



Social forestry and climate change in the ASEAN region

Social forestry and climate change in the ASEAN region: Situational analysis 2016

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January 2017



Foreword

It is an honour for RECOFTC – The Center for People and Forests to support the Association of Southeast Asian Nations (ASEAN) through the ASEAN Working Group on Social Forestry (AWG-SF), widely known as the ASEAN Social Forestry Network (ASFN). Since its inception in 2005, ASFN has been promoting social forestry practices towards the ASEAN Member States. RECOFTC engages with ASFN through financial support from the Swiss Agency for Development and Cooperation (SDC) as one of the supporting partners of the ASEAN–Swiss Partnership on Social Forestry and Climate Change (ASFCC).

In the last six years, ASFCC has been supporting ASFN through various social forestry activities such as policy development, training, awareness-raising, pilot programmes and demonstrations, research and knowledge sharing. In particular, ASFCC has assisted the development of policies through its analytical studies of social forestry and climate change. These studies are now widely used as references in the development of social forestry policies within the region.

In 2016, RECOFTC finalized the third edition of series of situational analysis reports by incorporating updated data and statistics related to social forestry and climate change gathered from different sources at national and regional level. Claudine Nagiah, an independent consultant, helped RECOFTC to prepare the draft under guidance from RECOFTC's Capacity Development and Technical Services Unit - Ronnakorn Triraganon, Tomi Haryadi and David Gritten.

The draft report was reviewed by ASFN Leaders; representatives from ASFCC supporting partner organizations including CIFOR, ICRAF, NTFP-EP, SEARCA, and AWG-SF. The report has also received constructive inputs from representatives of external partner organizations including Yurdi Yasmi (FAO), Thomas Enters (UNEP), and Preecha Ongprasert (Royal Forest Department, Thailand).

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Executive Director
RECOFTC – The Center for People and Forests

Acronyms and abbreviations

ADB	Asian Development Bank
AEC	ASEAN Economic Community
AGB	Above Ground Biomass
AMAF	ASEAN Ministers on Agriculture and Forestry
AMS	ASEAN Member States
ASEAN	Association of Southeast Asian Nations
ASFCC	ASEAN–Swiss Partnership on Social Forestry and Climate Change
ASFN	ASEAN Social Forestry Network
ASOF	ASEAN Senior Officials on Forestry
AWG-SF	ASEAN Working Group on Social Forestry
BAU	Business as Usual
CADT	Certificates of Ancestral Domain Titles (Philippines)
CALT	Certificates of Ancestral Land Titles (Philippines)
CAIT	Climate Analysis Indicator Tool
CBFM	Community Based Forest Management (Philippines)
CBFMA	Community Based Forest Management Agreement (Philippines)
CBR+	Community-Based REDD+ programme
CCBA	Climate Community Biodiversity Alliance
CCCSP	Cambodia Climate Change Strategic Plan
CDM	Clean Development Mechanism
CF	community forestry
CFM	community forest management
CFMP	community forest management plan
CIFOR	Center for International Forestry Research
CLiPAD	Climate Protection through Avoided Deforestation
CPA	community protected area
CSO	civil society organization
COP	Conference of Parties (to the UNFCCC)
CO ₂	carbon dioxide
CO ₂ eq	carbon dioxide equivalent
DENR	Department of Natural Resources (Philippines)
DMH	Department of Meteorology and Hydrology (Myanmar)
DNP	Department of National Parks, Wildlife and Plant Conservation
DoE	Department of Environment
DoF	Department of Forests
ELC	Economic Land Concession
EU	European Union
FA	Forestry Administration (Cambodia)
FAF	Food, Agriculture and Forestry
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FD	forest department
FIP	Forest Investment Program
FLEGT	Forest Law Enforcement Governance and Trade
FMB	Forest Management Board (Philippines)
FRA	Forest Resources Assessment
FREL/FRL	Forest Reference (Emissions) Level
GDP	gross domestic product
GHG	greenhouse gases
GIZ	German International Cooperation
GoI	Government of Indonesia
GoL	Government of Lao PDR
GoM	Government of Malaysia
ha	hectares
HKm	<i>Hutan Kemasyarakatan</i> or community-based forest
HTR	<i>Hutan Tanaman Rakyat</i> , or community-based forest estate
INC	Initial National Communication
INDC	Intended National Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
ISPONRE	Institute of Strategy and Policy on Natural Resources and Environment
ktCO ₂ e	kilotonnes carbon dioxide equivalent
JICA	Japanese International Cooperation Agency
LDC	Least Developed Country
LDCF	Least Developed Country Fund

LUCF	Land Use Change and Forestry
LULUCF	Land Use, Land Use Change and Forestry
MAF	Ministry of Agriculture and Forestry (Lao PDR)
MAFF	Ministry of Agriculture, Forests and Fisheries (Cambodia)
MARD	Ministry of Agriculture and Rural Development (Viet Nam)
MMD	Malaysian Meteorology Department
mmt	million metric tonnes
MNRE	Ministry of Natural Resources and Environment (Malaysia)
MoECaF	Ministry of Environmental Conservation and Forestry (Myanmar, now MoNREC)
MoEF	Ministry of Environment and Forestry (Indonesia)
MoE	Ministry of Environment (Cambodia)
MoF	Ministry of Forestry (Indonesia and Myanmar)
MoNRE	Ministry of Natural Resources and Environment (Lao PDR and Viet Nam)
MoNREC	Ministry of Natural Resources and Environmental Conservation (Myanmar, formerly MoE Caf)
MRV	monitoring, reporting and verification
MtCO ₂	million tonnes carbon dioxide
MtCO ₂ e	million tonnes carbon dioxide equivalent
NAFRI	National Agriculture and Forestry Research Institute
NAPA	National Adaptation Programme of Action
NCR	Native Customary Rights
NGO	non-governmental organization
NGP	National Greening Program (Philippines)
NFP	National Forest Program
NESDB	National Economic and Social Development Board
NTFPs	non-timber forest products
ONEP	Office of Natural Resources and Environmental Policy and Planning
PA	Protected Area
PDR	People's Democratic Republic (Lao)
PES	payment for ecosystem services
PFE	Permanent Forest Estate
PFR	Permanent Forest Reserve
PO	People's Organization
PPF	Protected Public Forest
PRF	Permanent Reserved Forest
R-PP	Readiness Preparation Proposal
RF	Reserved Forest
REDD+	Reducing Emissions from Deforestation and Forest Degradation, plus sustainable management of forests, conservation and enhancement of forest carbon stocks
RAN-API	National Action Plan on Climate Change Adaptation
RAN-GRK	National Action Plan for reducing GHG Emissions
RFD	Royal Forest Department (Thailand)
RGC	Royal Government of Cambodia
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SFD	Sabah Forestry Department
SFM	sustainable forest management
SME	small and medium-sized enterprises
SNC	Second National Communication (to the UNFCCC)
tCO ₂ e	tonnes carbon dioxide equivalent
TMD	Thai Meteorological Department
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
VNFOREST	Viet Nam Administration of Forestry
VPA	Voluntary Partnership Agreement (under FLEGT)
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

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Executive summary

This report is the third in a series of reports on the status of social forestry and its role in climate change mitigation and adaptation in the Association of Southeast Asian Nations (ASEAN) region. An initial baseline report was published in 2011 providing a regional overview for 2010 (RECOFTC, 2011) and the first situational analysis was published in 2014, presenting the status in 2013 (RECOFTC, 2014a). This analysis report, the second status update, presents the most up-to-date government data available on forests, social forestry and climate change at national and regional levels, and identifies key changes and developments during the last three years. The main focus of the report is the eight ASEAN countries with government-supported social forestry programmes, namely Cambodia, Indonesia, Lao People's Democratic Republic (PDR), Malaysia, Myanmar, the Philippines, Thailand and Viet Nam. Singapore and Brunei Darussalam do not have official social forestry programmes and are therefore not a major focus of the report, although their forest and climate change data is presented where relevant.

Forest cover

Based on the most up-to-date¹ information available from forest departments in the ASEAN Member States, the region has around 245,159,968 hectares (ha) of officially designated forest land. This represents 56 percent of the region's total land area. Actual forest cover stands at 204,581,865 ha, or 47 percent of the total land area.

Area of forest land, forest cover and official social forestry programmes in the ASEAN region

ASEAN region	Area (ha)	% of total land area
Designated forest land	245,159,968	56%
Forest cover	204,581,865	47%
Official social forestry area	10,078,435	2%

Forest cover in the region is estimated to be reduced at an average of around 1,359,694 ha every year. Most of the countries, with the exception of Brunei Darussalam, Singapore and Viet Nam, have reported a reduction in forest cover in recent years. Indonesia has the largest reduction in forest cover of 613,481 ha between 2011 and 2012 (MoF, 2014). Recent data suggests that Cambodia may have lost 7.59 percent of its forest cover between 2010 and 2014 (Cambodia Forestry Administration, 2016). This relates to 1,377,888 ha of forest between 2010 and 2014, an average of 433,471 ha per year. Myanmar lost 1,300,496 ha of forest over the same period, an average of 325,124 ha or 1 percent per year (Myanmar Statistical Information Service, 2016). The rate of deforestation in both Cambodia and Myanmar has increased since the previous status update in 2013.

Social forestry

The area of state forest land managed under official social forestry agreements or communal land titles is approximately 10,078,435 ha based on the latest available figures for each country. The area under social forestry has increased by approximately 1,361,225 ha since the previous status update in 2013 (RECOFTC, 2014a).

The area of forest managed under official social forestry programmes in the ASEAN region is slowly increasing. At the national level, Viet Nam appears to have achieved its national target of four million ha managed by local people. Thailand and the Philippines are almost half-way towards their national targets, although the lack of official data for the Philippines after 2010 makes it difficult to determine recent progress. Social forestry programmes in Cambodia, Indonesia and Myanmar have been proceeding more slowly, and may need to be accelerated in order to reach the national targets.

¹ The most recent data available for each country is from different years.

Land area managed under official land titles or community forestry agreements in the ASEAN region, 2013 to 2016

Country ²	Baseline 2010 ha	Status analysis 2013 ha	Status analysis 2016 ha	Target		% Achieved by 2016
				ha	year	
Cambodia	113,544	183,725	296,240	2,000,000	2029	15%
Indonesia	33,000	143,065	642,646	2,500,000	2014 ³	26%
Myanmar	41,000	42,148	113,765	919,000	2030	12%
Philippines	2,985,000	4,018,952	4,018,952	9,000,000	2008 ⁴	45%
Thailand	196,667	500,000	750,457	1,600,000	2025	47%
Viet Nam	3,300,000	3,809,320	4,256,375	4,000,000	2020	100%
Total	6,669,211	8,697,210	10,078,435	20,019,000	n/a	50%

Social forestry programmes in the region still face a number of challenges and limitations. These include weak or outdated legal frameworks for social forestry in some countries. The process to legally establish a community forest is complicated and time-consuming, and requires considerable institutional capacity and financial resources. Often, local communities and local government officials do not have the necessary knowledge, skills and financial resources to manage the process (Blomley et al., 2010; Gritten et al. 2015). External support from non-governmental organizations (NGOs) or other organizations is frequently required. These factors, combined with lack of financial support for social forestry, are inhibiting social forestry programmes from being effectively scaled up.

In the majority of cases, the forests allocated for social forestry tend to be small areas of degraded forest (FAO, 2016; RECOFTC, 2013). As a result, productivity is low and the forest may not immediately provide local people with significant benefits in the form of forest products (Broadhead and Izquierdo, 2010). Restrictive community forest rules and regulations that limit or prevent collection and sale of valuable forest products, such as timber, further reduce the benefits that local people receive from community forests and limit their contribution to poverty reduction (Blomley et al., 2010; Gritten et al., 2015; RECOFTC, 2013). Due to these restrictions, the value that local people derive from community forests may not be adequate to incentivize long-term sustainable forest management.

In addition, obtaining up-to-date, reliable and conclusive data on forests and social forestry for the region is challenging. For some countries, the most up-to-date available data dates back to 2010. In other countries, there are discrepancies in the figures used by different government agencies and in different official documents, which are not clearly explained. This makes monitoring and assessing the current situation on forests and social forestry in the region extremely challenging. If social forestry programmes in the region are to be effectively monitored and assessed, national forest departments and ASFN may need to improve the existing systems of data collection, monitoring and reporting.

Climate change

The climate data indicates the impacts of climate change are becoming more evident. The region is experiencing rising temperatures and changing rainfall patterns, and the frequency and severity of extreme weather events, such as storms, droughts, intense rainfall and floods, appears to be increasing. These changes are having a serious impact on economic development, crop production and food security, and public health in the region.

The majority of the ASEAN region's greenhouse gas (GHG) emissions derives from the land use change and forest (LUCF) sector (CAIT Climate Data Explorer, 2015). The sector is a priority for responding to climate change for most ASEAN countries. Commitments to reduce deforestation and forest degradation and increase forest cover are a common feature in many national and regional policies, and international commitments on climate change, including the Intended Nationally Determined Contributions (INDCs). Social forestry and increasing the participation of local people in sustainable forest management are also mentioned in some INDCs, but in general, the contribution that social forestry can make to climate change mitigation and adaptation has tended to be overlooked at the policy level.

In practice, however, social forestry is already playing a significant role in climate change mitigation and adaptation. There is growing recognition that social forestry, when supported by secure community management rights, can contribute to mitigation by reducing deforestation and forest degradation and enhancing forest carbon stocks (Chhatre and Agrawal, 2011; Porter-Bolland et al., 2011; Skutsch and Solis, 2010). Social forestry can also be an effective

² Brunei Darussalam, Malaysia and Singapore are not included in the table as they do not have social forestry programs that transfer land rights to local people. Data on the area of social forestry in Lao PDR is not available.

³ In 2015 Indonesia set a new target of 12.7 million ha of land to be placed under social forestry by 2019.

⁴ It is not clear whether the target date has been extended.

approach to increase resilience to climate change at local levels, by supporting more diverse livelihoods, helping to maintain ecosystem services and protect biodiversity, as well as building institutional capabilities, community level management capacity and social capital (RECOFTC, 2012; RECOFTC, 2013; Conroy *et al.*, 2016).

Practical examples from the region are demonstrating the value of social forestry for mitigation and adaptation. These include reducing forest degradation through sustainable forest management, supporting national reforestation efforts, and restoring mangrove forests to store carbon, diversify livelihoods and physically protect communities from the impact of major storms. Social forestry also has a unique ability to provide joint mitigation and adaptation benefits and, therefore, deserves far greater attention that it currently receives. If the existing challenges and barriers in establishing, implementing and benefiting from social forestry initiatives can be addressed, social forestry has the potential to be a highly valuable tool in the region's response to climate change.

Key messages:

1. The area of forest managed under official social forestry programmes in the ASEAN region is increasing, but very slowly in most cases.
2. Accessing up-to-date and reliable data on social forestry in some countries is extremely difficult and makes monitoring and evaluation very challenging. The collection and accessibility of social forestry data urgently needs to be improved, if its contribution to sustainable forest management and climate change mitigation and adaptation is to be accurately assessed.
3. Social forestry has already been contributing to climate change mitigation and adaptation in the region, for example, by supporting the implementation of reforestation programmes, contributing to initiatives to reduce deforestation and forest degradation, and enhancing the resilience of forest communities to the impacts of climate change.
4. Social forestry presents a valuable opportunity for joint mitigation and adaptation. It helps to sequester and store carbon in community forests, reduce greenhouse gas emissions through sustainable forest management, increase the adaptive capacity of forest ecosystems and protect associated ecosystem services, and enhance the resilience of local communities that depend on forest resources.
5. However, social forestry in most of the countries still faces a number of challenges in terms of establishment and implementation that limit the scaling up of social forestry programmes. These barriers prevent social forestry from achieving its full potential to contribute to climate change mitigation and adaptation.

1. Background and introduction

This report is the third in a series of reports examining the changing status of social forestry and its role in climate change mitigation and adaptation in the Association of Southeast Asian Nations (ASEAN) region. The initial baseline report, published in 2010, was based on data presented in the Global Forest Resource Assessment 2010, published by the Food and Agriculture Organization of the United Nations (FAO) (RECOFTC, 2011). The first status analysis was published in 2014, presenting data provided by national governments via the ASEAN Social Forestry Network Learning Group (RECOFTC, 2014a). This report, the second status analysis, presents updated national government data on forests, social forestry and climate change at national and regional levels, and aims to identify trends and developments since the previous report. It also considers the implications of the ASEAN Economic Community (AEC), established in December 2015, for forests and social forestry in the region.

1.1 The Association of Southeast Asian Nations

The Association of Southeast Asian Nations (ASEAN) is a regional coordination body consisting of ten countries - Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. Its purpose is to facilitate economic growth, social progress and cultural development in the ASEAN Member States (AMS) to promote peace, stability, security and improved living standards in the region, and collaborate on matters of common interest, such as agriculture, industry, trade and research.

The vision for the ASEAN community is for closer integration among the AMS, based on strong economic, political and socio-cultural partnerships. The establishment of the AEC is a major milestone in ASEAN's development. It aims to transform ASEAN into a single integrated market and production base. Under the AEC, ASEAN now has a combined GDP of US\$2.4 trillion, making it the third largest economy in Asia, the seventh largest globally, and the world's third largest market (McKinsey and Company, 2014).

Figure 1: Political map of the ASEAN region



The region has a total landmass of 4,435,618 km² and a population of 622,250,000 as of August 2015⁵. Approximately 52 percent of the population live in rural areas, although the region has experienced rapid urbanization in the last 60 years. This trend is set to continue with the number of urban households predicted to rise from 81 million in 2013 to 163 million in 2030 (McKinsey and Company, 2014). The region has plentiful natural resources, including forests, mangroves, rivers and wetlands, and high levels of biodiversity (FAO, 2011). However, these resources are coming under increasing pressure from over-exploitation, land-use change, rising population, and the impacts of climate change (UNEP, 2009a; Hector *et al.*, 2011; Koh and Sodhi, 2010).

⁵ Selected ASEAN indicators, 2015. (available at http://www.asean.org/storage/2015/09/selected_key_indicators/Summary_table_as_of_Aug_2015.pdf). Accessed 24 August 2016.

1.2 Climate change and sustainable development

The world today is estimated to be around 1 °C warmer, on average, than it was in the 1950s. The period between 2011 and 2015 was the warmest ever recorded and 2015 is the warmest year on record, with temperatures 0.74 °C above the 1961–1990 average (World Meteorological Organization, 2015). In 2014, the fifth Intergovernmental Panel on Climate Change (IPCC) report reaffirmed that human influence is “extremely likely” to be the main cause of the “unequivocal” warming of the Earth’s climate. Atmospheric concentrations of the three major greenhouse gases (GHGs) (carbon dioxide, methane and nitrous oxide) are at their highest level in 800,000 years, and global emissions of carbon dioxide (CO₂) increased more in the ten-year period from 2000 to 2010 than in any of the three previous decades (IPCC, 2013).

The adoption of the Paris Agreement at the 2015 United Nations Climate Change Conference (UNFCCC) Conference of Parties (COP) 21 was a key milestone in global efforts to address climate change. The Agreement aims to reduce the risks and impacts of climate change by limiting average global temperature rise to between 1.5 °C and 2 °C above pre-industrial levels. It includes measures to promote climate-resilient, low-emission development and support adaptation to the negative impacts of climate change. The Paris Agreement recognizes the role of forests in both mitigating and adapting to climate change. Under Article 5, Parties are required to take action to conserve and enhance carbon sinks, including forests, and are encouraged to support and implement the existing framework for REDD+, as well as alternative approaches, such as joint mitigation and adaptation measures for sustainable forest management, while also recognizing the importance of non-carbon benefits (UNFCCC, 2015). On 5 October 2016, the threshold for the Paris Agreement to enter into force was reached, signed by 191 Parties, and ratified or joined by 74 parties representing 58.8 percent of global emissions. The Paris Agreement will therefore come into effect on 4 November 2016.

At the UN Sustainable Development Summit in September 2015, world leaders adopted the 2030 Agenda for Sustainable Development outlining 17 Sustainable Development Goals (SDGs) to reduce poverty and inequality, protect the environment and tackle climate change by 2030⁶. SDG 15 aims to protect terrestrial ecosystems and biodiversity, through measures such as sustainable forest management, restoring degraded forests, increasing afforestation and reforestation, and reducing deforestation, desertification, land degradation and the loss of biodiversity. Forests also play a role in achieving other SDGs, including those on poverty (SDG 1), food security (SDG 2) and climate change (SDG 13).

These recent developments have affirmed the importance of forests in responding to the challenge of climate change and achieving sustainable development. Many nations, including the AMS, have set national targets and international commitments to maintain and/or expand their forest lands as part of their mitigation strategies. However, forest cover across the region continues to decline and ASEAN governments will need to take decisive and urgent action to reverse this trend if the targets are going to be achieved.

The participation of local people in forest management has been shown to be an effective strategy in reducing rates of deforestation (Porter-Bolland *et al.*, 2011), improving forest condition and increasing carbon storage (Chhatre and Agrawal, 2011; Skutsch and Solis, 2010), enhancing local livelihoods (RECOFTC, 2013) and biodiversity conservation (Persha *et al.*, 2011), particularly in situations where forest management rights are secured and local people play an active role in decision-making. Community-managed forests also support adaptation and increase the resilience of local people to respond to the impacts of climate change (RECOFTC, 2012; Conroy *et al.*, 2016). Participatory forms of forest management have the potential to contribute simultaneously to both the climate change mitigation and adaptation agendas, as well as deliver positive economic, social and environmental outcomes. Therefore, they have a valuable role to play in regional, national and local level strategies to respond to climate change.

1.3 Definition of social forestry

Formal measures to increase the participation of local people in forest management have been initiated in many countries and adapted to suit the local social, political, cultural, historic and bureaucratic context (FAO, 2016b). Over time, a number of different forms and definitions of community-based forest management have emerged (see Annex 1) and a variety of different terms, such as social forestry, community-based forestry and participatory forestry, have been applied.

Box 1: RECOFTC’s definition of community forestry

RECOFTC defines community forestry as a broad concept that includes all aspects, initiatives, sciences, policies, institutions, and processes that are intended to increase the role of local people in governing and managing forest resources. It consists of informal, customary and indigenous, and formal or government-led initiatives. Community forestry covers social, economic and conservation dimensions in a range of activities including decentralized and devolved forest management, smallholder forestry schemes, community–company partnerships, small-scale forest-based enterprises and indigenous management of sacred sites of cultural importance. This broad definition includes all mechanisms where people participate in forest management, from village-based groups to individual management, and covers all types of activities undertaken in connection with forest or forest land, from the management of natural forests to plantations.

Adapted from RECOFTC, 2013 and FAO, 2016b.

There is no one clear definition for the term “social forestry.” Although it is sometimes used interchangeably with community forestry, it is more often used to describe a relatively narrow range of activities to establish woodlots to meet local peoples’ needs for fuelwood and to reduce deforestation (FAO, 2016b; RECOFTC, 2011). Social forestry is generally considered to have more of a focus on social welfare (Arnold, 1992) and is often targeted at marginalized or underprivileged social groups.

According to ASFN, the defining characteristics of social forestry are that it:

- engages communities living in and around forests in sustainable forest use and management;
- empowers communities through awareness-raising, capacity building, participatory policy development, and recognition of their rights and systems of knowledge; and
- provides communities with benefits and access to forest resources for their participation in sustainable forest management (ASFN, 2015).

In its regional reports, ASFN uses the generic term “social forestry” to refer to forest management policies and programmes with the above characteristics. Where specific reference is made to the policies and programmes of an individual AMS the relevant terminology is used. This report follows the ASFN’s approach. Social forestry is used to refer to formal approaches that officially involve local people in the sustainable management and use of forests on state-owned or public land⁷. “Local people” are considered to include indigenous people, communities, households and individuals, living within and around forests.

1.4 The development of social forestry in the ASEAN region

Communities and indigenous people living in and around forest areas have long-standing traditions of managing and utilizing forest resources in a sustainable manner. However, it was not until the late 1970s that social forestry started to gain momentum as an official government strategy for sustainable forest management, in response to increasing levels of deforestation and forest degradation resulting from high levels of timber extraction. Most social and community forestry programmes have since begun to incorporate sustainable livelihoods and address the need for local people to have secure access to forest resources to meet their basic needs. Today, eight of the ten ASEAN countries have developed official social forestry or community-based forest management programmes, each with its own specific terminology, definition and objectives. These are discussed further in Sections 2 and 5.

1.5 Climate change in the ASEAN region

The ASEAN region is extremely vulnerable to the impacts of climate change (Kreft *et al.*, 2015; ASEAN Secretariat, 2015b). The region has an extensive coastline, two large archipelagos, and four major river deltas that are vulnerable to the impacts of storms and sea level rise. The economies of most of the AMS are heavily dependent on climate-sensitive sectors such as agriculture and forestry, and large rural populations rely on access to land, water sources, forests, fisheries and other natural resources that are vulnerable to climate change.

According to the Global Climate Risk Index, in 2013 four of the ten countries most severely affected by climate change, in terms of economic losses and loss of life, are in the ASEAN region. The Philippines was the most severely affected, followed by Cambodia in second place. Lao PDR and Viet Nam were the seventh and eighth most affected countries, respectively. Myanmar was ranked as the second most severely affected country in the world from 1994 to 2013 (Kreft *et al.*, 2015).

Recent years, we have seen extensive flooding in Thailand in 2011, destructive typhoons in the Philippines in 2012, 2013 and 2014, a particularly intense monsoon season in 2013 that led to widespread flooding in parts of Cambodia, Viet Nam and Lao PDR, and a severe heatwave and drought in 2015 and 2016 that affected large parts of the region. Mitigating and responding to climate change is therefore a major concern for the ASEAN community. Observed changes in the region’s climate are outlined in Section 3 and regional and national initiatives on climate change are presented in Section 4.

7 Social forestry also takes place on private land in some countries, such as Indonesia. However, these models are not a major focus of this report.

1.6 Social forestry and climate change

Forests and forest soils are both sources and sinks of the greenhouse gases (GHG) – carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). According to the fifth IPCC Assessment Report, forestry and other land uses accounted for 12 percent of anthropogenic CO₂ emissions from 2000 to 2009 (Smith *et al.*, 2014). Deforestation and land-use change was estimated to account for 11 percent of GHG emissions in 2010 (Searchinger *et al.*, 2013).

Globally, communities have legal or official rights to at least 513 million ha of forest, containing an estimated 37.7 billion tonnes of carbon (Stevens *et al.*, 2014). Social forestry is based on the principle that the people who rely most directly on forest resources for their long-term well-being are more likely to manage them in a sustainable manner. It is most effective when people are granted secure and long-term management rights and are able to generate sufficient benefits from sustainable forest management. Where management rights are weak, unclear, and insecure or the forest provides limited benefits, people are often motivated to extract immediate benefits, leading to forest degradation, deforestation and increased CO₂ emissions. As noted above, studies show that when local people's forest management rights are recognized and protected, rates of deforestation and degradation can be reduced (Porter-Bolland *et al.*, 2011; Chhatre and Agrawal, 2011; Skutsch and Solis, 2010). In this context, weak rights for forest communities is not only a land rights problem, but also a climate change problem (Stevens *et al.*, 2014).

