

Climate Change Adaptation: Management Mangrove Forests, Myanmar

Key results:

- Coastal community forest groups established to apply sustainable management of mangrove forest areas in Rakhine.
- 12 Protected Public Forests with mangroves designated in collaboration with local communities and organisations.
- Contribution to minimum 20,000 acres of mangrove forest restored and with sustainable management plans.
- Community forest groups provided opportunities from mangrove forests, in particular regarding fuel efficient cooking stoves and use of mangrove forest resources.

Justification for support.

- Myanmar is among the three most vulnerable countries to climate change impacts in the world.
- Mangroves are an example of climate change adaptation and mitigation co-benefits; - mangroves provide shelter towards tropical cyclones and are at the same time an effective sink for green-house gases. To this, mangroves offer ecosystem services securing livelihoods of coastal communities (food, timber, fuel wood etc.)
- Since 1980 the State of Rakhine has lost nearly half of its mangrove forest leaving a huge need for rehabilitation, but also protection of remaining forests.

How will we ensure results and monitor progress

- The engagement is implemented within government systems. Aligned with targets of the national Reforestation and Rehabilitation Plan 2017-2017 as well as the vision of Myanmar climate change strategy and action plan. Both plans are embedded within the partner ministry MoNREC with clear annual and accountable performance targets.
- The monitoring will build on a “traffic-light” system with annual assessments of performance.
- The long-term Danida advisor and technical assistance will work closely with the partner ministry to build systems for monitoring and verifying results of the engagement.

Risks and challenges

- There are competing demands for the resources represented by the mangrove forests; the trees themselves (for timber and fuel wood), the land on which they stand and their services for fisheries and coastal protection.
- The ability of the Forest Department to secure jurisdiction over the areas of degraded forest to be turned into Public Protected Forest.
- The efficiency of channelling funds through the Forest Department and the ability to manage local activities in Rakhine.

Strat. objective

Developing countries achieve low-carbon, climate resilient development and are able to implement the Paris agreement

Thematic Objective

Resilience to climate change among vulnerable and marginalised groups increased through sustainable development of mangrove forests

List of Engagement/Partners

- Forest Department, Ministry of Natural Resources and Environmental Conservation (MoNREC), Myanmar

File No.	2016-49303						
Country	Myanmar						
Responsible Unit	Yangon						
Sector	DAC 31220						
	<i>Mill.</i>	2017	2018	2019	2020	2021	2022
Commitment	35						
Projected ann. Disb.		9.3	9.6	6.3	6.3	3.5	
Duration	2018 – 2022/2023 (63 months)						
Finance Act code.	§ 06.34.01.70. (klimapuljen)						
Desk officer	Henning Nøhr						
Financial officer	Aticha Wongwain						

SDGs relevant for Programme [Maximum 5]



Budget

Output 1: Enhanced capacity of the Forest Department to advocate for, establish and enforce Protected Public Forests (PPFs) with mangroves, especially in Rakhine	9.400
Output 2: Coastal Community Forest Groups (FUGs) established with assistance from Forest Department and external service providers such as CBOs/NGOs, institutions and universities.	3.000
Output 3: Mangrove forest restored and rehabilitated in target areas in Rakhine.	6.000
Output 4: Community group-managed projects to reduce pressure on mangrove resources and enhance community resilience to climate change.	3.500
Management set-up	800
Sort-term technical assistance Forest Department	4.000
Contingency budget	1.500
Long-term Danida advisor	6.800
Total	35.000



Ministry of Foreign Affairs of Denmark

Embassy of Denmark, Myanmar

DANIDA



Development Engagement Document
Denmark-Myanmar Country Programme 2018 – 2023

**Climate Adaptation in Coastal Communities of Myanmar:
Improved Management of Mangrove Forests**

August 2017

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List of Abbreviations, Acronyms and Units

Acre	The unit of land/forest area used in Myanmar (1 Hectare = 2.47 Acre)
ACTMAN	Action for Mangroves
BANCA	Biodiversity and Nature Conservation Association
BDA	Border Area Development Association
CBO	Community Based Organization
CCA	Climate Change Adaptation
CF	Community Forestry
CLEARR	Coastal Livelihood and Environmental Assets Restoration in Rakhine
CRI	Global Climate Risk Index
CSO	Civil Society Organization
DED	Development Engagement Document
DFID	Department For International Development (UK Aid)
DKK	Danish Kroner
DoF	Department of Fisheries (Myanmar)
DZGD	Dry Zone Greening Department
ECCDI	Ecosystem Conservation and Community Development Initiatives
ECD	Environmental Conservation Department
EcoDev	Economically Progressive Ecosystem Development Group
EoD	Embassy of Denmark
FAO	Food and Agriculture Organization of the United Nations
FD	Forest Department (Myanmar)
FREDA	Forest Resource Environment Development and Conservation Association
FUG	Forest User Groups
GoM	Government of Myanmar
Ha	Hectare
HRBA	Human Rights Based Approach
ILTA	International Long-Term Advisor
IOM	International Organisation for Migration
LIFT	Livelihood and Food Security Trust Fund
M&E	Monitoring and Evaluation
MCCA	Myanmar Climate Change Alliance Programme
MERN	Myanmar Environmental Rehabilitation-Conservation Network
MSN	Mangrove Service Network
MFF	Mangroves for the Future initiative
MMK	Myanmar Kyat
MONREC	Ministry of Natural Resources and Environmental Conservation
MoPF	Ministry of Planning and Finance
MTE	Myanmar Timber Enterprise
NAG	Network Activities Group
NAPA	National Adaptation Programme of Action
NCB	National Coordinating Body (of Mangroves for the Future)
NGO	Non-Governmental Organisation

NPT	Nay Pyi Taw
NRRPM	National Reforestation and Rehabilitation Programme in Myanmar
PFE	Permanent Forest Estate
PPF	Protected Public Forest
RCA	Rakhine Coastal Region Conservation Association
RF	Reserved Forest
SC	Steering Committee
SCF	Sustainable Coastal Fisheries Engagement
SDF	Swanyee Development Foundation
SLR	Sea Level Rise
SMEs	Small and Medium Enterprises
ToR	Terms of Reference
UNEP	United Nations Environment Programme
USD	United States Dollar

1 Introduction

This development engagement document (DED) details the objective, expected outcome and management arrangements for development cooperation between Denmark and Myanmar concerning Climate Adaptation in Coastal Communities of Myanmar through Improved Management of Mangrove Forests; in short: the Climate Change Adaptation (CCA) Engagement.

The Danish support involved is an additional contribution to the Thematic Programme: “Inclusive and Sustainable Economic Growth” of the Denmark-Myanmar Country Programme 2016-2020 and is funded by the Danish Climate Envelope - a mechanism for channelling Danish climate funding to support mitigation and adaptation activities in developing countries.

The Country Programme Support Agreement between the Government of Denmark and the Government of the Republic of the Union of Myanmar was signed in December 2016 by the two parties. The DED will be covered by all the conditions of the Country Agreement through the signing by these parties of an addendum to the December 2016 Agreement.

Parties to the Cooperation set out in the DED:

The Embassy of Denmark in Myanmar and the Forest Department (FD) under the Ministry of Natural Resources and Environmental Conservation (MONREC), Government of Myanmar.

Documentation

“The Documentation” refers to the partner documentation for this cooperation, consisting of:

1. Denmark-Myanmar Country Strategy 2016-2020 (separate cover).
2. Denmark-Myanmar Country Programme Document 2016-2020 (separate cover).
3. Guiding Principles for the Danish Climate Change Envelope (separate cover).
4. National Reforestation and Rehabilitation Programme in Myanmar 2017-2026 (NRRPM) (separate cover).
5. Community Forest Instructions, MONREC, Notification No (84/2016), (16 August 2016) (separate cover).
6. The Myanmar Climate Change Strategy and Action Plan (2016-2030) (separate cover).
7. National Adaptation Programme of Action on Climate Change (2012) (separate cover).

2 Background

2.1 National Context

Myanmar ranks among the countries most at risk from the main climate change threats identified by the World Bank: droughts, floods, storms, cyclones, sea level rise and impacts on agriculture. According to the most recent Global Climate Risk Index (CRI) published by Germanwatch (2016), Myanmar, Haiti and Honduras remain the three most climate-affected countries over the past 20 years. Moreover, future predictions for Myanmar point to more extreme weather patterns and greater exposure to climate hazards. Food security and freshwater water availability will be reduced by impacts caused by less predictable weather, higher temperatures and longer drought periods, plus storm damage and saltwater intrusion into agricultural land. Coastal areas in particular will experience more intense flooding due to a combination of storm surges and sea level rise (SLR).

Myanmar has one of the largest areas of mangrove forest remaining in the world: the country ranks 7th with about 485,000 hectares according to a global estimate by Giri *et al.*, (2010). The mangroves are also rich in biodiversity, with 34 out of the global total of around 70 mangrove tree species occurring in Myanmar. However, since the 1970s there has been a rapid rate of mangrove clearance and degradation. This was caused by coastal land conversion, initially to agriculture (rice fields) and later to aquaculture (shrimp ponds), as well as by timber and fuelwood extraction. According to the Rakhine Coastal Region Conservation Association coastal “land-grabbing” has recently become more and more common in Rakhine (RCA, 2015).

Mangrove loss has been most extreme in the Ayeyarwady Delta, where the area covered by mangroves decreased from about 296,000 ha in 1980 to only 25,000 ha by 2007. In contrast, the mangrove cover in Tanintharyi Region declined only slightly over the same period (from 195,181 ha to 190,134 ha). The equivalent figures for Rakhine for 1980 and 2007 are 167,550 ha in 1980 and 97,558 ha respectively (Win Maung, 2012), indicating a loss of about 2% of Rakhine’s mangrove forest area annually over this period.

More recent assessments of the change in mangrove area in Rakhine confirm this downward trend, but the actual area estimates differ considerably between studies (figure 1). Using LANDSAT satellite imagery, REACH (2015) reported a decline in the mangroves in Rakhine from 280,986 ha in 1988 to 223,506 ha in 2015, or a loss of more than 2,100 ha per annum. A study by NASA (2014) gives an estimate of 147,000 ha for the mangrove area in Rakhine in 2013, compared to 173,400 ha in 2000, indicating a similar rate of loss of about 2,000 ha annually over the period 2000-2013. The Forest Department estimate for the mangrove area in Rakhine in 2015 is 127,042 ha.

Of particular concern is the significant loss of mangrove forest reported in Wunbaik (Yambye Township), which is the only Forest Reserve area with mangroves in Rakhine. The area of dense mangrove forest in Wunbaik declined from 16,672 ha in 1990 to 11,893 ha in 2013 (Hnin Khaing Aye (2014), equivalent to a loss of about 1.25% annually over this 23 years period.

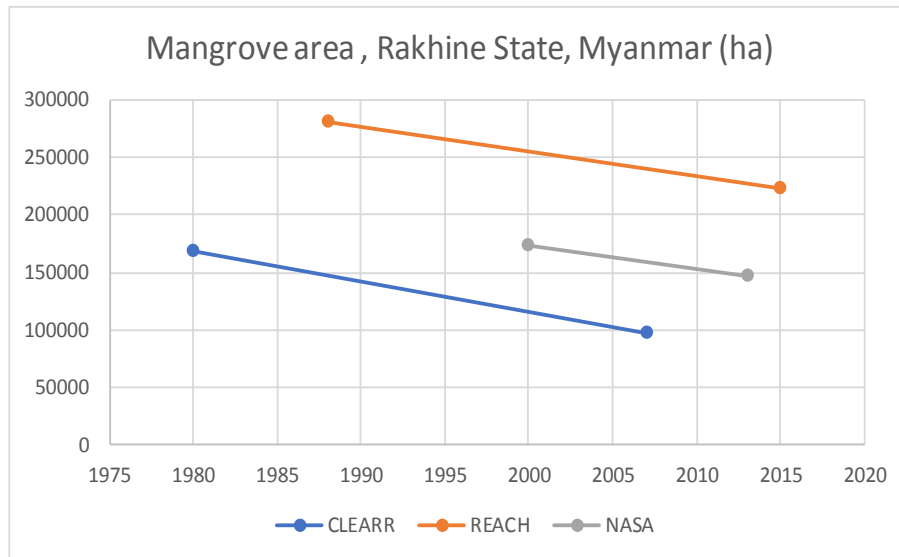


Figure 1: The trend in loss of mangrove area in Rakhine based on three different estimates (see text for details).

Mangrove wood continues to be in high demand throughout Myanmar’s extensive coastal regions for household use (cooking, heating and house construction), and as fuelwood for drying fish, or pole wood. Much of the exploitation of mangrove trees is illegal, but it is widespread and severe, even in designated protected areas like the Meinmahla Kyun Wildlife Sanctuary in the Ayeyarwady Delta and Wunbaik Reserved Forest in Rakhine. Wood still provides 89% of the fuel used in Rakhine State.

Because of poverty, and the lack of local sources of fuel other than wood, it is inevitable that mangroves will continue to be heavily exploited in Myanmar unless they are rehabilitated and brought under sustainable use management systems. Myanmar’s National Adaptation Programme of Action to Climate Change (NAPA, 2012) concludes that *“The loss of mangroves has severely reduced the flood regulation functions to protect local communities from climate extremes. Therefore, there is an urgent need to restore mangrove ecosystems, particularly in the face of increased intensities and frequencies of extreme weather events resulting from climate change.”* [<http://unfccc.int/resource/docs/napa/mmr01.pdf>]

2.2 Justification

2.2.1 Vulnerability to Coastal Climate Change in Myanmar

Healthy and well-managed mangrove ecosystems can contribute significantly to human well-being and to the resilience of people and nature to climate change. Mangroves support ecological and socio-economic resilience by providing vital provisioning, regulating and supporting services, especially food and livelihood security, while reducing impacts from climate change and militating against climate-induced hazards. If rehabilitated, conserved and well-managed, these ecosystems can provide vital functions and services to benefit vulnerable coastal communities. Mangrove forests consolidate soft sediments deposited along coasts, reduce soil erosion, and mitigate coastal storm and flood impacts.

At the ecosystem level, mangroves provide not only valuable goods in the forms of timber, fuelwood, thatching, fodder, fish, shrimps, crabs and other shellfish; they also provide vital habitat support to coastal fisheries stocks. However, in Myanmar these vital ecosystem services are being threatened increasingly by coastal land encroachment, habitat degradation, overfishing and climate change.

The physical roles played by healthy mangroves gained wide recognition after the December 2004 Asian tsunami because areas with extensive mangrove coverage suffered less damage compared to areas that had been cleared for other forms of land use (Tanaka *et al.*, 2007). The protective value of mangroves against cyclones has also been documented (Das and Vincent, 2009). In contrast, it is clear that Cyclone Nargis, which struck Myanmar's Ayeyarwady Delta in 2008, caused far more loss of life and greater physical destruction because nearly all the mangrove forests had been converted to agricultural land.

Rakhine State is also vulnerable to cyclones, as well as to tropical storms, flooding and landslides. The state's long coastline is particularly exposed to cyclones and wave surges and several devastating cyclones have hit Rakhine in recent years (2004, 2006, 2010, 2015 and 2017) causing considerable damage to infrastructure and livelihoods in coastal areas.

Vulnerability to climate change and natural hazards in Rakhine is exacerbated by the fact that the state has the highest incidence of poverty in Myanmar. According to a World Bank analysis in 2014, the poverty in Rakhine is 78% compared to a national average of 37.5%. The proportion of people in extreme poverty in Rakhine (based on a minimum daily intake of 2300 calories) is 64% (Myanmar Times, 2014). Due to low levels of land ownership and income in the state, 63% of the population depends on casual labour as a source of income, with agriculture followed by fisheries being the main sectors employing casual labourers. The infrastructure in Rakhine is also poor. An assessment by REACH (2015) in the coastal districts of Maungdaw, Sittwe, Pauktaw, Minbya and Myebon in northern Rakhine found that 85 to 88% of households live in storm-vulnerable housing constructed with only thatched roofs.

2.2.2 Justification in Relation to the Danish Climate Envelope

The CCA is funded by the Danish Climate Envelope. Two specific impacts are targeted by this funding: a) Reduced greenhouse gas emissions, and b) Increased climate resilience - specifically for vulnerable and marginalised groups. The CCA is relevant to both targets, but with a specific focus on supporting climate change adaptation and vulnerable communities in Rakhine State. This is one of the poorest regions in Myanmar and thus is one of the more vulnerable to climate change. This vulnerability is exacerbated by frequent extreme weather events along the Rakhine coastline.

To achieve impact in relation to increased climate resilience, one of the outcomes identified for the Danish Climate Envelope is 'Strengthened national and community-level climate change policies, planning frameworks and information systems'. The CCA includes outputs and activities that will strengthen community forestry approaches to mangrove rehabilitation and management in Myanmar, as well as enhancing the capacity of the Forest Department to implement the national Forest Restoration and Rehabilitation Program (2017-2026). Moreover, public consultations on the role of mangrove forests and coastal ecosystem services for climate adaptation and mitigation will be an important cross-cutting activity of the CCA. Training and awareness-raising provided to community forest user groups will include practical guidance on building climate resilience, including, for example, disaster risk preparedness.

The importance of mangroves for climate change adaptation and mitigation goes beyond the protection they provide from extreme weather events. Mangroves also are resilient against longer term impacts from sea level rise due to their salinity tolerance and capacity to reduce coastal erosion. Mangroves play a crucial role as aquatic breeding and nursery grounds which safeguard fishery resources from over utilization. Healthy mangrove ecosystems have a vital role as fallback options for communities in cases

of drought or flood events. In the case of crop failures due to climate events, local communities typically exploit mangrove resources temporarily to bridge their short-term livelihood gaps.

