



Project Identification Form (PIF) entry – Full Sized Project – GEF - 7

RICE-Adapt: Promoting Climate-Resilient Livelihoods in Rice-Farming Communities in the lower Ayeyarwady and Sittaung River Basins

Part I: Project Information

GEF ID

10395

Project Type

FSP

Type of Trust Fund

LDCF

CBIT/NGI

- CBIT
- NGI

Project Title

RICE-Adapt: Promoting Climate-Resilient Livelihoods in Rice-Farming Communities in the lower Ayeyarwady and Sittaung River Basins

Countries

Myanmar

Agency(ies)

FAO

Other Executing Partner(s)

Ministry of Natural Resources and Environmental Conservation (MONREC) &
Ministry of Agriculture, Livestock and Irrigation (MOALI)

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Focal Areas, Climate Change, Climate Change Adaptation, Community-based adaptation, Livelihoods, Ecosystem-based Adaptation, Mainstreaming adaptation, Climate information, Adaptation Tech Transfer, Private sector, Sea-level rise, Disaster risk management, Climate resilience, National Adaptation Programme of Action, Complementarity, Least Developed Countries, Innovation, Influencing models, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Demonstrate innovative approaches, Stakeholders, Private Sector, Individuals/Entrepreneurs, SMEs, Communications, Strategic Communications, Education, Awareness Raising, Civil Society, Academia, Non-Governmental Organization, Community Based Organization, Local Communities, Beneficiaries, Information Dissemination, Type of Engagement, Partnership, Participation, Gender Equality, Gender Mainstreaming, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Gender results areas, Knowledge Generation and Exchange, Access and control over natural resources, Access to benefits and services, Capacity Development, Participation and leadership, Capacity, Knowledge and Research, Knowledge Exchange, Knowledge Generation

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 0

Climate Change Adaptation

Climate Change Adaptation 2

Duration

60 In Months

Agency Fee(\$)

848,580

Submission Date

10/11/2019

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCA-1	LDCF	7,432,420	32,000,000
CCA-2	LDCF	1,500,000	8,000,000
	Total Project Cost (\$)	8,932,420	40,000,000

B. Indicative Project description summary

Project Objective

Enhance the resilience and adaptive capacities of vulnerable rice-producing communities in the lower Ayeyarwady and Sittaung River Basins in Myanmar through an ecosystem-based and market-driven approach.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 1: enhancing the enabling environment for climate change adaptation mainstreaming in priority sectors through integrated policies and planning	Technical Assistance	<p>Strengthened policy and planning frameworks for climate change adaptation and governance at national and community-level</p> <p><i>Indicators:</i></p> <p><i>Climate change adaptation mainstreamed into # of policies, plans and development frameworks.</i></p> <p><i>Cross-sectoral coordination mechanism established</i></p>	<p>1.1: Capacity building programme for national and subnational institutions (including MOALI, MONREC and local Governments), for effective planning and implementation</p> <p>1.2: Mechanisms for improved cross-ministerial and cross-sectorial coordination of policies, plans and investments to ensure compatibility and support to climate change adaptation in the agriculture sectors</p> <p>1.3: Targeted capacity building for the government institutions on climate change awareness and adaptation priorities (linked to the MCCSAP)</p> <p>1.4: Climate change education center for awareness and advocacy formalized</p>	LDC F	1,500,000	4,500,000

		# of vulnerability assessments conducted	# of government staff trained on climate change awareness and adaptation action for national priority areas	1.5: Climate risk and vulnerability assessments in the targeted areas, as the basis for the formulation of location-specific adaptation plans and strategies		
		1.6: Financial mechanisms providing incentives for strengthening climate resilience in rice landscapes and value chains				
Component 2: Promoting nature-based solutions across the landscape for resilient livelihoods	Investment	Increased resilience and adaptation of production systems and landscapes	2.1: Strengthened mechanisms for promoting innovations in climate resilient practices and nature-based solutions (NBS), including through farmer field schools, improved extension services and SRP standards	LDC F	3,200,000	14,000,000
		<i>Indicators:</i>				
		<i>Production area (# of ha) under climate resilient management</i>	2.2: Improved access and capacities for basic agrometeorology services/agro-climatic information systems			
		<i>#of households and communities adopting economically viable approaches for increasing resilience</i>	2.3: Initiatives for NBS, with an emphasis on community-based measures and the strengthening of community governance and organization for NBS initiatives			