2. Forests and social forestry in the ASEAN region

Southeast Asia is home to the world's third largest area of tropical forests (ASEAN Secretariat, 2015b; FAO, 2011). These forests are some of the most biodiverse on the planet and play an important role in the global carbon cycle. Millions of people depend on these forests to some extent, for provision of food, medicines and raw materials, and for their capacity to sustain key ecosystem services, such as nutrient cycling, water purification and conservation of biodiversity. They also have considerable economic value, providing large quantities of timber and non-timber products that support income generation, employment and trade (ASEAN Secretariat, 2015b). However, a combination of rapid economic growth and high demand for agricultural land and natural resources, a growing population and weak governance, have contributed to deforestation and forest degradation across the region (FAO, 2011). These developments threaten ASEAN's position as a net exporter of food, industrial crops and forestry products, as well as its future level of food security (ASEAN Secretariat, 2015b).

2.1 The status of forest land, forest cover and forest cover change in the ASEAN region

There is approximately 245,159,968 ha of designated forest land in the ASEAN region. Forest land makes up 56 percent of the total land area⁸. Based on the most recent forest cover data available from national governments⁹, forest cover is estimated at 204,581,865 ha,¹⁰ covering 47 percent of the total land area. The current extent of forest land, forest cover and forest cover change in each country is presented in Table 1.

Box 2: A note on data comparability

The forest data presented in this report is, wherever possible, official government data published by forest ministries and departments or the national statistics offices. Most of the data presented in this report is from 2013 and 2014. However, the most recent available data for the Philippines is 2010, and for Indonesia 2011/12. In Lao PDR and Brunei Darussalam, new data has not been released since the previous status update in 2013, so there are no changes in the figures reported in the 2013 and 2016 reports.

Care must be taken when comparing data between countries. Some countries use different definitions of forest land and forest cover, for example, including different species (rubber and palms) or forest types (natural or plantation) and different thresholds of canopy density in their forest cover assessments (see Annex 2). Sometimes different government departments within the same country use different forest definitions, land classifications, or data collection techniques that result in different figures. Forest definitions and classifications may also change over time due to the introduction of new laws or policies. New data may become available and improved inventory, data collection and analysis techniques can produce more accurate results than previously. Therefore, apparent changes in the data may not necessarily correlate with actual changes on the ground.

8 This figure is based on data collected from national government sources for the purpose of this report.

9 The most recent forest cover data is for different years for the different member states.

10 This figure should not be directly compared with forest cover data presented in the 2013 situational analysis due to inconsistencies in forest cover data for Indonesia. In the 2013 analysis, Indonesian forest cover was reported to be 89.6 million ha in 2011, based on data in the National Level Forestry Plan 2011-30. However, the Indonesian Ministry of Forestry reports different figures of 99.58 million ha forest cover in 2009/10 and 98.07 million ha in 2011/12. This analysis uses the MoF data, as it was the most up-to-date information available at the time of writing. Based on the figures from the MoF, it is estimated that forest cover in the ASEAN region fell by 5,263,831 ha between 2013 and 2016.

Table 1: Key forest data for the ASEAN region in 2016

Country	Total country area		Total land area		Designated forest land		Forest cover		Average annual rates of forest cover change		
	ha	ha	ha	% land area	ha	% land area	ha	% land area	Average ha per year	Period	% forest cover
Brunei Darussalam	576,500	526,500	235,520	45%	322,195	61%	322,195	61%	not available	not available	not available
Cambodia	18,160,674	17,652,000	10,432,823	59%	8,985,901	51%	8,985,901	51%	-344,472	2010–2014	-3.32%
Indonesia	190,457,000	181,156,900	129,425,443	71%	98,072,700	54%	98,072,700	54%	-613,481	2011–2012	-0.63%
Lao PDR	23,690,000	23,080,000	13,500,000	58%	9,550,000	41%	9,550,000	41%	-34,650	2002–2010	-0.35%
Malaysia	33,080,000	32,855,000	20,160,329	61%	20,160,329	61%	20,160,329	61%	-95,750	2010–2014	-0.47%
Myanmar	67,655,270	65,755,000	19,789,936	30%	30,472,505	45%	30,472,505	45%	-325,124	2010–2014	-1.02%
Philippines	30,000,000	29,817,000	15,805,325	53%	6,839,718	23%	6,839,718	23%	-46,955	2003–2010	-0.66%
Singapore	71,910	71,000	not available	not available	16,347	23%	16,347	23%	0	Not available	0.00%
Thailand	51,312,000	51,089,000	22,400,000	44%	16,365,664	32%	16,365,664	32%	-1,322	2008–2014	-0.77%
Viet Nam	33,121,000	33,058,600	13,410,592	41%	13,796,506	42%	13,796,506	42%	102,108	2010–2014	0.76%
Total	448,124,354	435,061,000	245,159,968	56%	204,581,865	47%	204,581,865	47%	-1,359,694	-	--

Sources: Brunei Forestry Department. (http://www.forestry.gov.bn/first_forest.htm). Accessed 23 May 2016; Cambodia Forestry Administration. 2016 (Report to the 16th ASFN meeting, the Philippines, June 2016); Indonesia Ministry of Forestry Statistics 2013 (MoF, 2014); Lao PDRs SNC to the UNFCCC, Department of Environment, 2013. Forest cover data presented at 2nd ASFN Learning Group Workshop, February 2013; Annual Report Forest Department Sarawak 2013; Sabah Forest Department, Annual Report 2014; Forest Department Peninsula Malaysia Annual Report, 2014; Myanmar Statistical Information Service (<http://www.mmsis.gov.mm>) Accessed 7 June 2016; Myanmar Forestry Department (2015); 2014 Philippine Forestry Statistics (FMB 2014a); FAO 2015h; Forestry Statistical Information 2014 (RFD, 2014) and information presented at the 2nd ASFN Learning Group Workshop, February 2013; General Statistics Office of Viet Nam (<http://www.gso.gov.vn>). Accessed 24 May 2016; Viet Nam Administration of Forestry (VNFOREST) 2015.

Almost all countries in the region have seen a reduction in forest cover since the previous assessment in 2013. Cambodia has the highest rate of forest loss at 3.32 percent, followed by Myanmar at 1 percent. Indonesia has the greatest reduction in the area of forest cover at 613,481 ha per year (MoF, 2014). Cambodia and Myanmar are also losing significant areas of forest, more than 300,000 ha per year each. Viet Nam is the only country to report an increase in forest cover, with an average annual gain of 102,108 ha between 2010 and 2014. Based on the most recent available data for each country¹¹, it is estimated that total forest cover in the region is reducing by approximately 1.35 million ha per year.

2.2 Social forestry in the ASEAN region

Under the broad objectives of engaging local people in sustainable management of forest resources, each AMS has developed its own specific definitions and modalities to implement social forestry. Thus, social forestry takes different forms in the region, depending on national laws and policies, the type of forests allocated to local people, and the aims and objectives for engaging them in forest management (see Table 2).

In some countries, a package of forest management rights and responsibilities are transferred to the local community through an official agreement. These typically include the rights to utilize timber and non-timber products for domestic consumption or commercial purposes, the rights to participate in decision-making on forest use, and occasionally the rights to lease, inherit, transfer or use the land as collateral (see Annex 3). Alternatively in other countries, such as Malaysia, social forestry is based on the principle of involving local people in forest management activities and agroforestry projects on land managed by the state forest department or forest concession holders. Brunei Darussalam and Singapore do not have official, government-supported social forestry programmes.

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The data on forest cover change covers different periods for each AMS.

Table 2: National definitions, modalities, laws and policies on social forestry

Country	National definitions and/or models of social forestry	Key legal/policy documents
Cambodia	<p>The 2003 Sub-Decree on Community Forestry Management defines community forest as “the forest plantation¹² of a community or state forest, where the rights is granted to a local community living in or near the forest to manage and utilize the forest in a sustainable manner, between the FA and a local community” (RGC, 2003).</p> <p>Community forests can be established within production forests of the permanent forest reserve. The objectives of community forestry are to manage, use, protect, conserve and develop community forests in a sustainable way; to use timber and NTFPs for livelihoods, traditions and religious purposes in a customary way; to extract forest and non-forest products in accordance with the potential and availability of community forest resources; and to support the government policy of poverty reduction (MAFF, 2006).</p>	<p>The Forestry Law 2002</p> <p>Sub-Decree #79 on Community Forestry Management 2003</p> <p>MAFF Guidelines on Community Forestry (Prakas) 2006</p> <p>Protected Area Management Law 2008</p>
Indonesia	<p>Social forestry is defined as “a forest management system conducted in state and/or private forests with the involvement of the local community as the main actor or primary partner to increase its prosperity and achieve sustainable forest management” (FAO, 2004). A number of different models exist, developed by various institutions such as the Department of Forestry, commercial companies and NGOs.</p> <p><u>State Forests:</u></p> <p><i>Hutan kemasyarakatan</i> (HKm) (community-based forest): to engage local communities in management of state forests.</p> <p><i>Hutan desa</i> (village forest): management of production or protection forests by village institutions.</p> <p><i>Hutan tanaman rakyat</i> (HTR) (community plantation forest or people’s plantation): community based plantations to supply raw materials for the pulp and paper industry.</p> <p><i>Pengelolaan Hutan bersama Masyarakat</i> (PHBM) (community-based forest management): engagement of local people in forest management by Perum Perhutani, the State Forest Corporation, in Java.</p> <p><i>Kemitraan</i> (partnership): collaboration on forest management between local communities and state-owned and private enterprises.</p> <p><i>Pembangunan Masyarakat Desa Hutan</i> (PMDH) (village community development program): aims to reduce poverty in forest communities.</p> <p><i>Desa Konservasi</i> (village conservation): participatory management of conservation areas with local communities.</p> <p><u>Non-State Forests:</u></p> <p><i>Hutan adat</i>¹³ (customary forest): use of forest land by indigenous households and communities for social-cultural, spiritual, ecological and economic purposes.</p> <p><i>Hutan rakyat</i> (HR) (people’s forest): privately-owned smallholder forest for income generation</p> <p>(Siscawati and Zakaria, 2010; FAO, 2004).</p>	<p>Ministerial Decree on CFM (No. 699/1998)</p> <p>The Forests Minister Decree (No. 31/2001) on administration of Community Forestry</p> <p>Regulation of the Minister of Forestry (No. 1 Menhut-II/2004)</p> <p>Ministerial Regulation No 37. (2007)</p> <p>Ministerial Regulation No. 49 (2008) provides legal basis for HKm and Village Forests.</p> <p>Constitutional Court Decision MK35/2012</p>
Lao PDR	<p>The official model for social forestry in Lao PDR is known as Village Forestry. Any kind of forest can be classified Village Forestry, for any management objective. Village Forestry was defined in the National Village Forestry Strategy paper (2nd draft) as a “partnership between the state and organized villagers for the management of designated forests in order to sustain the flow of benefits, which are fairly shared by the villagers and the rest of the national community (DoF, 1997). The National Strategy Paper states that Village Forestry must be understood as “a process rather than a predetermined output” and as “a continuum of approaches to people-oriented forest management with different intensities in the degree of participation” (DoF, 1997; Makarabhirom and Raintree, 1999).</p>	<p>National Village Forestry Strategy paper Department of Forestry 1997</p> <p>The Forestry Law 2007</p> <p>The Forestry Strategy to the Year 2020</p> <p>Village Forestry Handbook, FOMACOP/MAFF 2001</p>

12 In practice, community forest also takes place in natural forests.

13 A 2012 judicial ruling by Indonesia’s Constitutional Court (Decision MK35/2012) found Article 1 Paragraph 6 of the 1999 Forestry Law to be in conflict with the Constitution. As a result, hutan adat (customary forests) are no longer categorized as hutan negara (state forest) and now fall under hutan hak (forests subject to rights) under the Forestry Law. Although hutan adat is still under the jurisdiction of the Ministry of Forests, indigenous communities now have stronger legal rights to lands and to manage these resources.

Malaysia	<p>Social forestry takes a different form in each state:</p> <p>Sabah – social forestry is defined as the “management and protection of forest and afforestation of degraded land with the purpose of contributing towards environment, social and rural development”</p> <p>Sarawak – social forestry takes the form of community participation in agroforestry projects.</p> <p>Peninsula Malaysia – social forestry focuses on recreation, education and the greening of urban areas.</p> <p>Malaysia is currently in the process of developing official regional and national definitions of social forestry and a national social forestry roadmap.</p>	<p>The National Forest Act 1984</p> <p>The Sabah Land Ordinance 1930</p> <p>Sarawak Land Code</p>
Myanmar	<p>Community forestry in Myanmar involves “communities receiving formal endorsement and rights from the administration to assume control, management and use of forests local to them” (Kyaw Tint <i>et al.</i>, 2011).</p> <p>Myanmar’s Community Forestry Instructions (1995) provided legal backing for rural communities to co-manage forests for national economic development and to support their basic needs, and encourages tree planting and reforestation in barren and degraded lands. The Instructions recognize the rights of communities to have equitable use of forest adjacent to their villages to support their livelihoods. The Community Forestry Instructions were revised in 2016 to place increased emphasis on developing commercialization opportunities of community forestry in the country.</p>	<p>Forest Law 1992</p> <p>1995 Forestry Policy</p> <p>Community Forestry Instructions 1995 (revised in 2016)</p> <p>Forestry Master Plan (2001–2030)</p>
Philippines	<p>Community-based Forest Management (CBFM) is the national strategy to ensure sustainable management of forest land resources. It promotes social justice and improved well-being of local communities and stronger partnerships between local communities and the Department of Environment and Natural Resources (FMB, 2004).</p>	<p>Executive Order No. 263 (1995)</p> <p>Indigenous People’s Rights Act (1997)</p>
Thailand	<p>The Royal Forest Department (RFD) describes community forests as “forests that people, groups of people, or community organizations care for and manage for their shared benefits.” Community forest means “land and/or forest land which is legally permitted for the community together with forest officers to participate in continuously managing forestry activities, under the relevant laws and regulations. They can also set up their own policies concerned with culture, beliefs, religious and other traditions. This management aims to provide sustainable forest use for the community” (Wichawutipong, 2007).</p>	<p>1992 Forest Sector Master Plan</p> <p>Thai Constitution</p> <p>draft Community Forestry Bill 2007</p>
Viet Nam	<p>Community forest management (CFM) is “any managerial arrangement in which local people share collective responsibility and benefits from managing natural forests, inside their community boundaries, for which they have long-term customary and/or legal rights of entitlement” (Wode and Bao Huy, 2009).</p>	<p>Forest Protection and Development Law 1991</p> <p>The Land Law 2003</p> <p>Forest Protection and Development Law 2004</p>

2.3 Progress on social forestry

The most recent available data indicates that 10,078,435 ha of forest land is managed under official social forestry agreements¹⁴ and communal land titles in the ASEAN region (see Table 3). In addition, local people have *de facto* rights to a further 2,924,084 ha that are not covered by official agreements (RECOFTC, unpublished data 2016).

Table 3: Progress towards national social forestry targets, 2010–2016

Country ¹⁵	Baseline 2010 ha	Status analysis 2013 ha	Status analysis 2016 ha	Target		% Achieved by 2016
				ha	year	
Cambodia	113,544	183,725	296,240	2,000,000	2029	15%
Indonesia	33,000	143,065	642,646	2,500,000	2014 ¹⁶	26%
Myanmar	41,000	42,148	113,765	919,000	2030	12%
Philippines	2,985,000	4,018,952	4,018,952	9,000,000	2008 ¹⁷	45%
Thailand	196,667	500,000	750,457	1,600,000	2025	47%
Viet Nam	3,300,000	3,809,320	4,256,375	4,000,000	2020	100%
Total	6,669,211	8,697,210	10,078,435	20,019,000	n/a	50%

Cambodia, Indonesia, Myanmar, the Philippines, Thailand and Viet Nam have established national targets for the area of land to be allocated to local people under their social forestry programmes. If achieved, this would result in over 20 million ha of forest land being managed under social forestry programmes in the ASEAN region by 2030.

The area of forest land managed under official community forestry agreements and communal land titles has been slowly increasing since 2010. Viet Nam has made substantial progress in transferring forest management rights to local households and communities. A 2015 Ministry of Agriculture and Rural Development (MARD) Decision states that there is over four million ha of community forestry land (MARD Decision 3158 QD-BNN_TCLN). In Cambodia, Indonesia, Myanmar, the Philippines and Thailand, the process is proceeding more slowly, and will need to be accelerated if the governments are to meet their national targets.

2.4 ASEAN initiatives on forests and social forestry

ASEAN aims to protect the region's forests through sustainable forest management. The vision for the Food, Agriculture and Forestry (FAF) sector beyond 2015 is for a "competitive, inclusive, resilient and sustainable" sector based on a single production base and market, integrated with the global economy, and contributing to food security, safety and better nutrition, and increasing resilience to climate change" (ASEAN Secretariat, 2015b). ASEAN's Vision and Strategic Plan for Cooperation on FAF for 2016–2025 outlines seven "strategic thrusts" that include sustainable forest management and increasing resilience to climate change, natural disasters and other shocks.

As part of measures to achieve sustainable forest management, the Plan promotes "forest management involving the community living within and surrounding the forest for the sustainability of the forest and prosperity of the affected communities" (ASEAN Secretariat, 2015b). The Plan therefore supports further development of social forestry in the region. The Plan also outlines steps to build resilience to the social and economic impacts of climate change and natural disasters. These include expansion of climate-resilient agroforestry systems, sound management of coastal and mangrove forests and integration of gender issues into climate-friendly forestry practices.

¹⁴ Includes agreements with individuals, households and communities.

¹⁵ Brunei Darussalam, Malaysia and Singapore are not included in the table because they do not have social forestry programmes that transfer land rights to local people. Data for the area under Village Forestry in Lao PDR was not available at the time of writing.

¹⁶ In 2015, Indonesia set a new target of 12.7 million ha of land to be placed under social forestry by 2019.

¹⁷ It is not clear if the target period has been extended beyond 2008.

2.5 ASEAN institutions for forestry and social forestry

There are a number of ASEAN institutions working on the inter-connected issues of forests and climate change. The ASEAN Senior Officials on Forestry (ASOF) are responsible for policy coordination, decision-making and regional cooperation in the forest sector. They are guided by the ASEAN Ministers on Agriculture and Forestry (AMAF), which is the highest body handling ASEAN cooperation on food, agriculture and forestry. Under ASOF, there are a number of expert groups and regional networks focusing on different thematic areas (See Box 3).

Box 3: ASEAN expert groups and regional networks on forestry

At the 18th ASOF Meeting held in Yogyakarta, Indonesia, from 6–8 August 2015, it was decided to streamline the subsidiary bodies under ASOF to enhance effectiveness and efficiency as follows:

1. ASEAN Expert Group on Forest Product Development
2. ASEAN Expert Group – CITES and Wildlife Enforcement
3. ASEAN Expert Group on Forest Management
4. ASEAN Social Forestry Network (ASFN)
5. ASEAN Regional Knowledge Network on Forest and Climate Change (ARKN-FCC)

The ASFN was established in 2005 to promote cooperation and knowledge sharing on the potential of social forestry to address climate change mitigation and adaptation. ASFN links government forestry officials, policy-makers and stakeholders working on social forestry including civil society, research, academia, and the private sector to inform the ASOF policy agenda.

2.6 The ASEAN Economic Community (AEC) and implications for forests and social forestry

The AEC has four key objectives:

1. creating a single market and production base;
2. increasing competitiveness;
3. promoting equitable economic development; and
4. furthering integration into the global economy.

The AEC aims to create an integrated regional economy to facilitate the flow of goods, services, investment, capital and skilled labour, enhance ASEAN's trade and production networks, harmonize trade and investment laws, and create a more unified market for its firms and consumers. By transforming ASEAN into a single market and production base, it is expected that the AEC will boost the competitiveness and connectivity of the region as a whole. It is hoped that the AEC will help to link up ASEAN's developed and less developed economies, resulting in more equitable development across the region, and that ASEAN as a whole will be better integrated into the global economy.

The implications of the AEC for the forests, fisheries and agriculture sector are complex and multifaceted. Improved access to global markets is expected to create new opportunities for ASEAN producers. However, the opening of the ASEAN market could also increase imports of cheaper products and affect the livelihoods of small-scale farmers and forest communities who generally struggle to compete with cheap imported products (IBON International, 2015). The AEC may create new incentives for communities to engage in production of non-traditional commercial crops, such as coffee, cacao, vegetable and pineapple, at the expense of native forest trees and non-timber forest products (Razal *et al.*, 2016).

Increased market access will also expose ASEAN's small producers to competition from more technologically advanced foreign competitors requiring them to meet higher market standards, adopt new technologies, and enhance their competitiveness (ASEAN Secretariat, 2015b). In order for its products to be competitive in the global market, ASEAN will need to meet international standards for sustainable forest management and production, potentially driving an improvement in standards. ASEAN recognizes that small-scale producers will require assistance to be able to compete in a globalized market place. The Vision and Strategic Plan for the FAF Sector lays out measures to ensure that potential gains from increased market access are captured, shared and made available to small producers and small and medium enterprises (SMEs). This will include promoting cooperatives and farmers' organizations, providing finance and extension services, insurance, technology and support to integrate into modern value chains, deal with production and market risks, and protect against unfair competition in the sector (ASEAN Secretariat, 2015b).

Economic integration will entail liberalization of trade among the AMS, including measures to eliminate tariffs and other trade barriers and enhance interconnectivity. Liberalization is expected to increase trade in timber and non-timber forest products (NTFPs) between Member States, particularly in raw materials and semi-finished products, leading to greater demand for some forest products. This will benefit some producers, but may also put additional pressure on forest resources and lead to more intensive resource use practices that damage long-term productivity (Razal *et al.*, 2016).

Some NGOs and civil society groups have criticized the AEC's neo-liberal model of economic development for prioritizing the interests of corporations and elite groups above those of ordinary people. For example, liberalization may involve removal of regulations designed to protect vulnerable communities, domestic industries, their workers and the environment. Moreover, projects such as mining, hydropower, agricultural concessions, commercial fisheries and aquaculture often contribute to environmental degradation, violations of land rights, and reduce local people's access to land, forests, water and other resources (IBON International, 2015).

To provide sufficient food for present and future generations, ASEAN plans to increase investment in the FAF sector. This will focus on infrastructure, research and development, uptake of science and technology and improved management systems in order to develop yields, enhance productivity, intensify land use in a sustainable manner, and minimize damage to ecosystems (ASEAN Secretariat, 2015b). Best agriculture practices that minimize negative effects on natural resources such as soil, forests, and water, reduce GHG emissions and bolster climate resilience, will be promoted.

Increasing cooperation between the AMS may strengthen opportunities to effectively tackle cross-border challenges such as illegal logging, illegal trade in forests products and wildlife, and trans-boundary haze from forest fires (ASEAN Secretariat, 2015b). To achieve this, there is a need to strengthen forest law enforcement systems and improve coordination between the Member States, as well as to develop an effective regional grievance mechanism to resolve conflicts (Razal *et al.*, 2016).

In order to attract investment and facilitate trade and movement of goods, services and people between the AMS, a number of major infrastructure development projects are planned. These include an ASEAN highway network to connect Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam, a rail link between Singapore and Kunming in China, inter-state power grids, a trans-ASEAN gas pipeline, and hydropower developments in the Mekong region. The highways, in particular, are expected to cut through natural forest areas, fragmenting them and opening up previously inaccessible forests. This is likely to increase forest exploitation, illegal logging, poaching, encroachment and settlement. Traditional forest communities may be displaced by construction, increasing tenure insecurity and potential land conflicts, particularly in parts of the region where land tenure and rights are weak (Razal *et al.*, 2016).

These and other issues were raised at the 6th ASFN conference in June 2015, which focused on the links between rural livelihoods, environmental conservation and the AEC. Delegates expressed concerns that weak rights and insecure tenure will prevent the benefits of regional economic integration flowing to small farmers and forest-based enterprises. The likely increase in illegal trade, in products such as timber and non-timber forest products, could also make business difficult for small farmers and forest-based enterprises (RECOFTC, 2015).

3. The ASEAN region's changing climate

3.1 Evidence of climate change in the region

Weather patterns in the region are changing. There is a notable trend of increasing temperatures, with all countries recording an increase in average, minimum and maximum temperatures. The frequency of hot days and nights is increasing, while the number of cold days and nights is decreasing (DMH, 2012; Hadley Centre, 2011; RIMES, 2011; Thai Meteorological Department, 2013; PAGASA, 2011; McSweeney *et al.*, 2008).

Rainfall patterns are becoming increasingly erratic and unpredictable (Jennings and Magrath, 2009; RECOFTC, 2012). Many countries have experienced the late arrival of the rainy season (RIMES, 2011) including Lao PDR (Lefroy, 2010; RECOFTC, 2014a, Myanmar (DMH, 2012) and Cambodia (RECOFTC, 2012). In Indonesia, the rainy season has become shorter and ends earlier than before (IFPRI, 2011). Moreover, the intensity of rainfall is increasing, with more rain falling in a shorter period of time, increasing the risks of flooding and landslides, and resulting in less water available for irrigation and other uses.

Extreme weather events such as heat waves, droughts, storms, rainfall and flooding appear to be increasing in intensity and frequency. In 2015 and 2016, these weather patterns have been exacerbated by a strong El Niño, resulting in the most severe drought and water shortages the region has experienced in recent decades. Indonesia, Myanmar and Thailand have reported increases in the outbreak of forest fires.

These changes are already affecting agricultural production, rural livelihood systems, natural resources and people's health and prosperity. Often the impacts of climate change are exacerbated by man-made factors, such as upstream hydrological projects, land conversion, and poorly planned infrastructure developments.