The removal of carbon dioxide from the atmosphere and its storage as carbon in mangrove vegetation and soil is another important ecosystem service that mitigates climate change. Mangrove forests can store high quantities of carbon, especially below the surface in the form of their root systems and accumulated organic debris, to the extent that soil carbon can account for up to 90% of the total carbon storage. Although mangrove forests represent only 0.7% of all tropical forest cover, their continuing loss is contributing up to 10% of the global forest emissions (Donato *et al.*, 2011). By supporting mangrove forest rehabilitation and sustainable management, these activities by the CCA will contribute to climate change mitigation through increased carbon sequestration.

In conclusion, mangroves are an example of *climate change adaptation and mitigation co-benefit* as emphasized in the guiding principles of the Danish Climate Envelope.

2.3 Policy relevance

In response to the serious problems of a) climate change; and b) deforestation, the Government of Myanmar has announced several new strategies and action plans, including:

Myanmar Climate Change Strategy and Action Plan (2016-2030): The Environmental Conservation Department in the Ministry of Natural Resources and Environmental Conservation (MONREC) is the Focal Point for climate change. This strategy and action plan aims to support the public and private sectors, and vulnerable households and communities, in decision-making at both national and local levels to respond to the challenges and opportunities associated with climate change. There are six key sector entry points, including a) Sustainable management of natural resources for healthy ecosystems; and b) Climate-smart agriculture, fisheries and livestock for food security.

National Reforestation and Rehabilitation Programme in Myanmar (2017 to 2026): MONREC has initiated this 10 year programme with a goal to enhance environmental and economic conditions in Myanmar by a) recovering the ecosystem services lost through forest degradation; and b) by improving the income of local communities. The programme includes a number of targets for specific types of forest, including planting about 12,000 ha of mangroves and 14,000 ha of watershed forest, as well as establishing over 300,000 ha of community-owned forest.

Community Forestry Instructions (2016): This recent notification replaces the earlier Community Forestry Instructions (1995). Community Forestry (CF) means forestry operations in which the local community itself is involved in sustainable forest management and utilization. Households irrespectively of status, ethnicity and religion have the right to join a CF user group if they have lived within five miles of forests for five years continuously, or if the forest area has been managed traditionally by local people under customary rights.

The CF Instructions (2016) have five objectives:

1. To support forest-related basic needs such as wood and non-wood forest products for local communities;
2. to reduce rural poverty through employment and income opportunities for local communities;
3. to increase forest cover area and to ensure the sustainable utilization of forest products;

4. to promote forest management systems with peoples' participation;
5. to enhance environmental services that can support climate change mitigation and adaptation by protecting against deforestation and forest degradation.

While these and other new climate-responsive policies and plans are encouraging to see, it is recognized that external assistance is needed to help MONREC achieve these policy goals and planned targets. There is a particular need in Myanmar to strengthen capacity in the ministries and agencies of government to integrate environmental and climate change considerations into the national sustainable development effort; and to build the human capital necessary to create a climate-resilient society.

2.4 Mangrove Forest Management

The Forest Law of 1902 classified Myanmar's forests into only two categories: Reserved Forests under authority of what is now the Forest Department (FD); and Unprotected Forests, for which FD has no legal authority. The Forest Law 1992 reclassified some Unprotected Forest areas into Protected Public Forest (PPF) under the jurisdiction of the FD.

Today, Myanmar's Permanent Forest Estate consists of Reserved Forests, Protected Areas with forest (National Parks, Wildlife Sanctuaries) and PPFs. Collectively, these are under the authority of MONREC. Rakhine has only one Reserved Forest area with mangroves – Wunbaik Reserved Forest in Kyauk Phyu District; and one mangrove PPF located next to Wunbaik. However, the Rakhine State FD has proposed five additional areas as mangrove PPFs: one in Kyauk Phyu District and four in Sittwe District (see details in Table 3).

Nearly all coastal regions of the country with protected forest, and forest areas proposed for protection, – have been severely degraded due to excessive wood extraction, and/or encroachment and clearance of the land for agriculture or aquaculture. In Rakhine, much of the degraded mangrove forest has become overgrown with secondary invasive vegetation that is preventing natural regeneration of the original mangrove species. Rehabilitation (planting mangrove seedlings) and assisted natural regeneration are required on a massive scale in both Rakhine and the Ayeyarwady Delta, whereas the potential for natural mangrove regeneration is much higher in the Tanintharyi Region.

2.5 The Engagement's Contribution to Inclusive and Sustainable Economic Growth

This Climate Adaptation in Coastal Communities of Myanmar (CCA) engagement will contribute to the Denmark-Myanmar Thematic Programme (2016-2020) "Inclusive and Sustainable Economic Growth", particularly Development Engagement C: Sustainable Coastal Fisheries (SCF), which has a focus on co-management of marine and coastal fisheries resources and securing sustainable livelihoods for coastal communities. Rehabilitating mangrove forests will improve the ecological support functions that mangroves provide to inshore fish stocks, thereby contributing to the SCF objective of improving livelihoods in communities that depend on natural coastal and marine fish resources.

In addition to being a source of forestry and fishery products, healthy mangroves also provide a number of other socio-economic benefits, but many of the most important ones are indirect or non-marketed and therefore not fully taken into account when coastal land use decisions are being made. There do not appear to be any mangrove valuation studies reported from Myanmar, but the analysis shown in Table 1 is based on results from 44 mangrove valuation studies, 74% of which came from Asia.

Table 1: Average Values for Mangrove Goods and Services in Southeast Asia.

Mangrove Goods and Services	Median Value (USD/hectare/annum)
Forestry products	627
Fisheries products	576
Coastal protection	3,604
Water and air purification/waste assimilation	5,801
Recreation and Tourism	1,079
Total:	11,687

(from Salem and Mercer, 2012)

At current prices, it is safe to conclude that mangrove goods and services across the Asia region have an average monetary value in the range USD 9,000 to 12,000 per hectare per year. Another important conclusion is that mangrove regulatory and supporting services (coastal protection against storm surges, flooding, soil erosion, water recharge, mitigation of local climate extremes, waste assimilation, nutrient recycling and habitat provision for coastal fishery stocks) have a value many times greater than the provisioning services that generate forestry and fishery products.

It is difficult to monetarise the carbon services provided by mangroves as a contribution to climate mitigation, but the potential value of the carbon added annually by mangrove forests in Southeast Asia has been estimated to be about USD 900 ha⁻¹.

By restoring/rehabilitating mangrove forests and improving their management, the CCA engagement will help to recover and safeguard these multiple ecosystem services.

The CCA engagement will also contribute directly to the expected outcomes and some of the planned outputs of the National Reforestation and Rehabilitation Programme in Myanmar (2017-2026):

Outcomes: Degraded forests become better quality forests
Improved income is generated for local communities

Outputs: 26,690 acres of mangrove plantations created
770,690 acres of Community Forest established (all forest types)
97,098,889 seedlings distributed (all tree species)

However, without external assistance, it is unlikely that MONREC will be able to achieve these targets, or that the potential benefits to forest ecosystem-dependent communities will be fully realized.

The CCA engagement is also well-aligned with the Myanmar Climate Change Strategy and Action Plan (2016-2030), which has the objective to increase the adaptive capacity of vulnerable communities so that they are resilient to the adverse impacts of climate change. This strategy aims to support the public and private sectors, and vulnerable households and communities, in decision-making at both national and local levels to response to climate change. Key sector entry points include a) sustainable management of natural resources for healthy ecosystems; and b) climate-smart agriculture, fisheries and livestock for food security. It will be valuable to involve the Environmental Conservation Department (ECD) of MONREC in the CCA engagement because the engagement will directly support Myanmar's climate change and environmental management strategies.

3 Development Engagement Objective

3.1 Overall Development Challenges, Opportunities and Risks

Myanmar is in the early stages of a major political and economic transition. A new democratically-elected government assumed power in April 2016 and the current political situation has great potential to promote democratic, social and sustainable economic development in Myanmar. The proposed engagement will be part of a Country Programme which was designed to support the transition process in Myanmar and be responsive to the policies and priorities of the new government. It will, however, be funded by the Danish Climate Envelope - a mechanism for channelling additional funding from Denmark to support climate mitigation and adaptation activities in developing countries (see details in section 2.2.2). Therefore, the CCA engagement has been formulated based on both the strategic priorities for Denmark's development cooperation with Myanmar and the overall objectives for the Climate Envelope¹

The engagement objective is: *Resilience to climate change among vulnerable and marginalised groups increased through sustainable management of mangrove forests.*

It is expected that Myanmar will be one of the countries most impacted by climate change, not least by sea level rise and an increase in the frequency of extreme weather events. Coastal communities will increasingly be affected by their direct exposure to these impacts of climate change. At the same time these often less developed communities have low resilience and preparedness towards such impacts and, consequently, their capacity to recover is low. Moreover, Myanmar is defined as a Least Developed Country.

Poverty is higher among the rural population and within ethnic minority and marginalised groups. Moreover, some marginalized groups are seriously challenged regarding land rights issues and access to resources and livelihood opportunities. In seeking to address the degradation of mangrove forests, these issues must also be addressed.

3.2 Choice of Partners

Jurisdiction over Myanmar's Permanent Forest Estate resides with the Forest Department (FD) under the Ministry of Natural Resources and Environmental Conservation (MONREC). The Forest Department's staffing levels are, however, relatively low (in Rakhine State only about 50% of the positions set by the Constitution are filled) and the FD operational budget is inadequate to meet basic field surveillance and monitoring needs. In addition to being unable to control forest degradation and encroachment, the FD also faces challenges to protect coastal forest land against competing land-use plans set by other departments of government, particularly land use planning for agriculture or aquaculture.

Any effort to restore and sustainably manage mangrove forests must involve FD, but it needs to be done in partnership with the local communities, and facilitated by civil society organisations and other service providers, as necessary, to help develop the partnership.

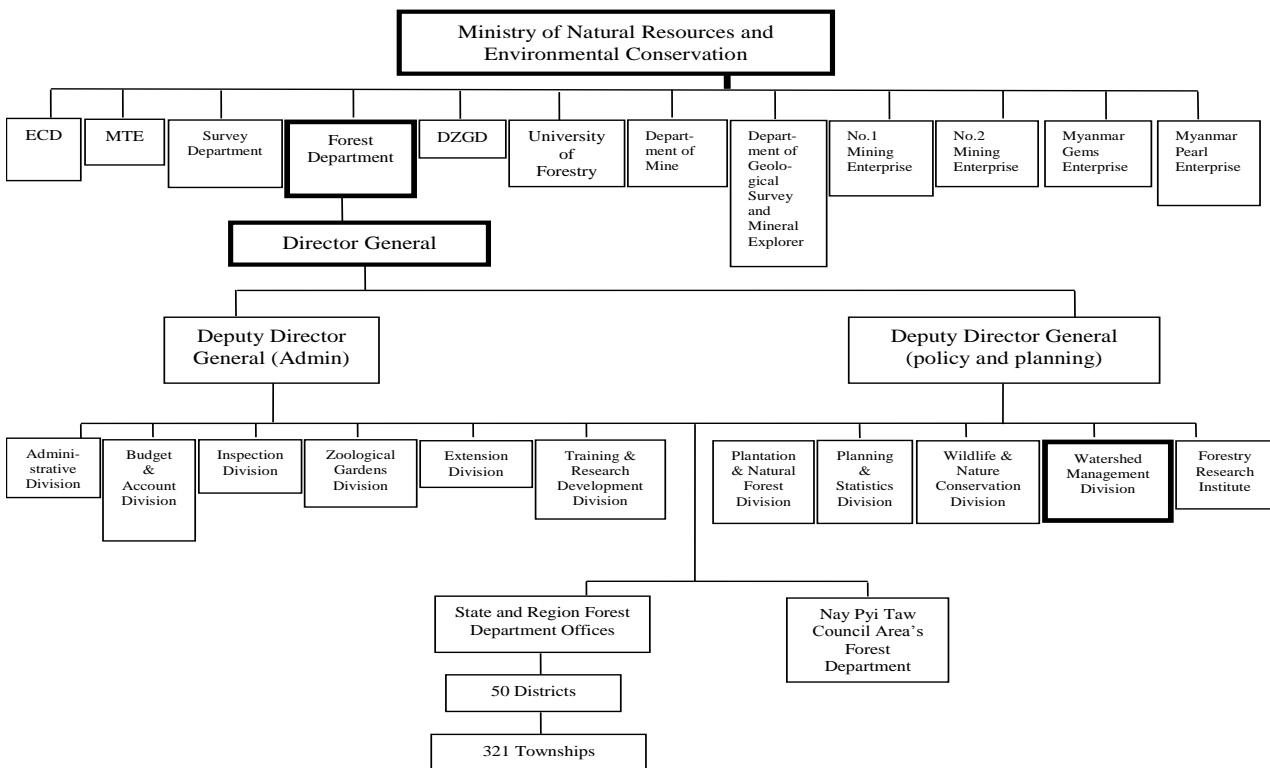
¹ The specific impacts which are targeted by the Climate Envelope are the following: 1) Reduced greenhouse gas emissions; and 2) Increased climate resilience specifically for vulnerable and marginalised groups

3.2.1 Structure and Responsibilities of Key Departments of MONREC

The Forest Department (FD) is responsible for the protection and conservation of wildlife and sustainable management of forest resources in the whole country. Another department in MONREC, the Dry Zone Greening Department (DZGD) is responsible for reforestation of degraded forests and restoration of the environment in the dry central zone of the country. A third body under MONREC, the Myanmar Timber Enterprise (MTE) is responsible for timber harvesting, milling and downstream processing and marketing of forest products.

The positions of FD, DZGD and MTE within MONREC, together with the other divisions that make up the FD are illustrated in the organogram below. Mangrove forests are currently the responsibility of the Watershed Management Division within FD.

Organization Chart of Ministry of Natural Resources and Environmental Conservation



Environmental Conservation Department

The Environmental Conservation Department (ECD) within MONREC is responsible for implementing the National Environmental Policy, and planning, strategies, frameworks and action plans for the integration of environmental consideration into the national sustainable development process. ECD also has the mandate to raise public awareness on environmental issues and is the institutional focal point for climate change in Myanmar. Because of these key responsibilities, the ECD is included as a member of the CCA Steering Committee (see Management Arrangement, section 9). It will especially be valuable for the ECD to assess how effectively the CCA is contributing to the national climate change strategies of Myanmar.

Forest Department at District and Township Levels

Below the Forest Department (FD) at Union level, there is a Forest Department in each State and Region, plus FD offices at District level and Township level. In terms of financing FD activities, the District level FDs receive budget payments from the Union level based on forward six-monthly work plans. This is done in April and October each year, meaning that the work plan and budget for April to September must be submitted to the Union FD in the previous year. The District level FD is responsible for combining proposals on activities and expenditure from each township into the six monthly work plan and budget requests submitted to the Union level.

It is at the township level where forestry activities are actioned and paid for. The Township Forest Officer makes a payment requisition to the District FD and draws money via a cheque issued by the District FD, which is cashed at the Myanmar Economic Bank in the township in order to cover operational costs and to pay the local staff. Requisitions must be made three months in advance. The Township Forest Office is also important because it is the Township FD staff that have regular direct contact with forest-dependent communities, including hiring local people as labour for nursery work, tree-planting, etc.

The Constitution allows for a standard staff complement in each township, but in practice the current staffing levels are only around 50% of the specified allocation. This is illustrated below for FD Yambye Township, which has responsibility for the mangroves in Wunbaik Reserved Forest. There are 14 FD staff in post compared to 21 allowed under the Constitution (67%). In Myebon Township offices the equivalent staffing figures are 18 in post out of 46 (39%); and in Myeik District, Tanintharyi it is around 55%.

The job descriptions of the FD technical staff at township level (Township Officer, Ranger/Deputy Ranger and Forester) place emphasis on overseeing the extraction of forest timber products and revenue collection. The Township Officer also has responsibility for forest protection, but as the staffing table above shows, there are no forest guards in post in this typical example.

Table 2: Categories of staff and allocated versus in post staffing levels in Yambye Township FD.

RANK	ALLOCATION (in the Constitution)	CURRENT STAFF IN POST
Township Officer	1	1
Deputy Ranger	4	2
Forester	8	8
Accountant (Grade 4)	1	-
Junior Clerk	1	1
Forest Guard	4	-
Office Staff	1	1
Office Worker	1	1
TOTAL	21	14

Note: the number of Foresters was only recently increased from 3 to 8.

Responsibilities: Township Officer

- Oversee forest work in the whole township regarding supervising and monitoring, under guidance of the District Officer.
- Forest products production, transportation, verification and revenue collection.
- Protect forests for long term sustainable use and prevent forest products abuse and thefts.
- Educate people and organize model forest villages.

- Any assignment directed by the superior officers.

Responsibilities: Ranger/Deputy Ranger (summarised):

- Plantation establishment, local greening, project and programme implementation.
- Protect against encroachment, illegal tree-cutting, etc. in Reserve Forest (RF) and report to superiors.
- Oversee saw mills and the use of saws and chainsaws.
- Check government buildings, bridges, RF boundaries, etc.
- Check commercial forestry licenses and forest products collection licences.
- Review record books of licensed dealers in forest products.
- Oversee and inspect timber and forest products removal/transportation.
- Report on offences described in the Forest Law.

Responsibilities: Forester

- In accordance with the work allocation, to implement forest operations and activities under supervision of the Ranger and Deputy Ranger.
- Carry out work assigned on forest plantation establishment, forest development, forest conservation, revenue collection in line with the forest law, regulations and instructions.
- Oversee and accept timber and forest products collection and transportation.
- Investigate, seize and take actions on forest offenses in accord with the forest law and regulations on wildlife and tree protection, and environmental conservation.

3.3 Community Participation in Forestry Management

Community Forestry (CF) has been encouraged in Myanmar since the 1990s, but with mixed results and not many successes. However, the new Community Forestry Instructions (2016) have added new impetus to this initiative and it is well supported in principle by the FD, including the involvement of civil society organisations to facilitate the CF development process.

The Community Forestry Instructions (2016) set out clearly how local communities can apply for forest land to be designated as “Community Forest”. They can then take responsibility for the management of the forest with technical support from FD.