Component 3: Scaling up adaptation technologies and innovations in selected value chains, and improving market access	Investment	# of rice producers engaged in on-farm diversification	2.4: Improved uptake of stress-tolerant varieties, including local and adapted varieties with high potential for marketability				
		# of ha of paddy fields cultivated with premium market, stress-tolerant seed varieties	2.5: Development of capacities in target communities for improved management of water and irrigation systems				
			2.6: Credit mechanisms in support of resilient forms of production, recognizing their role in reducing the financial risks posed by climate change				
		Resilient livelihoods through innovations and improved access to technologies and markets.	3.1: Strengthened capacities and performance of agricultural cooperatives through capacity building and market linkages.	LDC F	3,307,067	16,000,000	
<i>Indicators:</i>		# of technologies introduced and out scaled	3.2: Enhanced capacities and development of SMEs and small-scale agribusinesses through technical support (product diversification, development of business plans, marketing strategies) and access to credit				
		# of SMEs that have incorporated climate resilience	3.3: Climate-resilient storage facilities and processing technologies are				

*into their
businesses*

introduced/improved for value
addition and to reduce losses

*% of post-harvest
losses reduced*

3.4: Contract farming,
guarantee schemes and
partnerships with national,
regional and global value chain
actors for sourcing from small-
scale producers.

*# of cooperatives
trained in
business
management and
certification
schemes*

*# tonnes of rice
produced under
contract farming
for premium
markets*

Component 4: Monitoring & Evaluation, communication and knowledge transfer	Technical Assistance	Project monitored and evaluated, lessons learnt and assessment of adaptation innovations are disseminated	4.1. Project management mechanisms established and a communication and knowledge management strategy is developed and implemented 4.2. Tools, methods and approaches for monitoring and tracking project progress adopted 4.3. Information and M&E systems enhanced	LDC F	500,000	1,500,000
		<i>Indicators:</i> <i>Increased national awareness on resilient rice systems and value chains</i>				
		<i>Project M&E systems in place</i>	4.4. Inter-regional knowledge sharing fostered, including through the SRP			
		<i>Project communication and KM strategy developed</i>				

Sub Total (\$) 8,507,067 36,000,000

Project Management Cost (PMC)

	LDCF	425,353	4,000,000
	Sub Total(\$)	425,353	4,000,000
	Total Project Cost(\$)	8,932,420	40,000,000

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Donor Agency	Asian Development Bank (ADB)	Loans	Investment mobilized	25,000,000
Donor Agency	Asian Development Bank (ADB)/Global Agriculture and Food Security Program (GAFSP)	Loans	Investment mobilized	15,000,000
Total Project Cost(\$)				40,000,000

Describe how any "Investment Mobilized" was identified

The investment mobilized are considered, as per GEF definition, not recurrent expenditures. The investment mobilized from the co-financing sources will be new capital investments. The indicative co-finance listed as investment mobilized has been identified through consultations with MOALI and is being considered from the following sources:

- ADB: Resilient Community Development Project (RCDP)
- ADB & GAFSP: Climate-Friendly Agribusiness Value Chain Sector Project

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Myanmar	Climate Change	NA	8,932,420	848,580	9,781,000
				Total GEF Resources(\$)	8,932,420	848,580	9,781,000

E. Project Preparation Grant (PPG)

PPG Amount (\$)	PPG Agency Fee (\$)
200,000	19,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Myanmar	Climate Change	NA	200,000	19,000	219,000
					Total Project Costs(\$)	200,000	19,000

Core Indicators

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

CCA Core Indicators and Metadata spreadsheet is uploaded in attachment section

Part II. Project Justification

1a. Project Description

1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

Country overview

The Republic of the Union of Myanmar (Myanmar) is situated on the western end of Southeast Asia and with a land area size of 676,578 km², Myanmar is the largest country in mainland Southeast Asia. The country is divided into three main agroecological zones: Central Dry, Coastal and Hilly and comprises the central lowlands of the Ayeyarwady, Chindwin and Sittaung River valleys, highlands in the north, east and west and the coastal belt in the south and southwest. Myanmar has a tropical climate with three seasons: a cool winter from November to February, a hot summer season in March and April and a rainy season from May to October, dominated by the southwest monsoon.

