daily TV news programs that are transmitted by satellite to audiences in Burma

### **Internet country code:**

.mm

Internet hosts:

1,055 (2012)

country comparison to the world: 172

Internet users:

110,000 (2009)

country comparison to the world: 158

## **Transportation: Burma**

### **Airports:**

64 (2013)

country comparison to the world: 77

### **Airports - with paved runways:**

total: 36

over 3,047 m: 12

2,438 to 3,047 m: 11

1,524 to 2,437 m: 12

under 914 m: 1 (2013)

### **Airports - with unpaved runways:**

total: 28

over 3,047 m: 1

1,524 to 2,437 m: 4

914 to 1,523 m: 10

under 914 m:

13 (2013)

### **Heliports:**

11 (2013)

### **Pipelines:**

gas 3,739 km; oil 551 km (2013)

### **Railways:**

total: 5,031 km

country comparison to the world: 36

narrow gauge: 5,031 km 1.000-m gauge (2008)

### **Roadways:**

total: 34,377 km (includes 358 km of expressways) (2010)

country comparison to the world: 93

### **Waterways:**

12,800 km (2011)

country comparison to the world: 10

**Merchant marine:**

total: 29

country comparison to the world: 86

by type: cargo 22, passenger 2, passenger/cargo 3, specialized tanker 1, vehicle carrier 1

foreign-owned: 2 (Germany 1, Japan 1)

registered in other countries: 3 (Panama 3) (2010)

**Ports and terminals:**

major seaport(s): Moulmein, Sittwe

river port(s): Rangoon (Rangoon River)

**Military: Burma****Military branches:**

Myanmar Armed Forces (Tatmadaw): Army (Tatmadaw Kyi), Navy (Tatmadaw Yay), Air Force (Tatmadaw Lay) (2013)

**Military service age and obligation:**

18-35 years of age (men) and 18-27 years of age (women) for voluntary military service; no conscription (a 2010 law reintroducing conscription has not yet entered into force); service obligation 2 years; male (ages 18-45) and female (ages 18-35) professionals (including doctors, engineers, mechanics) serve up to 3 years; service terms may be stretched to 5 years in an officially declared emergency; Burma signed the Convention on the Rights of the Child (CRC) on 15 August 1991; on 27 June 2012, the regime signed a Joint Action Plan on prevention of child recruitment; in February 2013, the military formed a new task force to address forced child conscription, which reportedly continues (2013)

**Manpower available for military service:**

males age 16-49: 14,747,845

females age 16-49: 14,710,871 (2010 est.)

**Manpower fit for military service:**

males age 16-49: 10,451,515

females age 16-49: 11,181,537 (2010 est.)

**Manpower reaching militarily significant age****annually:**

male: 522,478

female: 506,388 (2010 est.)

**Transnational Issues: Burma**

**Disputes - international:** Over half of Burma's population consists of diverse ethnic groups who have substantial numbers of kin in neighboring countries; the Naf River on the border with Bangladesh serves as a smuggling and illegal transit route; Bangladesh struggles to accommodate 29,000 Rohingya, Burmese Muslim minority from Arakan State, living as refugees in Cox's Bazar; Burmese border authorities are constructing a 200 km (124 mi) wire fence designed to deter illegal cross-border transit and tensions from the military build-up along border with Bangladesh in 2010; Bangladesh referred its maritime boundary claims with Burma and India to the International Tribunal on the Law of the Sea; Burmese forces attempting to dig in to the largely autonomous Shan State to rout local militias tied to the drug trade, prompts local residents to periodically flee into neighboring Yunnan Province in China; fencing along the India-Burma international border at Manipur's Moreh town is in progress to check illegal drug trafficking and movement of militants; 140,000 mostly Karen refugees fleeing civil strife, political upheaval and economic stagnation in Burma live in remote camps in Thailand near the border