Although the new Community Forestry Instructions has only been in place for a few months, it is already clear that, in practice, many communities need external technical support from service providers such as civil society organisations to help organise them as a potential Community Forest group. In Myeik District, Tanintharyi Region, where several mangrove Community Forest groups have been established recently, the role of the intermediary civil society organisation Green Network has been to liaise on the community’s behalf with FD; and then to facilitate the application process required to establish a Community Forestry group.

The initial responsibilities of the FD are to approve the Community Forestry application, and to provide free of charge a small number of tree seedlings to the Community Forestry group in the first year (150 seedlings per acre), plus provision of any technical advice required concerning management of the CF. The FD will also assist with land tenure issues, illegal tree-felling and resolution of conflicts affecting Community Forestry; and will supervise the sustainable extraction of forest products and facilitate trade of the products. Monitoring is not specified within the CF Instructions and the FD appears to have very limited capacity for field level monitoring.

To make Community Forestry economically viable, CF groups are actually planting trees at a standard density of 6 x 6 feet spacing (equivalent to 1,208 seedling trees per acre, or 3,000 trees per hectare). An important element of the support they are receiving from the local civil society partner is either supplying the more than 1,000 additional seedlings required per acre, or assistance to the CF groups to operate village nurseries for this purpose.

In conclusion, the engagement will promote partnerships involving the FD and the local communities, and where required together with external service providers such as civil society partners in a mediating and time-bound support role, in a collaborative effort to plant and protect mangroves, and reduce vulnerability to climate change through other climate-adapted livelihood activities. This approach is also consistent with and complementary to the fisheries co-management arrangements between the Department of Fisheries and coastal communities being supported by the SCF engagement.

3.3 Choice of Locations for the Engagement

The CCA engagement will operate mainly in Rakhine State, which is the poorest coastal region in Myanmar. Rakhine's 730-kilometre-long coastline is particularly vulnerable to climate change and to climate-related hazards, including cyclones. The state still has large areas of mangrove forest, but more than 40% of the mangrove cover has been lost since 1980, mainly due to land conversion to rice fields or aquaculture ponds. The remaining mangrove forests are in most cases heavily degraded and with very limited capacity to regenerate naturally.

The loss and degradation of mangroves in Rakhine has seriously impaired the coastal protection functions that healthy mangrove forests provide. It has also impacted on the productivity of the coastal fisheries associated with mangroves, including the shrimp stocks which previously supported coastal aquaculture production. Today, many shrimp ponds constructed on former mangrove forest land in Rakhine lie abandoned because they are no longer profitable to operate due to decline in the abundance of wild shrimps and other negative environmental changes.

The engagement will also include a small component in Tanintharyi for the following reasons:

1. Mangrove areas in Tanintharyi are generally in better condition than in Rakhine, and the communities in Tanintharyi appear better prepared to engage in Community Forestry (several mangrove Forest User Groups have already been established in Myeik District).
2. In Rakhine, the needs – and therefore the challenges for the engagement – are greater. Thus, it is will be valuable to monitor the performance of some of the mangrove Forest User Groups in Tanintharyi in order to provide the results and lessons learned to communities in Rakhine, including the possibility to demonstrate successful mangrove forestry practices in Tanintharyi through community to community study visits.
3. Some of the SCF engagement sites in Tanintharyi are close to potential mangrove rehabilitation areas. This raises the possibility to promote cooperation between the departments of Fisheries and Forestry; with a possibility to develop some joint SCF/CCA activities. For example, mangrove to fisheries ecological and economic linkages could be demonstrated in Tanintharyi. Studies and applied research to quantify the economic value of mangrove ecosystem services, including their fisheries support role as well as the value of mangrove forest products to Forest User Groups, would provide a strong evidence base for rehabilitating mangroves and increasing the areas under sustainable use management.

3.3.1 Selection of field sites in Rakhine

Rakhine has only one Reserved Forest area with mangroves – Wunbaik Reserved Forest in Kyauk Phyu District; and one mangrove PPF (Min Gaung) which is adjacent to Wunbaik. None of the other areas of mangrove forest in Rakhine are currently under the direct control of the Forest Department (FD). They are classified officially as “secondary” forest and come under the jurisdiction of the Department of Fisheries (DoF). According to a recent report on mangroves in northern Rakhine (REACH, 2015), the Department of Fisheries (DoF) identifies these areas as “degraded unclassified mangrove forests” and therefore they are considered to be eligible for aquaculture development. Many mangrove areas have already been converted into shrimp ponds, but their productivity is now very low and many of the ponds are no longer economical to operate.

Table 3: List of Current and Proposed Protected Mangrove Forest Areas in Rakhine State

Name	Location	Mangrove Forest Area (acres)	Status
Wunbaik	Yambye Township, Kyauk Pyu District	56,633	Reserve Forest since 1931
Min Gaung	Yambye Township	10,080	Protected Public Forest (PPF) since 2009
Min Gaung extension	Yambye Township	1,875	Proposed PPF
Chay Yar Taw/ Tha Yet Pyin	Rathaydaung Township, Sittwe District	1,745	Proposed PPF
Myin Taw Mu/ Nga Shwe Gyi	Myebon Township, Sittwe District	5,166	Proposed PPF
Zi Kyun	Myebon Township	10,794	Proposed PPF
Sa Nyin	Myebon Township	11,399	Proposed PPF

Rakhine State FD has proposed that several additional mangrove forest areas in Rakhine should be designated as PPFs. The current status of the existing and proposed RFs/PPFs is shown in Table 3.

The engagement will support field activities in two townships in Rakhine:

1. Kyauk Phyu District – Yambye Township: Wunbaik Reserved Forest.

This is the most important mangrove forest in Myanmar’s Forest Estate. It is a conservation area of high priority in Rakhine, and for Myanmar nationally, for both the FD and the Department of Environmental Conservation (because of Wunbaik’s high biodiversity value), but it faces significant challenges from land encroachment and illegal tree-cutting (these issues are described in more detail in Annex 6).

On the positive side, the Wunbaik mangrove forest ecosystem has been reported on extensively by an FAO project (2009-11) and there is a status report and integrated management plan from 2011, which provides a point of departure for the CCA engagement. Since it is already designated as Reserved Forest, there is less of an issue regarding the FD’s jurisdiction over the Wunbaik mangrove forest, or the adjacent Min Gaung PPF area.

2. Sittwe District – Myebon Township

The numerous coastal islands in this township are highly vulnerable to cyclones, storm surges and flooding. Myebon still has a relatively high proportion of mangrove cover, but it is nearly all secondary vegetation and there are very few large trees of the species valued for timber or fuelwood (Annex 5).

Four of the new mangrove forest PPFs proposed by Rakhine State FD are in Myebon Township (Table 3). A pre-condition for the engagement to work in Myebon Township is that the FD secures approval of at least two of the larger proposed PPFs. REACH (2015) has provided a socio-ecological assessment of mangrove areas in northern Rakhine, including Myebon Township, which can form a point of departure for the engagement.

3.4 Justification for External Technical Advice

The CCA engagement will require the services of a full-time international technical adviser. Justification for the advisor position is summarised below:

- To advise all major stakeholders concerned with mangrove forests on mangrove rehabilitation and sustainable use management; and specially to assist the Forest Department (FD) to have a stronger voice in relation to coastal land designation and land use policies.
- To bring international knowledge about mangrove ecosystem services, livelihoods and climate change into the Forest Department (FD) and assist in capacity development activities to better equip FD staff to work effectively with other departments of government and with civil society, especially coastal communities.
- To advise on how to ensure that engagement activities at community level are inclusive and promote gender equality.
- To promote integration of mangrove management activities with the SCF engagement's efforts to develop co-management of coastal aquatic resources.
- To advise on effective communication and knowledge-sharing between all major stakeholders in government, civil society, institutions, universities, private sector and development partners concerned with coastal resources management and climate change in Myanmar.

3.5 Consideration of How the Activities may Help Reduce Poverty and Improve Livelihoods

The CCA engagement will contribute to reducing poverty and improving livelihoods both directly and indirectly. Assistance will be provided on an inclusive basis to the most vulnerable households, with particular care taken to ensure that there is no discrimination on ethnic or religious grounds.

Directly, the project will target the poor, marginalised and other vulnerable households, giving them preference to take part in engagement activities. The paid work involved in mangrove forest rehabilitation (raising and transporting seedlings, site preparation, planting, weeding, patrolling, etc.) will be directed to these members of the community to the extent possible. The engagement will also include resources which could be made available to Community Forestry groups, or similar village-level groups, to access support for small projects for reduced use of mangrove wood. Support for other essential activities within water provision can be a possibility in limited cases

The criteria for accessing these funds should be tailored to ensure a number of social development outcomes in addition to building resilience to climate change. Criteria might include provisions aimed at:

- Targeting particularly poor or vulnerable segments of the community on an inclusive basis;
- Facilitating intercommunal cooperation in areas comprising of different communities;

- Promoting integrated coastal resources management;
- Promoting gender equality (e.g. ensuring women are represented on Forest User Group committees).

Indirectly, the restoration and rehabilitation of mangrove and other coastal forests can lead to more sustainable livelihood benefits in the form of increased dependable access to forest products and increased local fisheries production on which the poor and vulnerable in the target areas are most reliant. Restored or rehabilitated forest habitats also help to protect vulnerable coastal villages from cyclones, storm surges and flooding.

3.6 Ways to Integrate Mangrove Management with Co-management of Coastal Aquatic Resources

From 2016 to 2020, Denmark is implementing the Sustainable Coastal Fisheries engagement (SCF) which is working with a number of coastal communities in Myanmar with the objective to improve the management of coastal marine fisheries. The vision is to build collaboration between authorities, local communities and private sector to develop a co-management approach towards creating solutions for the multiple challenges, which today make coastal fisheries unsustainable.

The proposed sites for the SCF co-management interventions do not overlap with the potential sites for the mangroves and climate change engagement, except for the SCF site at Pan Zin Village in Myeik District, which comprises a large area of mangroves and mangrove-based fisheries activities (small shrimp, mud crabs, etc.). There is good potential to develop FD/DoF collaboration in Myeik involving integrated mangrove and fisheries co-management.

In Rakhine, the mangrove RF and PPF areas are physically some distance from the proposed SCF co-management sites. However, both engagements will support measures to recover the health and productivity of connected coastal ecosystem processes (i.e. habitat, food and other ecological linkages between mangroves and coastal fish stocks), as well as mangrove and aquaculture linkages. Thus, institutionally it would be highly beneficial for the CCA and SCF engagements to promote more interaction between the DoF and FD in Rakhine.

4 Expected Outcome and Theory of Change

4.1 Engagement Outcome and Outputs

Engagement Outcome: Coastal communities' resilience to climate change is strengthened through the presence of healthy mangrove forests and access to more sustainable livelihood opportunities

Engagement Outputs:

- Enhanced capacity of the Forest Department to advocate for, establish and enforce Protected Public Forests (PPFs) with mangroves, especially in Rakhine.
- Coastal Community Forest Groups (FUGs) established with assistance from Forest Department and external service providers such as CBOs/NGOs, institutions and universities.
- Mangrove forest restored and rehabilitated in target areas in Rakhine.
- Community group-managed projects to reduce pressure on mangrove resources and enhance community resilience to climate change.

4.2 The Theory of Change

If the Forest Department's capacity to identify the potential for and facilitate the creation of community protected mangrove forest is enhanced, including using if necessary external technical expertise and service providers such as civil society partners to deal with community engagement issues, and if their ability to contribute to the co-management of the forests is strengthened;

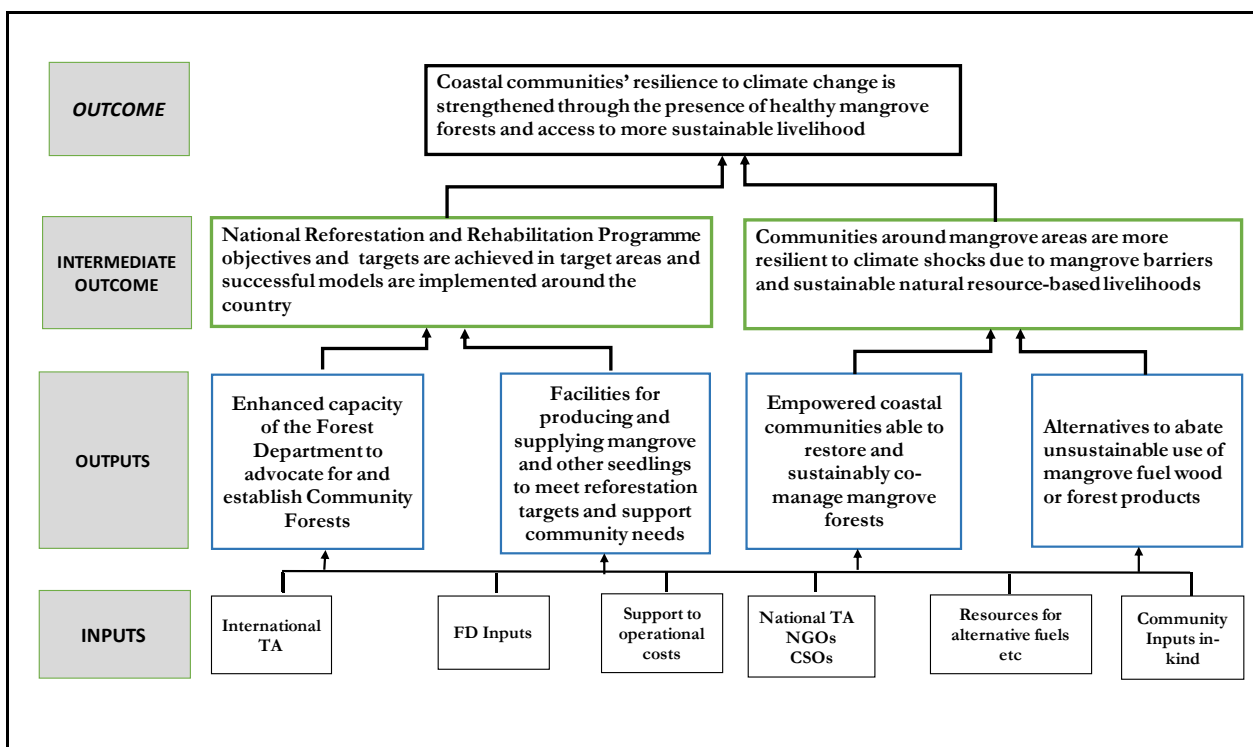
and, if communities are enabled to create, restore, sustainably manage and protect such forests;

and, if the wider community around the forests are provided with alternative options for more sustainable fuel use and improved livelihood possibilities, and are made aware of the economic possibilities and environmental benefits of sustainable natural resources management;

then, Forest Department's ability to implement the National Reforestation and Rehabilitation Programme (2017-2026) will be strengthened and degraded mangrove forests will gradually be restored bringing:

- recovery of the provisioning, regulating and supporting services provided by healthy mangrove ecosystems;
- greater protection for coastal communities from climate-related natural hazards (cyclones, storm surges and flooding);
- increased resilience to climate change through sustainable livelihood benefits in the form of increased wood supplies; more efficient fuelwood use; increased availability of other forest products; and increased local fisheries production in the surrounding areas;
- more sequestered carbon as a result of the greater volume of mangrove forest standing stock biomass created.

This Theory of Change logic is illustrated in the diagram below.



The assumptions that explain the theory of change logic may be summarised as follows:

- Increasing the awareness, access to technical support and access to sustainable livelihood opportunities will empower communities to conserve, restore and sustainably manage mangrove forests;
- Supporting capacity development in FD at central and local levels will result in the FD supporting communities to establish and manage community forests in mangrove areas; and
- Service providers such as NGOs, CSOs, CBOs and local institutions have the capacity to successfully facilitate enough communities to become engaged in community forestry in mangrove areas to restore and maintain areas of forest sufficient to deliver appreciable benefits in terms of protection from extreme weather events and ecosystem services.

Each of these assumptions entails risks which have been addressed in engagement's design and implementation arrangements (see Section 7).

5 Outputs and Key Areas of Activity

In order to achieve the engagement's stated Objective and Outcome, four Outputs have been identified. These are summarised below, together with the main areas of activity considered necessary to deliver each Output. The activities will be implemented through the Forest Department (FD) with support provided by the Advisor (ILTA) and short-term experts, as required. The Environmental Conservation Department (ECD) can also play a valuable role in relation to environmental management and climate change adaptation. External service providers and partners will also be engaged where, as necessary, support from NGOs, CBOs, universities, or small and medium enterprises (SMEs) can assist the FD in achieving the planned outputs. Public consultations and awareness-raising to explain the benefits of PPFs and Community Forests, and the importance of mangrove forests in relation to climate change, will be important activities supporting all four outputs.

Cross-cutting Activities

a. Vulnerability Assessments

Vulnerability Assessments in relation to climate change, especially the role that rehabilitation and improved management of mangrove forests can play as a climate adaptation response, will be conducted at selected field sites in Myebon Township (sites for assessment will be prioritised according to the proposed PPFs in Myebon Township that are most likely to be approved). Vulnerability Assessments will also be conducted in Wunbaik RF, in Min Gaung PPF and the proposed Min Gaung Extension PPF in Yambye Township. There is already detailed reporting on Wunbaik RF, including an integrated management plan prepared by FAO (Stanley and Broadhead, 2011), but little attention was given to climate change.

The findings from the Vulnerability Assessments will be used to assess the risks from climate change in the target sites, as the basis for planning and implementing activities that will build resilience within the local environment and the most vulnerable natural resources-dependent communities.

While the Vulnerability Assessments will be used principally to plan activities to support Outputs 2-4, it will be important that FD staff participate fully in the assessment work, as this will provide them with significant new learning and skills development opportunities (thereby supporting Output 1). It will also be beneficial to involve the Environmental Conservation Department (ECD) in the Vulnerability Assessments because ECD has the lead responsibility for environmental management in MONREC, as well as being the focal point for climate change in Myanmar.