Table 4: Observed climate change in the ASEAN region

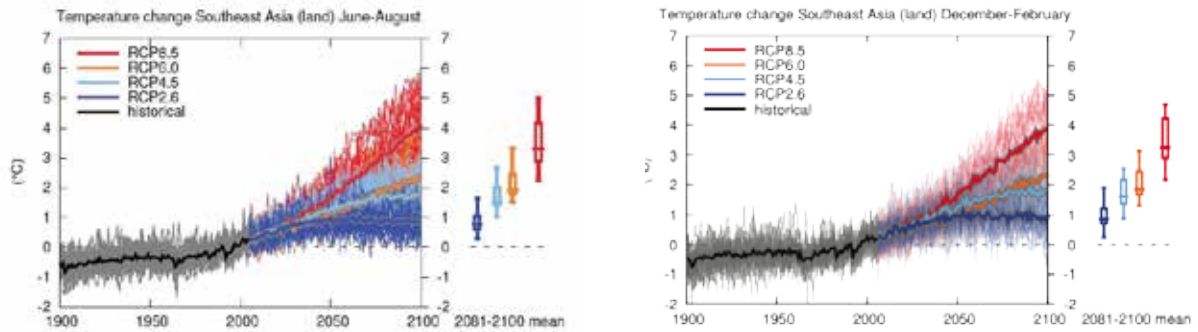
Country	Temperature	Hot and cold days and nights	Precipitation	Extreme weather events
Cambodia	Mean annual temperature increased by 0.8 °C since 1960. Greater extremes between maximum and minimum temperatures in the past decade.	Increased frequency of hot days (13%) and nights (17%) from 1960 to 2003. Decrease in cold days (5%) and nights (13%) over the same period.	No significant change in mean rainfall or amount of rain falling in heavy events since 1960. High level of year-to-year variability. The wet season in eastern regions starts later than it did before 1960.	More frequent flooding and drought.
Indonesia	Mean annual temperature increased by about 0.3 °C. Dry season increase of 1 °C. Wet season increase of 0.5 °C over the past 50 years.	Increase in warm days (15%) and nights (18%) and decrease in cool nights (15%) between 1960 and 2003.	Overall, annual precipitation has decreased by 2–3%. In southern regions, wet season rainfall has increased although annual rainfall has decreased. In northern regions, dry season rainfall has decreased but annual rainfall has increased. The rainy season is shorter and ends earlier.	Increasing incidence of forest fires.
Lao PDR	Temperatures increased on average by 0.1–0.3 °C each decade from 1951 to 2000. The highest average temperature increased by 1 °C from 1996 to 2003.	No data.	Annual rainfall decreased by 160 mm over the last 50 years. Rainfall patterns erratic. North and central regions had low rainfall in 1998 and high rainfall in 2003. Central provinces have higher rainfall. Delay in onset of wet season, but rains start earlier in some northern provinces and later in some southern provinces.	Extreme rainfall events have increased. The severity and frequency of floods and droughts increased over the past 30 years.
Malaysia	Surface mean temperature is increasing by around 0.14–0.25 °C per decade.	No data.	Peninsula Malaysia: decrease in rainfall in 1998–2007, compared with 1961–1990. Dry years more frequent and intense. Malaysian Borneo: increased rainfall for 1998–2007, compared with 1961–1990.	Extreme weather including strong winds, rainfall intensity, monsoonal and flash flooding are increasing.
Myanmar	Increasing temperatures. highest temperatures were recorded in March, April and May 2010.	Significant increase in warm nights.	Reduced duration of wet season and decrease in monsoon intensity from 1960 to 2009.	Monsoon season became shorter and arrived later after 1977. Increase in forest fires.
Philippines	Mean temperate increase of 0.65 °C between 1951 and 2010. Max. temperature rose by 0.36 °C and minimum temperature by 1 °C.	Increasing number of hot days. Decreasing number of cool nights.	Mean annual rainfall and the number of rainy days have increased since 1960. Intensity and frequency of extreme rainfall appears to be increasing in many parts of the country.	Recorded floods and storms have risen, from fewer than 20 during 1960–1969 to nearly 120 in 2000–2008.
Thailand	Mean minimum temperature increase of 1.1 °C since 1961. Mean maximum temperature increased by 0.7 °C since 1961.	Increase in hot days and nights. Decrease in cool days and nights.	No clear trends in rainfall patterns but appears to have increased over the past decade.	Increasing incidence of forest fires.
Viet Nam	Mean annual temperature rise of 0.4–0.7 °C since 1960. Increase is greater in the dry season and in the south.	Increase in frequency of hot days (8%) and hot nights (13%) since 1960. Decreased frequency of cold days (3%) and nights (10%) since 1960.	Increasing rainfall trends noted in Mekong Delta since 1976. Decreasing trends of annual rainfall noted in Red River Delta from 1961 to 2000.	Typhoons becoming stronger and tracking further south.

Sources: McSweeney et al., 2008; UNDP country profiles for Cambodia and Viet Nam; RIMES Technical Reports for Cambodia, Lao and Myanmar; Lao PDR NAPA, 2009; WWF, 2007; Hadley Centre, 2011; IFPRI 2011; Malaysia INDC, 2015; Myanmar DMH, 2012; TMD, 2013; PAGASA, 2011; Schaefer, 2003; Vu, 2011; ADB, 2009; RECOFTC, 2012

3.2 Climate change projections

Average annual temperatures are projected to increase across the whole region (see Figure 2) with the greatest warming occurring in mainland Southeast Asia. Regional surface air temperature is expected to rise by around 2 °C by the middle of this century and by 4 °C by the end of the century (The Met Office, 2014).

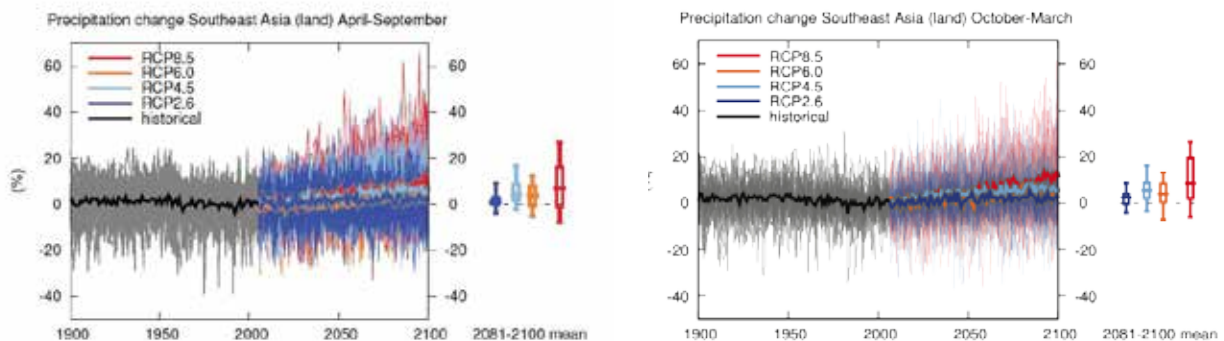
Figure 2: Projected changes in temperature in Southeast Asia¹⁸



Source: IPCC, 2013

Extreme rainfall events over mainland Southeast Asia are expected to intensify, with increases of up to 40 percent (20–60 mm/day) predicted across north Viet Nam, Lao PDR, parts of Thailand, China and the northern Philippines. Brunei Darussalam, the Philippines, Singapore, east Malaysia and Indonesia are predicted to experience a significant reduction in the frequency and intensity of rainfall from June to August, alongside increasing seasonal rainfall from March to May and September to November (The Met Office, 2014).

Figure 3: Projected changes in precipitation in Southeast Asia



Source: IPCC, 2013

¹⁸ Representative Concentration Pathways (RCP) are GHG concentration trajectories (not emissions trajectories) adopted by the IPCC for its fifth Assessment Report in 2013.

3.3 Impacts on forests and social forestry

Climate change is expected to affect forest condition, including area, health and biodiversity (FAO, 2012). Temperature increases, availability of water and changes in seasons and rainfall patterns will change forest condition, potentially benefiting some species and endangering the survival of others. In areas with severe water shortages, conditions may become unfavourable and some forests could face diebacks (PAGASA, 2011). In Cambodia, for example, it is projected that by 2050 more than four million ha of lowland forests will be exposed to a longer dry period from four to six months currently, to between six to eight months (RGC, 2015).

Forests and trees may be damaged by extreme weather conditions such as drought, floods and storms. Sea level rise and salt water intrusion will affect low-lying river deltas and mangrove ecosystems, changing salinity levels, species composition, and reducing growth rates. Natural landward migration of mangrove trees is likely to be constrained by infrastructure and human activities limiting their natural adaptive capacity (FAO, 2012). More dry periods and higher temperatures, especially during the warm phase of El Niño events, will increase the risk of forest fires, and increase outbreaks of disease, pests and invasive species that negatively affect trees, crops and biodiversity.

The species composition of many forest ecosystems is likely to change, with unpredictable impacts on associated fauna and associated livelihoods. Provision of forest ecosystem services and timber and non-timber forest products will be altered by these changes, posing a number of new challenges to forest managers (FAO, 2012).

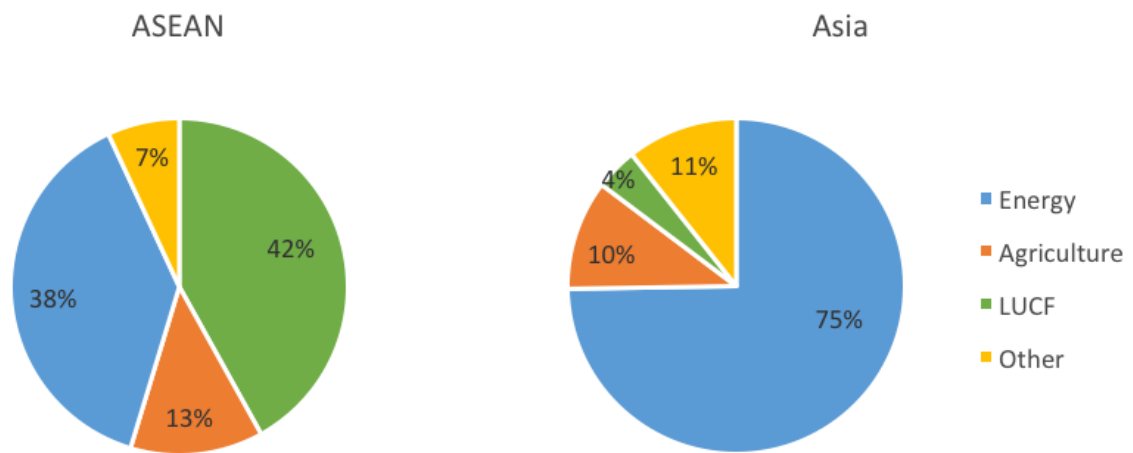
These changes will require forest managers, including communities, to adapt their traditional forest management practices. A range of management activities will likely be needed to maintain the health and increase the adaptive capacity of forests, including appropriate silvicultural treatments and monitoring and managing fire, pests and diseases (FAO, 2012). Effective management of forest conservation areas and enhancing forest connectivity will be important to conserve or enhance forest biodiversity. Improved forest monitoring will also be needed to identify changes in forest condition and enable timely responses (FAO, 2010).

4. Climate change mitigation and adaptation

4.1 The ASEAN region's greenhouse gas emissions

Total combined GHG emissions, including emissions from land use change and forestry (LUCF), from the ten AMS were 3,547 MtCO₂e in 2012.¹⁹ This is approximately 8 percent of total global emissions (CAIT Climate Data Explorer, 2015). LUCF produces 42 percent of the region's GHG emissions, more than either the energy sector (38 percent) or the agriculture sector (13 percent) (see Figure 4, Table 5). In Asia, LUCF produces only 4 percent of total emissions, while energy produces 75 percent and agriculture 11 percent (see Figure 5). This illustrates the importance of the forest sector in the ASEAN region for climate change mitigation.

Figure 4: GHG emissions by sector for ASEAN and Asia in 2012



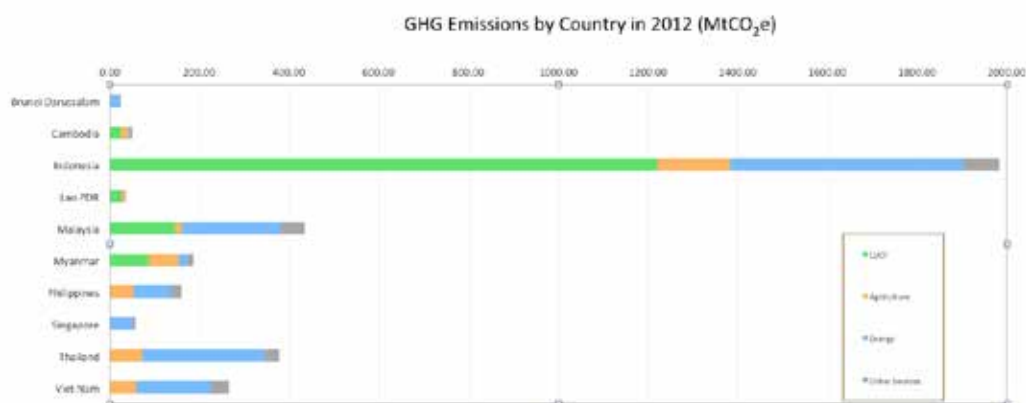
Source: CAIT Climate Data Explorer, 2015

Indonesia has the highest national GHG emissions of the AMS (see Figure 5). The majority of these emissions derive from LUCF, particularly land conversion, forest fires, and conversion of high carbon peat soils. In Indonesia and Lao PDR, the LUCF sector produces more than 60 percent of total emissions. LUCF in the Philippines and Viet Nam are net carbon sinks, absorbing more GHGs than they produce (CAIT Climate Data Explorer, 2015).

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By comparison, total GHG emissions for Asia were 23,297 MtCO₂e and 46,049 MtCO₂e for all countries.

Figure 5: GHG emissions by country in 2012 (MtCO₂e)



Source: CAIT Climate Data Explorer, 2015

Table 5: GHG emissions in ASEAN countries in 2012

Country	LUCF (MtCO ₂)	Agriculture (MtCO ₂ e)	Energy (MtCO ₂ e)	Other (MtCO ₂ e)	Total incl. LUCF (MtCO ₂ e)	LUCF as % of total
Brunei	2.02	0.14	19.66	0.25	22.07	9.2%
Cambodia	23.27	19.09	6.26	0.49	49.12	47.4%
Indonesia	1220.20	163.24	519.31	78.26	1981.00	61.6%
Lao PDR	25.41	7.83	-	3.05	36.28	70.0%
Malaysia	145.20	14.45	220.83	52.85	433.33	33.5%
Myanmar	85.78	67.12	20.22	11.59	184.71	46.4%
Philippines	-1.64	51.26	85.54	22.42	157.59	-1.0%
Singapore	0.01	0.10	50.86	5.16	56.13	0.0%
Thailand	0.01	70.27	273.34	32.08	375.71	0.0%
Viet Nam	-13.02	58.83	166.33	39.04	251.18	-5.2%
Total	1487.24	452.33	1362.34	245.21	3547.12	41.9%

Source: CAIT Climate Data Explorer, 2015

4.2 ASEAN initiatives on climate change

ASEAN leaders have recognized the role that forests play in climate change mitigation and adaptation in a number of key policy statements (See Table 6). Joint statements related to climate change were issued in 2007, 2009, 2010, 2011, 2014 and 2015, expressing ASEAN's common position and commitment to address climate change through national and regional actions.

In April 2015, the ASEAN Heads of State signed the Declaration on Institutionalizing the Resilience of ASEAN Communities and Peoples to Disasters and Climate Change, committing to a range of measures to reduce vulnerability to disasters and climate-related risks; and to mainstream disaster risk management and climate change adaptation into policy-making at the local, national and regional levels. The Declaration on Post-2015 Environmental Sustainability and Climate Change was issued in November 2015 (ASEAN, 2015). This declaration stated the need to accelerate implementation of climate change mitigation and adaptation measures in line with national policies. It aims to strengthen regional cooperation on climate change, preventing peat soil and forest fires, and sustainable management of forest and peatland ecosystems to reduce deforestation and land degradation.

Table 6: Key ASEAN declarations and commitments on climate change and forests

Year	Policy commitment
2007	Singapore Declaration on Climate Change, Energy and the Environment
2008	Common Position on Reducing Emission from Deforestation and Forest Degradation (REDD+) to UNFCCC COP 14.
2009	Singapore Resolution on Environmental Sustainability and Climate Change
2010	Statement on Joint Response to Climate Change
2011	Statement on Joint Response to Climate Change
2012	ASEAN Action Plan on Joint Response to Climate Change
2014	ASEAN Joint Statement on Climate Change
2015	ASEAN Joint Statement on Climate Change to COP 21
2015	Declaration on Post-2015 Environmental Sustainability and Climate Change
2015	Declaration on Institutionalizing the Resilience of ASEAN and its Communities and Peoples to Disasters and Climate Change

The Blueprints for the ASEAN Economic and Socio-Cultural Communities for 2009 to 2015 highlighted the need to promote sustainable development, reduce emissions and address the impacts of climate change, but did not outline how these goals were to be achieved. The themes of sustainability and resilience are more prominent in the ASEAN Vision and Community Blueprints for 2025. The Blueprints recognize the ASEAN region's vulnerability and the need to adapt to climate change in order to build a resilient community. They highlight the importance of enhancing human and institutional capacities to respond to climate change, disasters and other challenges, role of indigenous and traditional knowledge and practices, and the need to strengthen social protection for vulnerable and marginalized groups, minorities, and people living in remote, sensitive, or high-risk areas (ASEAN Secretariat, 2015d).

4.3 National mitigation and adaptation strategies

Forests are extremely important in terms of climate change mitigation and adaptation in the ASEAN region. As highlighted in Figure 4, the LUCF sector is the region's largest source of GHG emissions (CAIT Climate Data Explorer, 2015) and will therefore be critical to effective mitigation. Large numbers of people rely on forests, mangroves and the ecosystem services they provide, for their livelihoods and well-being. These ecosystem services will be vital in supporting adaptation.

Most countries in the region have now developed national policies or strategies on climate change mitigation and adaptation. The majority of these national policies do not specifically refer to social forestry, although some do mention the need for community-based approaches, respecting the rights of local people, capacity building at local level, and increasing resilience of local communities and ecosystems. These include:

- Cambodia's Climate Change Strategic Plan (CCCSP);
- Lao PDR's National Adaptation Program of Action (NAPA);
- The Philippines Strategy for Climate Change Adaptation (2010–2022) and National Framework Strategy on Climate Change (2010–2022);
- Thailand's Master Plan on Climate Change (2013–2050) and the 11th National Economic and Social Development Plan (2011–2015); and
- Viet Nam's National Climate Change Strategy.

National forest strategies that aim to reduce deforestation and forest degradation, promote reforestation and afforestation, and conserve ecosystems such as mangrove forests and peat soils, also contribute to the achievement of national mitigation targets. In countries where economies and livelihoods rely heavily on forest resources, measures will be needed to ensure that forest ecosystems can successfully adapt to changes in the climate, and that forest communities can modify their management practices and diversify their livelihood systems.

Table 7 provides an overview of some of the key climate change mitigation and adaptation strategies and policies in each country, and their relevance (if any) to forests and social forestry. It also includes forest sector policies and programmes that contribute towards mitigation and adaptation.

Table 7: Forests in national mitigation and adaptation strategies

Country	Key strategies, policies, and programs	Mitigation and/or adaptation	Relevance to forests and social forestry
Brunei Darussalam	National Forestry Policy	Mitigation	Increase the gazetted forest reserve to 55% of total land area (from 41%).
Cambodia	Climate Change Strategic Plan (CCCSP) 2014–2023	Mitigation and adaptation	Enhance carbon sinks. Recognizes the need for community-based approaches, e.g. payments for ecosystem services and participatory land-use planning, to build resilience of critical ecosystems, biodiversity, protected areas and cultural heritage sites.
	NAPA	Adaptation	Includes proposals for three projects on social forestry: <ul style="list-style-type: none"> • Community agroforestry in deforested watersheds; • Community mangrove restoration and sustainable use of natural resources; and • Community-based agroforestry in coastal areas.
	Draft REDD+ National Strategy	Mitigation and adaptation	Three REDD+ demonstration projects supporting more than 27 community forests and protecting over 300,000 ha of forests.
	National Forest Program (2010–2029)	Mitigation and adaptation	Increase forest cover to 60%. Increase area of community managed forests to 2 million ha by 2030.
Indonesia	National Action Plan for Mitigation	Mitigation	Sustainable forest management, biodiversity conservation, and forest rehabilitation.
	Forest Clearance Moratorium (2011, 2013, 2015)	Mitigation	Temporarily prevents new forest clearance permits being granted in primary forests and peat swamps.
	National Action Plan for reducing GHG Emissions (RAN-GRK) 2011–2014	Mitigation	Thirteen action plans in the forest sector, including increasing the social forestry area (<i>HKm</i> and <i>Hutan Desa</i>) to 2.5 million ha by 2014, reducing forest fires, improving management of essential ecosystems, conserving protected forests, promoting forest plantation businesses and creating business partnerships in 250,000 ha of people's forest.
	National Action Plan on Adaptation (RAN-API) 2013	Adaptation	Includes a target to increase the quantity and quality of forest cover in priority areas.
	National REDD+ Strategy (2012)	Mitigation	At least 35 demonstration and pilot projects underway.
Lao PDR	National Strategy on Climate Change (2010)	Mitigation and adaptation	Forestry is included as a key sector for mitigation and adaptation.
	NAPA	Adaptation	NAPA includes projects on strengthening capacity of village foresters in forest management.
Malaysia	National Policy on Climate Change	Mitigation and adaptation	Forests are mentioned as a theme for policy harmonization, research and development, and promoting a low-carbon economy, but no detailed strategies or actions are outlined.

Myanmar	National Climate Change Strategy	Mitigation and adaptation	Under development
	National Program on Reforestation and Restoration of Degraded Forests	Mitigation and adaptation	Community forestry, agroforestry and livelihoods. Community forestry, restoration planting, livelihood improvement, cyclone shelters and income generation in mangrove areas.
	National Forest Master Plan (2002–2031)	Mitigation	Preserve natural forest cover, reduce deforestation, and increase Reserved Forest and Protected Public Forest to 30% and Protected Areas to 10% of total land area.
	The National Land Use Policy (2016)	Mitigation and adaptation	Protects customary land rights, promotes people-centered development and participatory decision-making. Aims to promote sustainable land management.
	NAPA	Adaptation	Project on adapting community forestry landscapes and associated community livelihoods to a changing climate, in particular, an increase in the frequency and intensity of extreme weather events is underway.
Philippines	National Framework Strategy on Climate Change (2010–2022)	Adaptation	Roadmap to address climate change. Includes strengthening adaptation of natural ecosystems and human communities.
	Philippines Strategy for Climate Change Adaptation (2010–2022)	Adaptation	Aims to increase adaptive capacity of communities and resilience of natural ecosystems, focusing on biodiversity, forestry, coastal and marine resources, fisheries, land, and agriculture, among others.
	National Disaster Risk Reduction and Management Law 2010	Adaptation	Increase resilience in the face of natural disasters and mitigate their impacts.
	National Greening Program (NGP)	Mitigation and adaptation	Aims to plant 1.5 billion trees (2011–2016) for mitigation, poverty reduction and alternative livelihoods. 50% of the trees are to be forest species for timber production and protection, with the remaining 50% being agroforestry species.
Singapore	National Climate Change Strategy 2012	Mitigation and adaptation	n/a
Thailand	Master Plan on Climate Change (2013–2050)	Mitigation and adaptation	Outlines short, medium and long term measures to address mitigation, adaptation and crosscutting issues. Refers to ecosystem-based adaption, community participation and promotes the rights of community forest groups.
	The National Strategy for Climate Change Mitigation (2008–2012)	Mitigation	Outlined an initial framework for measures to reduce emissions from deforestation and degradation.
	11 th National Economic and Social Development Plan (2011–2015)	Mitigation and adaptation	<ul style="list-style-type: none"> Identifies climate change as a risk to natural resources, including forests, biodiversity, coastal resources and wetlands. Proposes development of a GHG registry, a carbon fund and an MRV system. Emphasizes role of communities in planning and decision-making on natural resource management.
	Thailand's National Adaptation Plan	Adaptation	Under development
	National Forestry Policy (1985)	Mitigation	Maintain and expand national forest cover to 40% of the country's land area, made up of 25% protected forest and 15% production forest.

Viet Nam	National Target Program on Climate Change	Adaption and mitigation	None
	National Climate Change Strategy	Adaption and mitigation	Increase forest cover to 16 mha or 47% by 2020. Enhance community capacity for adaptation.
	Action Plan for Adaption and Mitigation in Agriculture and Rural Development	Adaption and mitigation	Increase forest cover to 16 mha or 47% by 2020. Planting trees to protect dyke systems.
	Socio-Economic Development Plan (SEDP) for 2011–2015	Adaption and mitigation	Increase in forest cover to 47% by 2020. Emphasize response to sea-level rise and vulnerability of low-lying coastal regions.
	National Green Growth Strategy	Mitigation	<ul style="list-style-type: none"> Accelerate afforestation and reforestation and promote investment to increase forest cover to 45% by 2020. Improve forest quality, enhance carbon sequestration capacity by forests and increase standing biomass and secure timber production and consumption. Implement programmes to reduce GHG emissions through REDD+, SFM and in conjunction with diversifying livelihoods of rural people.
	National REDD+ Action Program, 2012	Mitigation	<ul style="list-style-type: none"> For the period 2011–2015, develop and operationalize pilot mechanisms, policies, organizational systems and technical capacity to ensure effective management, coordination and operation of REDD+. For the period 2016–2020, ensure effective management, coordination and operation of projects and activities under the National REDD+ Action Program; reduce emissions through REDD+; increase sequestration by forests; contribute to achieve target of 20% emission reduction in the agricultural sector by 2020; sustainable management and development of forest resources; increase national forest cover to 44–45%; conservation of biodiversity; and diversification and improvement of livelihoods.
	Law on Natural Disaster Prevention and Control, 2013	Adaptation	Prohibits activities that increase the risk of natural disasters, especially cutting down protection forests.

4.4 Intended Nationally Determined Contributions (INDCs)

In connection with the UNFCCC Conference of Parties (COP) in Paris in 2015, each Party to the Convention has set out medium-term targets on mitigation and adaptation, called Intended Nationally Determined Contributions (INDCs), in line with their national development priorities. The commitments outlined in the INDCs are an important starting point in global efforts to reduce the impacts of climate change but currently not sufficient to keep global temperature increases below the 2 °C threshold.

The INDCs of six AMS, Brunei Darussalam, Cambodia, Lao PDR, Myanmar, the Philippines and Viet Nam, specifically include pledges and emissions reduction targets related to their forestry sectors. Indonesia's INDC specifically mentions social forestry as a mechanism for sustainable forest management to reduce emissions. Indonesia, Myanmar and Thailand include social forestry as part of their priorities for adaptation to enhance the resilience of ecosystems to climate change. The INDC commitments of the ASEAN Member States on adaptation and mitigation are outlined in Table 8.