**Refugees and internally displaced persons:**

IDPs: 649,000 (government offensives against armed ethnic minority groups near its borders with China and Thailand) (2013)

stateless persons: 808,075 (2012); note - Burma's main group of stateless people is the Rohingya, Muslims living in northern Rakhine State; the Burmese Government does not recognize the Rohingya as a "national race" and stripped them of their citizenship under the 1982 Citizenship law, categorizing them as "non-national" or "foreign residents"; native-born but non-indigenous people, such as Indians, and children born in Thailand to Burmese parents are also stateless; the Burmese Government does not grant citizenship to children born outside of the country to Burmese parents who left the country illegally or fled persecution



**Trafficking in persons:**

current situation: Burma is a source country for women, children, and men trafficked for the purpose of forced labor, and for women and children subjected to sex trafficking in other countries; poor economic conditions have led to increased legal and illegal migration of Burmese adults and children throughout East Asia and parts of the Middle East, where they are subject to forced labor and sex trafficking; men are forced to work in the fishing and construction industries, while women and girls are forced into prostitution or domestic servitude; some Burmese economic migrants seeking work in Thailand are subsequently subjected to forced labor or sexual exploitation; military personnel and insurgent militias unlawfully conscript child soldiers and continue to be the leading perpetrators of forced labor inside the country; Burmese children are also forced to work in tea shops, home industries, on plantations, and as beggars

tier rating: Tier 2 Watch List - Burma does not fully comply with the minimum standards for the elimination of trafficking, but it is making significant efforts to do so; anti-trafficking law enforcement efforts focus on the recruitment and transport of Burmese women and girls across international boundaries for forced marriages and sex trafficking; efforts to combat trafficking within Burma remain weak; forced labor of civilians and the recruitment of child soldiers by both military and private entities remain serious problems; the government continues modest efforts to provide temporary shelter and facilitate safe passage to Burmese victims repatriated from abroad, but its overall victim protection efforts are inadequate; in 2012, the government signed a UN-backed action plan for the identification, release, and rehabilitation of children in the Burmese military; as a result, some child soldiers have been released, but the government has not taken steps to prevent recruitment (2013)

**Illicit drugs:**

world's third largest producer of illicit opium with an estimated production in 2012 of 690 metric tons, an increase of 13% over 2011, and poppy cultivation in 2012 totaled 51,000 hectares, a 17% increase over 2011; production in the United Wa State Army's areas of greatest control remains low; Shan state is the source of 94.5% of Burma's poppy cultivation; lack of government will to take on major narcotrafficking groups and lack of serious commitment against money laundering continues to hinder the overall antidrug effort; major source of methamphetamine and heroin for regional consumption (2013)

# Burma Indices

## Health

- In 2000, the World Health Organization ranked Burma's health system 190 out of 191.<sup>277</sup>
- Over 20% of Burmese children under the age of five are moderately or severely underweight. Out of 113 countries ranked, Burma placed 91<sup>st</sup>.<sup>278</sup>
- Out of 191 nations ranked, Burma placed 159<sup>th</sup> in when indexed for deaths due to malaria.<sup>279</sup>
- Burma's per capita health expenditure per capita ranks 189<sup>th</sup> out of 191 countries.
- Burma's health index ranking is 144/194.<sup>280</sup>
- Similarly, Burma's ranking for life expectancy at birth is also 144/194.<sup>281</sup>
- Regarding mortality under the age of five, Burma ranks 149<sup>th</sup> out of 193 countries.<sup>282</sup>

## Government

- According to transparency.org, Burma's Corruption Perceptions Index is 157/177.<sup>283</sup>

## Education

- The adult literacy rate (percentage of the population age 15 and older who is able to read and write) is 92.3%, placing them 64<sup>th</sup> of 145 ranked countries.<sup>284</sup>
- Burmese children are expected to attend schooling for a total of roughly 9.4 years, placing them 190<sup>th</sup> out of 192 ranked countries.<sup>285</sup>

## Other

- Burma placed 80<sup>th</sup> out of 148 countries ranked for gender inequality.<sup>286</sup>
- According to the Human Development Index, which measures longevity, education, and standard of living, Burma ranked 149<sup>th</sup> out of 187.<sup>287</sup>
- When considering exposure, vulnerability, susceptibility, coping capabilities, and adaptive capabilities, the World Risk Index places Burma at number 42.<sup>288</sup>

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