A recently completed Vulnerability Assessment for Labutta Township in the Ayeyarwady delta Region can serve as a good example of the approach and methodology that should be applied in an assessment of vulnerability to climate change in Myanmar (see details in Annex 7).

b. Public Consultation

Public consultations will be an important activity throughout the engagement. Beginning from the Vulnerability Assessments in each target area (see output 1). The views of the local village communities will be sought regarding current local issues e.g. relating to land-use and their willingness to support mangrove reforestation efforts. This will be followed up later by consultations to assess their opinions on PPFs and their interest to form Forest User Groups (FUGs), or to participate in other community-level forestry initiatives. (For example, it is reported by REACH (2015) that there are some shrimp farmer groups in Myebon interested to plant mangroves.) These and other public consultations will be conducted alongside awareness-raising activities to inform the communities about the advantages of PPFs and Community Forestry, and the roles that mangrove forests can play in building resilience to climate change.

c. Awareness-raising activities for local stakeholders on mangroves and climate change

The engagement is contributing to the cost of upgrading the Forest Base Camps in Wunbaik (Yambye Township) and in Myebon Township. In addition to serving as field bases for FD staff, these camps will include facilities for public consultations, awareness-raising and training.

Output 1: Enhanced capacity of the Forest Department to advocate for, establish and enforce Protected Public Forests (PPFs) with mangroves, especially in Rakhine.

This output will support the Forest Department (FD) plans to expand the limited number of designated PPFs in Rakhine State that include mangrove forest and manage them more effectively. There are currently only two protected mangrove forest areas in Rakhine: Wunbaik RF (56,633 acres); and Min Gyaung PPF (10,080 acres); both are in Yambye Township. However, five new PPFs have been proposed in Rakhine totalling almost 31,000 acres (see Table 3).

The main activities under Output 1 will include:

- Activities to support knowledge-building and skills development in the FD, covering subjects such as ecosystem-based management, co-management, mangrove ecosystem services, building resilience to coastal climate change and disaster preparedness including rain water harvesting methods. Skills training will also be provided to help FD staff to advocate more effectively in support of mangrove forest rehabilitation and sustainable use. This will involve training in, for example, conducting public consultations, interviewing and negotiating techniques, conflict resolution, and monitoring and evaluation.
- Assisting FD to improve/develop management plans for the existing/proposed mangrove PPFs in Rakhine.
- Surveillance and enforcement of mangrove protection within RF and PPFs.

The engagement will provide boats to the FD for patrolling and enforcement to protect the mangrove forests in Wunbaik RF and Min Gyaung PPF in Yambe Township and in the proposed PPFs in Myebon Township in Sittwe District once they are designated. The boats will enable a rapid surveillance system to be developed for each mangrove area. At a minimum, 50% of the cost of operating patrol and seedling transporting boats will be met from the FD contribution to the engagement.

Collectively, these activities will help the FD to safeguard coastal forest land against threats from illegal encroachment or wood extraction; and from competing or conflicting land-use proposals put forward by other departments and developers.

Output 1 will also strengthen capacity in FD for its other related work on PPF establishment and enforcement. In addition to the PPFs proposed in Rakhine, five PPFs with mangrove forest have been proposed in Myeik District, Tanintharyi Region totalling more than 51,000 acres.

The Forest Department can also gain valuable knowledge and experience about mangrove management at the regional level in Asia through Myanmar's involvement as a member country of the Mangroves for the Future (MFF) initiative. Myanmar has only been an MFF country since 2015, whereas the initiative has operated since 2007, so there is a wealth of experience in other MFF countries that Myanmar can benefit from. The FD chairs the National Coordinating Body (NCB) of MFF in Myanmar and represents Myanmar on the Regional Steering Committee of MFF. The Myanmar NCB is invited to nominate participants to regional events organized and funded by MFF (workshops,

conferences, training courses, etc.). In-country training, or study tours to other MFF countries, can also be arranged by MFF upon request.

Output 2: Coastal Community Forest Groups (FUGs) established with assistance from Forest Department and external service providers such as CBOs/NGOs, institutions and universities.

The second output will help coastal communities in Rakhine to take full advantage of the new Community Forest Instructions (2016), by enabling them to assume responsibility for restoring and managing mangrove forest on a co-management basis with the Forest Department. However, experience with Community Forestry in Myanmar has shown that it is difficult for villagers to organise themselves and to satisfy the planning and application requirements for Community Forest certification without external assistance. In most cases examined, assistance has been provided by an NGO or CBO working cooperatively with the communities and the FD.

Even after a Community Forestry group is certified, the FD's responsibilities are confined to providing a small number of tree seedlings to the community group in the first year only (at a rate of 150 seedlings per acre), plus offering technical advice as required. However, for most forestry purposes, seedlings should be planted at a spacing of 6 x 6 feet, or about 1,200 seedlings/acre, which is equivalent to 1.8 x 1.8 m spacing and 3,000 seedlings/hectare.

The activities under this output will focus on building awareness among community groups in Rakhine about the benefits of Community Forestry; and on empowering local communities to better understand the Community Forestry Instructions (2016); to be able to fulfil their responsibilities as forest co-management partners with the FD; and to derive maximum benefits as members of a Forest User Group.

The engagement will assist FD to develop a simple, but informative, monitoring system for the mangrove Community Forest groups already established in Myeik (and other mangrove CF groups which may be established in Tanintharyi in the near future). The results and lessons learned from the community mangrove forests in Tanintharyi will provide valuable experience to support CF initiatives in Rakhine. The mangrove Community Forest areas in Tanintharyi may also serve as valuable demonstration sites for village leaders from Rakhine to visit and learn from (community to community learning).

Output 3: Mangrove forest restored and rehabilitated in target areas in Rakhine.

It is difficult to quantify this output accurately until the areas of coastal land available for mangrove restoration and rehabilitation in Myebon Township are confirmed. This will depend on approval of two or more of the proposed PPFs (see Table 3). Overall, however, the need for mangrove seedlings in Rakhine State exceeds the FD's ability to provide them, especially in remote area like Myebon, and only seedlings of a very few mangrove species are produced in significant quantities.

An important activity under output 3 will be to assist FD in Rakhine to improve the systems for sourcing mangrove and other coastal tree seeds; rearing them in nurseries (including community nurseries) as seedlings; and then distributing the seedlings to designated mangrove restoration/rehabilitation areas and other suitable tree-planting sites. There are considerable logistical challenges, as well as costs involved, to achieving this output, but it is fundamental to delivering the engagement's outcome. This is also the most important activity for building sustainability within FD's

reforestation program to achieve the planned outputs of the National Reforestation and Rehabilitation Program in Myanmar (NRRPM, 2017-2026).

Information provided by FD Rakhine indicates that the engagement could directly support mangrove rehabilitation/restoration activities in Yambye and Myebon townships as follows:

- Mangrove rehabilitation: 350 acres
- Assisted natural regeneration: 150 acres
- Selective planting of mangroves (gap-filling): 25 acres

These planting figures are in addition to mangrove rehabilitation/restoration targets based on the FD's internal budget allocation and other resources, which is reported to be 100 acres annually in Wunbaik RF. The estimates need to be reviewed and they could increase significantly if the FD's is successful in designating all the new areas proposed as Protected Public Forest (PPF) in Myebon Township. For this reason, the higher figures of 500 acres for mangrove rehabilitation and 150 acres for assisted natural regeneration have been included in the rehabilitation estimate for Myebon Township.

It is also considered important that the engagement assists FD to develop Community Forestry where there is potential to do so outside of the Reserved Forest and PPF areas, or within proposed PPFs before they are designated. The apparent willingness of some shrimp farmers in Myebon Township to plant mangroves is an example of this potential (see Annex 5). This will require that the systems for mangrove seedling production and delivery are not only reliable, but also are made available to all communities willing to support community-led forest development activities.

As a working estimate, the activities supporting output 3 will include the development of up to 10 tree nurseries managed by the FD/ local communities in Myebon and Yambye townships, which in total will be capable of producing up to 600,000 seedlings of various species of mangrove and other coastally-adapted trees annually. Allowing for 10% wastage and 20% for replanting seedling that die soon after field-planting, this output will be sufficient for the reforestation of at least 310 acres annually, or up to 1500 acres during implementation of the engagement.

Output 4: Community group-managed projects to reduce pressure on mangrove resources and enhance community resilience to climate change.

Mangrove forest rehabilitation can make a significant contribution to building resilience to climate change. In the short term, local people can benefit from employment gathering mangrove seeds (propagules), working in nurseries rearing seedlings, transporting seedlings, and undertaking the work involved in preparing and planting the sites selected for forest rehabilitation. However, a key lesson learned from other mangrove rehabilitation and conservation projects is that the longer-term care and protection of mangrove plantations is much more likely to succeed if other, more tangible enhanced or additional livelihood opportunities are also made available to the communities involved. Livelihood interventions must also have good potential to generate income, or reduce household expenditure quickly to offset the fact that community participation in forest management does not yield significant benefits in the short term. In Myanmar and other less developed countries the poor commonly turn to illegal cutting of mangrove wood to sell when other opportunities for income are not available to them.

Baseline data on household mangrove wood consumption and other natural resources use will be obtained from the Vulnerability Assessments and other community surveys, as required. Under Output 4, strategies will then be developed through consultation with the communities with the aim of reducing household dependency on mangrove wood extracted from protected forests. The strategies

for mangrove wood-saving will lead to the allocation of small projects to community forest, or household groups, on a demand-driven basis.

The types of small community-level project that could lead to reduced mangrove wood use include:

- Fuel-efficient cooking stoves (also known as improved cooking stoves), which consume less fuelwood than traditional stoves; income can also be generated from local manufacture of the improved stoves;
- Rice husk briquettes as an alternative domestic fuel;
- Wood lots as an alternative source of fuelwood and pole wood.

In addition to being demand-driven, the selection of community-level small projects for implementation should meet clear criteria regarding their benefits to the most vulnerable and marginalized households, including ethnic minority groups, as well as their appropriateness overall in relation to building resilience to climate change.

In the longer term, and based on these same criteria, support for other essential activities within water provision may be considered in certain cases. For example, seasonal shortages of freshwater, resulting in the need to buy water in the dry season, are an issue for some coastal communities in Myebon, which is becoming more extreme because of climate change.

Funds have been allocated in the engagement budget to enable FD to procure the services of individuals and organizations with the capacity and experience to work effectively with coastal communities in Rakhine. The Vulnerability Assessments and other community-level studies will be designed and reported on in a way that clearly identifies the particular expertise and services required in order to assist the FD in implementing activities under this output.

6 Results Framework

Outcome		Coastal communities' resilience to climate change is strengthened through improved mangrove forest management.	
Outcome indicator		Area of mangroves forest under sustainable management by community forest user groups and in Public Protected Forests (PPFs) ¹ .	
Baseline	Year	2018	Baseline to be established: Area of mangrove under sustainable management; and degree of vulnerability to climate change (indicators to be developed from the Vulnerability Assessments).
Target	Year	2023	Increase in the area of mangrove under sustainable management in line with the National Reforestation and Rehabilitation Program; measurable reduction in vulnerability to climate change (e.g.: Increased resilience against extreme weather events; greater employment and income from mangrove ecosystem services; increased forest carbon sequestration).
Output 1		Enhanced capacity of the Forest Department to advocate for, establish and enforce Protected Public Forests (PPFs) with mangroves, especially in Rakhine.	
Output indicator		Area of mangrove forest included within the Permanent Forest Estate (Reserved Forests (RF) and Protected Public Forests (PPF))	
Baseline	Year	2018	Baseline to be established. Four PPFs have been notified by FD for designation (one in Yambye, three in Myebon); other PPFs are at the planning stage.
Annual Target	Year	2019	One additional mangrove PPF is formally designated and a sustainable forest management plan for the PPF is approved.
Annual Target	Year	2020	One additional mangrove PPF is formally designated and a sustainable forest management plan for the PPF is approved.
Annual Target	Year	2021	One additional mangrove PPF is formally designated and a sustainable forest management plan for the PPF is approved.
Annual Target	Year	2022	One additional mangrove PPF is formally designated and a sustainable forest management plan for the PPF is approved.
End of Programme Target	Year	2023	Four additional PPFs are designated and a minimum of 20,000 acres of mangrove forest within these PPFs have sustainable management plans enforced by FD.
Output 2		Coastal Community Forest Groups (FUGs) established with assistance from Forest Department and external service providers such as CBOs/NGOs, institutions and universities.	
Output indicator		Number of active community forest user groups (FUGs) established with assistance from FD and CBO/CSO/NGO service providers	
Baseline	Year	2018	Baseline to be established. Number, area and location of potential community forest user groups.
Annual Target	Year	2019	Minimum 10% of potential number of additional community forest user groups established.
Annual Target	Year	2020	Minimum 20% of potential number of additional FUGs established and operational.
Annual Target	Year	2021	Minimum 30% of potential number of additional FUGs established and operational, including >15% with certificate issued by Dist. FD.
Annual Target	Year	2022	Minimum 40% of potential number of additional FUGs established and operational, including > 20% with certificates issued by Dist. FD.

End of Programme Target	Year	2023	Min 50% of potential number of additional FUGs established and operational, including > 40% with certificates issued by Dist. FD.
Output 3		Mangrove forest restored and rehabilitated in target areas in Rakhine.	
Output indicator		Number of acres of improved mangrove forest habitat in Rakhine State (Indicator should be at least equal to the national mangrove planting, restoration and rehabilitation targets area after five years).	
Baseline	Year	2018	Baseline to be established: Current area and ecological status of mangrove areas assessed [in target Districts and Townships]
Annual Target	Year	2019	At least 10% of the mangrove planting, restoration and rehabilitation area target is achieved.
Annual Target	Year	2020	At least 20% of the mangrove rehabilitation area target is achieved.
Annual Target	Year	2021	At least 30% of the mangrove rehabilitation area target is achieved.
Annual Target	Year	2022	At least 40% of the mangrove rehabilitation area target achieved.
End of Programme Target	Year	2023	At least 50 % of the mangrove rehabilitation area target for the five-year period is achieved.
Output 4		Community group-managed projects to reduce pressure on mangrove resources and enhance community resilience to climate change.	
Output indicator		Community Forest user groups (FUGs and other less formal community-based mangrove forest user groups) with measurable income and other benefits from mangrove forest establishment and management, in particular regarding fuel wood (sufficiency and efficiency of wood use).	
Baseline	Year	2018	Baseline to be established. Demand for community support activities in selected mangrove forest user groups that contribute to sustainable mangrove management and climate resilience, in particular with fuel wood.
Annual Target	Year	2019	Min. 10 forest user groups supported with demand-driven activities that contribute to sustainable mangrove management in particular with fuel wood.
Annual Target	Year	2020	Min. 15 forest user groups supported with demand-driven activities that contribute to sustainable mangrove management in particular with fuel wood.
Annual Target	Year	2021	Min. 25 forest user groups supported with demand-driven activities that contribute to sustainable mangrove management in particular with fuel wood.
Annual Target	Year	2022	Min. 30 forest user groups supported with demand driven activities that contributes to sustainable mangrove management in particular with fuel wood.
End of Programme Target	Year	2023	Outcome assessment and lessons learned from community forest user groups in relation to sustainable mangrove management and building climate resilience.

7 Risk Management

7.1 Background to Risk Management

A complete Risk Analysis using the Risk Matrix of the Danish Aid Management Guidelines was carried out for the entire Denmark-Myanmar Country Programme in 2016². This identified several key contextual and institutional risks arising mainly from the recent history and current political situation in Myanmar, but concluded that the residual risk was low and could be managed by sensitive programme design. These programme design elements have been incorporated into the current development engagement on climate change adaptation (CCA). Specifically, they include the following:

- use of GOM systems to the fullest extent possible to increase national ownership;
- use of flexible funding mechanisms;
- technical assistance and capacity development to assist in national strategies, sector plans; guidelines, and regulations; and
- using aid mechanisms to which development partners can align and harmonize.

In addition, the Danida Guidelines for Risk Management and the Risk Management Matrix (the revised versions of 27th January 2017) were used to examine any new risks that might have arisen since the original analysis; and any risks that might arise from the specific nature of the activities proposed or assumptions made in the CCA engagement. The full risk management matrix is presented at Annex 2.

7.2 Sources of Risk Specific to this Engagement

Each of the assumptions that explain the change logic as described in Section 4 may fail to be realised fully, or in part. Measures to minimise risks or mitigate their effects have been included in engagement's design and implementation arrangements.

Some risks arise because of the competing demands for the resources represented by the mangrove forests: that is the trees themselves (for timber and fuel wood) and the land on which they stand.

In addition, there is uncertainty regarding the ability of the FD to secure jurisdiction over the critical areas of degraded forest which have been proposed as Protected Public Forest (PPF).

There are also risks that stem from uncertainties about the efficiency of channelling engagement funds through the FD; and in Rakhine the State and District FDs' ability to manage engagement-supported field activities. There are considerable challenges logistically in working with remote island-based mangrove communities in Rakhine, especially in Myebon Township (and to a lesser extent also in Tanintharyi).

These risks can be mitigated by a) adopting financial management safeguards and allowing for incorporation of lessons learned from the ongoing SCF engagement (regarding procurement and accounting); b) phasing the engagement's interventions and c) involving technical support from service providers and local partners from civil society with the capacity to work effectively with the FD and local communities in Rakhine.

Programmatic risks involve *a priori* the capacity of FD to provide the quantity and quality of staff required to implement the engagement. Uncertainties not only concern staff availability, but also the

² Denmark-Myanmar Country Programme 2016 – 2020, Country Programme Document, August 2016

willingness of the individuals concerned to implement engagement activities; and that of the officials at State and Union level to support them in facing up to influential vested interests.