Myanmar has an estimated population of 53 million and more than 70 percent lives in rural areas, with Ayeyarwady having the largest proportion of rural population (about 86 percent). Myanmar is a Least Developed Country (LDC) although the country has experienced rapid growth in recent years, becoming one of the world's fastest growing economies. [1]

Myanmar's socioeconomic development relies on climate-sensitive sectors with agriculture being the largest economic sector, contributing up to 30 % of GDP and employing over 60% of the country's labour force. Approximately 25% of the country's population lives below the poverty line and nearly 85 % of the poor live in rural areas where livelihoods are closely tied to the natural resource base and agriculture sectors (rain-fed agriculture, livestock, fisheries and forest resources). Rice is the predominant crop in Myanmar, covering almost two-thirds of cultivated land. The rice sector is particularly sensitive to changes in rainfall patterns given that the majority of rice cultivation in the country is rain-fed. An increase in the frequency and severity of extreme weather events has led to a decline in Myanmar's agricultural productivity causing reduced rice yields, which has resulted in a decrease in GDP and household income as well as rising food insecurity. Myanmar's population and economic activities are concentrated in disaster risk-prone areas such as the Delta, Coastal and Central Dry Zones, which are highly exposed to hazards and have both high poverty levels and low adaptive capacities. Communities and businesses located in 'at-risk' regions and reliant on climate-sensitive livelihood activities are particularly vulnerable to the impacts of climate change.[2]

Impacts from climate change are posing a serious threat to the efforts for placing Myanmar on a sustainable and resilient development pathway. The increases in climate variability and extreme weather events have already undermined development outcomes and will continue to do so for future development outcomes if these impacts are not managed or addressed.

Project targeted areas

The proposed project will be situated in the Ayeyarwady and Sittaung river basins due to their importance in supporting rice-based resilient agricultural livelihoods.

The Ayeyarwady Delta comprises the main arms of Pathein, Pyapon, Bogale, and Toe Rivers. It is the main rice-producing region but challenged with intensification, flooding and high population density. Its famed fertility derives from the silt deposited by the Ayeyarwady River as it reaches the end of its 1,200 km (750-mile) journey from Upper Myanmar to the Andaman Sea. The Ayeyarwady delta is home to 21 million people, with the majority depending on rice production for their livelihood. The average farm size per household is about 4.5 ha, which is the largest in the country. However, the delta is also the place of many landless people with low levels of income.^[3]

The Sittaung River rises northeast of Yamethin on the edge of the Shan Plateau and flows south with a catchment area of 48,100 km² for 420 km to empty into the Gulf of Martaban of the Andaman Sea. The broad Sittaung Basin lies between the forested Bago Mountains on the west, and the steep Shan Plateau on the east. The river basin is one of Myanmar's four major rivers and is home to 10% of the population while holding about 15% of the annual surface water potential. Around 30-40% of the population of the Sittaung basin are rice farmers^[4]. Livelihoods in the lower Sittaung valley are highly dependent on the natural resource base, especially the wetlands including marshes, mangroves, oxbows and mudflats that characterize the region.

The proposed project areas of lower Ayeyarwady delta and Sittaung River Basins are considered as the rice bowl of Myanmar. The rice ecosystems of the targeted landscapes are generally dominated by rain fed lowland rice although deep-water rice cultivation is also practiced in the delta region and coastal strip of Rakhine State. Among the regions and states of Myanmar, Bago and Ayeyarwady Regions (Delta region) together account for nearly 50 percent of Myanmar's annual rice production.

The delta occupies three regions: Ayeyarwady, Yangon, and Bago where most areas are favorable for rice cultivation. In general, the delta area has one of the wettest climates in Myanmar, but it is highly seasonal, with the majority of rainfall in the monsoon months from June to August and a significant dry period from December to April. The reliability of seasonal monsoon rainfall and subsequent river flows is also critical to livelihoods and agriculture production in the delta, both irrigated and rain-fed. Due to limited or degraded water resources management and storage infrastructure like dams and irrigation systems, high dependence on seasonal flows also means increased high vulnerability to shifting rainfall patterns and a shortening monsoon season that are both making flows less reliable and increasing exposure to hazards like droughts and floods.