Table 8: Intended Nationally Determined Contributions

Country	Forests for mitigation	Key pledges	Forests for adaptation
Brunei Darussalam	✓	✓	<ul style="list-style-type: none"> Reduce total energy consumption by 63% compared to business as usual (BAU) scenario and increase power generation from renewables to 10% by 2035. Reduce CO₂ emissions by 40% by 2035 compared to the BAU scenario. Increase gazetted forest reserves from 41% of the total land area to 55%. Forest protection for flood prevention, slope stabilization and supporting fresh water supply.
Cambodia	✓	x	<ul style="list-style-type: none"> Reduce emissions to 3,100 GgCO₂eq by 2030, compared to baseline emissions of 11,600 GgCO₂eq (RGC, 2015). Increase forest cover to 60% by 2030 (4.7 tCO₂e/ha/year). Reclassify 2 million ha of forest as community forest as part of measures to reduce emissions in the forest sector.
Indonesia	✓	✓	<ul style="list-style-type: none"> Reduce GHG emissions to 26% by 2030 (BAU) and by up to 41% with international assistance. Refers to moratorium on new forest clearance permits in primary forests and peat soils, strengthening forest protection and reducing deforestation and forest degradation. Includes social forestry as a part of sustainable forest management to achieve emissions reduction targets and support the resilience of ecosystems and landscapes.
Lao PDR	✓	✓	<ul style="list-style-type: none"> Increase forest cover to 70% of land area (16.58 million ha) by 2020 = emissions reduction of 60,000–69,000 ktCO₂e (by 2020). Increase the share of renewable energy to 30% of energy consumption by 2025 = 1,468,000 ktCO₂e by 2025. Rural electrification program = 63 ktCO₂/pa (by 2020). Improve road network and public transport = 33 ktCO₂/pa and 158 ktCO₂/pa respectively. Hydropower development = 16,284 ktCO₂ per year (2020–30). Recognizes that forestry-based actions will provide co-benefits for mitigation and adaptation, i.e. increasing carbon sinks, helping to prevent flooding, soil erosion and landslides and protecting biodiversity and ecosystem services. Refers to the Forestry Strategy to 2020 objectives, including sustainable community forest management for mitigation and poverty reduction.
Malaysia	x	x	<ul style="list-style-type: none"> Reduce GHG emissions intensity of GDP by 35% by 2030, relative to 2005, or up to 45% with international assistance.
Myanmar	✓	✓	<ul style="list-style-type: none"> Increase the area of Reserved Forest and Protected Public Forest to 30% of total land area; and Protected Area Systems to 10% of total land area. Preserve natural forest cover and reduce deforestation to maintain the mitigation contribution from the forest sector. Increase capacity for sustainable forest management. Increase resilience of mangroves. Low carbon energy development. Current and planned adaptation efforts include restoring degraded and sensitive forest areas through community-based reforestation.
Philippines	✓	✓	<ul style="list-style-type: none"> Reduce GHG emissions by around 70% by 2030, relative to its BAU scenario of 2000–2030, conditional on receipt of external finance and technical assistance. Recognizes that forests contribute to both adaptation and mitigation, but specific actions in the forest sector are not outlined in detail.
Singapore	x	x	<ul style="list-style-type: none"> Reduce emissions intensity by 36% by 2030 from 2005 levels through domestic efforts. Stabilize emissions to peak around 2030.

Thailand	x	✓	<ul style="list-style-type: none"> Reduce GHG emissions by 20% from the projected BAU scenario by 2030 and by up to 25% with international assistance. Adaptation efforts include sustainable management of community forests to promote food security at the community level. Increase forest cover to 40% through local community participation, especially in headwater and mangrove forests, to enhance adaptive capacities of related ecosystems.
Viet Nam	✓	x	<ul style="list-style-type: none"> Reduce GHG emissions by 8% from the projected BAU scenario by 2030 and by up to 25% with international assistance. Increase forest cover to 45% Mentions community-based adaptation and utilizing indigenous knowledge.

4.5 The role of social forestry in mitigation and adaptation

Social forestry is already playing a role in the response to climate change in the ASEAN region. Case studies show that social forestry and forest-based communities are contributing to practical initiatives that support mitigation and build resilience at community level. These include:

- supporting the implementation of national reforestation programmes;
- community-based initiatives to reduce deforestation and forest degradation;
- collaborative efforts to manage and reduce the spread of forest fires;
- community-based initiatives to restore mangrove forests to enhance their protective functions;
- measuring and monitoring of forest carbon stocks; and
- contributions to more diverse livelihoods, increased food security and income generation.

The governments of Myanmar, Thailand and Viet Nam are implementing large-scale national reforestation programmes with the aim of reducing deforestation and land degradation. These programmes seek to engage community forest managers in tree planting and forest protection activities. Although their main objectives are to restore degraded forests, produce raw materials and strengthen rural livelihoods, they also contribute to climate change mitigation by sequestering and storing carbon. For example, in Thailand, the Royal Forest Department (RFD) has distributed between 50–150 million tree seedlings a year since 2011 to urban and community forest areas for enrichment planting (Karam *et al.*, 2012). By encouraging communities to plant drought-tolerant species and food-producing species, the initiative also helps to build resilience at the local level (RECOFTC, 2014). Viet Nam's Five Million Hectare Program (see Box 4) allocated forest management contracts to households and communities for tree planting in production forests, and other planting, protection and regeneration activities in protection forests. In this way, social forestry has played a role in increasing Viet Nam's forest cover (FAO and RECOFTC, 2016), although planted forests, especially monocultures, cannot fully replace the environmental and ecological functions of natural forests.

Box 4: Reforestation programmes in Viet Nam

In the 1990s, Viet Nam initiated two major forest restoration programmes. Programme 327 (Greening Barren Hills Programme) rehabilitated open lands, barren hills and protected existing forests to promote natural regeneration. This resulted in around 400,000 ha of new plantations and 300,000 ha of regenerated forests. Between 1998 and 2010 Program 661 (5 Million Hectare Reforestation Programme) restored around 1.2 million ha of Protection and Special-Use Forests, plus 0.5 million ha of Production Forest plantations (FAO and RECOFTC, 2016). As a result, forest cover increased from 28 percent in 1995, to 37 percent in 2005, and had reached 40 percent by 2012 (VNFOREST, 2015).

A key reason for the success of Viet Nam's reforestation programmes is the emphasis on the participation of local people and their involvement in planning and restoration work. The programmes also generated additional benefits in the form of training in restoration techniques, cash income and stable prices for wood.

The programmes were preceded by the re-organization of the state forest enterprises and the reclassification of forests into conservation (special-use), protection and production categories. This allowed land to be allocated to households and individuals for sustainable forest production. Overall, Viet Nam has been able to move towards greater participation of local people in forestry, increase its plantation area, and strengthen its timber-processing industries. In the process, forestry has become an important economic sector that contributes to employment, livelihood improvement and poverty reduction.

Source: FAO and RECOFTC, 2016

Forest degradation and deforestation tend to be the result of different processes (Skutsch and McCall, 2012). Deforestation is often driven by external economic or political forces, such as demand for land to develop agricultural plantations, infrastructure or resource extraction projects. These forces can be difficult for social forestry to resist. For example, in Oddar Meanchey in Cambodia, communities have been unable to prevent military operations close to the Thai border encroaching on community forest lands (Lang, 2016; Yeang and Brewster, 2012). The main cause of forest degradation tends to be unsustainable harvesting for local subsistence use. When the management of this process is improved and sustainable harvesting practices adopted through social and community forestry, it tends to produce improvements in forest quality and carbon stocks. Therefore, social forestry approaches appear to be more successful in reducing forest degradation and enhancing carbon stocks, than in reducing deforestation (Skutsch and McCall, 2012).

Box 5: Experiences from REDD+ in Cambodia

There are at least three ongoing REDD+ projects in Cambodia in Oddar Meanchey, Monduliri and Kampong Thom. These projects are working with around 50 forest communities to secure land titles and protect and manage the community forests. The projects are estimated to generate a combined total of 30 mtCO₂e of emissions reductions during their lifetimes (see Section 5.1).

So far, the projects have seen mixed results. The Oddar Meanchey project has suffered setbacks including ongoing encroachment into community forest areas, local conflicts, limited benefits for local communities, and inability to generate sufficient funding from the sale of carbon credits (Lang, 2016; Yeang and Brewster, 2012). The REDD+ project in the Keo-Seima Wildlife Sanctuary in Monduliri province has been able to support at least six indigenous communities obtain communal titles for their forest lands, though has also been beset by numerous challenges, including illegal logging in the area (RECOFTC, 2016d). In 2016, the Walt Disney Company purchased US\$2.6 million in carbon credits (representing 360,000 tonnes of carbon) from the project. This is the largest sale of carbon credits in Cambodia to date. The majority of funds from the sale are expected to be used for on-the-ground activities to prevent illegal logging, deforestation and encroachment and encourage sustainable forest management practices (Phnom Penh Post, 2016a).

Various projects in the region are developing and demonstrating the capacity of local communities to manage and monitor carbon stocks in their community forests, with the aim of facilitating low-cost locally-based carbon monitoring, reporting and verification (MRV) activities. Projects and studies carried out in Indonesia, Lao PDR, Thailand and Viet Nam have demonstrated that local communities can measure carbon stocks proficiently. However, as of April 2013, only six out of a total of 50 carbon projects validated by the Climate, Community and Biodiversity Alliance²⁰ in Southeast Asia were found to be actively involving local stakeholders in monitoring of forest biomass, biodiversity, and livelihoods (Danielsen *et al.*, 2013).

Box 6: Community collaboration for fire prevention and control, Mae Khan watershed, northern Thailand

The Mae Khan sub-watershed is part of the Ping basin, one of six major river systems that flow through northern Thailand. The area is inhabited by Hmong, Karen, Lisu and Thai ethnic groups. Each group has its own well-established system of forest protection and management and has used traditional knowledge to manage fire as part of rotational cultivation systems for generations. However, in the early 1990s, fire started to become a problem, spreading from one village to another, damaging settlements and forest areas. In response, the communities in the area came together, with support from the local government administration (TAO), the RFD and local NGOs, to form a collaborative fire protection network to protect the forests in the watershed.

The network has an annual meeting and develops a fire protection schedule for each village. Local villagers maintain firebreaks around forest areas to prevent the spread of fire. The firebreaks are 5–10 m wide and cover a total distance of 26 km in three districts. They are maintained using voluntary community labour with modest funding from the TAO to provide equipment. The network has been successful in preventing the spread of forest fires in the area, even though villagers report that the outbreak of fires in the province has increased over the last ten years. Forest patrolling and tree planting activities are also carried out, and other natural resource management issues, such as conflicts between the different communities over land rights and upstream pesticide use, are gradually being resolved.

Source: ESSC, 2009 and ASFN Learning Group site visit, 2013.

20 Climate, Community and Biodiversity Alliance is a partnership of international NGOs that developed the Climate, Community and Biodiversity Standards (CCB Standards) to evaluate land management projects, such as REDD+. <http://www.climate-standards.org>.

4.6 Joint mitigation and adaptation through social forestry

For a long time, climate change mitigation and adaptation have been considered very distinct and separate activities; mitigation aims to reduce the level of GHGs in the atmosphere, while adaptation aims to reduce vulnerability and respond to the impacts of climate change. Until quite recently, trade-offs between the two approaches were anticipated, and there was concern that focusing on adaptation would derail efforts on mitigation (RECOFTC, 2016c). Given the urgent nature of the climate change challenge and the rising concentration of atmospheric CO₂, there is a growing recognition that adaptation and mitigation must be addressed simultaneously and synergies between the two approaches be identified.

Article 5 of the Paris Agreement encourages joint mitigation and adaptation approaches for the integral and sustainable management of forests and its associated non-carbon benefits (UNFCCC, 2015). Social forestry approaches have huge potential to link mitigation and adaptation efforts. Healthy and sustainably managed forests generate multiple benefits. These include carbon sequestration and storage (mitigation) and the protection of ecosystem services that support adaptation, such as biodiversity conservation and regulation of hydrological flows. By providing timber, forest foods and other products that can be used, consumed or sold for income, forests also provide a safety net when agricultural livelihoods are affected by drought, floods, storms or other events (Seymour, no date).

Community-based mangrove restoration is a clear example of how social forestry can contribute to both mitigation and adaptation goals. Not only do healthy mangrove ecosystems store large amounts of carbon, but they also provide a degree of physical protection to coastal communities from tropical storms and strong waves, and support diverse coastal livelihoods, through provision of fish, crabs, shrimp and other products. There are a number of such projects taking place in Myanmar, Thailand and Viet Nam, supported by various organizations. These initiatives are simultaneously contributing to national mitigation targets and helping to build climate-resilience at community level (RECOFTC, 2014b; RECOFTC, 2014c).

Box 7: Joint mitigation and adaptation through mangrove restoration in Myanmar

A three-year research project has been implemented by the Worldview International Foundation, in collaboration with Patheingyi University, Myeik University and MoECaF/MoNREC, to establish a mangrove park on 728 ha of land in the Ayeyarwaddy Delta.

The project planted 450,000 mangrove trees by June 2015 and prevented the destruction of a further 550,000 trees. It aims to plant a further one million trees in 2016. The trees are expected to have a mitigation capacity of 2 mtCO₂ during their 20-year growth period. In addition, the park is now established as an important research centre with the first mangrove gene bank in the country, and is helping to protect offshore sea grass beds and coral reefs; and supporting a high level of biodiversity, including several endangered species.

Previously the main driver of mangrove destruction in the area was charcoal production by extremely poor families living at subsistence level. The project is undertaking practical efforts to introduce fuel-efficient stoves and other renewable energy sources, and pilot alternative livelihood approaches for charcoal producers. These include beekeeping, mini-aquaculture projects, production of sugar from nipa palm (a common mangrove species), orchid growing and producing natural cloth dyes from the bark of mangrove trees.

This range of subsistence and income generating opportunities will help to increase the resilience of local livelihoods and enhance the ability of local people to adapt to climate change, as well as providing them with incentives to protect the mangrove forest for the future. The newly planted mangrove trees will contribute to national mitigation targets through carbon sequestration and provide nearby communities with protection from future cyclones.

Source: Worldview International Foundation, 2015

Other examples of joint mitigation and adaptation benefits include a Raks Thai Foundation project in northern Thailand. The project developed a range of adaptation and mitigation models for the local community, including an improved system of terraced rice farming and distribution of fuel-efficient stoves to reduce wood consumption, with the aim of demonstrating that climate change adaptation and mitigation can and should be considered together (RECOFTC, 2014b).

4.7 Challenges

Social forestry has enormous potential to contribute to both climate change mitigation and adaptation. However, a number of issues currently limit the extent it is able to do so. While the joint contribution it can make to mitigation and adaptation efforts is being increasingly recognized in international agreements and practiced at local level, social or community forestry is not a prominent feature in national climate change strategies in the AMS (see Table 7). As a result, social forestry is not receiving the attention it deserves, given its ability to advance both the climate change mitigation, adaptation and sustainable development agendas.

In some countries, specifically Thailand and Myanmar, the legal framework for social forestry is relatively weak. In most cases, the process to allocate land rights to local people is extremely complicated, overly bureaucratic, time-consuming and expensive. As a result, the expansion of social forestry in the AMS is proceeding very slowly (see Table 3). Unless these processes can be streamlined and accelerated, national targets for allocation of forest land to communities may not be achieved and the benefits provided by social forestry will be limited.

Often, the forests allocated to local people as community forests are severely degraded (FAO, 2016b). It can take a number of years for the forests to regenerate sufficiently to provide a level of forest products that can benefit local communities (Broadhead and Izquierdo, 2010; FAO, 2016b; RECOFTC, 2013). Local people do not always receive adequate compensation for their participation in forest restoration or forest protection activities. For example, villagers participating in the Oddar Meanchey REDD+ project area are reported to have received little or no financial payment or other benefits for their work to protect and patrol their community forests (Lang, 2016). In some cases, the extent of meaningful participation in forest management has been limited, with local people considered as forest laborers, rather than as active participants in forest planning, management and decision-making processes (Maryudi, 2012; RECOFTC, 2013).

These challenges will need to be addressed in order for social forestry to be scaled up and implemented effectively. If this can be achieved, social forestry has immense potential to contribute to both sustainable forest management, poverty reduction and the sustainable development goals, as well as climate change mitigation and adaptation agendas.

5. Country summaries

5.1 Cambodia

Total population	15,328,136 in 2014	
Rural population	12,183,722 in 2014	79% of total population
Total country area	18,160,674 ha	
Total land area (excluding inland water bodies)	17,652,000 ha	
Total forest land	10,432,823 ha	
Forest cover	8,985,901 ha in 2014	49.48% of total country area 50.9% of total land area
Permanent Forest Reserve (PFR) (total)	7,332,823 ha	70% of total forest land
Production forests (in PFR)	5,770,346 ha	55% of total forest land
Protection forests (in PFR)	1,562,477 ha	15% of total forest land
Protected forests (in Protected Areas)	3,100,000 ha	30% of total forest land
Forest cover change	-344,472 ha per year (3.32%) between 2010–2014	
Carbon stocks	793 mmt in 2015	
Community-managed forests (with CFM agreement)	328 community forests covering 296,240 ha in 2015	
Community forestry policies and programmes	<ul style="list-style-type: none"> Community forestry under MAFF Community forestry for REDD+ Community-based production forest Community commercial forestry Community fisheries under the MAFF Fisheries Administration Community protected areas under the Ministry of Environment Community conservation forestry in protected forest reserves 	
Climate change mitigation and adaptation policies and programmes	<ul style="list-style-type: none"> Climate Change Strategic Plan (CCCSP) 2014–2023 NAPA Draft National REDD+ Strategy UN-REDD, FCPF and CAM-REDD 35 REDD+ demonstration activities and 13 projects under the Community Based REDD+ Small Grants Facility 5 pilot projects under FA–Cambodia Climate Change Alliance project 	

Sources: Cambodia Country Report to the 16th ASFN meeting, the Philippines, June 2016; FAO, 2015b.

National forest definition and classification

Cambodia's definition of forest is an area of trees with a height of more than 5 m, a minimum canopy of 10 percent, covering an area greater than 0.5 ha. Forest in Cambodia is classified into Protected Areas (PA) and the Permanent Forest Reserve (PFR), which is made up of protection and production forests. Production forests are further categorized into economic land concessions (ELCs), forest concessions and conversion forests.

In June 2016, the Royal Government of Cambodia (RGC) changed the jurisdiction and management of protection forests, production forests and ELCs from the Ministry of Agriculture, Forestry and Fisheries (MAFF) to the Ministry of Environment (MoE) (WCS, 2016). Prior to June 2016, forest resources were under the jurisdiction of MAFF, while Protected Areas (PAs) were managed by the MoE.

Table 9: Forest classification in Cambodia

Forest categories	Sub-categories	Area (ha)
Permanent Forest Reserve	Protection forests	1,562,477
	Production (ELCs, forest concessions and conversion forests)	5,770,346
Protected Area	Protected forest areas	3,100,000
Total forest land²¹		10,432,823

Analysis of forest data: changes and trends

The most recent official forest cover assessment was carried out by the RGC in 2010. It found that forest cover was 10,363,789 ha or 57 percent of the country area (59 percent of the total land area) (Forestry Administration, 2011b).

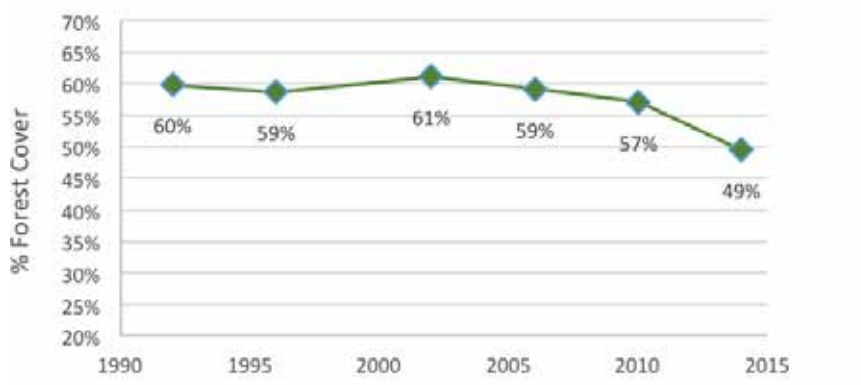
Table 10: Results of 2010 Cambodia forest cover assessment

Forest types	Area (ha)
Evergreen forest	3,499,185
Semi-evergreen forest	1,274,789
Deciduous forest	4,481,214
Other forest types	1,108,600
Total forest areas	10,363,789

Forest cover has been gradually decreasing from 61 percent in 2002 to 57 percent in 2010, as shown in Figure 6. New data suggests that by 2014 forest cover had fallen to 49.48 percent or 8,985,901 ha (Forestry Administration, 2016). This represents a loss of more than 1.3 million ha or 7.5 percent of forest cover between 2010 and 2014, an average of 344,472 ha (or 3.32 percent) per year. The rate of deforestation appears to have increased in recent years. Analysis of satellite imagery carried out by organizations such as Global Forest Watch and Open Development Cambodia supports these findings, although it should be noted that the data has not been verified through ground-truthing. According to FAO data, the country's forests contained an estimated 793 mmt of carbon in 2015²² (FAO, 2015b).

21 There are also 647,406 ha of flooded forests and mangrove forests that are under the jurisdiction of the Fisheries Administration.
22 The FAO Global Forest Resource Assessment 2015 estimates that forest cover was 9,457,000 ha in 2015.

Figure 6: Forest cover in Cambodia, 1992–2014



Source: Forestry Administration, 2016.

Social forestry policies and programmes

Social forestry in Cambodia is guided by the 2000 National Community Forestry Strategic Plan, the 2002 National Forestry Policy, the 2002 Forestry Law, which provides the legal basis for community management and customary use of production forests in the Permanent Forest Reserves (PFR), and the 2003 Sub-Decree on Community Forestry. In 2006, the Ministry of Agriculture, Forestry and Fisheries (MAFF) issued community forestry guidelines to clarify the processes for determining, legalizing and managing community forests.

A number of social forestry models have been developed, of which the main approach is community forestry (CF) in production forests under the jurisdiction of MAFF (Blomley *et al.*, 2010). Community forests can be established for the purposes of sustainable forest management, protection and development, customary use and extraction of timber and NTFPs for domestic use. Renewable community forestry agreements between the Forestry Administration (FA) Cantonment and the Community Forestry Management Committee grant tenure to communities for 15 years (MAFF, 2006).

In 2008, the Protected Area Management Law recognized traditional forest uses by local communities and permitted establishment of Community-Protected Areas (CPAs) in special zones within the PAs administered by the MoE (RGC, 2012). The community may collect NTFPs from a sustainable-use zone established within the PA, but the regulations for managing CPAs are stricter than for CFs. CPA agreements are also valid for 15 years. At present, community forestry does not take place in protected forests in the PFR although local people do have customary rights to collect some forest products for domestic use (RGC, 2002; Oberndorf, 2010).

The National Forest Program (NFP) 2010–2029 aims to achieve nine strategic objectives through six priority programmes, including forest demarcation, classification and registration, and community forestry. The NFP recognizes the need to expand the legal framework to enable community forestry in a wider range of situations, including community conservation forestry in protected forests, partnership forestry and community-based production forestry (MAFF, 2010).

The right to indigenous communal land titles was first provided by the Land Law (2001), and the enabling Sub-Decree was eventually passed in 2009 (Evans, 2011). The first communal land titles were issued in December 2011 and by 2013; at least eight villages in the country had received communal land titles (NORAD, 2014).

Status of community forestry in Cambodia

As of 2015, a total of 499 community forests have been established with a combined area of 417,636 ha. Of these, 328 have formal CF agreements in place, officially placing 296,240 ha under community management. As shown in Table 11, the number of CF sites officially approved by MAFF and covered by CF agreements has been steadily increasing since 2010. However, as of 2015, only 50 CFs with a combined area of 24,308 ha had management plans in place²³ (Forestry Administration, 2016). Only 16 CF management plans (CFMP) had been approved by the FA as of September 2015 (Gritten *et al.*, 2015).

Table 11: Status of community forests in Cambodia in 2010, 2012 and 2015

Status	2010		2012		2015	
	Number	Area (ha)	Number	Area (ha)	Number	Area (ha)
CF site established	420	399,798	457	400,167	499	417,636
Approved CF sites	128	145,543	287	249,141	401	338,317
Approved CF agreements	94	113,544	229	183,725	328	296,240
Management plans	n/a	n/a	n/a	n/a	50	24,308

Sources: Blomley *et al.* 2010; RECOFTC unpublished data 2016 and Forestry Administration, 2016.

By 2029, the government plans to allocate 2 million ha of forest land to approximately 1,000 communities through official CF agreements (MAFF, 2010). To achieve the target, the FA aims to legalize 20 CFs per year, and approve 20 CF agreements and 20 CF management plans every year (Forestry Administration, 2016). As of 2015, 15 percent of the target area had been achieved. The processes for establishing and approving CF sites may need to be expedited in order to achieve the 2029 target.

The MoE planned to approve 140 Community Protected Area (CPA) agreements by 2015 (Johnsen and Munford, 2012). In 2013, there were 120 CPA sites covering 124,480 ha, but only four of these sites, covering 8,805 ha, had been officially approved (RECOFTC unpublished data, 2016). As of April 2016, there were at least 11 formally established CPA sites, five of which have officially approved management plans.²⁴

Climate change impacts

Cambodia is one of the most climate-vulnerable countries in the world, mainly due to its geography, its status as a Least Developed Country (LDC), its reliance on agriculture and natural resources, and its low adaptive capacity, including limited financial, technical and human resources. Over the past decade, Cambodia has experienced more frequent and severe floods, droughts and storms presenting significant challenges to the country's socio-economic development (RGC, 2015). The mean annual temperature has increased by 0.8 °C since 1960, particularly in the dry season. The frequency of hot days and hot nights has increased significantly, while cold days and nights have decreased (McSweeney *et al.*, 2008). Projections indicate that temperatures will continue to rise, increasing by between 0.7 to 2.7 °C by 2060.

The rainy season arrived late in both 2015 and 2016. In 2016, the country experienced record high temperatures and its most severe drought in decades, causing water shortages and affecting agriculture, fisheries and livelihoods in 18 of the country's 24 provinces. There was an increase in forest fires, most notably in the flooded forests around the Tonle Sap lake, where a combination of natural and man-made causes (such as the building of dams upstream and the use of fire for land clearance) caused forest fires that destroyed approximately 230,000 ha of flooded forests (Phnom Penh Post, 2016b).

²³ It is unclear in source material if these management plans are officially approved.

²⁴ In April 2016, the MoE approved five CPA management plans. The CPAs were supported by a three-year UNDP-GEF funded project implemented by RECOFTC and the Mlup Baitong organization. The project supported 11 CPA sites in four provinces and provided technical support and training to support CPA management committees, commune councils and village chiefs in institutional strengthening, participatory resource assessment, forest inventory, management and business plan development. The remaining six CPAs are expected to receive official approval soon. RECOFTC. 2016. [Website]. (available at <http://www.recoftc.org/news-and-features/cambodian-ministry-environment-awards-forest-dependent-communities-long-term>). Accessed 31 October 2016.

Climate change mitigation and adaptation policies and targets

Cambodia's emissions are low in comparison with other countries. GHG emissions for 2012 were estimated at 49 MtCO₂, of which almost half (47 percent) derived from the land-use change and forestry sector (CAIT Climate Data Explorer, 2015). In its INDC, Cambodia outlined potential actions to achieve a maximum reduction of 3,100 Gg by 2030, compared to baseline emissions of 11,600 Gg CO₂eq (RGC, 2015).

Efforts have been made to mainstream climate change into national and sub-national planning, such as the Cambodia Climate Change Strategic Plan (CCCSP) 2014–2023 and associated ministerial-level action plans. These plans outline the country's adaptation needs and provide roadmaps for de-carbonization of key economic sectors and the enhancement of carbon sinks. Cambodia has also developed a Green Growth Policy and Roadmap to stimulate the economy through low carbon options, creating jobs, protecting vulnerable groups and improving environmental sustainability.

Adaptation will be needed to sustain forests and other natural resources for the purposes of production, livelihoods and provision of ecosystem services. Cambodia is prioritizing adaptation actions that also have mitigation benefits, such as restoring the natural ecology system to respond to climate change, especially through community-based adaptation and implementing management measures that help protected areas adapt to climate change (RGC, 2015). Cambodia's NAPA proposed 39 projects, of which 20 were high priority. Latest data available from the UNFCCC indicates that four projects are being implemented under the Least Developed Country Fund (LDCF) at a cost of around US\$56 million (see Annex 4). These projects focus on water resource management, building resilience of vulnerable communities and increasing food security. There appears to be limited focus on community forestry.