Policy makers at district or township levels may, for example, ally with competitors for the resources at stake or resist limitations on access, including by spatial and temporal restriction, for short-term political gains or other benefits. This threatens the assumption that communities will be able to restore, conserve and sustainably manage mangrove forests. In order to balance such risks advocacy and public awareness campaigns, including through mainstream media, have been included in the engagement, as has capacity development and technical support, including an international full-time advisor.

In addition, to build strong, representative and legitimate community institutions, the engagement will need assistance from qualified external service providers whom are able to facilitate the planned activities at the community level. There are several civil society organisations operating in Myanmar that have the requisite technical experience and organisational capacity (see Annex 7).

None of the risks identified have been assessed as potentially having more than moderate impact on the engagement's implementation and the achievement of its intended Outcome. This is because the nature of the engagement is not inherently risky, in design it is sensitive to the context and challenges in coastal resources management in Myanmar; effective risk responses are available where risks might arise; and most of these risks have a low probability of occurrence.

Nevertheless, careful monitoring needs to be undertaken during implementation and included in the semi-annual reporting to the engagement Steering Committee.

8 Inputs and Budget

8.1 Contribution from Denmark

The summary budget below indicates how Denmark's financial support to the CCA engagement will be allocated.³

An International Long-Term Advisor (ILTA) will be recruited, who will advise the Forest Department and other partners and stakeholders on a wide range of matters relating to implementation of the engagement, as explained in section 3.6. Terms of Reference for the ILTA are provided in Annex 1. The Danish contribution will cover travel and allowances for the ILTA when on duty travel from NPT to Rakhine, Tanintharyi and/or Yangon. A full-time Secretary/Interpreter will be engaged as necessary to support the ILTA, employed by FD and salary, travel and allowances to be covered by the engagement budget according to FD's cost norms and travel allowance rules.

Funds are also provided for a pool of International/Regional Experts and National Experts whom FD can contract, as required according to the engagement work plans, to deliver specific services or contribute areas of expertise that cannot be provided by FD staff alone. This external support may include individual experts, trainers, and civil society organisations including universities and research institutions, with experience of mangrove ecosystem management and of working with mangrove-dependent communities. FD will procure those services following GoM's guidelines and procedures (or) any other procedures as agreed between FD and the Embassy of Denmark.

The Danish contribution includes funds for bi-annual meetings of the engagement Steering Committee, plus an annual Review of Progress workshop and other workshops or seminars on important technical and/or policy issues relating to mangrove forest ecosystem management. It is envisaged that some of the technical meetings may be arranged jointly with the Danish Sustainable Coastal Fisheries (SCF) engagement.

In addition to a small number of computers, printers, overhead projectors and other minor equipment for the core engagement management team, and for use in training courses, workshops and seminars, the Danish contribution will provide two four-wheel drive cars for engagement-related activities; and two boats for mangrove protection activities such as surveillance in Yambye and Myebon townships.

Denmark will contribute some of the costs of establishing new Forest Base Camp in the Wunbaik RF; the camp will include a permanent mangrove seedling nursery and facilities for a field-level education, training and public consultation. These field facilities will provide mangrove-related educational opportunities not only for the local community, but also for other community members, and the wider public including schoolchildren and students, because the Wunbaik Forest Camp site is very accessible (see Annex 6). The camp facilities will also serve a much-needed role in providing training on mangrove rehabilitation, integrated coastal resources management and climate change adaptation to FD and other government staff.

Danish funds are provided for a similar upgraded Forest Camp, together with a permanent mangrove nursery and a Community Extension Centre, in Myebon; generators, solar lighting systems and other basic equipment will also be provided for both field camps.

³ The allocations for field facilities and equipment are based on a proposal for support to mangrove forest rehabilitation and management in Myebon Township and Yambye Township provided to the engagement identification and formulation team by the Rakhine State Forest Department.

The Danish contribution will support a substantial programme of education, training and awareness-raising, using these field facilities to a significant extent (see details in the Sittwe Site Analysis – Annex 5 and Yambye Site Analysis – Annex 6).

The most substantial part of the Danish contribution is allocated to help FD establish new mangrove Protected Public Forest (PPF) areas and Community Forest (CF) groups in Rakhine; and for activities to build resilience to climate change within mangrove-dependent communities where PPF and/or CF areas can be developed. A key cross-cutting activity will be Vulnerability Assessments in the proposed PPF areas in Myebon and Yambye townships, in order to identify the most vulnerable communities and households in relation to climate change.

The remaining allocation under the Danish contribution will cover the direct costs of rearing additional mangrove seedlings and rehabilitating/restoring additional areas of mangrove forest, over and above the FDs own targets using the Government budget.

8.2 Contribution from Forest Department

Forest Department (FD) at Union Level will appoint a qualified Engagement Director able to devote 20% of his/her time to the engagement, plus a full-time Engagement Coordinator.

FD Union level will provide office accommodation in the Forest Department Building in Nay Pyi Taw for the International Long-Term Adviser (ILTA) and logistical and administrative support as necessary.

FD Union level will make available to the engagement the services of its relevant divisions, departments and offices regarding financial accounting, tendering and procurement.

FD Union level will assist the engagement to liaise with FD offices at State, District and Township levels to develop detailed work plans and budgets to show clearly how the Danish funds will be disbursed; and to report progress of the work and expenditure.

FD will identify two FD staff in each township in Rakhine where the engagement will operate (Yambye and Myebon townships) to act as field coordinators for the engagement's activities. FD will ensure that human resources sufficient in quantity and quality are mobilised internally, and/or externally through service providers to implement the engagement's planned activities efficiently.

FD will provide funds to cover at least 50% of the operating costs (for fuel, maintenance and repairs) for the boats to be provided from the Danish contribution.

8.3 Budget for the Danish Contribution to the CCA Engagement

	Amount ('000 DKK)	Amount (Million MMK)	Amount ('000 USD)	Share (%)
Output 1:	9.400	2.021	1.480	27%
Training, awareness raising, study tours	3.400	731	535	
Vulnerability Assessment	1.600	344	252	
Results reporting (M&E)	1.800	387	283	
Equipment: Boats				
- Mangrove patrol speed boats (2 units)	300	65	47	
Operational Costs: Boats (50% cost sharing)				
- Fuel for boats	90	19	14	
- Boat maintenance	60	13	9	
4WD cars (2 units)	500	108	79	
Field Structures:				
- Forest Base Camp, Wunbaik	700	151	110	
- Forest Base Camp, Myebon	700	151	110	
- Portable generators (4 units)	50	11	8	
- Solar lightning systems (2 units)	200	43	31	
Output 2: Community Forestry Support	3.000	645	472	9%
Support to development of PPF and CF	3.000	645	472	
Output 3: Mangrove Rehabilitation	6.000	1.290	945	17%
Mangrove nurseries establishment				
- Nurseries and seedling distribution	2.000	430	315	
Mangrove rehabilitation / restoration				
- Mangrove rehabilitation	3.600	774	567	
- Mangrove selective planting	200	43	31	
- Assisted natural regeneration	200	43	31	
Output 4	3.500	753	551	10%
Support to community based activities	3.500	753	551	
DED Executive Management	800	172	126	2%
Steering Committee Meetings and Workshops	700	151	110	
Management team computers etc.	100	22	16	
Technical Assistance and Support Staff	4.000	860	630	11%
Secretary/Interpreter				
- Salary and benefits (4 years)	500	108	79	
- Travel-related costs	300	65	47	
Pool of ST experts				
International ST experts				
- International/regional expert fee (min 200 person-days)	1.400	301	220	
- Travel-related costs	500	108	79	
Local experts				
- Local expert fees (min 500 person-days)	1.000	215	157	
- Travel-related costs	300	65	47	
Contingency budget	1.500	323	236	4%
Budget for FD Transfer	28.200	6.063	4.441	81%
International LT Advisor				
- Salary and benefits (4 years)	6.000	1.290	945	
- Travel-related costs	800	172	126	
LT Adviser Budget (not FD transfer)	6.800	1.462	1.071	19%
Total Budget	35.000	7.525	5.512	100%

Exchange rate 1 DKK = 215 MMK

Exchange rate 1 USD = 6,4 DKK

9 Management Arrangements

The signing parties to the CCA Engagement have agreed to the following management arrangement with the aim to ensure adequate dialogue and timely decision-making concerning this development engagement.

The engagement is anchored in the Forest Department (FD), which will have the overall responsibility for implementation of the engagement. A **Steering Committee** (SC) will be established with the main purpose to oversee all engagement activities. The Steering Committee will review and approve progress reports, work plans, budgets and audits. It will be a lean and operational Steering Committee and decision-making will be based on consensus. The membership will comprise of:

- Permanent Secretary of MONREC
- Director General of Forest Department
- Director General of Environmental Conservation Department
- Embassy of Denmark in Myanmar

The CCA Steering Committee should convene at least twice annually following reporting from the engagement's management team. See ToR for the CCA Steering Committee in Annex 3.

The engagement's management set-up is organized to operate at all four administration levels of the Government of Myanmar (GoM):

- Union level
- State/Region level
- District level/Township
- Community level

9.1 Organisation of the Engagement at Union Level

The Executive Management Team will be based in Nay Pyi Taw (NPT) and will be headed by an Engagement Director to be appointed by FD. This person will have responsibility for supervision of the preparation of the annual work plan and budget; monitoring implementation progress and taking remedial actions as necessary; organisational matters and human resource management. The Engagement Director will be expected to be selected from the senior levels of FD and be able to bring lessons learned from the engagement into the policy and strategy development of the FD at Union level. The Engagement Director is expected to devote about 20% of his/her time to engagement-related work.

The Engagement Director will be assisted by:

- i. The FD Chief Accountant who will be responsible for consolidating all accounts and providing full documentation for the flow of funds for the CCA engagement. The accountant will have working experience with development partner accounting requirements.
- ii. An Engagement Coordinator who will be responsible for day-to-day activities and support to the state and regional levels required to implement the annual work plan. The Coordinator is expected to devote 100% of his/her time to the engagement.
- iii. A full-time secretary to assist the CCA Engagement Coordinator.
- iv. An International Long-Term Technical Advisor (ILTA) who will be recruited following Danish procedures for recruitment of technical advisors (including participation of the FD on the selection panel). The ILTA will provide advice to the Engagement Director on the engagement, e.g. within management, capacity development, policy formulation, financial

affairs and procurement of any necessary external technical assistance. An important aspect of the ILTA's task will be to advise the Engagement Director, and through him/her, the FD on advocacy, communication and information dissemination, and partnership-building techniques that underlie successful participatory forest management in the modern era. The ILTA will be based in NPT, but will travel frequently to Rakhine state and (less frequently) to Tanintharyi as required. (see profile for the ILTA in Annex 1).

- v. The engagement budget includes a fulltime secretary/translator for the ILTA.

9.2 The Engagement Organisation at State/Region Level

The FD offices at State/Region level coordinate activities between the various districts in the State/Region, as well as collecting reports, collating results and forwarding them to the Union level. Funds are disbursed at district level. District Forestry Offices receive funds directly from FD at Union Level and it is the District offices which distribute funds to the Township offices.

The engagement will include activities in Rakhine State, which has four district offices; and Tanintharyi Region, which has six. Although implementation will not be undertaken at state level, these offices are important in disseminating good practices and in mobilising capacity outwith the engagement to implement lessons learned. Therefore, FD in Rakhine and Tanintharyi will each be required to appoint a Focal Point who will act as a coordinator of activities at district, township and community levels; take part in the planning, monitoring and evaluation of engagement activities; and consolidate reporting from the engagement areas to FD at Union level. They will also benefit from training and awareness-raising activities provided in the state/region.

9.3 The Engagement Organisation at District/Township level

The District Officer will act as coordinator of activities and will provide progress reports to the State/Region level. Each district will appoint two Community Forest facilitators, who will receive appropriate training; for example, in community-working practices, co-management, climate change adaptation, monitoring and reporting. The facilitators will act as trainers of Community Forest group committee members, or similar village-level co-management groups supported by the CCA engagement.

The township FD Officers and staff will have a particularly important role to play in the engagement because the main activities will take place at township to village level. As explained in section 3.2.1, the responsibilities of the Township Officers include: protecting forests for long term sustainable use; preventing forest products abuse and thefts; and educating people and organizing model forest villages.

9.4 Human Rights-Based Approach, Gender and Environment

9.4.1 Human Rights-Based Approach

The CCA engagement will mainstream the human-rights based approach. Careful targeting of beneficiaries has been included and particular attention will be paid to people living at-risk in climate-change vulnerable areas, poor women, children, minorities, marginalized and disabled people. Attention has been given to civil society as rights-holders and rights defenders. Thus, they act as mediators between government officers and communities, while also being capacitated to fulfil roles in advocacy and livelihood support. The roles and responsibilities of engagement specific duty bearers are also identified, they include relevant ministries of the Union government, local Government, and Civil Society. No group among the rights-holders is excluded from access or influence in the engagement

and the implementation arrangements have been designed to promote non-discrimination, and participatory approaches. Support to civil society organizations is expected to yield greater awareness of rights and access to government support. Capacity development will include modules on the principles of human rights both for beneficiaries at the local level and, separately for activities with government and civil society bodies.

Participation and inclusion: Where the Engagement requires public information, this will provide an opportunity to ensure wide inclusion of stakeholders and identification of the incentives/disincentives to participation. Particular attention will be paid to involvement of communities in areas where poverty and marginalisation are most problematic. In policy development, and analysis of effects, there will be a balanced approach to involving: rights holders (those dependent on forest products, women, the vulnerable and marginalised); duty bearers (primarily Union, state and district employees); and, rights defenders (civil society organisations).

Non-discrimination: Where the engagement addresses policy change, development of legislation and/or service delivery, vulnerable groups' needs will be considered and addressed in, e.g. ensuring that all members have equal access to benefits or opportunities arising from engagement activities. Information made publicly available will promote monitoring of duty bearers and highlight the inclusion of discriminated groups and the marginalised. Prioritisation of livelihood opportunities will target women and vulnerable minorities to promote access to financial instruments and training opportunities.

Transparency: Engagement design includes access to up-to-date information with regular open meetings, publication of findings and involvement of civil society and academia in public events. There is also a focus on the availability of public information at local government level.

Accountability: The engagement will strengthen internal governance and accountability in the FD at district level. Direct accountability to communities will be encouraged including through facilitating regular meetings between forestry officers and the communities seeking to register and manage community forests and planning the protection of forests with the forest officers. This will increase the capacity of rights holders to demand accountability from Government duty bearers.

The engagement will take advantage of specific HRBA opportunities such as the following:

- Development of models for sustainable natural resource-based livelihoods;
- Policy formulation and adjustment of regulatory instruments;
- Selection of participants in engagement activities such as workshops, seminars, and training and awareness raising activities.

9.4.2 Gender

The Myanmar Country Programme document points out that, although gender equality in Myanmar is relatively high from a regional perspective, there are still significant challenges regarding women's participation in political decision-making. Women are mostly concentrated in the lower ranking and lower skilled jobs. The situation in the forestry sector reflects this. FD employees at all levels are almost exclusively male. During the engagement identification mission, the only female employees encountered were in relatively junior administrative positions. This is to some extent a result of long-established tradition, as well as the nature of forestry work. There are reportedly some female graduates entering training, but they are likely to encounter difficulties being accepted in forestry management roles or field positions.

The situation regarding community forest management is more positive. Community Forests groups (CF) are usually set-up with some NGO facilitation. The NGOs routinely require that women be included on the CF management committees; and that women have equal opportunity of access to paid work and other opportunities arising from the forest management.

Gender aspects have been considered at all levels of the engagement's design, including the outcome, each of the four outputs, and the activities, indicators, targets and implementation arrangements. Included in the gender strategy are five areas of specific attention, which will all be dealt with during implementation. These are: (i) People: Selection of beneficiaries and workers (ii) Knowledge generation: Content and generation of disaggregated databases; (iii) Capacity Development: Content and implementation; (iv) Livelihood opportunities: Sensitive to differential needs and viewpoints; and, (v) Monitoring and Evaluation (M&E): tracking differential effects. As a result, amongst beneficiaries of the engagement, very poor women-headed households will be targeted; and women's concerns will be reflected in planning and management of forest areas.

In summary, the engagement will take advantage of opportunities to promote gender equality wherever they occur. Specifically, the implementation arrangements will ensure that:

- Awareness-raising and training activities include women; and address issues that lead to discrimination, or have differential effects on men and women;
- Committees and decision-making structures are open to women and include both women and men;
- The benefits arising from the implementation of the engagement (opportunities for paid work, livelihood support, etc.) are open to both women and men; and special efforts will be made to reach female-headed households.

9.4.3 Environment

The CCA engagement will support improved environmental and natural resources governance in Myanmar. In this regard, the engagement will engage with a wide range of governmental, non-governmental and community representatives at all levels in society. The engagement will also capitalize on emerging opportunities to increase the focus on environmental and natural resources management and climate change initiatives in the country.

There are no environmental and climate change risks associated with the engagement; on the contrary, the intention is to ensure that both climate change and environmental considerations are incorporated effectively into the coastal area planning and management in Myanmar. The involvement of the Environmental Conservation Department (ECD) as a member of the CCA Steering Committee will be instrumental in achieving this aim.

10 Financial Management

10.1 Choice of Engagement Modality

All Danish funds for the engagement are put on budget through the Forest Department. This has several benefits including:

- The Forest Department will have full ownership and is more likely to monitor the engagement closely, internalise the lessons learned and replicate engagement successes outside the supported areas.
- It is the same modality as the sustainable fisheries engagement, but about one year behind, so the CCA engagement can benefit from lessons learned and the Embassy of Denmark has a similar oversight task.
- There is no need to set up parallel structures for reporting, managing, auditing, etc.

It should be recognised, however, that the recommended modality is riskier than others in terms of direct control that the Embassy will have over procurement decisions. These risks can be abated through the management systems, as described further below, and by careful monitoring.

The Forest Department will engage external service providers using GoM's procurement and recruitment procedures or a procedure as agreed by FD and the Embassy of Denmark.