Rice is mostly grown in the middle and upper part of the delta, near rivers and small dams. Planting season starts on June-August for the monsoon paddy which is harvested in November-January while the summer paddy is from November-December to April-May. While some areas in the delta are prone to flooding in the monsoon, some are affected by salt intrusion toward the end of monsoon and during the summer season. There is limited fresh water available in most parts of the lower delta during summer.

The construction of polders provided with embankments, sluice gates, and drainage systems protects the rice farms from salt water intrusion. However, the lack of proper maintenance along with weather impacts have damaged many of the polders, resulting in the uncontrolled entry of salt water and, thus, reducing rice yield. Many of the damaged rice areas remain prone to salt water intrusion even in the monsoon season.

When accessible to farmers, the major agro-inputs used in rice production are chemical fertilizers, bio-fertilizers, pesticides, tractors, threshing machines and fuel oil for machines. Farmers mainly purchase fertilizers and pesticides from the agro-chemical stores in village and Township markets.

Rice millers are generally classified into two categories based on their size of business as small mills and commercial (large) mills. Depending on the quality of paddy, millers give the negotiating price that may differ on the quantity focus. Millers buy paddy by all means of cash down payment, advanced payment and sometimes deferred payment from traders/brokers and farmers. However, deferred payment is seldom. Milling out-turn (recovery) is varied according to the difference in varieties, and unfilled grain percent, etc. Rice millers send the processing rice to the end markets for wholesalers and/or retailers in township market who tend to be contracted for their business on long term bases. Mechanisms for connecting farmers with rice wholesalers and retailers in the villages and township levels are generally lacking. The Myanmar Rice Industry Association (MRIA) has been established among village millers and township wholesalers although its functioning remains insufficient and with limited engagement and action among the members. The end market price of domestic rice depends on the price of millers selling price, quality differences and quantity bought by the consumers.

Most of the farmers in the targeted areas depend on the borrowed money for farm investment. However, the limited supply of financial service providers relevant to farmers is a major constraint not only in the project area but throughout country. Myanmar Agricultural Development Bank (MADB) is the only financial service supporting paddy farmers from Government's side. However, the finance available in general is not enough for the required production fees. As such, the only option available to farmers is through financial assistance (with high interest rate) from village money lenders, using gold as the collateral. Saving and micro-credit systems are not developed well in the proposed project area.

While the most significant and impacting commodity in the target landscapes is rice, other cash crops (which are important sources of income in the delta regions) will be targeted as part of the project's diversification strategy for building resilience. Commodities covered under the project include green gram, black gram, chili, vegetables, and betel leaves, as well as small scale livestock farming, and fishery (marine and fresh water). The above-mentioned cash crops

from rice-based production systems feed into local and national value chains (with potential for sustainable and resilient supply chains), for instance, fish from the Delta and Sittaung system and mangroves is marketed to urban centers and exported e.g. to Thailand whereas rice agroecosystem products are exported to China.

Climate trends and impacts

Myanmar is increasingly exposed to severe hydro-meteorological events, including cyclones, floods and heavy rains, and slow onset disasters including droughts. In addition, extreme temperatures are becoming more frequent and the consequences more severe[5]. The predictability of the rainy periods has also diminished which historically has determined agricultural, economic and cultural traditions related to the monsoon season. The latest set of climate change projections for Myanmar indicate possible further increases in temperature, more clear sky days and higher temperatures in the dry season. This is likely to exacerbate drought periods, changes in the rainfall patterns and intensity, increases in risk of floods resulting from a late onset and early withdrawal of monsoon events (with no associated reduction in the overall rainfall), and increases in the number and intensity of cyclones, strong winds, floods, storm surges, intense rains events[6]. Extreme temperatures and sea-level rise are also expected to continue and increase.

Myanmar is one of the world's top 10 rice exporting countries, but its ability to maintain its contribution to global food supply is highly threatened by the impacts of climate change and extreme events, with adverse effects on livelihoods, ecosystem functioning, food production and the overall economy of the country. The increased risk and vulnerability of agriculture sub-sectors as compounded by climate change is thus further challenging rural livelihoods and food security, leaving already resource poor communities even more vulnerable to natural disasters and climate change impacts.

Table 1. Areas in the country that are highly vulnerable to natural hazards and climate extreme events (MSWRR, 2017).