Forests and social forestry in climate change mitigation and adaptation

Cambodia intends to undertake voluntary and conditional actions to increase forest cover from 57 percent of the land area in 2010, to 60 percent of the land area by 2030. Forest areas will be reclassified with the aim of reducing deforestation, including 2 million ha of community forests and 300,000 ha of concession areas that will be reclassified as protection and production forests. Cambodia plans to engage with the EU Forest Law Enforcement Governance and Trade (FLEGT) Action Plan to improve forest governance and promote legal trade in verified timber. It is estimated that these various activities could result in a combined emissions reduction of 4.7 t CO₂eq/ha/year²⁵ (RGC, 2015).

The CCCSP recognizes the need for community-based approaches, such as payments for ecosystem services and participatory land-use planning, in strategies to ensure climate resilience of critical ecosystems, biodiversity, protected areas and cultural heritage sites (RGC, 2013). This is reflected in the NFP target to increase the area of community forests to 2 million ha by 2030.

Cambodia's UN-REDD Programme concluded in 2015. Cambodia's National REDD+ Strategy is being implemented in three phases. The Readiness Phase concluded in 2015. The current Implementation Phase will run from 2016 to 2020, and the Performance Based Payment Phase will commence in 2021 (REDD+ Cambodia, 2014). Cambodia is in the process of developing its draft National REDD+ Strategy. A series of consultations on the draft were conducted in 2015. There are three voluntary REDD+ projects taking place in the country; in Oddar Meanchey, the Keo-Seima Wildlife Sanctuary²⁶ in Monduliri, and the Cambodia-Korea Tumring-REDD+ Project. Together these projects work with 50 forest communities, cover 300,856 ha of forests and are projected to generate combined emissions reductions of around 30 mtCO₂e over the lifetime of the projects (see Table 12). In June 2016, the Walt Disney Company purchased 360,000 tonnes of carbon credits valued at US\$2.6 million from the Keo-Seima Wildlife Sanctuary in a bid to offset its global carbon footprint (Phnom Penh Post, 2016a).

Table 12: Summary of voluntary REDD+ projects in Cambodia

Project	Area (ha)	Communities	Estimated emissions reduction
Oddar Meanchey Community Forest	63,831	13 community forests	8.2 million tCO ₂ e over 30 years
Keo-Seima Wildlife Sanctuary	166,983	20 villages	14 million tCO ₂ e over 10 years
Cambodia-Korea - Tumring	70,042	14 community forests 17 villages	8–9 million tCO ₂ e over 30 years

Cambodia is benefiting from the Community-Based REDD+ (CBR+) programme that provides small grants to communities and indigenous peoples for REDD+ readiness activities. To date 13 projects have been initiated to support community forest management committees, conserve and restore community forests, support communities to acquire land titles for forest areas they manage, and promote alternative livelihoods to reduce deforestation. More than 90 NGOs and local communities have received training on REDD+. Lessons learned from CBR+ projects will inform the development of a national REDD+ action plan (UN-REDD, 2015).

²⁵ No specific timeframe is given.

²⁶ Formerly the Seima Protection Forest.

Challenges and barriers

The process to legally establish a CF can be complicated, lengthy and expensive, and has a number of potential bottlenecks (Blomley *et al.*, 2010). The number of CF sites being established has created a backlog of applications waiting for approval at the national level. The 2003 Sub-Decree on Community Forest Management states that CF agreements may be terminated prior to the expiration date if the government decides that an alternative land use can provide a higher social and public benefit. This creates a level of insecurity even when an officially approved CF agreement is in place (Gritten *et al.*, 2015).

The forests allocated to communities are often highly degraded and may not provide additional livelihood benefits for a number of years (Broadhead and Izquierdo, 2010). Moreover, communities are not permitted to harvest timber for commercial purposes until five years after the approval of their CFMP²⁷ (Gritten *et al.*, 2015). In general, communities have insufficient knowledge and capability to develop a CFMP and require substantial training and technical support from external organizations. The technical and financial capacity of national and local government staff to review and verify the CFMP is also limited (Gritten *et al.*, 2015). These factors constrain the expansion and the effectiveness of the community forestry programme in Cambodia, and limit the contribution it can make to sustainable forest management, climate change mitigation, livelihoods improvements and building resilience to climate change at local level.

5.2 Indonesia

Total population	254,454,778 in 2014	
Rural population	119,586,112 in 2010	47% of total population
Total country area	190,457,000 ha	
Total land area (excluding inland water bodies)	181,156,900 ha	
Total forest land	129,425,443 ha	71% total land area
Forest cover	98,072,700 ha in 2012	54% of total land area
		75% of forest land
Production forest (limited, convertible & production)	72,109,280 ha	56% of total forest land
Protection forests (soil and water conservation)	29,917,582 ha	23% of total forest land
Protected forests (sanctuaries and nature conservation)	27,453,000 ha	21% of total forest land
Forest cover change	613,480.70 ha (-0.62%) in 2011–2012	
Total forest carbon	12,488 mmt in 2015	
Community managed forests (with CFM agreement)	642,646 ha of social forests officially approved ²⁸ in 2013.	
Community forestry policies and programmes	<p>Hutan kemasyarakatan (HKm) (community forest)</p> <p>Hutan desa (HD) (village forest)</p> <p>Hutan tanaman rakyat (HTR) (community-based forest plantation)</p> <p>Kemitraan (partnership)</p> <p>Kawasan dengan tujuan istimewa (KDTI) (special purpose zones)</p> <p>Pengelolaan hutan bersama masyarakat (PHBM) (collaborative forest management with local communities)</p> <p>Model desa konservasi (conservation village model)</p> <p>Hutan rakyat (HR) (privately owned forest)</p> <p>Hutan adat (customary forest)</p> <p>Sistem hutan kerakyatan (SHK) (community-based forest system)</p>	
Climate change mitigation and adaptation policies and programmes	<p>National Action Plan Addressing Climate Change (RANPI) 2007</p> <p>Indonesia Climate Change Sectoral Roadmap (2010)</p> <p>National Action Plan for Reducing GHG Emissions (RAN-GRK) 2011</p> <p>National Action Plan on Climate Change Adaptation (RAN-API) 2013</p> <p>Partner Country in UN-REDD and FCPF</p> <p>National REDD+ Strategy (June 2012)</p>	

Sources: FAO 2015c, Ministry of Forestry Statistics 2013, published July 2014; Indonesia Demographic and Health Survey 2012; Statistics Indonesia; National Population and Family Planning Board, Ministry of Health

National forest definitions and classifications

In 2004 the Minister of Forestry Decree No 14/2004 on A/R CDM²⁹ defined forest as “land spanning more than 0.25 ha with trees higher than 5 m at maturity and a canopy cover of more than 30 percent or trees able to reach these thresholds in situ” (MoEF, 2015). This is the definition used in Indonesia’s Forest Reference Emissions Level (FREL).

According to the latest report published by the Ministry of Forestry (MoF)³⁰ there were 129,425,443 ha of ‘forest area’ (i.e. forest land) in 2013, 71 percent of the country’s total land area (MoF, 2014). Forest area is considered to be any area designated as permanent forest by the government and classified into conservation forests, protected forests, limited production forests, production forests and convertible production forests (Table 13).

Table 13: Indonesia forest classification and area

Forest status	Ha	% of forest area
Conservation forests	27,398,580	21%
Protection forests	29,917,583	23%
Limited production forests	27,686,675	21%
Production forests	28,897,172	22%
Convertible production forests	15,525,433	12%
Total forest land (forest area)	129,425,443	100%

Conservation forests are for the preservation of ecosystems and diversity of flora and fauna, and are sub-divided into wildlife sanctuaries and nature reserves; nature conservation areas (national parks), grand forest parks, nature recreation parks and game hunting parks. Protection forests have the principal functions of protecting systems to manage water, control erosion, prevent flooding and salt-water intrusion, and maintain soil fertility. Production forests are for the production of forest products, particularly timber, and consists of permanent production forests, limited production forests and convertible production forests.

Forest data: changes and trends

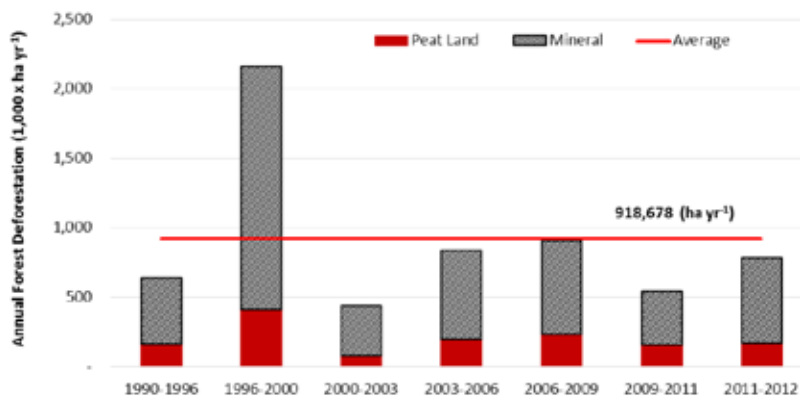
According to the MoF, actual forest cover in 2011/2012 was 98,072,700 ha, 54 percent of total land area (MoF, 2014). Total forest loss (inside and outside forest land area) for the same period was reported at 613,481 ha per year, or 0.63 percent. Deforestation during this period was greatest in Kalimantan, which accounted for almost 50 percent of the total forest loss (MoF, 2014). Annual forest loss for 2011/12 was slightly less than during 2009/10, when forest loss was reported at 832,127 ha or 0.89 percent (MoF, 2012).

Indonesia’s FREL estimates that the average rate of deforestation from 1990 to 2012 was 918,678 ha per year (MoEF, 2015) (see Figure 7). Most of the deforestation during this period occurred in secondary dryland forests, secondary swamp forests and in the islands of Sumatra and Kalimantan.

29 Afforestation and reforestation under the Clean Development Mechanism.

30 In October 2014, the Ministry of Environment (MoE) and Ministry of Forestry (MoF) merged into Ministry of Environment and Forestry (MoEF).

Figure 7: Indonesia levels of deforestation, 1990–2012

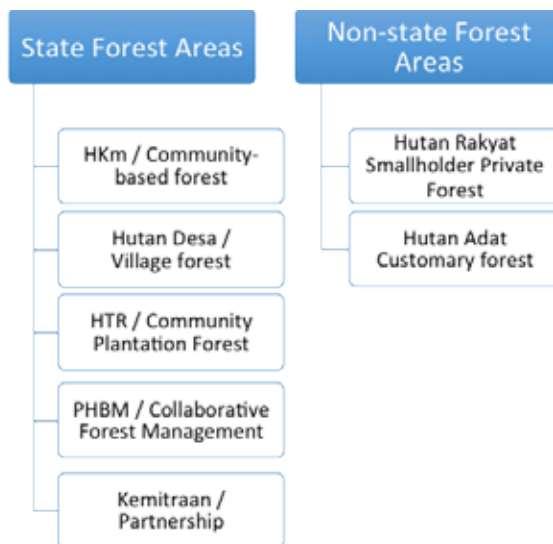


Source: MoEF, 2015.

Social forestry policies and programmes

Social forestry can be implemented on state and private forest land, and aims to promote sustainable forest management for economic and socio-cultural development, poverty reduction and capacity building of the community. There are a number of different models for social forestry in Indonesia, depending on the status of forest land and the objectives. The main social forestry models implemented on state forest land are *Hutan Kemasyarakatan* (community-based forestry) and *Hutan Desa* (village forestry), as well as *Hutan Tanaman Rakyat* (community-based plantations). Under these models, community forests can be established in both production and protection forests, although timber cannot be harvested from protection forests. The tenure period is 35 years and can be extended.

Figure 8: Social forestry in Indonesia



Source: Adapted from CIFOR, 2015

Table 14: Social forestry in state forests in Indonesia

	Hutan Kemasyarakatan (HKm) (Community-based forestry)		Hutan Desa (HD) (Village forests)		Hutan Tanaman Rakyat (HTR) (Community-based plantations)
Regulation	Permenhut No. P. 37/2007 and Permenhut No. 52/2001		Permenhut No. P.49/2008 and Permenhut No. 53/2001		Permenhut No. P. 55/2011
Forest type	Production forests	Protection forests	Production forests	Protection forests	Production forests
Duration	35 years. extendable.		35 years. extendable.		35 years. extendable.
Rights holders	Farmers groups		Village business organizations		Individuals and cooperatives
Main activities	NTFP and timber	NTFP	NTFP and timber	NTFP	Timber production and commercial food crops

Source: CIFOR, 2015

Status of social forestry in Indonesia

As of 2013/2014, at least 642,646 ha of social forests had been officially approved on state forest lands, involving 139,440 households and 517 villages. All of the 642,646 ha falls under *HKm* and *Hutan Desa (HD)* classification. Local people, encompassing 7,008 households and 5,278 villages, have unofficial rights to a further 2,617,383 ha of forest lands (RECOFTC, 2016a). Table 15 shows the land area covered under the main social forestry models in 2013/2014.

Table 15: Status of social forestry in Indonesia

Social forestry model (state lands)	Ha		No. of households
	Approved	Unofficial rights	Approved and unofficial
HKm (community forests)	328,452	85,500	77,555
HD (village forests)	314,194	67,737	61,885
HTR (community-based plantations)		193,054	7,008
Kemitraan (partnership)		54,867	n/a
PHBM Perhutani (collaborative forest management) ³¹		2,216,225	n/a
Total	642,646	2,617,383	146,448

Source: RECOFTC unpublished data 2016

There is also 4,822,299 ha of *Hutan Adat* (customary forest lands) that are considered to be non-state land, since a Constitutional Court ruling in 2013.

The MoF (now the MoEF) planned to place 2.5 million ha of forest land under *HKm* and *Hutan Desa* between 2010–2014, but only 642,600 ha (25 percent) were achieved during this period (RECOFTC unpublished data, 2016). In 2015, the MoEF set a new target of establishing 12.7 million ha of social forests between 2015 and 2019. Of this, 6.8 million ha are to be redistributed from concession forests (totalling 30 million ha) under *HTI* (industrial forest permits) and *HPH* (natural production concessions) in the form of *Hutan Kemitraan* (HK) partnership forests. The remaining 5.9 million ha will come from open-access production forests with no existing permits (unmanaged production forests) in the form of *Hutan Desa*, *HKm* or *Hutan Adat* (Jakarta Post, 2015).

³¹ PHBM (collaborative forest management) takes the form of a partnership between the State Forest Company and local farmers. There is a degree of uncertainty over whether it should rightly be regarded as a form of social forestry, due to the dominance of corporate interests. For more information, see Maryudi, 2012.

Climate change impacts

As an archipelago with a large extent of low-lying areas, Indonesia is highly vulnerable to the impacts of sea level rise, which is likely to impact lowland forests and agriculture through flooding, an increase in high waves and storm surges, and salinization of coastal aquifers (IFPRI, 2011).

Where data is available, it shows a warming trend over the period 1960 to 2010 (The Met Office, 2011). For example, in Sumatra and Borneo, there is a trend towards fewer cool nights and more warm days and nights. Rainfall records in East Java show an increase in the proportion of rainfall occurring during the wet season while the rainy season appears to be becoming shorter, suggesting that the intensity of rainfall is increasing, raising the risk of flooding in the monsoon season and drought in the dry season (The Met Office, 2011; IFPRI, 2011).

By 2030, Indonesia is predicted to see temperature increases of approximately 0.8 °C and a shorter rainy season. These climate variations are expected to reduce yields of key crops such as maize, lead to depleted marine fish stocks, and increase the risk of flooding and tropical cyclones (IFPRI, 2011).

Climate change mitigation and adaptation policies and targets

Indonesia is the world's fifth largest producer of GHG emissions, behind China, USA, India and the Russian Federation³² (CAIT Climate Data Explorer, 2015). In 2012, GHG emissions from the land-use and forestry sector were estimated at 61 percent (1,220.20 MtCO₂) of the country's total emissions (CAIT Climate Data Explorer, 2015). Indonesia's INDC estimates total GHG emissions at 1,800 MtCO₂e in 2005. Of this, 63 percent were considered the result of land-use change, forest and peat fires (Gol, 2015).

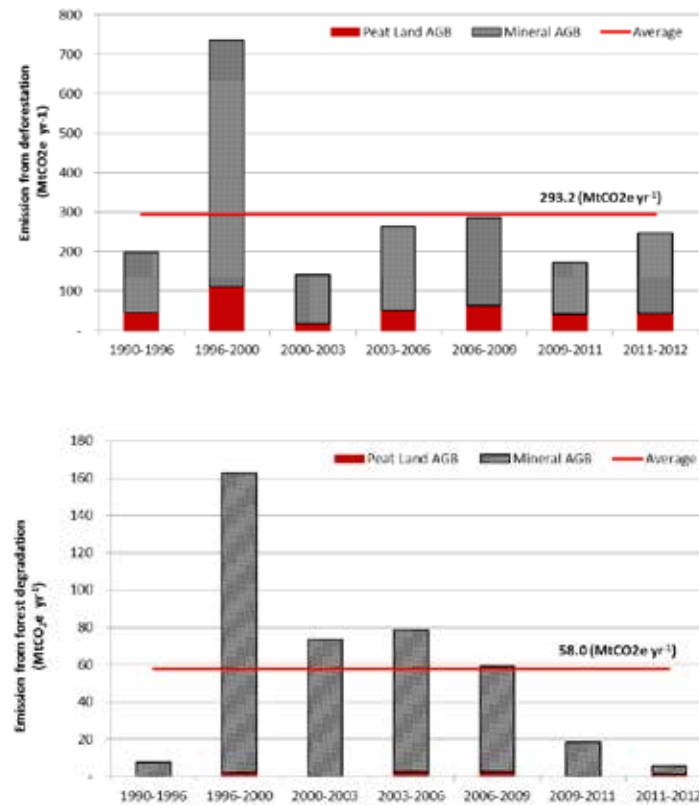
According to Indonesia's FREL, based on historical emissions during the period 1990–2012, average annual emissions from above-ground-biomass (AGB) were 293 MtCO₂e yr⁻¹ from deforestation, 58 MtCO₂e yr⁻¹ from forest degradation, plus an estimated 217 MtCO₂e yr⁻¹ from associated peat decomposition, making a total of 568 MtCO₂e yr⁻¹ (MoEF, 2015). Projected emissions from deforestation, forest degradation and associated peat decomposition for 2013 were 0.57 GtCO₂e³³. The high level of emissions during the period 1996–2000 (see Figure 9) is likely to relate to the extensive forest fires in 1997.

Responding to climate change is a top priority for Indonesia. In 2009, the government committed to reducing its carbon emissions by 26 percent by 2020 under its own efforts, and by up to 41 percent with international assistance. The national policy framework on climate change includes the National Action Plan for Reducing GHG Emissions (RAN-GRK) (2011) and the National Action Plan on Climate Change Adaptation (RAN-API) (2013). Indonesia's adaptation measures have put a high priority on issues related to sea-level rise, extreme weather and threats to ecosystems and biodiversity.

32 If emissions from LUCF are excluded, Indonesia is the 14th largest emitter of GHGs.

33 The FREL used a minimum canopy cover of 30 percent.

Figure 9: Historical emissions from deforestation and forest degradation in Indonesia, 1990–2012



Forests and social forestry in climate change mitigation and adaptation

The RAN-GRK contained 13 action plans in the forest sector for 2010–2014. These included increasing the area under social forestry (*HKm* and *Hutan Desa*) to 2.5 million ha across 25 provinces by 2014, as well as reducing forest fires, improving management of essential ecosystems, conserving protected forests, promoting forest plantation businesses and setting up business partnerships in 250,000 ha of people’s forest. It is not clear how these measures are monitored and how many of the targets associated with the action plans were reached.³⁴

Indonesia’s INDC specifically mentions social forestry as a component of SFM that will help achieve the 2020 emissions reduction target and also as a means to support the resilience of ecosystem services and landscapes (GoI, 2015). Reducing deforestation and forest degradation is included as a mechanism to increase resilience of Indonesia’s food and water systems. The INDC also includes tenure security as one of the foundations for a climate-resilient society, and plans to build social resilience through capacity development of the community to participate in local planning processes to ensure access to key natural resources (GoI, 2015).

In 2011, the government issued a moratorium on the issuing of new permits and concessions in natural forest areas, in an effort to reduce deforestation. The moratorium was renewed in 2013 and 2015. It covers approximately 68 million ha of forest, including 28 million ha of primary forest, 15 million ha of peatlands and 15 million ha of secondary forests (Austin *et al.*, 2012), although there is likely some overlap between the peatland and forest land (Murdiyarto *et al.*, 2011). It is estimated that the moratorium protects 25.3 Gt of carbon (Austin *et al.*, 2012) and may have lowered Indonesia’s GHG emissions from deforestation by around 1.0–2.5 percent over four years (Busch *et al.*, 2014).

Indonesia is a partner country in the UN-REDD Programme, the Forest Carbon Partnership Facility (FCPF) and the Forest Investment Program (FIP) and has established bilateral forest partnerships with Australia, Germany, Norway and the Republic of Korea. It has been working on its REDD+ readiness process since 2007. The National REDD+ Strategy was launched in 2012 and the National REDD+ Action Plan was completed to guide the implementation of the strategy at the national level. As of 2015, at least 35 REDD+ demonstration activities have been initiated nationwide. Most of the required REDD+ frameworks have been tested and developed, although, improvement is still needed before full implementation (MoEF, 2015).

Indonesia was one of the first countries to start negotiating a Voluntary Partnership Agreement (VPA) with the EU as part of its efforts on FLEGT. It was the first Asian country to sign a VPA, which came into force on 1 May 2014. As of 15 November 2016, Indonesia will be able to issue FLEGT licenses for verified legal timber products that it exports to the European Union (FLEGT, 2016).

34 As previously noted, only 642,646 ha of the social forestry target was reached by 2014.

Challenges and barriers

The process of designating forest land as *HKm* and *Hutan Desa* is highly complicated and has been proceeding very slowly. Only 15 percent of the previous target area of 2.5 million ha was achieved by 2014. In this context, the new target of creating 12.7 million ha of social forests between 2015 and 2019 appears ambitious. At this stage, it is not clear what, if any, changes are proposed to accelerate the process.

While the moratorium on new concessions in forest and peatlands is a significant step, it has been criticized for failing to protect secondary forests, which make up half of Indonesia's natural forest area³⁵ and contain significant levels of carbon and biodiversity (Murdiyarto *et al.*, 2011). The moratorium also excludes around 9.6 million ha of primary forestry and 5.8 million ha of peatlands, presumably because these lands are included in existing concession agreements. Approximately 43.9 million ha of the land covered by the moratorium already has protected status, so the moratorium protects an additional 22.5 million ha of land, including 7.2 million ha of primary forests and 11.2 million ha of peatlands, which did not have legal protection previously (Murdiyarto *et al.*, 2011). The moratorium may not have a significant impact on Indonesia's emissions, given that 85 percent of its emissions from deforestation between 2000 and 2010 derived from pre-existing permits and illegal deforestation, with only 15 percent deriving from new forest clearance permits (Busch *et al.*, 2014).

Forest fires, caused by a combination of land clearance and El Niño-related weather patterns, continue to be a major problem. These fires are releasing huge amounts of CO₂ into the atmosphere, especially when they occur on carbon-rich peat soils. By some estimates, the emissions from Indonesia's forest fires in September 2015 were greater than Germany's total annual emissions, and produced more GHG emissions per day than all economic activity in the United States. The haze from the fires also disrupts aviation and causes public health problems and school closures in Indonesia and neighbouring countries of Singapore, Malaysia and Thailand (The Guardian, 2015).

5.3 Lao People's Democratic Republic

Total population	6,689,300 in 2014	
Rural population	4,177,401 in 2014	62% of total population
Total country area	23,680,000 ha	
Total land area (excluding inland water bodies)	23,080,000 ha	
Total forest area	13,500,000 ha in 2010	58% total land area
Forest cover area	9,550,000 ha in 2010	41% total land area
		60% of forest area
Production forest	3,100,000 ha	23% of total forest land
Protection forest	6,900,000 ha (proposed area)	51% of total forest area
Conservation forest	3,600,000 ha (proposed area)	26% of total forest area
Forest cover change	-34,650 ha (-0.36%) per year from 2002–2010	
Carbon stocks	1,098.38 mmt	
Community managed forests (with CFM agreement)	Data not available	
Community forestry policies and programmes	Participatory sustainable forest management Village forestry Collaborative forest management Traditional forest management Community based forest management for ecotourism Smallholder plantations and industrial plantations	
Climate change mitigation and adaptation policies and programmes	National Strategy on Climate Change (2010) Partner country for UN-REDD and FCPF Climate Protection Through Avoided Deforestation (CliPAD) project	

Sources: FAO 2015d, Lao PDR Country Report; Lao PDR's Second National Communication to the UNFCCC; Department of Environment, 2013; and forest cover data based on the 2002 Forest Cover Assessment, presented at the 2nd ASFN Learning Group Workshop, Thailand, February 2013.

National forest definition and classification

Lao PDR's national definition of forest uses a canopy density greater than 20 percent and a tree height above 5 m. Areas below this threshold are classified as other forest types. In line with the 2007 amended Forestry Act, forest cover has been reclassified into three groups, rather than five. In 2010, the forest area stood at 13.5 million ha, of which 6.9 million ha was protected forest, 3.6 million ha was conserved forest and 3.1 million ha was production forest (DoE, 2013).

Forest data: changes and trends

In 2002 the total area covered by natural forest was 9,824,700 ha, or roughly 41.5 percent of the country area. By 2010, forest cover, according to the national definition, was estimated at 9.5 million ha, or 40.3 percent³⁶ (DoF, 2010). This equates to an average annual loss of 34,337 ha or 0.35 percent. Forests in Lao PDR are estimated to contain 1,098.38 mmt of carbon in above and below ground biomass (FAO, 2015d).

The main drivers of deforestation are illegal logging and agricultural expansion, as well as development of industrial tree plantations; and hydropower, mining and other infrastructure development projects. Forest degradation is mainly caused by illegal logging and unsustainable timber extraction from commercial logging activities (Thomas, 2015).

In 2005 the Ministry of Agriculture and Forestry (MAF) launched the Forest Strategy to 2020 which aims to improve forest quality and increase forest cover to 70 percent of the total land area (16.5 million ha) by the year 2020, through natural regeneration and tree planting initiatives (MAF, 2005). Despite this, reports suggest that Lao PDR's forests continue to decline in terms of area, quality, biodiversity, ecosystem services, livelihood benefits and contribution to national revenue (Thomas, 2015; MoNRE, 2012).

Social forestry policies and programmes

Several models of community-based forest management have been introduced under various programmes. Village forestry, piloted under the Forest Management and Conservation Program (FOMACOP), has been adopted as the official model for community forestry in the country. Any classification of state forest can be utilized as a village forest. Small amounts of timber may be collected from production forests for domestic use. The length of tenure can be for 30–40 years for degraded forests and 40–60 years for barren forests. However, village forests only exist as a land-use category and very few community forest lands are covered by official land-use titles. Village forestry is considered a process rather than a predetermined output, and consists of a range of approaches to people-oriented forest management with different levels of participation.