10.2 Flow of Funds

A budget of 28.2 million DKK is available for transfer to FD.^{4 5} The engagement will provide support for five full financial years of FD.⁶ The engagement support will be for FY 2017/18 until FY 2022/23, i.e. cover from January 2018 to March 2023. After the signing of the DED, the FD Budget Division will open an USD account and a MMK account for the engagement. The engagement budget cycle for the next five FD financial years is outlined below.

For a budget to be included in financial year 2017/18, the budget estimate should be forwarded by FD to Ministry of Planning and Finance (MoPF) by September 2017. The budget estimate for activities in January to March 2018 is expected to be up to 1.0 million DKK for initial preparation including preparing the baseline study. It is not expected that any procurement of goods will be agreed or procurement procedures in place before the 2018/19 financial year. The budget 2017/18 of up to 1.0 million DKK will be drawn from the budget allocation for the budget year 2018/19.

EoD will transfer fund requested for the next financial year annual on request from FD to the USD account. The FD request is made after approval by the Steering Committee (SC) based on the proposed work plan and budget. FD Budget Division asked to have only one transfer. The transfer from the USD to MMK account requires a joint signature of the FD Budget Director and the Engagement Director. The internal transfer from the FD Union level to the FD Districts happens in April and in October. The transfer from the FD Districts to the FD Townships happens quarterly. As noted above interim measures are required to prepare and approve the request for the FY 2017/18. The request can be forwarded before signing of the DED. The transfer to the USD account from EoD can only be made after the signing and opening of the USD account by FD.

⁴ The budget for the international long term technical advisor (6.8 million DKK) is not transferred via FD.

⁵ This funding modality including procurement will follow the approach of the similar arrangement already under implementation in the Sustainable Coastal Fisheries (SCF). A finance manual will be prepared with the FD Budget Division using the experience from the financial manual prepared in SCF.

⁶ The financial year of GoM is from April to March the following year

10.3 The Engagement Budget Cycle

The budget cycle is shown in the table below.

FD Financial Year	Month	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23
FD Budget Estimate (CCA budget and work plan)	September	2017 *)	2018	2019	2020	2021
Approval by SC	October	2017 *)	2018	2019	2020	2021
FD Revised Budget Estimate. GoM Budget approved	End October	2017	2018	2019	2020	2021
Budget request from FD to EoD	November / December	2017	2018	2019	2020	2021
Transfer from EoD to FD #)	January (+ 1 year) (or December)	2018	2019 (2018)	2020 (2019)	2021 (2020)	2022 (2021)
Optional budget amendment	September (+1 year)	2018	2019	2020	2021	2022
Audit report from General Auditor of Myanmar	August (+ 2 years)	2019	2020	2021	2022	2023
Budget allocation (Million DKK)	Exchange rates:	8.0	8.0	5.0	5.0	2.2
Million MMK	1 DKK =215 MMK	1,720	1,720	1,075	1,075	473
1.000 USD	1 USD = 6.4 DKK	1,250	1,250	781	781	344

*) The initial steps will be made prior to approval and signing of the DED.

#) There is a choice for the EoD whether the transfer is at the end of a Danish FY in December, or early in the next year. The last transfer from EoD would be in December 2021 or before March 2022.

The annual transfer from EoD to the USD account will equal the requested transfer less the account balance. The balance on the USD account can be rolled over into/ carried forward to the next financial year as well as the balance on the MMK account⁷.

The indicated annual transfer to the USD account is not fixed. It can be larger or less but shows that the first two years will have more investments. It should also be noted that the last three years are for implementation. The last year will move towards a more sustainable financing (e.g. by FD national budget). Towards the end the budget is reduced to a level that the FD should be able to sustain for a few more years. There will be activities carried out in the last three years that will require support beyond the completion of the engagement to be sustained, e.g. planting of the stock of nursery seedlings, replanting and weeding of mangrove plantings.

The CCA accounts will be audited by GoM Auditor General. The audit process by the Auditor General begins each year in May and is completed in August. The Audit General's report is in Myanmar and a translation will be needed before it is presented to the SC. The SC should get the Audit report for 01

⁷ This was confirmed by the FD Budget Division during appraisal.

January to 31 March 2017 and the first year (2018/2019) for the fall meeting of the SC in 2019⁸ when the budget and work plan for the third year (2020/21) are submitted for approval. The audit report for the last year should be available in August 2023 for the completion of the engagement.

⁸ If a budget as planned is included for the FY 2017/18, the first audit report will have to be presented to the SC in fall 2018.

11 Monitoring and Evaluation

The FD will be responsible for overall monitoring of the engagement according to the Results Framework. The purpose of results monitoring at the engagement level is to provide the management of the engagement, the Steering Committee and the Embassy of Denmark (EoD), with a tool that allows them to assess a) whether the activities are being implemented as planned; and b) to make any necessary adjustments considered necessary to achieve the intended results. Monitoring and Evaluation (M&E) training will be provided to the team and other key FD staff to facilitate this.

Detailed indicators for each specific development engagement output will be revisited and, if necessary, refined at the start-up of the engagement in 2018. Annual targets may also be adjusted at this time with reference to the Climate Change Envelope guidelines for monitoring. The adjustment process will be conducted in collaboration with the EoD and the M&E team for the overall Denmark-Myanmar Country Programme.

Progress of the engagement at field level will be monitored regularly by the FD at District Level. A field-level monitoring system will be developed for the selected sites and communities in Myebon and Yambye townships. A more limited monitoring system will also be developed for sites in Myeik District where only progress of some selected mangrove Community Forest groups will be monitored.

Progress towards achieving the outputs of this engagement will be documented in progress reports provided by the District FD to the Union Level, in accordance with GOM monitoring procedures. The CCA Engagement Director will consolidate all the reporting and prepare an overall progress report on the engagement for the Steering Committee to review at its bi-annual meetings..

The quarterly progress reporting will incorporate a “traffic-light” system, where progress against each annual target in the Results Framework is rated as follows:

- “green” is on-track – implementation progress continues as scheduled;
- “yellow” is partly on-track but needs explanation by the Engagement Management Team to the Steering Committee, including actions taken to get back on-track and closer monitoring of progress by the Management Group;
- “red” is off-track, and a detailed explanation is required from the Engagement Management Team to the Steering Committee with recommendations for changes to the implementation to bring the engagement back on-track. If the assessment is “red” in two consecutive reporting periods, the Steering Committee may consider reallocation between outputs, or between the target intervention sites as deemed appropriate.

11.1 Mid-term Review

A mid-term review of the engagement will be conducted in 2020 after two years of implementation, and while preparing the work plan and budget for the fourth year. The review can be carried out jointly by FD and EoD, or with external assistance as required.

In addition to reporting on the status and achievements of each output, together with recommendations for adjustments to the Results Framework regarding the annual targets and activities, the mid-term review would assess and report on management aspects of the engagement. For example, the effectiveness of the on-budget arrangement and funding flows in GoM, contracting of service providers, expenditure status, and the quality of the monitoring and reporting system.

The Danish Ministry of Foreign Affairs shall have the right to carry out any other technical mission that is considered necessary to monitor the implementation of the engagement.

After the termination of the engagement, the Danish Ministry of Foreign Affairs reserves the right to carry out an evaluation in accordance with this article.

11.2 Sustainability Strategy

It will be important for the Forest Department to consider sustainability beyond the life of the engagement by taking appropriate actions during implementation. Several aspects of sustainability should be considered as the basis for long-term sustainability planning. In outline, these should include at least technical, environmental, human resources, financial and policy considerations for sustainability.

- Technical – e.g. the location and design of mangrove nurseries; timely maintenance and repair of boats, vehicles and equipment.
- Environmental – e.g. site selection of mangrove plantation areas and choice of species; effective enforcement of mangrove protection to ensure that planted trees survive.
- Human resources – e.g. appropriateness of training activities and selection of trainees; effective use of developed staff capacity; working collaboratively with respected community leaders.
- Financial – forward budget commitments by the FD will be necessary to finance mangrove nursery and planting activities beyond the end date of the engagement; small amounts of funding to local communities can have a large impact on their well-being and support.
- Policy – results and lessons from the engagement should be informed to the national and state policy levels on a regular basis; and it is often most effective to give policy-makers opportunities to see development activities at first hand.

12 Anti-Corruption

No offer, payment, consideration or benefit of any kind, which could be regarded as an illegal or corrupt practice, shall be made, promised, sought or accepted - neither directly nor indirectly - as an inducement or reward in relation to activities funded under this agreement, incl. tendering, award, or execution of contracts. Any such practice will be grounds for the immediate cancellation of this agreement or parts of it, and for such additional action, civil and/or criminal, as may be appropriate. At the discretion of the Government of Denmark, a further consequence of any such practice can be the definite exclusion from any engagements funded by the Government of Denmark.

13 Prerequisites

The cooperation with the FD will become effective when the Addendum to the Denmark-Myanmar Country Programme Support Agreement for the CCA Engagement has been signed by Ministry of Planning and Finance and the Embassy of Denmark and this Development Engagement Document has been approved by the Danish and the Myanmar Governments upon its signature by the Embassy of Denmark and FD.

A prerequisite for the cooperation is that FD staff at State/Region, District and Township levels is made available for implementation of the CCA Engagement for its entire duration 2018-2023.

Signatures

Date: _____

Date: _____

Forest Department

Embassy of Denmark, Myanmar

Annex 1: ToR for the International Long-Term Advisor

Title:	Senior Technical Advisor (N1): Sustainable Management of Mangrove Forests
Place of Service:	Forest Department (FD), Nay Pyi Taw, Myanmar with travels to Rakhine State
Contract period:	2 years with option for 2 years extension.

Main purpose of the position: The Senior Technical Advisor will provide advice to FD on technical matters regarding policies, legislation, strategy development and information dissemination/communication approaches for sustainable and inclusive management of mangrove forests.

Area of responsibility: The scope of work will include but not be limited to:

- Enhance knowledge about mangrove ecosystem services, livelihoods and climate change into the Forest Department (FD)
- Advise and assist FD in procurement, prepare terms of reference for and supervision of technical assistance from NGOs and CBOs to support local stakeholders in the establishment and management of community forests plus the associated local livelihood development activities.
- Ensure that engagement activities at community level are inclusive, reach the most vulnerable and marginalized, include all ethnic groups and promote gender equality.
- Organise capacity development activities to enable FD staff to work effectively with other departments, with civil society organisation and with communities.
- Support FD in adoption of best practices on mangrove management and community forestry
- Ensure that lessons learned are well documented and shared

Demand Profile/Qualifications: Requirements and expectations concerning the candidate's formal qualifications:

- Masters Degree in a relevant subject (forest management, environmental policy and planning, natural resource governance or similar).

Experience: A minimum of 10 years of development experience, with experience in:

- Capacity development preferably in the forest sector.
- Support to public administration and government system with policy and legal issues in relation to natural resources
- Excellent experience with one or more of the technical themes of development engagement:
 - Coastal area and mangrove forests and forest management
 - Community forestry and co-management of natural resources in developing countries.
 - Climate change adaptation and community resilience in coastal areas
- Experience from South East Asia. Relevant experience from Myanmar will be an advantage
- Excellent command of English is required. Knowledge of Myanmar language(s) would be an advantage.

Requirements and expectations concerning the personal qualifications of the candidates:

- Very good interpersonal and communication skills; and a good team player
- Accountable with good client orientation
- Aptitude to deal well with change and able to work in diverse institutions and cultural settings
- Willingness to travel in remote areas.

Annex 2: Risk Management Matrix

Table Annex 2-1: Contextual Risk¹

Risk Factor	Likelihood	Impact	Risk response	Background to assessment
Impact from natural disasters	Likely	Minor	The engagement activities are spread between widely separated states and between areas that have different exposure to natural hazards. There is also a wide variety of activities, many of which are not sensitive to some kinds of disaster. Also, storm damage is not permanent and the engagement allows for replanting.	Recently replanted mangrove areas are sensitive to extreme weather events such as storm surges and flooding. It is likely that some such events will occur during the duration of the engagement affecting some locations but impacts on the engagement as a whole will be limited. Site level risks are considered in “programmatic risks” below.
Inadequate leadership to drive collaboration and cooperation with development partners	Likely	Minor	In accordance with the country programme strategy, the engagement will contribute to building the capacity to create national strategies and sector plans. It will pilot use of country systems to increase national ownership and, through technical assistance and capacity development, will contribute to an enabling environment for aid effectiveness.	Given that the engagement will focus efforts at local level and includes advocacy and awareness-raising to build FD capacity, the impact of leadership issues is unlikely to derail the engagement objective and outputs.

¹ Other contextual risks and risk responses are explained in the Denmark-Myanmar Country Programme 2016-2020.

Table Annex 2-2: Programmatic Risks

Risk Factor	Likelihood	Impact	Risk response	Background to assessment
<p>The lack of capacity of FD to provide the staff required to implement the CCA Engagement, in quantity and quality.</p>	Likely	Minor	<p>A pre-condition for the engagement to support activities at each of the selected sites will be that sufficient manpower resources are available. This may entail recruitment of additional FD staff or the possible use of external trainers, experts and organisations able to work effectively with local communities.</p>	
<p>The willingness of the FD staff concerned and the officials at state and union level to implement the engagement when faced with opposition from influential vested interests. Policy makers on district or township levels may, for example ally with competitors for the resources at stake or resist limitations on access, including by spatial and temporal restriction, for short-term political gains or other benefits.</p>	Unlikely	Minor	<p>In order to balance such risks advocacy and public awareness campaigns including through mainstream media have been made part of the Engagement.</p>	<p>The benefits of co-management of forests are becoming widely understood by FD and local officials, many of whom express commitment. The transparency of the engagement and availability of information should effectively mitigate the risks of sabotage due to short-termism or self-interest.</p>
<p>The inability of the FD to secure jurisdiction over the coastal areas in Rakhine proposed as Protected Public Forest (PPF) may restrict the scope of activities that can be carried out in the area.</p>	Unlikely	Minor	<p>The DE includes policy dialogue as well as support for capacity building and advocacy which will encourage the designation of the targeted areas as PPF, as will the availability of funds and technical assistance from the DE. A diverse range of activities is proposed in the target areas, not all of which depend on the FD's having jurisdiction.</p>	<p>The designation of new PPF areas is well advanced and no opposition has been voiced. The risk of failure to secure PPF designation is therefore low.</p>

Risk Factor	Likelihood	Impact	Risk response	Background to assessment
The efficiency of channelling engagement funds through the FD; and in Rakhine the State and District FDs' ability to manage engagement-supported activities.	Unlikely	Major		
There is a risk that seasonally bad weather conditions in Myebon Township will slow implementation given its exposure to storms and sea surges generated in the Bay of Bengal. Recently replanted mangrove areas are sensitive to extreme weather events such as storm surges and flooding and may be destroyed.	Likely	Minor	The local communities will be supported and trained to take responsibility for as many of the proposed activities as possible. Safety measures will be promulgated to avoid risks while carrying out DE supported activities	It is likely that some such events will occur during the duration of the engagement, but the damage can be repaired and impacts on the site will be temporary.
There is a high risk that continued illegal wood extraction from Wunbaik RF, by groups of men coming in boats from other townships where sufficient fuelwood is no longer available, will lead to further degradation of the mangrove forest at a faster rate than the mangroves can be restored/rehabilitated.	Likely	Minor	It is a precondition that action is taken by the FD to control this illegal practice before engagement activities commence in any particular location. At site level, support and capacity building for forest protection involves community patrols, monitoring protected areas and reporting to enforcement officials.	The risk applies only to a few of the engagement sites. Action by FD, as well as community monitoring is likely to limit the effect.

Table Annex 2-3: Institutional Risks

Risk Factor	Likelihood	Impact	Risk response	Background to assessment
<p>Government of Denmark becomes associated with exclusion of minorities from participation in community forestry activities, thereby depriving them of benefiting from improved forest resources management opportunities.</p>	<p>Unlikely</p>	<p>Minor</p>	<p>The engagement is designed to be inclusive, specifically targeting mixed areas and minority populations and making provision for the use of NGOs and CBOs where FD cannot reach some communities. Monitoring will ensure that minorities are included to the extent possible and share equitably in the benefits of the engagement in operational areas.</p>	<p>Engagement design ensures inclusion of minorities and disadvantaged groups. Regular monitoring will be in place to see that these measures are fully implemented.</p>
<p>Government of Denmark becomes associated with violent enforcement actions directed against minority groups intended to prevent illegal encroachment into forests participating in the engagement</p>	<p>Unlikely</p>	<p>Minor</p>	<p>It is a precondition that the Union government makes efforts to curtail illegal encroachment in the engagement areas before activities commence. These should include actions against transport and marketing of poached materials rather than violent interdiction.</p>	<p>Engagement support for forest protection involves monitoring protected areas and reporting to enforcement officials. Direct enforcement is not supported.</p>

Annex 3: ToR for CCA Steering Committee

The SCF Steering Committee (SC) will be established with the membership comprise of:

- Permanent Secretary of MONREC (chair)
- Director General of Forest Department
- Director General of Environmental Conservation Department
- Embassy of Denmark in Myanmar (co-chair)

The Forest Department (FD) will have the overall responsibility for implementation of the engagement. The Engagement Management group led by the Engagement Director will provide the steering committee with relevant information and act as secretary to the Steering Committee.

The main purpose of the Steering Committee will be to oversee all engagement activities and provide advice on changes to design, budget and other programmatic issues. It should convene at least twice annually following receipt of the semi-annual and annual reports from the engagement management team. It may be convened in extraordinary session at the discretion of the Chair or Co-chair, following a request of any member or the Engagement Director

Decision-taken in the SC will be based on consensus.