	Vulnerable areas and Regions/States
Drought	Central Dry Zone, Sagaing, Mandalay and Magway Regions particularly agricultural land occurring in these areas
Cyclone/strong winds	Coastal regions, Rakhine, Ayeyarwady and Yangon Regions/States
Intense rain	Tanintharyi, Yangon, Rakhine, Ayeyarwady and Mon State/Region. These areas have the longest exposure to the south west monsoon flow/troughs. Lower Myanmar and north-western areas are also exposed
Flood/storm surge	All low-land and flat Regions as well as rivers and associated valleys and basins. Areas in close proximity to the Ayeyarwady, Chindwin, Sittaung and Thanlwin river systems and coastal areas are particularly at risk to storm surges, riverine floods, flash floods and river bank overflow associated with snow-melt.
Extreme high temperature	Relatively flat regions in the Central Dry Zone, Mandalay and Magway.
Sea-level rise	Coastal zones, especially areas interspersed with tidal waterways, the Ayeyarwady Delta. In certain areas low-lying coastal areas may face permanent inundation.

As seen in table 1, the lower parts of the Ayeyarwady and Sittaung river basins are highly vulnerable to the effects of climate change and extreme events, especially cyclones and strong winds, floods and storm surges, intense rains, and sea level rise (see also figure 1). Agricultural production, ecosystem functioning and biodiversity along with water resources are areas of high vulnerability to climate change across the targeted landscapes (see figure 2).

Fig.1: Vulnerability of areas and Regions/States in terms of different climate hazards (map source: Myanmar NAPA 2012).

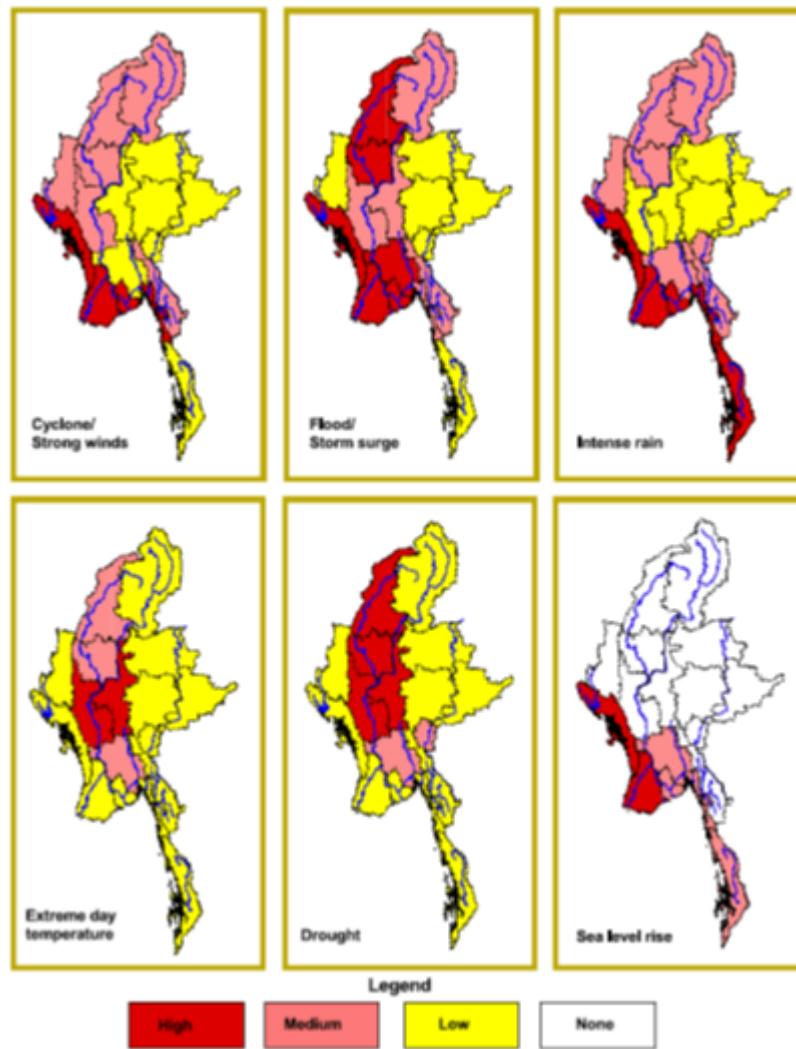
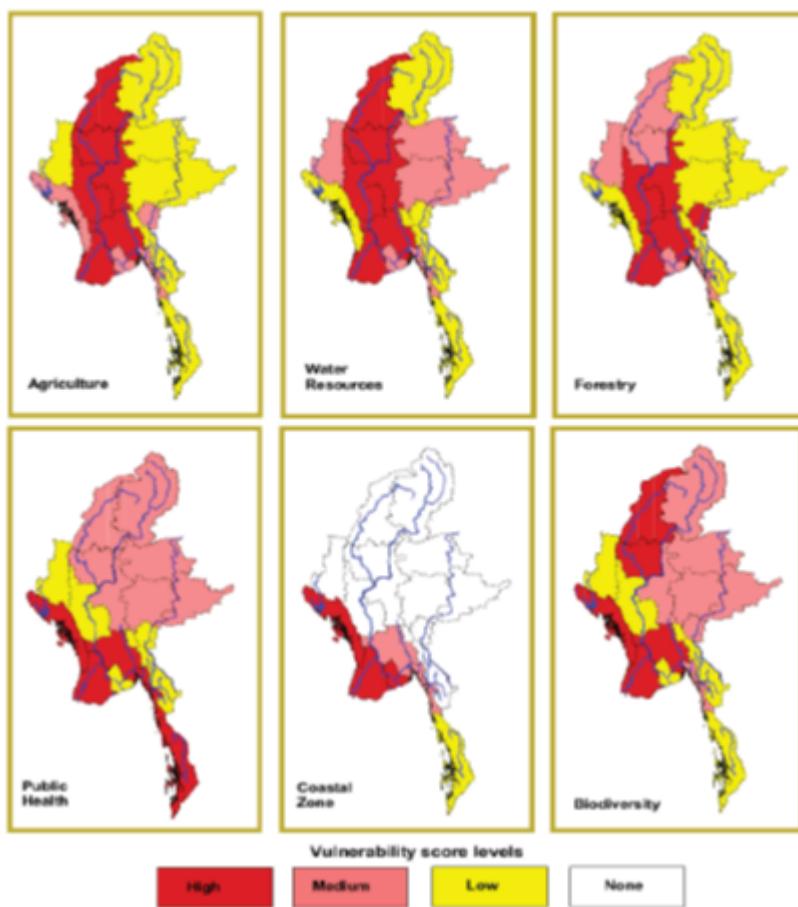