Status of social forestry in Lao PDR

There is an absence of recent data on the area of land currently assigned to local people under village forestry.

Climate change impacts

Although Lao PDR is not a major contributor to climate change, it will be severely affected by its impacts. The national economy depends heavily on agriculture, which produces 30 percent of GDP, and over 70 percent of the population depends on natural resources and agriculture for their livelihoods and food security (GoL, 2015). Climate change is already causing economic losses and affecting livelihoods, food security, water supply and health of the population. Increasing climate resilience in agriculture, food security, and the management of water resources are key priorities for the country.

Lao PDR is highly vulnerable to climate hazards, particularly floods and droughts. Fourteen out of the country's 17 provinces, as well as the capital, Vientiane, have experienced flooding since 1995. Severe droughts occurred in 1996, 1998, 2003, 2015 and 2016. Annual rainfall is expected to become more variable which, along with rising temperature, is likely to have significant impact on water resources, ecosystems and agricultural production.

Climate change mitigation and adaptation policies and targets

Lao PDR's emissions are some of the lowest in the ASEAN region and the world. It is estimated that 75 percent (25 MtCO₂) of its total GHG emissions derived from LUCF in 2012. The forest sector is one of the country's priority areas for mitigating and adapting to climate change. Lao PDR's INDC estimates that if the Forestry Strategy to 2020 target of 70 percent forest cover is reached by 2020, the country's forests would mitigate 60,000–69,000 ktCO₂e (GoL, 2015).

Lao PDR submitted its NAPA to Climate Change to the UNFCCC in 2009. Forests are a focus area, along with agriculture, water, transport and urban development and public health. Forty-five projects were proposed, including measures to strengthen capacity of village foresters in forest management, and reducing slash and burn agriculture. As of May 2013, 12 priority projects had been proposed (UNFCCC, 2014) and four were being implemented under the LDCF (see Annex 4).

³⁶ For comparison, using the FAO's definition and a 10% canopy density, forest cover was 68% or 15.8 million ha in 2010. This is made up of 41.5% forests, 2.2% of potential forests (abandoned shifting cultivation areas); 2.3% bamboo brakes; and 25.6% deforested and degraded forest lands (MoNRE, 2012).

Forests and social forestry in climate change mitigation and adaptation

The NAPA included project proposals to increase the resilience of forest production and forest ecosystems, and strengthen technical capacity for managing forests for climate change adaptation. A key objective in the forest sector is to increase the awareness and capacity of village forest volunteers to manage and utilize community forests in response to climate change.

Lao PDR has been implementing REDD+ pilot activities since 2009. In 2010, Lao PDR became a pilot country under the FIP. In 2015, targeted support under the UN-REDD Programme was approved for forestry sector planning and capacity building of national and provincial government authorities on issues of forest land and resource governance, and participatory forest management (UN-REDD, 2015).

The country is also engaging with the FLEGT initiative since October 2013, with the aim of reducing deforestation.

Barriers and challenges

A key challenge for Lao PDR is the absence of recent official data on forest cover. The official figure on forest cover has not been updated since 2010, so it is difficult to assess progress against the targets outlined in the Forest Strategy to 2020.

Similarly, recent official data on the area of land demarcated as village forest was not available. The process of land allocation is inherently complicated and time consuming, and the district authorities have insufficient resources and capacity to effectively manage the land allocation process.

There is also an absence of long-term data on meteorology, hydrology and climate change impacts scenarios to inform impact analysis, vulnerability assessments and adaptation planning (DoE, 2013).

5.4 Malaysia

Total population	27,902,000 in 2014	
Rural population	7,771,530 in 2014	28% of total population
Total country area	33,080,000 ha	
Total land area (excluding inland water bodies)	32,855,000 ha	
Total forested area	20,160,329 ha in 2014	61% of total land area
Permanent forest reserve	12,870,849 ha	64% of total forested area
State land forests	5,913,045 ha	29% of total forested area
Parks, sanctuaries and PAs	1,376,435 ha	7% of total forested area
Forest cover change	-95,749.92 per year (-0.47%) from 2010–2014	
Carbon stocks	2,834.00 mmt in 2015	
Community managed forests (with CFM agreements)	Data not available	
Community forestry policies and programmes	<p>Peninsula Malaysia: recreation, greening of urban areas.</p> <p>Sabah: participation of local people in sustainable forest management in Forest Management Units.</p> <p>Sarawak: rural development, alternative livelihoods and agroforestry projects.</p>	
Climate change mitigation and adaptation policies and programmes	<p>2010 National Policy on Climate Change</p> <p>EU-REDD+ Project entitled 'Tackling Climate Change through Sustainable Forest Management and Community Development'</p> <p>Project on Conservation and Sustainable Use of Tropical Peat Swamp Forests and Associated Wetlands Ecosystems</p>	

Sources: Annual Report Forest Department Sarawak, 2013; Sabah Forest Department, Annual Report 2014; Forest Department Peninsula Malaysia Annual Report, 2014; FAO Forest Resources Assessment Report 2015, Malaysia Country Report.

National forest definition and classification

In Malaysia, forest is defined as land spanning more than 0.5 ha with trees higher than 5 m and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use (FAO, 2010). In contrast Malaysia's submission on Reference Levels for REDD+ Results Based Payments under the UNFCCC used a minimum area of 0.5 ha, a canopy cover of at least 30 percent and a minimum tree height of 5 m at maturity (MNRE, 2014; UNFCCC, 2015).

Forest data: changes and trends

Forest lands in Malaysia includes the permanent reserved forests (PRF), state land forests, national parks, wildlife and bird sanctuaries. Forest resources in Malaysia are under the control of the forest departments (FDs) of Peninsula Malaysia, Sabah and Sarawak. According to the latest annual reports of the three FDs, there was a combined 20,160,329 ha of forest lands in 2013/2014, as shown in Table 16.

Table 16: Forested area in Malaysia in 2013-2014

Jurisdiction	Permanent forest reserves	State land forests	Parks, sanctuaries & protected areas	Total forest land
Peninsula Malaysia	4,933,787	279,433	585,109	5,798,329
Sabah	3,615,066		274,129	3,889,195
Sarawak	4,321,996	5,633,612	517,197	10,472,805
Total	12,870,849	5,913,045	1,376,435	20,160,329

Sources: Annual Report Forest Department Sarawak, 2013; Sabah Forest Department, Annual Report 2014; Forest Department Peninsula Malaysia Annual Report, 2014

According to the Ministry of Natural Resources and Environment (MNRE) website, the natural forested area, excluding tree crops such as rubber, cocoa and coconuts, was 18.27 million ha in 2014, and has been steadily increasing since 2008. At state level, forest cover in Sabah was estimated at 3.76 million ha in 2010 (Reynolds *et al.*, 2011). In Sarawak there was estimated to be 9.9 million ha of forest cover in 2013, of which 82 percent is primary forest that has been logged or harvested and 18 percent is secondary forest previously used for shifting cultivation (State Planning Unit, 2013). There is no recent forest cover data available for Peninsula Malaysia. Due to an absence of recent data covering the same period from all three FDs, establishing actual forest cover on the ground at the national level remains challenging (Omar *et al.*, 2012; Hamid and Rahman, 2016).

Recent studies suggest that deforestation rates in Malaysia may be much higher than previously reported (Hamid and Rahman, 2016) with a loss of 4.72 million ha of forest between 2010 and 2012 (Hansen *et al.*, 2013). Data from Global Forest Watch (2016) suggests that Malaysia lost 5.6 million ha of tree cover between 2001 and 2014, an annual loss of about 1.5 percent. Remaining forest areas in Malaysian Borneo appear to be severely affected by previous undocumented logging and clearing operations (Bryan *et al.*, 2013).

Social forestry policies and programmes

Social forestry in Malaysia is based on the model involving local communities in forestry operations undertaken by the state or private forest managers, as opposed to placing areas of forest land under the management of local people, due to the autonomy of the FDs in Sabah, Sarawak and Peninsula Malaysia, social forestry takes a different form in each region.

In Sabah, the involvement of local communities in forest management is one of the core principles of SFM. Social forestry is a component of forest management in forest reserves managed by the Sabah Forest Department (SFD) or SFM license holders. It aims to involve local farmers in forest management activities, such as reforestation, decision-making, planning and implementation, allowing farmers to derive benefits from forest resources. In Sarawak, social forestry projects aim to promote alternative livelihoods and reduce poverty, with the aim of reducing pressure on forest resources, reducing shifting cultivation and restoring degraded forests. The Sarawak Forest Department established a Community Service Initiative Unit in 2011 to strengthen cooperation between the government, the logging/plantation industry, and local people in forestry and land use. It aims to reduce rural poverty and people's dependence on forest resources through community-based development projects, such as development of basic facilities, *tagang* (sustainable fishing), handicraft training and production, and planting of fruit trees and vegetables. In Peninsula Malaysia, the involvement of local people in forestry is mainly for recreation, education and the greening of urban areas.

Malaysia's Federal Constitution and state legislation such as the Sabah Land Ordinance 1930 and the Sarawak Land Code 1958, formally recognizes indigenous peoples' native customary rights (NCR) to their traditional territories, resources, customs and to self-determined development. In practice, secure access to land, forests and natural resources for indigenous peoples remains challenging, due to a range of legal, policy and administrative constraints (Human Rights Commission of Malaysia, 2013; Yong, 2014).

Status of social forestry in Malaysia

Social forestry in Malaysia does not grant forest management rights to local people through official community forestry agreements, as in some other ASEAN countries. National-level data for the area of land used for social forestry projects was not available at the time of writing. In Sabah, forest management license agreements require license holders to set aside land for social forestry projects. According to the Sabah FD, there are around 400 villages where local communities living within the forested area participate in forest conservation and reforestation efforts (Daily Express, 2016). The SFD has identified a further 20,000 ha of land that could potentially be used for social forestry initiatives.

In 2016, Malaysia initiated a process to prepare a national roadmap on social forestry. In April and May 2016, Sabah, Sarawak and Peninsula Malaysia developed social forestry definitions, roadmaps and strategic plans that will be combined to formulate a national definition of social forestry and outline a national roadmap for its development in Malaysia (Borneo Post, 2016).

Climate change impacts

Malaysia has experienced changes in temperature and rainfall intensity. Surface means temperature has increased by around 0.14 °C to 0.25 °C per decade. The surface maximum temperature increase is around 0.17 °C to 0.22 °C per decade, and the surface minimum temperature increase is around 0.20 °C to 0.32 °C per decade. Rainfall intensity has increased leading to more severe monsoonal floods. Urban areas are also becoming more prone to flash floods due to the higher rainfall intensity (GoM, 2016).

Climate change mitigation and adaptation policies and targets

According to FAO data, Malaysian forests contained a total of 2,834 mmt of carbon in 2015 (FAO, 2015e). Malaysia's INDC states that the country's total GHG emissions in 2005 were 288,663 Gg CO₂eq. Emissions from land use, land use change and forestry (LULUCF) were 25,667 Gg CO₂eq (approximately 9 percent). Malaysia's contribution to global emissions was estimated to be around 0.6 percent in 2011 (GoM, 2016).³⁷

According to Malaysia's submission on Reference Levels for the REDD+ Results Based Payments under the UNFCCC, the SNC indicated that the LULUCF sector was a net sink for the years 2000, 2005 and 2007, with total removals around 240 MtCO₂e and emissions around 26 MtCO₂e (MNRE, 2014).

Malaysia intends to reduce its GHG emissions intensity by 35 percent by 2030, relative to 2005, or by up to 45 percent with international assistance. Key sectors to achieve this target are energy, industrial processes, waste, agriculture and LULUCF (GoM, 2016).

In 2010, Malaysia launched a National Policy on Climate Change to mainstream climate change into national policy, build institutional capacity, and provide a framework for the country's activities on climate change. It contains ten strategic policy goals and 43 key actions, with a focus on mitigation, adaptation, and capacity building. One of its five core principles is environmental conservation and sustainable use of natural resources, including forests. However, the policy document does not provide detailed descriptions or timelines for how these goals are to be realized.

Recent national development plans have incorporated strategies on sustainable growth, mitigation strategies, conserving natural resources, and strengthening resilience against climate change and natural disasters. In the forest sector, two major initiatives have been launched, the Central Forest Spine and Heart of Borneo initiatives, aiming to promote sustainable forest management and use of natural resources.

Between 2011–2015 (10th Malaysia Plan) Malaysia spent 51 billion Malaysian ringgit to improve resilience against climate change, including addressing flood risks, enhancing food and water security, coastal protection and health. A national adaptation plan will be developed to provide greater coordinated implementation (GoM 2016).

Social forestry in climate change mitigation and adaptation

Malaysia's INDC states that forest degradation resulting from previous management efforts and the draining of peat swamps are key issues in the LUCF sector. At this stage, the INDC does not outline measures to address these challenges.

Box 8: EU REDD+ project in Sabah

In 2013 an EU-REDD+ project entitled 'Tackling Climate Change through Sustainable Forest Management and Community Development' was initiated in the Gana and Lingkabau Forest Reserves in Kota Marudu in Sabah. Project activities include community-based forest restoration, rehabilitation of water catchment areas, forest protection against fires and encroachment, in the Gana Forest Reserve along with socio-economic support to the local community. In Lingkabau Forest Reserve, community-based agroforestry, using a mixture of rubber and indigenous timber species, will be developed to reduce dependence on forest resources and enhance carbon stocks. Project activities include rapid assessment of the carbon stock in the project area, rehabilitation of 70 ha of degraded forest, forest protection activities, and community-based monitoring to assess enhancement of carbon stocks. The project will enhance institutional capacity of the Sabah Government and develop tools to design and implement the State REDD+ Strategy (SFD, 2014).

5.5 Myanmar

Total population	51,419,420 in 2014	
Rural population	35,348,948 in 2014	69% of total population
Total country area	67,657,723 ha	
Total land area (excluding inland water bodies)	65,755,000 ha	
Forest land (permanent forest estate)	19,789,936 ha in 2015	30% of total land area
Forest cover	30,472,505 ha in 2015	46% of total land area
Reserved forest	12,184,291 ha	61.5% of forest land
Protected public forest	4,094,960 ha	20.7% of total forest land
Protected areas	3,510,685 ha	17.7% of total forest land
Unclassified forests	10,682,569 ha	35% of forest cover
Forest cover change	-325,124 (-1.0%) per year between 2010–2014	
Carbon stocks	1,615.27 mmt	
Community managed forest	2,033 Forest User Groups with 53,420 members 113,765 ha of community forests (May 2016)	
Community forestry policies and programmes	Taungya agroforestry system (since 1856) Forest Law (1992) Myanmar Forest Policy (1995) Community Forestry Instructions (1995) Forest Master Plan (2001) UNDP TNRP Comfort Project (JICA)	
Climate change mitigation and adaptation policies and programmes	Draft Climate Change Strategy and Action Plan (MCCSAP) 2016 NAPA UN-REDD partner country	

Sources: Myanmar Statistical Information Service (<http://mmsis.gov.mm>). Accessed 7 June 2016. Presentation by Dr. Nyi Nyi Kyaw, Director-General, Forest Department, MoECaF, 38 Nay Pyi Daw 23 March 2015; FAO, 2015f.

National forest definition and classification

Myanmar defines 'forest area' as land with tree crown cover (or equivalent stocking level) of more than 10 percent and an area greater than 0.5 ha. The trees should reach a minimum height of 5 m at maturity in situ (MoF, 2005). 'Forest Land' is defined in the Forest Law as 'Reserved Forest' and 'Protected Public Forest'.

The permanent forest estate (PFE) under the control of the Forest Department consists of 19,789,936 ha of forest (MoECaF, 2015), approximately 30 percent of the country's total land area. Forests within the PFE are classified as reserved forests (forests of high commercial value used for timber production); protected public forests (lower commercial value where local people have some harvesting rights); and protected areas, such as nature reserves and wildlife sanctuaries that cannot be exploited.

Table 17: Permanent forest estate (PFE) status in Myanmar

Legal classification	Area (ha)	Land area 2014	Target 2030
Reserved forest (RF)	12,184,291	18%	30%
Protected public forest (PPF)	4,094,960	6%	
Protected area system (PAS)	3,510,685	6%	10%
Total	19,789,936	30%	40%

Source: Presentation by Dr. Nyi Nyi Kyaw, Director General, Forest Department, MoECaF39 23 March 2015

Large areas of Myanmar's forest are 'unclassified forests' outside the PFE and the control of the FD. These forests are classified as public forest or wasteland. They are available for other uses by the state and may be converted to other uses. By 2018, the government intends to reassess the status of forest cover in the PFE and areas of the PFE that overlap with agricultural concessions, and also consider unclassified forest areas for potential inclusion in the PFE.

Analysis of forest data: changes and trends

The Government of Myanmar estimates that forest cover was 30,472,505 ha in 2014⁴⁰. Forest covers 45 percent of the country's total land area, down from 48 percent in 2010, and 49 percent in 2006 (MoECaF, 2013). Total forest carbon was estimated at 1,615.27 mmt in 2015 (FAO, 2015f).

Based on government forest cover data, it is estimated that forest cover was declining at a rate of one percent, or approximately -325,124 ha per year, between 2010 and 2014. The rate of deforestation appears to have increased from -0.91 percent or 310,000 per year between 2005 and 2010 (RECOFTC, 2013). Recent data from MoECaF's Planning and Statistics Division indicates that the rate of deforestation outside the PFE was almost twice the rate inside the PFE between 2005 and 2010 (MoECaF, 2016).

After decades of intensive logging, Myanmar's forests are heavily degraded and at risk of further deforestation (MoECaF, 2015). In 2016, the government announced a national logging ban until the end of March 2017, effectively closing the forests for a complete logging season. Between 2000 and 2013, as much as 72 percent of the country's log exports were illegally harvested, so effective controls will be needed to prevent illegally logged timber being laundered through the sale of existing timber stockpiles (Environmental Investigation Agency, 2016).

Forest clearance for expansion of commercial agriculture plantations is now considered the leading cause of deforestation (Woods, 2015). In 2013 and 2014, concessions for 160,000 ha of oil palm and rubber plantations were issued within the PFE (MoECaF, 2015).

Social forestry policies and programmes

Both Myanmar's Forest Law (1992) and Forest Policy (1995) are based on the principles of including local people in the management and conservation of forest resources and meeting their basic needs for food, fuel and shelter. The FD issued Community Forestry Instructions in 1995 to facilitate community participation in forest management and provide for the basic needs of local communities. It also encourages tree planting and reforestation in barren and degraded forest areas to contribute to reforestation activities. The National Forest Master Plan (2001) also recognizes community forestry as a tool for sustainable forest management and strengthening local livelihoods. Community forestry certificates are granted to local communities for a period of 30 years, and permit the community to collect forest products for domestic use. The tenure period can be extended, based on the performance and interests of the forest user groups.

Recent legislation also aims to promote community participation in the management of natural resources, and increase their benefits from participation. The National Land Use Policy (2016) recognizes the customary rights, traditions and culture of ethnic minorities and the Myanmar Timber Legal Assurance System (2016) includes local community participation, while the revised Community Forestry Instructions (2016) increases the emphasis on commercialization of community forests.

39 Now known as the Ministry of Natural Resources and Environmental Conservation (MoNREC)
40 <http://mmsis.gov.mm>

Status of social forestry in Myanmar

The area of community forests (CF) has been gradually increasing since 2010. As of May 2016, around 113,765 ha of community forests had been established, involving 2,033 forest user groups with more than 50,000 members (MoNREC, 2016).

By 2020, the FD plans to place over 130,000 ha of forest under community forestry (MoECaF, 2015). Myanmar's Forest Master Plan aims to establish 918,000 ha of community forests by 2030 (Kyaw Tint *et al.*, 2014). By 2020 the country also plans to pass a Land Law that recognizes customary land-use systems, develop procedures to allow registration of communal customary tenure and recognize customary and communal land tenure in relevant laws, dispute resolution mechanisms and land-use planning processes.

Climate change

Myanmar regularly experiences cyclones, floods, landslides, drought and forest fires (OCHA, 2016) and is one of the world's most vulnerable countries (Kreft *et al.*, 2015). From 1960 to 2009, the country became hotter and drier, and the monsoon season has reduced in both duration and intensity (MoECaF, 2012). Climate studies have observed a general increase in temperatures of around 0.08 °C per decade across the whole country (MoECaF, 2012), especially in the central dry zone. There has been a decrease in annual precipitation, but an increase in the intensity of rainfall. Events, such as droughts, extreme temperatures, heavy rainfall, flooding and cyclones, are becoming more frequent and severe (MoECaF, 2012; MoNREC, 2016).

In 2008, Cyclone Nargis caused extensive physical damage with estimated economic losses of over US\$4 billion, and long-term socio-economic impacts. Approximately 2.4 million people were affected, with 84,537 deaths and 53,836 missing persons (MoNREC, 2016). The damage caused by the cyclone was exacerbated by the fact that much of the mangrove forests in the delta region, that normally act as a protective barrier against strong winds and waves, had been converted or degraded for shrimp farming, rice farming, charcoal production and collection of fuelwood⁴¹ (UNEP, 2009b; Worldview International Foundation, 2015).

In 2015 and 2016, the country experienced severe monsoon flooding and landslides, and in 2016 the impacts of El Niño resulted in extreme temperatures, unusual rainfall patterns, dry soil, high risk of fires and acute water shortages (OCHA, 2016).

Climate change mitigation and adaptation policies and targets

Myanmar considers climate change to be a major challenge to its socio-economic development and is committed to playing its part in mitigating climate change and adapting to its effects. The country has the largest remaining forest area in mainland Southeast Asia and currently absorbs more GHGs than it emits (MoECaF, 2015). However, Myanmar is going through a process of rapid industrialization and urbanization, which will inevitably increase emission levels. Myanmar therefore aims to develop its economy in a sustainable manner, balancing the demands of growth, poverty reduction and climate change, and limiting the growth of future emissions.

Myanmar's Initial National Communication (INC) to the UNFCCC and its NAPA were submitted in 2012. The government has made the environment a key area of the National Comprehensive Development Plan for 2011–30, passed an Environmental Conservation Law in 2012, and established the National Environmental Conservation Committee and Myanmar Climate Change Alliance in 2013. The INDC was submitted in August 2015 and outlines mitigation actions in the forest and energy sectors and priorities for adaptation. Other relevant policies include the National Land Use Policy (2016) which aims to promote sustainable land management; protect the environment and natural resources; address the impacts of climate change and natural disasters; and improve food security, as well as improve tenure security; recognize and protect customary land tenure rights; and promote participatory decision-making.

Myanmar is in the process of developing a National Climate Change Strategy and Action Plan (MCCSAP). The draft strategy aims to promote climate-resilient and low carbon development, and build the adaptive capacity of key sectors and vulnerable communities. It identifies priority actions in key sectors, which include the sustainable management of natural resources, ecosystems and their services, in order to support dependent sectors and communities and the sequestration of carbon (MoNREC, 2016). The elaboration of a National Adaptation Plan is due to begin in 2016.

⁴¹ MoECaF figures show that the area of mangrove forests in Ayeyarwady, Tanintharyi and Rakhine provinces fell from 647,497 ha to 376,357 ha between 1980 and 2007. <http://frontiermyanmar.net/en/saving-the-mangroves> Accessed 26 September 2016.

Forests and social forestry in climate change mitigation and adaptation

An estimated 46 percent of the country's emissions derive from LUCF (CAIT Climate Data Explorer, 2015). Myanmar's INDC includes the National Forestry Master Plan (2001–30) strategy to increase the area of reserved forest (RF), protected public forest (PPF) and protected areas to 40 percent of the total land area⁴². Myanmar also aims to reduce deforestation to maintain sequestration benefits, preserve natural forest areas to protect biodiversity and ecosystem services, increase capacity for sustainable forest management, conserve mangrove forests and build the resilience of coastal communities (MoECaF, 2015). Although climate change issues were not considered during the early implementation of CF in Myanmar, many stakeholders now view CF as an effective and practical way to mitigate and adapt to climate change. A number of government departments, international organizations and NGOs are using CF to address climate change, particularly in areas of the country that are most vulnerable to its impacts (APFNet, 2011). CF has received particular attention in Shan State and the central dry zone, which face a range of environmental issues such as soil erosion, poor soil fertility, drought and deforestation (RECOFTC, 2016). CF is also being used in the delta region as a mechanism to restore mangrove forests, protect coastal communities and provide sustainable alternative livelihoods (APFNet, 2011; Worldview International Foundation 2015).

As of March 2014, one NAPA project was being implemented in Myanmar under the LDCF. This project focuses on adapting community forestry landscapes and associated community livelihoods to the changing climate, particularly the increased frequency and intensity of extreme weather events. The project is implemented by MoNREC, the Department of Meteorology and Hydrology (DMH), and the Ministry of Transport (UNFCCC, 2014b).

Barriers and challenges

Community forestry has had some success in Myanmar, but the area under CF remains small and the benefits provided to communities have been somewhat limited (Kyaw Tint *et al.*, 2014; APFNet, 2011). The handover process has been proceeding slowly since the Community Forest Instructions were issued in 1995, due to complicated administrative procedures and limited capacity and resources within the Forest Department. The process will need to be simplified and scaled up to contribute to the national forest restoration programme and achieve the Forestry Master Plan target by 2030 (Kyaw Tint *et al.*, 2014; MoECaF, 2015).

The current model of community forestry has focused on rehabilitating small⁴³, degraded forest areas close to villages, with commercial tree species. As a result, community forests tend to be small tree farms with low levels of biodiversity (MoECaF, 2015) and may not provide significant level of benefits to local communities. A new model may be required that can rapidly expand public participation in forest management and effectively support reforestation, restoration and forest protection on a larger scale (MoECaF, 2015).

42 Previously reserved forest and protected public forest was 24% of the total land area and protected area systems were 6.7% of the total land area.

43 less than 100 ha

5.6 The Philippines

Total population	99,138,690 in 2014	
Rural population	50,033,879 in 2014	50% of total population
Total country area	30,000,000 ha	
Total land area (excluding inland water bodies)	29,817,000 ha	
Forest land	15,805,325 ha in 2014	53% of total land area
Forest cover	6,839,718 ha in 2010	23% of total land area
		43% of total forest land
Established forest reserve	3,270,146 ha	21% of total forest land
Established timber land	10,056,020 ha	64% of total forest land
National parks, wildlife sanctuaries & wilderness areas	1,340,997 ha	8% of total forest land
Forest cover change	-46,955 per year (-0.66%) from 2003–2010	
Community based forest management (CBFMA, CADT, CALT, etc.)	4,018,952 ha in 2013	
Community forestry policies and programmes	Community Based Forest Management, as established by Executive Order No 263	
Carbon stocks	1,289.90 mmt	
Climate change mitigation and adaptation policies and programmes	<p>Philippine Climate Change Act (2009) RA 9729</p> <p>National Climate Change Action Plan</p> <p>Local Climate Change Action Plan</p> <p>National Framework Strategy on Climate Change</p> <p>Executive Order No. 881 on REDD+ planning and development</p> <p>Philippine National REDD+ Strategy (2010)</p> <p>National Greening Program</p>	

Sources: FAO 2015g; Forest Management Bureau (FMB) 2014a; Philippine Statistics Authority 2015; Philippines Yearbook 2014

National forest definition and classification

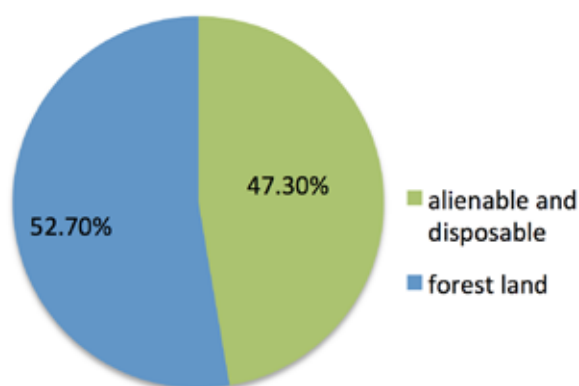
The Forest Management Bureau (FMB) of the Department of Environment and Natural Resources (DENR) defines forest as “land with an area of more than 0.5 ha and tree crown cover (or equivalent stocking level) of more than 10 percent. The trees should be able to reach a minimum height of 5 m at maturity in situ (original position/location).” The definition of forest includes closed forests, where multistory trees and undergrowth cover a high proportion of the ground, and open forests with continuous vegetation and crown cover over 10 percent. Young natural stands and forest plantations that have yet to reach a crown density of 10 percent or height of 5 m are also included as forest.