Responsibilities of the Steering Committee will include:

- Overseeing all aspects of implementation of activities under the DED;
- Reviewing progress against the ongoing Annual Work Programme;
- Approving the forthcoming Annual Work Programme and budget;
- Approve annual audit reports;
- Reviewing progress against the targets and indicators in the Results Framework;
- Leading scheduled and *ad hoc* reviews;
- Providing advice and guidance on changes to design, budget and other programmatic issues;
- Facilitating policy dialogue with GoM on Union and State/Region level;
- Ensuring that relevant results and findings reach other concerned GoM line ministers and agencies.

Annex 4: References and Background Documentation

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Annex 5: Sittwe Site Analysis

Situation Analysis

The southern part of Myebon Township (Sittwe District) has a fragmented coastline consisting of numerous medium to small islands with villages that are highly vulnerable to cyclones, storm surges and floods (UNDP, 2011) and slow onset impacts from climate change e.g. sea level rise. Loss of mangrove forest cover in Myebon has clearly made the township even more vulnerable to natural hazards.

Conversion and degradation of mangrove forests in Myebon Township has been caused largely by the same drivers of change identified in Wunbaik RF; that is, land conversion to rice fields and shrimp ponds, and fuel wood collection. However, mangrove loss and degradation has been more extreme in Myebon. Without the relative protection of reserved forest status, mangrove conversion to rice farming began in Myebon as early as the late 1960s and 1970s, driven by government policies to increase the land area under rice production, and with a secondary aim of generating income from the selling of mangrove timber, charcoal and firewood (REACH, 2015). Thus, virtually all the large mangrove trees were felled during these early years. From the 1990s onwards, shrimp farming has also been a major driver of mangrove loss in Myebon. The population pressure is also higher in Myebon compared to Yambye.

Myebon Township still has the greatest area of mangroves among all the townships in northern Rakhine, as well as the highest proportion of land area still covered by mangroves (18%). However the area of mangrove forest in Myebon has declined significantly since the 1990s as a result mangrove land conversion, especially to shrimp ponds. Data provided by USAID indicate an almost 30% loss of mangrove cover in Myebon between 2000 (46,311 ha) and 2015 (32,786 ha). The reduction in mangrove cover has been widespread throughout the Myebon, except for some regrowth on islands in the far southeast of the township (REACH, 2015).

The data on mangrove forest cover in Myebon Township do not indicate how the quality of the mangroves has changed; however, it is clear from direct observation that it is virtually all secondary growth dominated no longer by true mangrove trees, but by mangrove associated plants that have invaded where mangrove trees once grew. This over growth is preventing regeneration of the true mangrove forest. In many places the “mangroves” now consists of dense shrubby vegetation with no fuelwood or timber value e.g. *Acanthus* species, *Dalbergia spinosa* and *Acrostichum aureum*). Where mangrove tree species of value for fuelwood or timber do still exist, there is little sign of seedling recruitment. This situation appears to be due to grazing by buffalos and cows within the mangroves (REACH, 2015).

Shrimp farming in Myebon and other townships in Rakhine still follows the traditional or extensive system of trapping and holding wild shrimp, or wild-caught shrimp, in large shallow ponds until they are large enough to harvest and sell. Some shrimp farmers in Myebon seem quite aware that the decline in wild shrimp juveniles is related to the loss of mangroves, even though they themselves have been a major cause of this problem! Many ponds have become disused because they are no longer profitable to operate; but once ponds dry up the soil becomes acidic, making the ponds even less viable for shrimp production.

Faced with the above situation, some shrimp farmers are willing to replant mangroves to help improve the environment around their ponds (REACH, 2015). Villagers in Myebon are also interested in planting mangroves as protection against cyclones, or as wood lots. Indeed the REACH study concluded that “...there appears to be a strong level of positive sentiment regarding mangroves, as well as interest and

initiative in participating in [mangrove] regeneration efforts". The engagement can build on this opportunity to engage local communities in Myebon in mangrove rehabilitation activities.

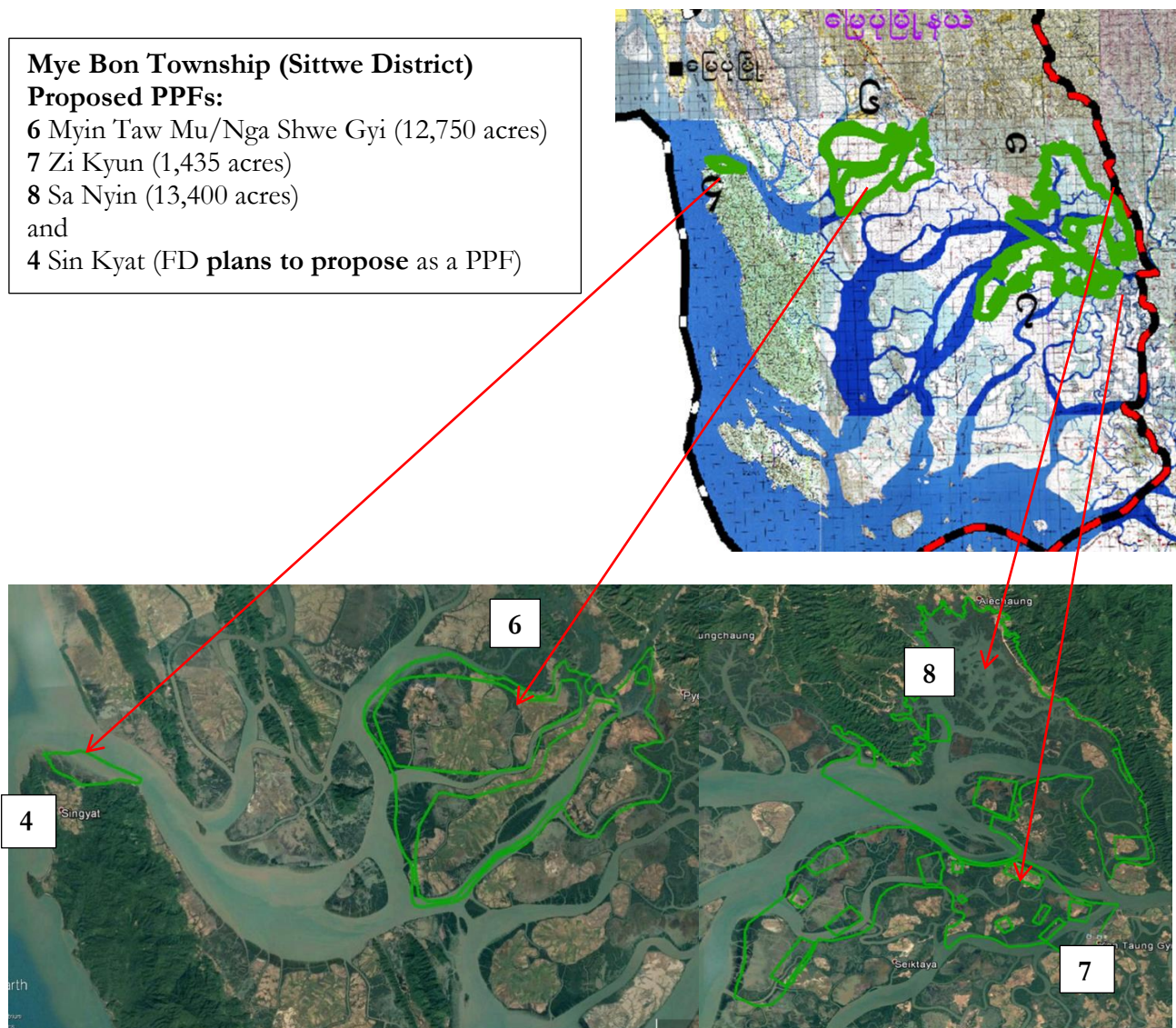


Figure 1. Map and Google Earth images showing the locations of the proposed mangrove Protected Public Forest areas in Myebon Township, Sittwe District.

Due to the remoteness of the many low-lying coastal islands in Myebon Township, lack of access to safe drinking water is also a serious problem and some households have to buy water during the dry seasons. Faced with the prospect of more extreme wet and dry seasons, including greater saline during periods of drought, freshwater management and storage solutions are needed urgently in many villages as a climate adaptation response.

The development engagement activities identified in Myebon Township would be implemented in one or more of the sites proposed by the Rakhine State Forest Department as mangrove Protected Public Forest (PPF). Three PPF sites have been proposed and a fourth site is at the planning stage. The locations of these four sites are shown in Figure 1.

Either Myin Taw Mu/Nga Shwe Gyi or Sa Nyin would be suitable for the engagement activities proposed. Myin Taw Mu/Nga Shwe Gyi is preferred because it still has well defined areas of mangrove forest and is more accessible from Sittwe Town than the other proposed PPF sites.

The ethnic composition of the villages in these proposed PPF sites is not known, but overall Myebon Township has 85% Rakhine and 15% ethnic minorities, including Muslim, Christian and Barmah people.

Proposed Activities

1. Support for the proposed mangrove forest PPFs in Myebon , including assessment of the quality of existing mangrove cover and challenges to rehabilitation, including current land use issues
2. Mangrove rehabilitation in selected sites in Myebon - 250 acres (to be confirmed)
3. Assisted natural regeneration of mangroves - 50 acres (to be confirmed)
4. Support to Community Forests and other village-led mangrove reforestation activities
5. Development of a reliable mangrove nursery system, including on-rearing of seedlings in community nurseries, to produce sufficient seedlings to meet the planting requirements for activities 2-4
6. Support to develop and manage a mangrove forest base camp and community extension centre
7. Training for Community Leaders and FD staff in mangrove rehabilitation and sustainable management
8. Training for FD, other local authority staff and shrimp pond owners in integrated coastal resources management
9. Public awareness activities on climate change and adaptation options
10. Introduction of fuel-efficient stoves to the most mangrove-dependent households to reduce their domestic fuelwood consumption
11. Water conservation and storage
12. Development and testing of additional climate-adapted livelihood opportunities for local households, including mangrove-based mud crab culture and improved management of shrimp ponds⁹
13. Establish and operate an indicator-based environmental monitoring system to assess progress of the above activities and their contribution to the engagement's expected outputs and outcome.

⁹ It is expected that aquaculture-related activities in Myebon Township will be undertaken in collaboration with other planned international assistance specifically supporting aquaculture development in Rakhine, e.g. Myanmar Sustainable Aquaculture Programme (MYSAP) (EU/GIZ funded), which will restore 40,000 hectares of shrimp ponds in northern Rakhine.

Indicative Budget for Field Activities

ACTIVITY	COST (DKK)
1. Support to the proposed mangrove PPFs (if approved)	350,000
2. Mangrove rehabilitation (500 acres)	1,625,000
3. Assisted natural regeneration (50 acres)	25,000
4. Support to Community Forest formation and other village-led mangrove reforestation activities	1,000,000
5. Development of community nurseries and seedling production systems	940,000
6. Mangrove forest base camp and community extension centre	690,000
7. Training on mangrove rehabilitation and management	500,000
8. Training on integrated coastal resources management	500,000
9. Public awareness activities on climate change and adaptation options	200,000
10. Fuel efficient stoves, including local manufacturing	330,000
11. Water conservation and storage initiatives	600,000
12. Environmental monitoring	1,300,000
TOTAL	8,060,000

Pre-conditions and Risks

There is a pre-condition is that more FD staff will be recruited in line with the staffing allocation in the Constitution. This is especially important given the remoteness of the coastal regions of Myebon Township.

While not a pre-condition, implementation of many of the proposed activities in Myebon Township will depend on approval of the PPF sites proposed by the State FD (see Figure 1); and that an inclusive approach is adopted in relation to providing assistance to all the most vulnerable villages and households within the selected PPFs.

The FD Union level should also consider the human resources that will be needed overall to implement the proposed activities, including the possible use of external service providers able to work effectively with local communities in Myebon.

There is a risk that seasonally bad weather conditions in Myebon Township will slow implementation given its exposure to storms and sea surges generated in the Bay of Bengal. For this reason, the local communities should be supported and trained to take responsibility for as many of the proposed activities as possible.

Annex 6: Kyauk Phyu Site Analysis

Situation Analysis

The Wunbaik Reserved Forest (RF) in Yambye Township of Kyauk Phyu District is the most significant area of mangrove forest in Myanmar's Forest Estate. An area of 56,633 acres of mangrove forest was designated in 1930 during the British colonial period, with the objective to provide a sustainable supply of fuel wood for steam ships and salt-making works. Despite its RF status, the mangrove forest in Wunbaik RF has suffered from multiple forms of exploitation since the 1990s. Some areas around the edge of the RF have become heavily degraded by wood extraction and bark-cutting (to extract natural dye), or converted to rice fields and shrimp farms.

There is also a large Protected Public Forest (PPF) area adjacent to Wunbaik RF, the Min Gyaung PPF covering 10,080 acres. A small additional PPF area next to the Min Gyaung PPF, known as the Min Gyaung Extension PPF (area 1,875 acres), has been proposed by FD (see Figure 1).

An FAO project in Wunbaik estimated that by 2011, 25% of the mangrove land area had been encroached on and only 54% of the total area still contained relatively intact mangrove forest (Stanley and Broadhead, 2011). And due to dyke-building and other construction work, the surface area of waterways within the mangrove forest has been reduced by 30% since 1990. Nonetheless, it is clear that the Wunbaik mangrove ecosystem is still highly productive. Even the mangrove forest cover identified as "intact" in 2011 consisted mainly of secondary vegetation vulnerable to further degradation and encroachment.

The Wunbaik RF is vitally important not only to Rakhine, but also to Myanmar nationally because it is the largest single area of mangrove forest remaining in the country, and the most diverse. Thirty-four mangrove plant species occur in Wunbaik, which is almost 50% of the global total of around 70 true mangrove species. It is therefore a valuable source of seeds and seedlings of species that are no longer present, or which are now rare, in other parts of Myanmar, particularly the Ayeyarwady Delta where only remnants of the delta's once extensive mangrove forests remain.

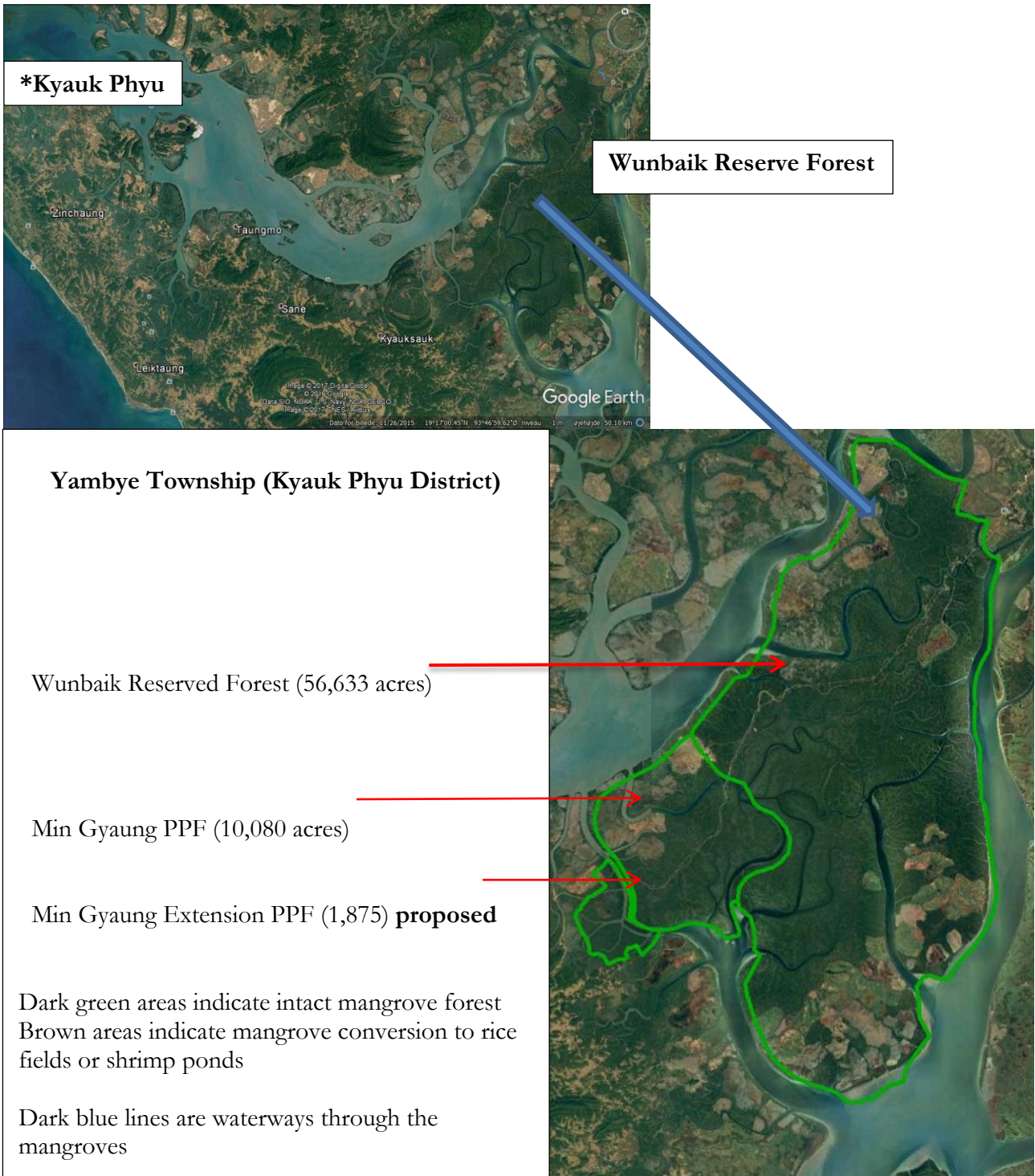


Figure 1. Location of Wunbaik RF, Min Gyaung PPF and Min Gyaung Extension PPF (proposed).

In relation to storm mitigation and climate change, the Wunbaik mangroves protect Yambye Township and the surrounding inner coastal areas of Kyauk Phyu from cyclones and storms originating in the Bay of Bengal. But due to the significant loss and degradation of the mangroves, the coastline and villages in and around Wunbaik are now considered to be more vulnerable to storm damage and flooding (Stanley and Broadhead, 2011).