Fig.2: Climate change vulnerability of the main socio-economic sectors due to extreme weather events (map source: Myanmar NAPA 2012).



The most significant vulnerability of agriculture in the Ayeyarwady Delta and Sittaung River are: 1) crop loss due to floods, heavy rains and cyclones; and 2) intrusion of saline water due to sea-level rise or thermal expansion.

Floods and cyclones have been major hazards in Myanmar making up for 11% of all disasters and an increase in the occurrence of flooding and storm surge has been experienced in the targeted regions[7]. For instance, the cyclone Nargis, which hit the coast in May 2008 was one of the most devastating cyclones that Myanmar has ever experienced. The Ayeyarwady Delta and the eastern part of Yangon were most affected, experiencing wind speeds of more than 250 km/h. The cyclone was so detrimental causing these outcomes: i) extensive damage to mangroves, agricultural land, houses and utility infrastructure; ii) salt-water intrusion into agricultural lands and freshwater sources causing economic, social and environmental damage; iii) loss of livelihoods and homes affecting about 3.2 million people and mortality of 138,373; and iv) damage of USD 4.1 billion. Collectively, the four main regions that were affected by cyclone

Nargis account for approximately 4 million hectares of rice which translates to 57% of the country's total production. Furthermore, the floods and landslides of 2015 resulted in loss and damage of USD 1.51 billion, or 3.1 percent of country's GDP in 2014-15. After cyclone Nargis, the loss and damage in agriculture accounted for 17% while in the 2015 floods, the impacts on agriculture peaked at 37%[8].