Forest land is classified into established forest reserves, established timber land, national parks, game reserves and wilderness areas, military reservations, civil reservations, fishpond development and unclassified lands.

Forest data: changes and trends

The total land area of the Philippines is 30 million ha, which is legally classified into alienable and disposable land; and forest land. As of 2014, there were 14,194,675 ha of alienable and disposable land (47.3 percent of the total land area) and 15,805,325 ha of forest land (52.7 percent of the total land area) (FMB, 2014a).

Figure 10: The Philippines land classification in 2013



Source: FMB, 2014a

The most recent forest cover assessment in the Philippines was undertaken in 2010. Total forest cover was found to be 6,839,718 ha, or 23 percent of the country's total land area (FMB, 2014a). Of the total forest cover, there was 4,595,154 ha of open forest (67 percent), 1,934,032 ha of closed forest (28 percent) and 310,531 ha of mangrove forests (4.5 percent). Productive forest is slightly over 10 million ha and protected forest for biodiversity conservation is 1.3 million ha (FMB, 2014a).

The previous forest cover assessment in 2003 found 7,168,400 ha of forest cover (FMB, 2011). Forest cover has therefore decreased by 328,682 ha (4.58 percent) from 2003 to 2010, an average reduction of 46,954 ha per year. Forest carbon stocks were estimated to be 1,289.90 mmt in 2015 (FAO, 2015g).

Total Philippine GHG emissions were 161 MtCO₂ GHG in 2012. The largest contributors are the energy and agriculture sectors. LUCF was a net carbon sink, absorbing an estimated 1.64 MtCO₂ (CAIT Climate Data Explorer, 2015).

Social forestry policies and programmes

There are at least 12 different forest management instruments in use in the Philippines, of which five focus on people-oriented sustainable forest management. Community Based Forest Management (CBFM) is the main strategy for managing inhabited forest land. Other types of people-oriented forestry arrangements are Protected Area Community Based Resource Management Agreements and Certificate of Stewardship Contracts. Certificates of Ancestral Domain Titles (CADT) and Certificates of Ancestral Land Titles (CALT) are used to recognize indigenous peoples' ancestral land claims and their rights to occupy, manage, protect and benefit from forest lands and resources.

CBFM involves the participation of local communities in various forestry activities to manage forests sustainably, advance social justice, improve socio-economic welfare and promote a stable and healthy environment (Lasco *et al.*, 2010). CBFM covers all areas classified as forest lands, including allowable zones inside protected areas. CBFM Agreements (CBFMA) between the government and the local People's Organization (PO) are valid for an initial 25 years and may be renewed, with the aim of providing long-term tenure security and incentivizing sustainable forest management. Rights transferred by a CBFMA are conditional and subject to other government regulations on forest use, management planning, harvesting, processing and transporting timber (Rebugio *et al.*, 2010).

Status of social forestry in the Philippines

Official figures for the area of land placed under the various CBFM programmes vary. Figures provided by DENR in August 2013 indicate that 4,018,952 hectares of forest land had been placed under CBFM at that time (see Table 18).

Table 18: Area of land managed under people-oriented mechanisms in the Philippines

People-oriented forest management mechanisms	Ha (in 2013)
Community-Based Forest Management Agreement	1,615,600
Certificate of Stewardship contracts	723,503
Protected Area Community-Based Resource Management Agreements	38,249
Ancestral Domain Titles	1,635,972
Ancestral Land Titles	5,628
Total	4,018,952

Source: Data provided by DENR, during the third ASFN Learning Group Workshop, August 2013

According to the FMB's 2014 forestry statistics, there are approximately 1,884 CBFMA agreements in place covering 1,615,137 ha of forest lands (FMB, 2014a).

However, according to the updated Climate Resilient Philippine Master Plan for Forestry Development, in 2012 there were more than 5.5 million ha of forest lands under the various CBFM instruments. This includes 1,604,662 ha of land under 1,815 CBFM agreements and 4.3 million ha of land allocated to indigenous peoples as "ancestral domains and claims" (FMB, 2014b). The Master Plan therefore suggests that as much as 5.9 million ha of land had been placed under various forms of CBFM by 2012 (FMB, 2014b). The reasons for the large variation in the figures is not clear.⁴⁴

The DENR Strategic Action Plan for CBFM (1997) planned to place 9 million ha of forest lands under community management by 2008. Based on the DENR figures provided in 2013, approximately 44 percent of the target area had been reached. However, the alternative figures in the 2014 Master Plan suggest that 66 percent of the target area had already been reached by 2012.

Climate change

According to the Global Climate Risk Index, the Philippines was the country most severely affected by climate change in 2013. Over the past 20 years, the Philippines was the fifth most affected country worldwide (Kreft *et al.*, 2014).

The Philippines has experienced rising temperatures in recent decades. From 1951 to 2010 both maximum and minimum temperatures have increased and the mean temperature increased by 0.65 °C. The number of hot days and nights has risen and the number of cool days and nights has decreased. Extreme rainfall is also becoming more frequent and intense (PAGASA, 2011).

Due to its location and topography, the Philippines is particularly exposed to weather-related disasters including seasonal typhoons, flooding and landslides, as well as natural disasters such as earthquakes and volcanic eruptions. In recent years, typhoons appear to be increasing in severity, with five of the ten most devastating typhoons since 1947, occurring in the past 10 years (Climate Reality Project, 2016). A recent study indicates that typhoons making landfall in East and Southeast Asia have intensified by 12–15 percent since 1979, and the proportion of storms that are categories 4 and 5 has doubled or tripled, due to ocean surface warming in the region (Mei and Xie, 2016).

Climate change mitigation and adaptation policies and targets

The Philippines intends to reduce its GHG emissions by around 70 percent by 2030, relative to its BAU scenario of 2000–2030, conditional on external finance and technical assistance. Emissions reductions will come from the energy, transport, waste, forestry and industry sectors (GoP, 2015). The INDC includes priority measures to develop climate and disaster-resilient ecosystems, but forests are not mentioned specifically.

The main climate change policies in the Philippines are:

- The Climate Change Act of 2009, amended in 2012, which created the Climate Change Commission to lead and coordinate policy development.
- National Disaster Risk Reduction and Management Law 2010 to guide efforts to increase resilience to natural disasters and mitigate their impacts.
- The National Climate Change Action Plan (2011–2028) supports mainstreaming of climate change issues into

⁴⁴ Other reports also suggest that 5.97 million ha had been awarded to communities under the various land tenure instruments under people-oriented forestry projects by 2009/10 (Pulhin, 2005; Rebugio, 2010).

national and local development processes, plus implementation of short, medium and long-term actions in food and water security, ecological stability, human security, climate-smart industry and sustainable energy.

- The National Framework Strategy on Climate Change (2010–2022) set out the roadmap to address climate change, strengthen adaptation of natural ecosystems and human communities, and outlined a clean development path for the country.
- Philippines Strategy for Climate Change Adaptation (2010–2022) supports translation of adaptation strategies into national and local policies, increasing the adaptive capacity of communities and the resilience of natural ecosystems. It covers biodiversity, forestry, coastal and marine resources, fisheries, land, agriculture, water sector, minerals, energy, public health and infrastructure.

Forests and social forestry in climate change mitigation and adaptation

Social forestry sites have the potential to store and sequester considerable amounts of carbon. One study estimated that the Philippines CBFM sites store the equivalent of 90 MtC (Lasco *et al.*, 2010).

The National Greening Program (NGP) established in 2011 by Executive Order 26, is the Philippine's major reforestation programme. It aims to rehabilitate 7.2 million ha of forest lands to contribute towards poverty reduction, food security, biodiversity conservation, climate change mitigation and adaptation. The NGP planned to plant 1.5 billion trees on around 1.5 million ha of land, between 2011 and 2016 through collaboration between DENR, local government, civil society organizations (CSOs), POs and the private sector. Successful implementation of the NGP is expected to generate a 12 percent increase in forest cover (relative to 2003 forest cover of 7.2 million ha) and an 8 percent increase in the annual rate of carbon sequestration (Calderon, 2012). As of 2014, a total of 592 million seedlings have been planted, covering an area of over 1 million ha (FMB, 2013). In 2015, the NGP was extended to 2028 and expanded to cover all remaining unproductive, denuded and degraded forest lands. However, implementation of the programme has been hampered by poor planning, the planting of inappropriate species in unsuitable areas during the wrong season, ineffective systems for mapping, implementation and monitoring, and a lack of coordination with other government departments (Amianan Salakniban, 2016).

GIZ is currently supporting the development of the national REDD+ mechanism (2012–2017) including development of a national forest monitoring system, a national measurement, reporting and verification (MRV) system, institutional structures, financing and benefit-sharing mechanisms, drawing up forest land-use plans and developing solutions to land rights issues.

Barriers and challenges

A key challenge in assessing developments in forestry and the progress of CBFM in the Philippines is the absence of conclusive, up-to-date information on forest condition and management arrangements. The 2010 forest cover assessment remains the most recent information available to date. Recent official data on the area of land under CBFM programs is difficult to access, and the different figures reported by official sources creates confusion and challenges for monitoring and evaluation.

5.7 Thailand

Total population	67,726,000 in 2014	
Rural population	34,433,400 in 2014	51% of total population
Total country area	51,312,000 ha	
Total land area (excluding inland water bodies)	51,089,000 ha	
Total forest land	22,400,000 in 2013	44% total country area
Forest cover	16,365,664 ha in 2014	32% of land area
National reserve forests	595,812 ha	36% of forest land
Protected forests	10,381,000 ha	63% of forest land
Forest cover change	-1,322 ha (0.77%) per year from 2008-2014	
Carbon stocks	863 mmt	
Community managed forests (with CFM agreement)	9855 community forests covering 750,457 ha (August 2016) ⁴⁵	
Community forestry policies and programmes	Community forest registration programme Food security programme Urban forestry programme Voluntary forest conservation programme	
Climate change mitigation and adaptation policies and programmes	Thailand Climate Change Master Plan (2012–2050) National Strategy on Climate Change BE 2556-2560 (2013–2017) Royal Forest Department reforestation activities Various community-based mitigation and adaptation projects	

Sources: Royal Forest Department forest statistics 2014; FAO 2015i.

⁴⁵ Royal Forest Department. [Website]. (available at http://www.forest.go.th/community_extension/index.php?option=com_content&view=article&id=498&Itemid=509&lang=th). Accessed 27 September 2016.

National forest definition and classification

The Forest Act (1941) defines forest as land that has not been taken up or acquired by any other means in relation to land law (Ongrasert, 2011). Existing forest area is defined as forest of all types, such as evergreen, pine, mangrove, mixed deciduous, dry dipterocarp, scrub, swamp, mangrove and beech forest, either in national forest reserves, national parks, wildlife sanctuaries, forest parks, with an area of 5 ha or more with trees taller than 5 m and canopy covering more than 10 percent of the ground area (FAO, 2015h).

All natural forests are owned by the state. Responsibility for forest management is shared between the Royal Forest Department (RFD) and the Department of National Parks, Wildlife and Plant Conservation (DNP).

Forest data: changes and trends

Forest cover in 2014 was estimated to be 16,365,664 ha or 32 percent of the total land area (RFD, 2014). Forest loss is estimated at an average of 132,139 ha per year between 2008 and 2014, around 0.77 percent of the total forest area. Thailand's national target for 40 percent forest cover was set out in the 1985 National Forest Policy (Ongrasert, 2011) and remains in place to date (NESDB, 2012). Of the total area, 25 percent is to be conservation forests and 15 percent is to be productive or economic forests (Ongrasert, 2011). Total forest carbon stocks were estimated at 863 mmt in 2015 (FAO, 2015h).

Social forestry policies and programmes

The RFD defines community forests as "forests that people, groups of people, or community organizations care for and manage for their shared benefits." Community forest means land and/or forest land which is legally permitted for communities, together with forestry officers, to participate in managing forestry activities, under the relevant laws and regulations. They can also set up their own policies concerned with culture, beliefs, religious and other traditions" (Wichawutipong, 2007).

Community forests are either classified as natural forests (such as non-hunting areas, monasteries, cemeteries and sacred sites) where local people join together to protect forests in order to benefit from their productive capacity and maintain their norms and culture; or degraded forests that has been rehabilitated or developed for purposes of land and water conservation, food security or recreation, such as forest plantations for community use, Royal Initiative Projects, or within educational and religious institutions.

Status of social forestry in Thailand

Since 2000, Thailand has been making steady progress with the designation of land as community forests. As of 31 August 2016, 9,855 community forests had been established, covering an area of approximately 750,457 ha (4,690,361 rai). Thailand plans to designate 1.6 million ha of forest land for community forestry (CF) by 2025. As of 2016, 47 percent of this target had been achieved.

Thailand does not yet have an official law on community forestry. The draft Community Forestry Bill was eventually passed by the National Assembly in November 2007, but a subsequent change in government caused the bill to be revoked. Subsequent efforts to revise and pass the bill have been unsuccessful, due to the lack of consensus on permitting CF in forests inside protected areas. The existing legislative framework is unclear on the issue. The 1961 National Park Act prohibits settlement, land cultivation and the collection of timber and NTFPs inside national parks, while the 2007 Constitution and the 1999 Decentralization Act empowers communities and local governments to actively manage their natural resources (RECOFTC, 2014). As a result, tenure rights in conservation forests remain unclear and are frequently contested.

Climate change

From 1955 to 2005, Thailand experienced a mean temperature increase of 0.95 °C, a maximum temperature increase of 0.86 °C and a minimum temperature increase of 1.45 °C (ONEP, 2015). In 2016, the country experienced its longest heatwave in five decades and a record high temperature of 44.6 °C was recorded in Mae Hong Son in April.

From 1955 to 2014, the number of rainy days decreased, and rainfall intensity increased (ONEP, 2015). The amount of total rainfall is becoming more erratic. According to data from the Thai Meteorological Department (TMD), average rainfall during the period 1971–2000 was 1,573 mm per year. In 2011, annual rainfall was much higher than average at 1,950 mm and in 2015 it fell to only 1,400 mm.

It is predicted that Thailand will experience more intense precipitation events, greater tropical storms, more variable monsoons and increased droughts and floods associated with El Niño events. Precipitation levels are expected to increase in southern areas where rainfall is already high, and decrease in the arid northeastern region. The flooding in 2011 caused an estimated US\$45 billion in economic losses (World Bank, 2011) making it one of the most costly natural disasters in modern times. Lower than average rainfall from 2014 to 2016 and high temperatures caused severe drought and water shortages, resulting in a loss of 0.5 percent of GDP in 2015, reducing agricultural output and increasing food prices (ONEP, 2015).

Climate change mitigation and adaptation policies and programmes

According to Thailand's Second National Communication (SNC), 67 percent of total GHG emissions in 2000 derived from the energy sector (ONEP, 2015). The LUCF sector is a net sink for around 8 MtCO₂ (ONEP, 2011). Therefore, the focus of Thailand's mitigation efforts has been on the energy sector, including transport.

In 2014, Thailand pledged to reduce its emissions by 7–20 percent by 2020. Preliminary analysis suggests a 4 percent reduction has been achieved so far and the 7 percent target should be reached by 2020 (ONEP, 2015). By 2030, Thailand intends to reduce its GHG emissions by 20 percent from the projected BAU level, or by 25 percent with enhanced support, technology and financial resources (ONEP, 2015). Key mitigation strategies include promoting energy conservation, alternative and green energy, and operationalizing projects to reduce emissions in the forestry sector, such as REDD+.

The National Strategy for Climate Change Mitigation (2008–2012) provided the initial framework for measures to reduce emissions, including those from deforestation and degradation. Thailand has now prepared a Climate Change Master Plan (2015–2050) to provide a long-term framework for climate-resilient and low-carbon growth. The plan lays out short, medium and long-term measures to address mitigation, adaptation and crosscutting issues and cut GHG emissions by 2050. Relevant government agencies are currently developing specific sectoral plans based on this framework.

Adaptation is a top priority in Thailand's national response to climate change. Thailand's adaptation strategy is based on enhancing the resilience of vulnerable groups of people towards financial, social, environmental and cultural challenges through the philosophy of Sufficiency Economy (see Box 9). In January 2015, the government launched a two-year process to develop Thailand's National Adaptation Plan.

Box 9 The Sufficiency Economy

"Sufficiency Economy" is a philosophy conceived and developed by His Majesty King Bhumibol Adulyadej of Thailand. The Sufficiency Economy principle guides Thailand's social and economic development thinking and aims to promote sustainable development through a balance of economic, social, environmental and cultural considerations, at all levels of society. Sufficiency Economy has three components:

1. Moderation - existing within one's means;
2. Reasonableness - choices and actions should be legally, morally and socially justified; and
3. Self-immunity - resilience to deal with financial, social, environmental and cultural challenges.

Sufficiency Economy stresses taking "the middle path" as a principle for appropriate conduct, as well as the prudent and careful application of knowledge and sound ethics and moral values.

Source: NESDB (2011)

Prioritized adaptation efforts outlined in Thailand's INDC include the sustainable management of community forests to promote food security at the community level, and increasing national forest cover to 40 percent through local community participation, focusing particularly on headwater and mangrove forests to enhance resilience and safeguard biodiversity and ecological integrity in key landscapes and ecosystems (ONEP, 2015).

Social forestry in climate change mitigation and adaptation

The Climate Change Master Plan includes forestry as a priority sector for mitigation. As part of its mitigation efforts, Thailand plans to increase forest cover to 20 percent by 2020. The area of mangrove forests will also be increased at a minimum rate of 5,000 rai (800 ha) per year, as part of adaptation measures (ONEP, 2014).

Concern that deforestation in Thailand's river catchment areas contributed to the 2011 floods led the government to announce investment of 950 million Thai baht in reforestation activities. The RFD has distributed between 50–150 million tree seedlings per year to urban and community forest areas for enrichment planting. Communities are being encouraged to plant drought-tolerant species and fruit trees (RECOFTC, 2014b).

CF projects, supported by various NGOs, government departments and other organizations, are beginning to incorporate adaptation and mitigation priorities. For example, RECOFTC's Thailand Country Programme implemented the project *Adaptive Management in Forest Landscapes and Sustainable Livelihoods for Climate Change Mitigation and Adaptation* from 2010–2013. The project developed community-level tools and techniques for participatory forest assessment and carbon accounting, strengthening local capacity to manage forests for climate change mitigation and adaptation benefits. The RFD is beginning to promote adaptation activities in the community forests under its jurisdiction. These projects are working to rehabilitate forest and mangrove ecosystems, support local livelihoods and increase resilience to climate change (RECOFTC, 2014b).

Thailand is in the early stages of REDD+ Readiness. Its Readiness Plan Idea Note (RPIN) was submitted to the FCPF in 2009 and a revised Readiness Preparation Proposal (R-PP) was submitted in February 2013. The R-PP was criticised by civil society groups for its weak participatory processes and neglecting the issue of forest communities inside protected areas. A revised R-PP was submitted in December 2013. Progress since 2014 has been delayed due to the country's political situation, with a temporary caretaker government followed by a military government and the drafting of a new constitution. The Ministry of Natural Resources and Environment is continuing to explore possibilities to proceed with REDD+ in the future. To do so, greater clarity will be needed on local communities' rights to access to forest resources and benefit from carbon finance mechanisms.

Barriers and challenges

The absence of a clear legal and regulatory framework covering community forestry has created some confusion over CF rules and regulations and caused delays in its implementation. Revision and passing of the Community Forest Bill to address the concerns of all stakeholders would help to provide a formal framework to establish the rights of local communities to access, use and manage forest resources, especially conservation forests, and increase their capacity to adapt to climate change (RECOFTC, 2014b).

Responsibility for forest management in Thailand is split between the RFD and the DNP. The two departments have slightly different approaches to CF in national parks and protected areas, with the DNP supporting limited human activity and the RFD supporting sustainable forest use by local communities, which has reduced inter-departmental coordination on implementation of CF (RECOFTC, 2014b). In addition, boundaries between protected areas, other forests, and agricultural areas are not always clearly marked, creating some confusion on the ground (RECOFTC, 2014b).

5.8 Viet Nam

Total population	90,728,900 in 2014	
Rural population	60,693,500 in 2014	67% of total population
Total country area	33,121,000 ha	
Total land area (excluding inland water bodies)	33,058,600 ha	
Total forest land	13,401,592 in 2014	40.5% of total land area
Forest cover	13,796,506 ha in 2014	41.7% of total land area
Production forest	6,751,923 ha in 2014	50% of total forest land
Protection forest	4,564,537 ha in 2014	34% of total forest land
Special use forests	2,085,132 in 2014	16% of total forest land
Forest cover change	+102,108 ha (+0.76%) per year between 2010 and 2014	
Carbon stocks	1,676 mmt	
Community managed forests	4,256,375 ha in 2015 Communities: 1,110,408 ha Households: 3,145,967 ha	
Community forestry policies and programmes	Community Forest Management	
Climate change mitigation and adaptation policies and programmes	<p>National Target Programme on Climate Change (2008, 2012)</p> <p>National Climate Change Strategy (2011)</p> <p>National Socio-Economic Development Strategy (2011–2020)</p> <p>National Green Growth Strategy (2012)</p> <p>Law on Natural Disaster Prevention and Control (2013)</p> <p>Law on Environment (2014)</p> <p>National Strategy on Disaster Prevention, Response & Mitigation to 2020</p> <p>Action Plan Framework for Adaptation and Mitigation for Climate Change in Agriculture and Rural Development (2008–2020)</p> <p>National REDD Programme</p>	

Sources: FAO 2016j; VNFOREST, 2015; MARD Decision on Forest Area 3158 QD-BNN-TCLN, General Statistics Office of Vietnam (available at <http://www.gso.gov.vn> accessed on 24 May 2016; Statistical Yearbook of Viet Nam 2014. (available at https://gso.gov.vn/default_en.aspx?tabid=773). Accessed 7 June 2016. www.kiemliam.org.vn, Accessed 10 June 2015.

National forest definition and classification

Under the Law on Forest Protection and Development 2004, forest is defined as an “ecological system consisting of the populations of forest fauna and flora, forest micro-organisms, forest land and other environmental factors, of which timber and bamboos or typical flora constitute the major components with the degree of coverage of forest canopy over forest land of 10 percent or more.”

Decision 682B in 1984 set a minimum tree cover of 30 percent. This definition was used for the CDM under the Kyoto Protocol. In 2009 Circular No. 34/2009/TT-BNNPTNT on the criteria for forest identification and classification, defined forests as having a minimum 10 percent tree cover, a minimum height of 5 m, and a minimum area of 0.5 ha. The change was intended to standardize Viet Nam’s forest definition with internationally used definitions, such as the definition used by the FAO. The new definition has been used for the construction of the FREL/FRL.

Forest lands are classified into production forests for production of timber and NTFPs; protection forests to protect soil and water resources, and special use forests for nature conservation, tourism, scientific research and protection of historically or culturally important areas. Table 19 shows the area of forest in each category, according to the Viet Nam Forestry Administration report for 2015.⁴⁷

Table 19: Viet Nam forest categories and area in 2014

Forest type	Total area (ha)	% Forest land
Production forest	6,751,923	50%
Protection forest	4,564,537	34%
Special use forest	2,085,132	16%
Total forest land	13,401,592	100%

Source: VNFOREST, 2015

Analysis of forest data: changes and trends

According to the Viet Nam Forestry Administration report for 2015, forest cover in 2014 was 13,796,506 ha, or 40.43 percent⁴⁸ of the country’s land area (VNFOREST, 2015). Forest cover has been gradually increasing over the past ten years, due to national reforestation programmes. Since 2010, forest cover has increased by an average of 102,108 ha per year, making Viet Nam the only country in the region where forest cover is rising.⁴⁹ As a result, a large proportion (27 percent) of Viet Nam’s forest cover is planted forest. The area of planted forest has increased by 613,000 ha between 2010 and 2014, while the area of natural forest has decreased by 205,000 over the same period (VNFOREST, 2015).

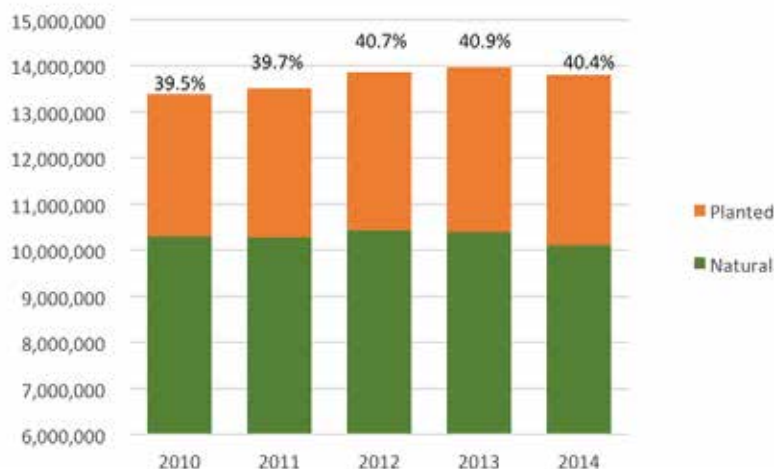
In 2015, total forest carbon stocks were calculated at 1,676 mmt (FAO, 2015i). Viet Nam’s forest sector is a net carbon sink, absorbing an estimated 13 MtCO₂ in 2012 (CAIT Climate Data Explorer, 2015).

47 Ministry of Natural Resources and Environment (MoNRE) figures published on the website of the General Statistics Office of Viet Nam are different from the figures provided by the Viet Nam Forestry Administration (VNFOREST, 2015). According to MoNRE Decision No 1467/QD-BTNMT dated 21 July 2014, there was 7,598,000 ha production forest, 5,974,700 ha of protection forest and 2,272,500 ha of SUF, making a total of 15,845,200 ha of forest land. It is not clear why different government agencies use different figures.

48 It is not clear how this percentage of 40.43% has been calculated. The same document states Viet Nam’s total land area to be 33,058,600 (VNFOREST, 2015) making forest cover 41.73% of the total land area.