The Wunbaik mangroves support a diverse fauna of birds, mammals and reptiles, as well as many aquatic species. However due to hunting, disturbance and habitat loss, many of the larger mammals are now rare (deer, wild boar, fishing cats) or extinct (tiger, leopard, elephant). Even mangrove otters, which were still common up to 2011, are now considered to be rare.

Due to the extensive network of water channels that permeate the Wunbaik mangroves, the area is an important natural nursery for fish and crustaceans that migrate between the mangroves and the Bay of Bengal. It is therefore a good site to demonstrate (and attempt to quantify) the ecological and economic linkages between mangroves and coastal fisheries.

There are four townships with 10 village tracts and 32 villages within 10 kilometres of Wunbaik RF. The inhabitants of Yam Bye Township, with a population of around 100,000 people living in 16 villages are the most dependent on the mangrove resources in Wunbaik RF. The population actually living within Wunbaik RF is quite low and comprises of 611 households with 2962 people (2013 data). Min Gyaung PPF has 75 households with 316 people. Their main livelihood activities are fishing, rice farming and shrimp culture on land converted from mangrove forest. Land encroachment exceeded 13,000 ha between 1990 and 2011. In addition, virtually every household is involved in part-time fishing or crab trapping in the mangroves to supplement their income.

The people living in Yam Bye are ethnically Rakhine and they seem to have strong community cohesion and good awareness of the importance of the mangrove forest to their well-being. However, Wunbaik RF faces a serious problem that people from other townships such as Myebon, Pauktaw and Sittwe are entering Wunbaik by boat to extract mangrove wood on a large scale. This is a growing issue because fuel wood sources elsewhere have become almost exhausted and therefore Wunbaik is being targeted increasingly as an alternative source of mangrove wood for other townships and urban centres. At present the FD in Kyauk Phyu has no capacity to control this illegal wood-taking.

The environment around Kyauk Phyu Town will be greatly impacted by the planned Special Economic Zone, which will include a deep water port and an oil and gas pipeline. However, Wunbaik RF lies well to the east of the development area and should not be much affected. There is a 32 kilometre long road running through Wunbaik, which was completed in 2006 to connect to the Kyauk Phyu to Yangon Highway, but the impact on the mangrove forest has been moderate and the bridges constructed to take the road over waterways within Wunbaik have not altered the tidal water flow through the mangroves to any appreciable extent (Stanley and Broadhead, 2011). This road actually provides part of the justification to support a mangrove education and training centre in Wunbaik (see proposed activities), on the basis that the road allows easy access to the existing FD Base Camp where the centre would be constructed.

Proposed Activities

1. Mangrove rehabilitation in Wunbaik RF and Min Gaung PPF - 600 acres (to be confirmed)
2. Mangrove selective planting (forest gap-filling) - 25 acres (to be confirmed)
3. Assisted natural regeneration of mangroves - 100 acres (to be confirmed)
4. Support for the formation of Community Forestry groups in Wunbaik RF and community forestry activities in the proposed Min Gyaung Extension PPF (1,875 acres)
5. Support to develop and manage a mangrove forest base camp in Wunbaik RF, including a permanent mangrove nursery and a field level Mangrove Education and Training Centre
6. Develop a mangrove nursery system, including on-rearing of seedlings in community nurseries, to produce sufficient seedlings to meet the planting requirements for activities 1-3; and to

- provide seeds and seedlings to re-establish species that are absent or no longer self-generating in other townships in Rakhine.
7. Training for Community Leaders and FD staff in mangrove rehabilitation and sustainable management
 8. Training for FD, other local authority staff shrimp pond owners in integrated coastal resources management
 9. Public awareness activities on climate change and adaptation options
 10. Introduction of fuel-efficient stoves to the most mangrove-dependent households to reduce their domestic fuelwood consumption
 11. Development and testing of additional climate-adapted livelihood opportunities for local households, including mangrove-based ecotourism and improved management of the mud crab fishery
 12. Establish and operate an indicator-based environmental monitoring system to assess progress of the above activities and their contribution to the engagement's expected outputs and outcome.

Indicative Budget for Field Activities

ACTIVITY	COST (DKK)
1. Mangrove rehabilitation (600 acres)	1,950,000
2. Mangrove gap-filling (= selective planting) (25 acres)	26,250
3. Assisted natural regeneration (100 acres)	25,000
4. Support to Community Forest formation and community forest management in Wunbaik RF and Min Gyaung PPF	500,000
5. Wunbaik RF Base Camp, Nursery and Education/Training Centre	690,000
6. Nursery seedling production and distribution system	940,000
7. Training on mangrove rehabilitation and management	700,000
8. Training on integrated coastal resources management	700,000
9. Public awareness activities on climate change and adaptation options	300,000
10. Fuel efficient stoves, including local manufacturing	100,000
11. Water conservation and storage initiatives	800,000
12. Environmental monitoring	1,100,000
TOTAL	7,831,250

Pre-conditions and Risks

The current FD staffing is below that required to manage Wunbaik RF effectively. The total number of FD staff currently in post in Yambye Township is 14 out of a total of 21 specified by the constitution and not all the technical staff in Yambye are assigned to Wunbaik RF. Of the technical staff, there are only two out of four Deputy Rangers in post. There should also be four Forest Guards, but there are none in post.

A pre-condition for the engagement to support activities in Wunbaik RF will be that more FD staff are recruited and that FD Union level also considers the human resources that will be needed overall to implement the proposed activities, including the possible use of external service providers able to work effectively with local communities in Yambye Township.

Any mangrove rehabilitation activities to be supported by the engagement within the Min Gyaung Extension area (see Figure 1) will depend on the FD securing approval for this proposed PPF.

There is a high risk that continued illegal wood extraction from Wunbaik RF, by groups of men coming in boats from other townships where sufficient fuelwood is no longer available, will lead to further degradation of the mangrove forest at a faster rate than the mangroves can be restored/rehabilitated. Action needs to be taken by the FD to control this illegal practice.

Annex 7: Local Civil Society Organizations active in Coastal Areas of Myanmar

The massive loss of life and physical destruction in the Ayeyarwady Delta caused by Cyclone Nargis in May 2008 was the stimulus for the formation of a number of civil society organisations and networks in the aftermath of the disaster, as well as for the massive international recovery effort that was mobilized. It was also clear to all that Cyclone Nargis was much more devastating because nearly all the natural coastal protection provided by mangroves had been lost because of deforestation in the delta to create agricultural land.

Local NGOs

Formed in 2009, many of the organisations involved after Nargis became members of MERN, which was known then as the Mangrove Environmental Rehabilitation Network. MERN was subsequently retitled to become the Myanmar Environmental Rehabilitation-Conservation Network and currently it has 22 member organizations. Much of the local capacity in Myanmar for coastal ecosystem rehabilitation and community livelihood support is represented among these organizations. Unfortunately, MERN seems to have not yet achieved its potential as an environmental network, despite the crucial need for concerted local advocacy on environmental issues, particularly those contributing to poverty and vulnerability of coastal communities in Myanmar.

Nonetheless, the following MERN organizations are recognized for having acceptable governance and managerial standards. It should also be accepted that these and other local NGOs will only improve if they receive appropriate capacity-building, as well as gaining experience by having opportunities to plan and implement projects. The following MERN members are considered to be among the most relevant and competent local organizations active in Myanmar's coastal areas.

Rakhine Coastal Region Conservation Association (RCA)

As its name suggests, RCA is a Rakhine-based NGO. Its activities include awareness-raising about the importance of conserving, rehabilitating and using mangroves sustainably. RCA also supports Community Forestry activities. RCA is well-respected as an organization and seems to have a good relationship with the Rakhine Forest Department.

Network Activities Group (NAG)

NAG provided emergency relief after Typhoon Nargis. This organization continues to work mainly in the Ayeyarwady Delta, with a focus on support to fisher households, including aquaculture development.

Mangrove Service Network (MSN)

MSN was established in 2002 and also became very active in the recovery phase following Typhoon Nargis. MSN is experienced in mangrove rehabilitation and conservation, including use of fuel-efficient stoves to reduce household wood consumption; also soil conservation and riverbank stabilization, and training on forestry, fisheries, agriculture, livestock and village enterprises.

Economically Progressive Ecosystem Development Group (EcoDev)

EcoDev supports community development by promoting community-led natural resources management and policy development. ECoDev also conducts environmental awareness-raising and capacity-building activities.

Forest Resource Environment Development and Conservation Association (FREDA)

FREDA was founded by former Forest Department leaders and was registered in 1996 as an NGO within the forestry sector. In response to Typhoon Nargis in 2008, FREDA also became involved in coastal environmental rehabilitation and community development activities.

FREDA has considerable experience of mangrove seedling production and planting in the Ayeyarwady Delta, where it has benefitted from 10 years of support from a Japanese organization known as ACTMAN (Action for Mangroves). However, FREDA's Chairman, U Than Nwai, made it clear to the mission that FREDA would not consider working in Rakhine.

International Programs and Projects

Most of the international support within the coastal environment, livelihoods and climate change sectors in Myanmar has focused on the Ayeyarwady Delta, as a response to both Typhoon Nargis and the wider problems associated with poverty and environmental degradation in the delta, including the extreme loss of mangroves that had already occurred before Nargis.

Rakhine has also received assistance from several large international programs/projects in recent years. These have provided valuable information, results and lessons learned, which the mission has made use of. However, they seem to have been less effective in leaving behind sustainable outcomes.

“Sustainable Community-based Mangrove Management in Wunbaik Forest Reserve” (2009-11)

This was an FAO-supported project with the aim of providing technical inputs to support the sustainable management of the Wunbaik Reserved Forest, including training, demonstrations, village support activities, and technical publications; and integrated mangrove management plan was also produced.

Coastal Livelihood and Environmental Assets Restoration in Rakhine (CLEARR)

This project operated for three years from 2001 to 2014 in Gwa Township and Kyeintali Sub-Township in southern Rakhine. The project was funded by the Livelihood and Food Security Trust Fund (LIFT) and its objective was to improve food and livelihood security of coastal communities through cooperative mangrove rehabilitation, agricultural and livelihood support, and improved capacity for livelihoods development and environmental governance. The CLEARR Project was implemented by six partner organizations, including four MERN members (EcoDev, RCA, BANCA and ECCDI), plus the Swanayee Development Foundation (SDF) and the Border Area Development Association (BDA)

Program for Improved Disaster Management and Resilience against Natural Disaster in Rakhine

This is a consortium project from 2015 to 2018 led by the International Organization for Migration (IOM). One of the project's outputs is “A Socio-Ecological Assessment of Mangrove Areas in Sittwe, Pauktaw, Minbya and Myebon Townships, Northern Rakhine State” (November 2015). This assessment reports on the current status of mangroves in northern Rakhine, the consequences of mangrove degradation, and the strategies recommended for restoring and conserving mangroves there.

The most relevant and active on-going programs in Rakhine and other coastal regions of Myanmar include the following:

Livelihood and Food Security Trust Fund (LIFT)

In addition to financing the CLEARR Project in southern Rakhine (as described in section 2.2), LIFT established the Tat Lan Program in the central and northern Rakhine townships of Kyaukpyu, Myebon, Pauktaw, and Minbya as a response to help improve the livelihoods of around 150,000 villagers who were affected by Cyclone Giri, which hit these coastal areas of Rakhine in 2010.

Starting in 2013, the first phase of the program (Tat Lan I) focused on improving food security and incomes in communities vulnerable to cyclones and other climate-related hazards. LIFT is currently financing a second phase (Tat Lan II, 2016-2018) with a continuing emphasis on nutrition and livelihood improvement through support to agriculture, fisheries and livestock, plus other resilience-building activities and disaster risk management.

The Tat Lan Program is implemented by the International Rescue Committee, Save the Children Fund, Better Life Organization and Oxfam; and CARE Myanmar is providing guidance on monitoring and evaluation. Of particular relevance to the Danish CCA engagement, Tat Lan II is piloting community forestry approaches in cooperation with the Forest Department in Rathedaung.

Myanmar Climate Change Alliance Program (MCCA)

The MCCA was established in 2013 as a platform to mainstream climate change into Myanmar's policy development and reform agenda. The MCCA platform also supports actions on climate change at all levels and sectors of society, from Union to Local Government, NGOs, Private Sector and Development Partners. MCCA is being implemented by the United Nations Human Settlements Programme (UN-Habitat) and the United Nations Environment Programme (UNEP); and it operates through a lead technical unit based within the Ministry of Natural Resources and Environmental Conservation (MoNREC).

In 2016, the MCCA collaborated with Columbia University New York and WWF to undertake a detailed Vulnerability Assessment of Labutta Township in the Ayeyarwady Delta. The assessment report is about to be published and it provides a valuable model for a similar Vulnerability Assessment that should be carried out in Rakhine as a preliminary activity of the proposed Danish climate change project. The MCCA assessment was completed in three months at a cost of about USD 90,000, using only satellite imagery available in Myanmar at no cost.

Although the MCCA study findings relate specifically to Labutta, the following summary points also apply (to a greater or lesser extent) in Rakhine:

Labutta Township is insufficiently resilient to the present climate conditions, and its vulnerability will increase greatly because of the predicted future changes in climate if no adaptation actions are taken. This is mainly due to the current socio-economic, infrastructure and ecological system conditions, and the expected impact of climate change on these systems.

- *Labutta's economy is not diversified and up to 72% of people depend on highly climate-sensitive agriculture and fisheries for their livelihoods, which on average provide incomes well below the minimum wage, while people have little training in other trades or professions.*
- *Labutta has a deltaic ecosystem, which though naturally highly productive and resilient, is rapidly degrading.*
- *Infrastructure in Labutta is not adapted to strong winds and floods, and is unable to withstand the effects of tropical storms and cyclones, and is further at risk from projected changes in future.*
- *The interplay of these underlying vulnerabilities with on-going and future changes in climate will, if not urgently addressed, leave the people of Labutta more vulnerable to disasters.*

Pyoe Pin

This is program funded mainly by DFID (UK Aid) and managed by the British Council in Yangon. Pyoe Pin's goal is to promote inclusive, accountable and fair governance in Myanmar to underpin a more open, prosperous and peaceful society. To achieve this aim, Pyoe Pin supports processes that enable locally-led coalitions of civil society, private sector and government to address tangible real life issues and create sustainable change.

Like LIFT, Pyoe Pin funds projects and studies that are contracted to civil society partners. Pyoe Pin financed a project on sustainable shrimp farming in Myebon Township (2014-2015). There is also a valuable report on Community Forestry in Myanmar: Progress and Potential (2011), which is the output from a Pyoe Pin-funded research study.

Summary of recommendations of the appraisal

Title of Programme	Climate Adaptation in Coastal Communities of Myanmar: Improved Management of Mangrove Forests Engagement
File number/F2 reference	2016-49303
Appraisal report date	10 August 2017
Council for Development Policy meeting date	N/A
Summary of possible recommendations not followed	
None	
Overall conclusion of the appraisal	
The appraisal has assessed the relevance, expected efficiency and potential outcome of the CCA DED. The proposed support is relevant and justified both within the Myanmar policy framework for climate change and mangrove forest management. The proposed support is also well justified for support from the Danish Climate Envelope.	
Recommendations by the appraisal team	Follow up by the Embassy of Denmark
1. Engagement implementation for five years.	It has been decided with Forest Department to extend the planned period of the engagement until March 2023 covering five Myanmar fiscal years.
2. Clarification and outline of engagement activities in Tanintharyi Region	The planned activities in Tanintharyi have been spelled out in more details in the DED (chapter 3.3). It has been agreed with Forest Department that focus will be on capturing lessons learned from existing Community Forest (CF) activities and transfer these to Rakhine, as well as doing relevant studies in relation to SCF pilots in the region.

<p>3. Support to entire mangrove rehabilitation and reforestation programme</p>	<p>The engagement will now contribute to the full national programme as outlined in the results matrix. Especially working with Forest Department on piloting CF nationwide and build the capacity of the Forest Department to work with local communities. The engagement will still hold direct support to mangrove restoration in target districts/townships.</p>
<p>4. Baseline assessment and results framework</p>	<p>The purpose of the vulnerability assessment has been specified so it will also create the needed baseline data for the results matrix. The vulnerability assessment will take place within the first 6 month of the engagement.</p>
<p>5. Support to community level activities</p>	<p>In agreement with the Forest Department it is decided to focus community level activities on incentives directly related to mangrove management, e.g. efficient use of fuel wood, cooking stoves and labour connected to planting and maintenance of rehabilitated mangroves.</p>
<p>6. Budget to reflect and support implementation of the funding modality</p>	<p>The engagement will be on-budget using national systems for implementation and financial management. The budget has been streamlined to reflect this with full alignment with GoM budget processes.</p>
<p>7. Sustainability plan to be developed during the engagement implementation</p>	<p>It has been a wish from Forest Department to have a specific sustainability plan which has now been outlined in chapter 11.2. This plan will ensure a continuous focus on the priority of Forest Department to implement the engagement as an integrated part of the national reforestation plan and its targets.</p>
<p>8. A mid-term review in 2020</p>	<p>Agreed and ToR for the review to be prepared for the steering committee meeting primo 2020.</p>

<p>9. Inclusion of the Environmental Conservation Department (ECD)</p>	<p>As a wish from the Forest Department the involvement of the ECD is now included in the engagement. ECD is within the same Ministry and has the national responsibility for climate change issues. They will be a valuable source for strategic thinking on DRR and local resilience to climate change impacts.</p>
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I hereby confirm that the above-mentioned issues have been addressed properly as part of the appraisal and that the appraisal team has provided the recommendations stated above.

Signed in Svendborg

on the 5/9 2017




Michael Linddal

Appraisal Team leader

I hereby confirm that the responsible unit has undertaken the follow-up activities stated above. In cases where recommendations have not been accepted, reasons for this are given either in the table or in the notes enclosed.

Signed in 5/9/17

on the 

Head of Mission
PETER LYSHOLT HANSEN