49 Forest cover rose from 39.5% in 2010, to 40.96% in 2013, and then fell slightly in 2014 to 40.43%.

Figure 11: Area (ha) of natural and planted forest in Viet Nam, 2005–2014



Source: VNFOREST, 2015

Social forestry policies and programmes

Under the 1992 Constitution, all land and forest resources in Viet Nam belong to the population as a whole, to be managed by the state on behalf of the nation. The state can grant rights to use and manage forests to individuals, households, communities and other organizations, through land-use rights certificates and forest protection contracts.

The 1991 Forest Protection and Development Law allows forest resources to be assigned to individuals and households for management, protection and commercialization. The 2004 Forest Protection and Development Law officially recognized community forestry and provides the legal basis for the allocation of forest-use rights to individuals, households and communities for forest protection and development.

Under Viet Nam’s Community Forest Management (CFM) programme, local people can be issued with 50-year Land-Use Rights Certificates entitling them to collect forest products from production and protection forests. Land-use rights can be rented, inherited, transferred and used as collateral for loans. Forest protection contracts in protection forests are valid for renewable terms of one year, and permit households (not communities) to utilize dry wood and some non-timber forest products.

Status of social forestry in Viet Nam

In 2015, a total of 4,256,375 ha of forest land was managed by local people. Of this, 3,145,967 ha (74 percent) was managed by households, and 1,110,408 ha (26 percent) was managed by communities (MARD Decision 3158 DQ-BNN-TCLN). According to these figures, Viet Nam has exceeded its national target of establishing four million ha of community forestry land.

Climate change impacts

Viet Nam faces considerable challenges related to climate change. The country has an extensive coastline and major river deltas with large populations that are vulnerable to the impacts of tropical storms and sea level rise. Highland areas have poor water retention capacity and are susceptible to erosion and landslides.

Over the past 50 years, the average temperature in Viet Nam has increased by approximately 0.5 °C and the number of hot sunny days has increased, especially in central and southern regions (MoNRE, 2015). Rainfall patterns are changing. In general, precipitation levels are declining in the north, but increasing in southern and central regions. Sea levels are rising at around 2.8 mm a year (MoNRE, 2015) or by around 20 cm over the last 50 years (MoNRE, 2015; ISPONRE, 2009).

Extreme events such as droughts, storms, floods and extreme rainfall are increasing in frequency and intensity (MoNRE, 2015). During the last two years, Viet Nam has experienced a severe drought, along with other ASEAN countries. According to FAO, 52 of the country’s 63 provinces were affected by the drought, 18 provinces were in a state of emergency and over two million people experienced acute water shortages requiring humanitarian assistance (FAO 2016c). The combination of the drought, the strong El Niño and upstream hydrological developments led to the lowest water levels in the Mekong delta since 1926, causing saltwater intrusion around 20–30km further inland than usual and damaging agricultural production, particularly the rice crop and negatively affecting people’s livelihoods.

Climate change mitigation and adaptation policies and targets

In its INDC, Viet Nam has proposed to reduce GHG emissions by 8 percent against the BAU scenario by 2030, and by up to 25 percent with international assistance. This will be achieved through initiatives in energy, agriculture, waste and LULUCF. This includes increasing forest cover to 45 percent by 2030, equal to approximately 15 million ha of forest (MoNRE, 2015). Decision 1775 on the management of GHG emission aims to enhance sequestration and reduce emissions from LULUCF by 20 percent by 2020, against 2005 levels (Decision 1775 2012) (Viet Nam REDD, 2012)⁵⁰.

The country has a comprehensive legal and policy framework on climate change. In 2008, the government issued the National Target Programme to Respond to Climate Change (NTP-RCC) to assess climate change impacts and develop adaptation and mitigation measures. In 2011, the National Climate Change Strategy was issued, outlining critical climate change responses and objectives for the short, medium and long-term until 2050. In 2012, the government approved the National Green Growth Strategy, outlining mitigation targets and regulations for engaging with international carbon markets. In 2013, the Law on Natural Disaster Prevention and Control was enacted to address a range of natural hazards, including those related to climate change. The 2014 Law on the Environment has an entire chapter dedicated to climate change. Climate change has been mainstreamed into the Socio-Economic Development Plan (2011–2015) and the National Socio-Economic Development Strategy (2011–2020) as well as policies on energy, disaster risk reduction and coastal zone management. Economic sectors and provinces are also developing action plans to respond to climate change.

Forests and social forestry in climate change mitigation and adaptation

In order to achieve the mitigation and adaptation targets outlined in its INDC, Viet Nam plans to enhance sustainable forest management, afforestation, reforestation and carbon sequestration, protect environmental services, reduce deforestation and forest degradation, and conserve biodiversity especially where linked to livelihoods development and income generation for local communities and forest-dependent people (MoNRE, 2015).

Both the National Strategy for Natural Disaster Risk Prevention, Response and Mitigation and the Action Plan Framework for Adaptation to Climate Change in the Agriculture and Rural Development Sector recognize the role of forests in climate change mitigation and adaptation. These plans include activities on reforestation and protection of upstream forests, the establishment and management of increased areas of forest land, and increases in forest cover, as well as exploring the potential use of NTFPs in protection forests to provide benefits to local people and planting trees to protect dyke systems (RECOFTC, 2014). The National Climate Change Strategy also includes strategic tasks on increasing forest cover and developing community capacity on adaptation.

Viet Nam's National Action Programme on REDD+ was approved in 2012. Viet Nam is participating in the UN-REDD Programme and the FCPF. Phase I of the UN-REDD Programme was completed in October 2012 and Phase II is running from 2013–2018 with funding from the Government of Norway. The FCPF project to support REDD+ Readiness preparation is being implemented from 2013 to 2016 to prepare the key elements required for future REDD+ implementation. Viet Nam has also received considerable support for REDD+ Readiness and pilot activities from other agencies, including but not limited to JICA (Japan International Cooperation Agency), GIZ, NORAD (Norwegian Agency for Development Co-operation) and the USAID Forests and Deltas project.

Various projects utilizing community-based approaches to managing mangrove ecosystems are underway, supported by NGOs and other agencies. These are proving effective in restoring mangrove ecosystems to enhance their roles in protecting coastal areas and supporting climate-resilient livelihoods. Under the current legal framework, mangrove ecosystems are the responsibility of MoNRE, while the Ministry of Agriculture and Rural Development (MARD) is responsible for approving formal CFM plans. Greater coordination between the two agencies is needed to scale up community forestry in mangrove ecosystems (RECOFTC, 2014c).

Barriers and challenges

CFM has been a key part of Viet Nam's reforestation measures in the past, and can further support the achievement of national afforestation targets. Until now, community-based adaptation projects have tended to focus on mangrove rehabilitation and community forestry activities in coastal areas. The role of community forestry in strengthening the resilience of forest communities in upland areas, by contributing to sustainable livelihoods, food security and leveraging social capital and local knowledge has received less attention (RECOFTC, 2014c).

50 Socialist Republic of Viet Nam. 2012. [PDF]. (available at http://vietnam-redd.org/Upload/CMS/Content/Library-GovernmentDocuments/Decision_1775-QD-TTg-%202012.pdf). Accessed 28 September 2016.



6. Summary and conclusions

6.1 Summary of progress on social forestry

Steady progress is being made to implement social forestry in the ASEAN region. The latest government figures show that 10,078,435 ha of forest land is managed by local people under official social forestry agreements and communal land titles. This figure has steadily increased from 6.6 million ha in 2010 to 8.8 million ha in 2013 (RECOFTC, 2010; RECOFTC, 2013).

Progress by the individual Member States towards their national social forestry targets is mixed. Viet Nam has already exceeded its national target area of 4 million ha, and Thailand is making good progress towards its 1.6 million ha target, despite the absence of community forestry legislation. The Philippines had achieved approximately half of its national target area by 2013, but progress in the last three years is difficult to determine, due to the lack of recent data. In other countries, such as Cambodia, Myanmar and Indonesia, social and community forestry is progressing more slowly. The existing frameworks and procedures may need to be revised or streamlined, if social forestry is to be implemented effectively and national targets are to be met.

In general, the implementation and expansion of social forestry in the region remains constrained by administrative challenges, such as complicated regulations and procedures, high costs, and a lack of capacity on the part of local communities and local governments to effectively manage the process (Blomley *et al.*, 2010). The forests allocated to local communities are often small and heavily degraded, thus the benefits that they provide to local people are relatively low, particularly in the initial period (FAO, 2016; RECOFTC, 2013; Broadhead and Izquierdo, 2010). In many cases, the community forestry agreement or management plan restricts the collection and/or sale of timber, further limited the value of community forests to local people (Gritten *et al.*, 2015). These factors reduce the incentives for local people to actively engage in social forestry initiatives and its ability to support mitigation and adaptation.

The region's forest area continues to fall by around 1.3 million ha per year. In some countries such as Cambodia and Myanmar, the rate of deforestation appears to be increasing. In other countries, such as Lao PDR, the Philippines and Malaysia, the lack of recent official data makes it difficult to assess the current situation. Much more needs to be done to protect the region's remaining forests by addressing the key drivers of deforestation and degradation. Where deforestation is driven by macro-level political and economic factors, such as illegal logging or the development of agricultural concessions on forested land, it is unlikely that social forestry can be effective in protecting and sustainably managing community forests (Lang, 2016; Yeang and Brewster, 2012). Social forestry appears to be more effective in contributing towards reduced forest degradation, enhancing forest carbon stocks, and supporting the implementation of reforestation and sustainable forest management efforts (Skutsch and McCall, 2012).

6.2 Summary of progress on social forestry in climate change mitigation and adaptation

At the regional level, ASEAN has already created a large number of declarations, policies and institutions with the aim of responding to climate change. National governments are also making notable progress to elaborate policies and strategies on climate change. Urgent action is now required to implement these policies and strategies through concrete action on mitigation and adaptation on the ground.

Recognition of the importance of forests in climate change mitigation and adaptation is growing, highlighted by the specific mention of forests and the inclusion of REDD+ in the Paris Agreement. The forest sector features in the majority of the Member State's INDCs as a key sector for mitigation and adaptation. Six of the AMS have stated their intention to maintain or increase forest cover to generate mitigation benefits, and six AMS include forests or social forestry as part of their adaptation strategies.

In the past, there has been a tendency for governments and climate change stakeholders to overlook the role of forest communities, with strengthened management rights, can play in reducing emissions and increasing carbon sequestration and storage (Stevens *et al.*, 2014). However, there are signs that this may be starting to change. Social forestry has contributed to the increase of forest cover and restoration of degraded forests under Viet Nam's reforestation programmes, as well as ongoing mangrove rehabilitation efforts in Myanmar, Thailand and Viet Nam, which contribute to carbon sequestration. Cambodia's INDC includes the target of creating 2 million ha of community forests by 2029 as part of its mitigation contributions from the forest sector (RGC, 2015).

The important role of social forestry in adaptation is also being increasingly recognized and encouraged. Indonesia's INDC specifically mentions social forestry as a means to promote sustainable forest management and protect ecosystems and ecosystem services (GoI, 2015). Myanmar's current and planned adaptation efforts include restoring degraded and sensitive forest areas through community-based reforestation (MoECaF, 2015) and Thailand's adaptation efforts include sustainable management of community forests to promote food security of forest communities (ONEP, 2015). The ability of social forestry to deliver joint benefits for climate change mitigation and adaptation is becoming increasingly clear.

At the community level, social forestry is already helping to increase the resilience of local people. Community-based ecosystem restoration projects are helping to restore forest areas, increase their ability to store carbon, provide ecosystem services, and support more diverse and climate-resilient livelihoods. These initiatives also help to build capacities at the local level to respond to the challenges of climate change, leveraging social capital and knowledge on adaptive forest management, and providing institutional mechanisms to prepare and respond to climate related challenges (RECOFTC, 2014).

6.3 Looking to the future

Social forestry has a key part to play in realizing the ASEAN vision for a “competitive, inclusive, resilient and sustainable” forest sector beyond 2025. However, it faces a variety of challenges, including the pressure to convert forest to other uses, especially agriculture, illegal logging, and the impacts of climate change itself. The AEC is expected to generate new opportunities to improve forest management and production standards, tackle illegal logging and increase trade in timber and NTFPs. However, without careful monitoring and regulation, the impacts of the AEC may add to existing challenges for forest protection, for example by opening up previously inaccessible forest areas and displacing forest communities during the course of infrastructure development (Razal *et al.*, 2016). Effective regulatory systems and supportive policies and programmes will be needed to ensure that the AEC benefits all of ASEAN’s citizens and contributes towards sustainable growth, environmental protection and improved livelihoods for rural and forest-dependent people.

In order to harness the full potential of social forestry for sustainable development, poverty reduction and climate change mitigation and adaptation, there remains a need to increase efforts to implement social forestry programmes. This includes strengthening legal frameworks, removing administrative and financial barriers to allocation of community forests, and building the capacity of both local communities and government agencies to establish and manage community forests. In a number of countries, the monitoring and evaluation of social forestry is made extremely challenging by the lack of recent, reliable data on the area of social forestry land and the number of instruments, households and communities involved. More research on the benefits, achievements and challenges faced by social forestry in the context of climate change would also be beneficial, and enable knowledge, best practices and lessons learnt to be shared more widely among stakeholders in the region.

If social forestry can be further strengthened and scaled up, it can support the AMS to achieve their national forestry targets and international climate change commitments. In addition, it is a practical tool to enhance the resilience of local people and strengthen their capacity to respond to the impacts of climate change in their daily lives. Given the capacity of social forestry to generate joint mitigation and adaptation benefits, and the urgent and critical nature of the challenges facing the region in the coming years, social forestry should be further prioritized as a key strategy in national and regional efforts to respond to climate change.

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Annex 1: Definitions of social forestry and community forestry

FAO (1978): Community forestry is any situation that “intimately involves local people in a forestry activity. It embraces a spectrum of situations ranging from woodlots in areas which are short of wood and other forest products for local needs, through the growing of trees at the farm level to provide cash crops and the processing of forest products at the household, artisan or small industry level to generate income, to the activities of forest dwelling communities.”

Gilmour and Fisher (1991): Community forestry is “the control and management of forest resources by the rural people who use them, especially for domestic purposes and as an integral part of their farming systems.”

Martel and Whyte (1992): Community forestry is “a village-level forestry activity, decided on collectively and implemented on communal land, where local populations participate in the planning, establishing, managing and harvesting of forest crops and so receive a major proportion of the socio-economic and ecological benefits from the forest.”

Revington, Rainforest Information Centre (1992): “Community forestry has the following characteristics: the local community controls a clearly and legally defined area of forest; the local community is free from governmental and other outside pressure concerning the utilization of that forest; if the forestry involves commercial sale of timber or other products, then the community is free from economic exploitation of markets or other pressure from outside forces; the community has long-term security of tenure over the forest and sees its future as being tied to the forest.”

Nanang and Inoue (2000): Social forestry is “participatory forest-related activities for the purpose of sustaining and improving the economic and social welfare of people living in and around forests.”

Charnley and Poe (2007): “Community forestry refers to forest management that has ecological sustainability and local community benefits as central goals, with some degree of responsibility and authority for forest management formally vested in the community.”

Burley, Oxford Forestry Institute: “Community forestry, social forestry and rural development forestry are more or less equivalent and reflect Abraham Lincoln’s view of democracy – government of the people, by the people, for the people.”

RECOFTC (2008): Community forestry “includes all aspects, initiatives, sciences, policies, institutions and processes that are intended to increase the role of local people in governing and managing forest resources. It consists of informal, customary and indigenous and formal or government-led initiatives. Community forestry covers social, economic and conservation dimensions in a range of activities, including indigenous management of sacred sites of cultural importance, small-scale forest-based enterprises, forestry out-grower schemes, company–community partnerships and decentralized and devolved forest management.”

Carter (2010): Community forestry is “an approach to forest management that actively promotes the rights of the people living in and around the forest to both participate in forest management decisions and to benefit (financially and in kind) from the results of the management.”

Source: The role of social forestry in climate change mitigation and adaptation (RECOFTC 2014a.)

Annex 2: National forest definitions f5

Country	Definitions used in national forest cover assessments (2013 Status Update)	Definition used in FREL/FRL
Cambodia	The 2006 forest assessment used the FAO definition of forest: 10% or more canopy coverage, minimum area of 0.5 ha and minimum 5 m tree height (RGC, 2010). The 2010 forest classification included evergreen forest, semi-evergreen forest, deciduous forest, other forest, wood shrub dry, wood shrub evergreen, bamboo, mangrove forest and rubber plantation (mangrove forest and rubber plantations were added in 2010).	n/a
Indonesia	Forest area is any particular area designated by the government to be permanent forest. Forest cover includes primary dryland forest, secondary dryland forest, primary swamp forest, secondary swamp forest, primary mangrove forest, secondary mangrove forest and plantation forest (MoF 2012).	In 2004, the Minister of Forestry Decree No 14/2004 on A/R CDM ⁵¹ defined forest as "land spanning more than 0.25 ha with trees higher than 5 m at maturity and a canopy cover of more than 30% or trees able to reach these thresholds in situ" (MoEF 2015).
Lao PDR	"Current forest" is defined as natural forest or tree plantation with a canopy density greater than 20 percent, a minimum area of 0.5 ha and average tree height above 5 m. Bamboo forest, fallow forest and unstocked forest with less than 20 percent canopy density are not included as current forest (GoL, 2005).	n/a
Malaysia	The government uses the FAO definition of land area greater than 0.5 ha, with trees higher than 5 m and a minimum 10 percent canopy cover or trees able to reach these thresholds in situ. Data on forest cover include permanent reserved forest, state land forest, national parks, wildlife and bird sanctuaries and rubber plantations (FAO, 2010).	The definition used by FAO is not used, because some agricultural land, e.g. state land and rubber plantations would be considered forest. These areas are not subject to the National Forest Act and not managed in a sustainable manner. The forest definition used in the development of the reference level is based on the national legislation and is consistent with the national GHG inventory.
Myanmar	Forest area is land with tree crown cover (or equivalent stocking level) of more than 10% and an area of more than 0.5 ha. The trees should reach a minimum height of 5 m at maturity in situ (MoF, 2005).	n/a
Philippines	The Department of Environment and Natural Resources uses the following definition of forest: land areas greater than 0.5 ha, with a tree crown of more than 10% and trees capable of reaching a height of 5 m at maturity. Young natural stands and forestry plantations in which trees have yet to reach 10% crown and 5 m in height are included as forests as well as temporarily unstocked areas that are expected to revert to forest. The definition includes rubber plantations, bamboo, palm and fern formations, forest nurseries, seed orchards, forest roads and firebreaks. Coconut and oil palm plantations are not included (DENR, 2005).	n/a
Thailand	The existing forest area is defined as land spanning more than 0.6 ha that can be classified using Landsat data, at 30 m resolution. It does not include land predominantly under agricultural or urban land use (FAO, 2010). Forest cover assessments include natural forests, secondary and planted forests and the following forest types: tropical evergreen, mixed deciduous, dry dipterocarp, swamp forest, inundated forest, beech forest, pine forest, bamboo forest and mangrove forest.	n/a

<p>Viet Nam</p>	<p>The Forest Protection and Development Law (2004) defined forest as an “ecological system consisting of populations of forest fauna and flora, forest micro-organisms, forest land and other environmental factors, of which timber and bamboos or typical flora constitute the major components with the degree of coverage of forest canopy over forest land of 10% or more.”</p> <p>The national definition of forest is an area of at least 0.5 ha, with trees higher than 3 m and canopy cover of 0.3 ha or growing stock over 30m³/ha (FAO, 2010). Assessments of forest cover include natural forests of timber, bamboo, mangrove, mixed and rocky mountain forest and plantations of timber, bamboo, mangrove and other specialty species (VNFOREST, 2013).</p>	<p>In 2009 Circular No. 34/2009/TT-BNNPTNT on the criteria for forest identification and classification, defined forests as having a minimum 10% tree cover, a minimum height of 5 meters, and a minimum area of 0.5 ha.</p>
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Annex 3: Overview of legal rights and forest tenure arrangements in Southeast Asia

Country	Social forestry model	Forest type	Bundle of rights					Length of tenure
			Access	Use	Management	Exclusion	Alienation	
Cambodia	Community-based forest management	Production forest	Yes	Timber and NTFPs for domestic use Permits and royalties for commercial use	Yes	Yes	No	15 years – renewable State can reclaim
	Community protected area	Protected forest	Yes	NTFPs from sustainable use zone Commercial use of timber prohibited	Yes	No	No	15 years
Indonesia	Community-based forest (HKM)	Protection and production	Yes	Protection forest – NTFPs Production forest – timber and NTFPs	Participate in management board	Yes	No	35 years. Extendable, based on evaluation
	Village forest (hutan desa)	Protection and production	Yes	Protection forest – NTFPs Production forest – timber and NTFPs	Yes	Unclear	No	35 years. Extendable, based on evaluation
Lao PDR	Village forest	Any state forest	Yes	Collection and sale of some NTFPs Small amounts of timber for domestic use in production forest	Yes	No	No	Degraded forest 30–40 years Barren forest 40–60 years Remote areas 40–70 years
Sabah, Malaysia	Social forestry projects	FMUs in commercial reserves	Yes	Alternative livelihoods projects and development of basic infrastructure	Communities are consulted	Unclear	No	No tenure
Myanmar	Community forestry	All state forest	Yes	Collection and sale of forest products for domestic use without taxes	Yes	Yes, but weak in practice	Can be inherited	30 years – renewable
Philippines	Community-based forest management	All state forest	Yes	Limited use rights in protected areas and watershed reserves	Yes	Yes	CBFMA cannot be transferred. Certificate of Stewardship contracts are transferable	25 years – renewable DENR retains significant authority

Thailand	Community forestry	State forest land except protected areas	Yes	Collection of dead wood and NTFPs Felling timber is prohibited in natural forests	Yes	Unclear	No	Unclear
	Community land use permit	State forest land except protected areas	Yes	Collection of dead wood and NTFPs Felling timber is prohibited in natural forests	Co-management	Yes	No	Renewable Duration set by government committee
Viet Nam	Community forestry management – Land use rights certificate	Production and non-critical protection	Yes	Plantation forest – all products can be sold without restrictions	Yes	Yes	Rent, transfer, mortgage and inherit	50 years
	Community forestry management – Forest protection contract	Protection	Yes	Dry fuelwood and some NTFPs Limited, depending on protection function	Unclear	Yes	Not permitted for communities	1-year contracts – extendable up to 5 years

Source: The role of social forestry in climate change mitigation and adaptation, RECOFTC 2014a

Annex 4: NAPA projects under the LDCF

Country	LDCF project title	Project identification	CEO endorsement	Total project cost (US\$ million)	GEF Agency	Executing agencies
Cambodia	Promoting climate-resilient water management and agricultural practices in rural Cambodia	May 2007	April 2009	4.485	UNDP	n/a
Cambodia	Vulnerability assessment and adaptation programme for climate change within coastal zone of Cambodia considering livelihood improvement and ecosystems	January 2010	n/a	6.098	UNEP	MoE
Cambodia	Strengthening the adaptive capacity and resilience of rural communities using micro watershed approaches to climate change and variability to attain sustainable food security	August 2011	March 2014	23.903	FAO	MAFF and MoE in collaboration with the Ministry of Water Resources Management
Cambodia	Strengthening climate information and early warning systems in Cambodia to support climate resilient development and adaptation to climate	March 2013	n/a	22.0639	UNDP	Ministry of Water Resources and Meteorology
Lao PDR	Improving the resilience of the agricultural sector in Lao PDR to climate change impacts	August 2009	November 2010	9.544	UNDP	Ministry of Agriculture and Forestry through NAFRI
Lao PDR	Effective governance for small-scale rural infrastructure and disaster preparedness in a changing climate	July 2011	January 2013	31.097	UNDP	Ministry of Natural Resources and Environment
Lao PDR	Strengthening agro-climatic monitoring and information system to improve adaptation to climate change and food security	July 2013	n/a	22.755	FAO	Ministry of Natural Resources and Environment, Department of Meteorology and Hydrology, Ministry of Agriculture and Forestry, Department of Planning and Cooperation
Lao PDR	Climate adaptation in wetland areas	February 2013	n/a	22.220	FAO	Ministry of Natural Resources and Environment, International Union for Nature Conservation
Myanmar	Adapting community forestry landscapes and associated community livelihoods to a changing climate, in particular an increase in the frequency and intensity of extreme weather events	May 2013	n/a	24.672	UNEP	Ministry of Environmental Conservation and Forestry/ Environment Conservation Department and Forest Department, Ministry of Transport/Department of Meteorology and Hydrology

Annex 5: Statistics for Brunei Darussalam

Brunei Darussalam		
Total population	411,900 in 2014	
Rural population	96,472 in 2104	23% of total population
Total country area	576,532 ha	
Total land area (excluding inland water bodies)	526,532 ha	
Gazetted forest land	235,520 ha	45% total land area
Total forest land (Previously gazetted forest plus proposed forest land)	322,195 ha ⁵²	61% of total land area
Production forest	18,562 ha	4% of forest land
Conservation forest	31,684 ha	7% of forest land
National park	48,854 ha	10% of forest land
Protection forest	218,650 ha	46% of forest land
Recreation forest	4,445 ha	1% of forest land
Production forest	218,650 ha	
Protected forest (soil and water conservation)	Not available	Not available
Protected forests (biodiversity conservation)	31,684 ha	
Forest cover change	0.00%	
Carbon stocks	92.80 mmt in forest land	
Community managed forests (with CFM agreement)	n/a	
Community forestry policies and programmes	n/a	
Climate change mitigation and adaptation targets, policies and programmes	Energy White Paper 2014	
	Land Transport White Paper 2014	
	The Government of Brunei Darussalam intends to increase the total gazette forest reserves from 45% to 55%	

Sources: Brunei Forest Department website http://www.forestry.gov.bn/frst_forest.htm. Accessed 23 May 2016. FAO 2015a.

⁵² The most recent forest inventory was carried out in 1984 (Anderson & Marsden. 1984. Brunei Forest Resources and Strategic Planning Study) and official forest data is still based on these figures. According to the Director of Forestry, Brunei Forestry Department in September 2015, Brunei has 448,118 hectares of forested area, but these figures have not been officially published or independently verified. See <http://m.bt.com.bn/frontpage-news-national/2015/09/09/forestry-department-reiterates-conservation-policy-commitment#sthash.bKNgWf5v.dpuf>. Accessed on 1 July 2015.

Annex 6: Statistics for Singapore

Singapore		
Total population	5,469,720 in 2014	
Rural population	0	0% of total population
Total country area	71,910 ha	
Total land area (excluding inland water bodies)	71,000 ha	
Total forest land	16,347 ha in 2014	23% total land area
Forest cover area	16,347 ha in 2014	23% of forest land
Production forest	0 ha	0% of total forest land
Protected forest (soil and water conservation)	3,000 ha	
Protected forests (biodiversity conservation)	3,350 ha	
Forest cover change	Not available	
Carbon stocks	Not available	
Community managed forests (with CFM agreement)	None	
Community forestry policies and programmes	n/a	
Climate change mitigation and adaptation targets, policies and programmes	National Climate Change Strategy 2012	

Source: FAO 2016h







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