Moreover, the extensive 2018 and 2019 monsoon floods in Myanmar have indicated increasingly complex flood risks and impacts, including within the broader Sittaung River Basin. Rapid flood impact assessments conducted in Southeastern Myanmar confirmed the occurrence of long-standing floods (up to 1 month in some villages during the 2018 floods) and recurring flash floods, particularly in upstream areas. The assessments found that the lack of access to flood warning or forecast information have resulted in significant losses in agriculture inputs and capital with farm households having to replant paddy up 2 to 3 times only to be again destroyed by recurring floods.[9]

The targeted regions are not only impacted by floods, intense rains, cyclones and increased temperatures, but will also be exposed to increased salinity, coastal erosion, and inundation as a result of sea-level rise. The low-lying Ayeyarwady region is particularly vulnerable to sea-level rise. A 0.5 m sea level rise would result in the shoreline along the Ayeyarwady Delta advancing by 10 km, caused cultivated lands inundated and ground water contamination. This would have a significant impact on local communities and the agriculture sectors. Agricultural impacts will particularly affect low-income rural populations that depend on traditional agricultural systems or on marginal lands. The Ayeyarwady Delta is directly exposed to the impacts of sea level rise, especially flood in the wet season and salinity in the dry season affecting crop production. Rising sea-levels and thermal sea expansion will also lead to salt-water intrusion into groundwater supplies, particularly as existing water levels decrease. A recent study found that saline intrusion in some parts of the Ayeyarwady Delta occurs when saltwater infiltrate the freshwater lens (aquifer), floods villages, farmlands and fishponds, and/or backflows into the river and stream systems. Drought in the Ayeyarwady delta becomes a major hazard when it exacerbates the impacts of saline intrusion, making it much more difficult for crops to survive when there is not sufficient water to flush out the salts, and with higher temperatures further increasing salinity and acidity levels in soils[10].

Risks associated with plant diseases and pests are also bound to increase in Myanmar given the observed and projected changes in temperature, rainfall, seasonal onset/length and extreme events. During the 2018 Southeastern Myanmar floods, a number of townships (e.g. Bago, Nyaunglebin and Hpa-an) in Bago region and Kayin State have reported the occurrence of Golden Apple Snails, which are considered as a new hazard in these regions/states, and are believed to have been carried and introduced by the floodwaters from the upstream areas of Myanmar. Since these are new pests to these Southeastern Myanmar communities, rice farmers are not aware on how to manage them, and thus pose a significant threat to paddy growing communities[11].

Future climate change will exacerbate these current impacts with increases in extreme weather events such as cyclones, droughts, floods and fires negatively impacting ecosystem functioning as well as species compositions, distributions and richness. An increase in extreme heat days and drought periods, as well as rising sea-levels, will change the chemical composition of water resources. This is likely to impact freshwater biodiversity. Impacts will result in cascading effects whereby failure or changes in certain species or functions within an ecosystem will have knock-on effects on other species and functions. This has the potential to result in large-scale loss in biodiversity and related ecosystem services.[12]

Barriers and drivers to be addressed

Inadequate information to inform and guide decision making on climate change adaptation and disaster risk management. Government agencies, private sector and rice farmers need reliable information to determine what climate change adaptation and disaster risk reduction practices and technologies to adopt. The targeted areas do not have the technical and/or financial capacity to establish cost-effective climate knowledge management systems. Climate risk information and education is currently not strongly integrated into decision making for farming activities in the project area and the existing climate and weather advisories for agriculture still have significant room for improvement. Information is also not collated or systematically transferred to private sector, small-holder farmers, and other end-user to build awareness, inform farm-level decision-making, and provide an early warning of climate shocks.

Inadequate capacity to mainstream climate change adaptation measures into sectoral planning and implementation at various levels. Institutions and local communities in the targeted areas need to have integrated practices and planning measures to address climate change adaptation and disaster risk management challenges. Although a number of national level climate action-related strategies and plans already exist, assistance is still needed to help sub-national institutions translate these into local actions. Local governments require capacities and support in the design, adoption and implementation of policies to effectively support rice-based communities and landscapes to adopt climate resilient practices and technologies, as they currently have very limited technical and financial capacity to provide the training and assistance required. There is likewise a lack of coherent, integrated, inter-sector approaches to managing production systems, and poor coordination mechanisms are in place at various levels to properly coordinate all the interventions made by different Government Ministries, I/NGOs and other development agencies.

Low capacities to adopt and sustain climate resilient technologies and practices at state and community level. Local traditional adaptation mechanisms and strategies are becoming inadequate in the face of increasing climate variability and extreme events. Local communities in the targeted areas do not have enough access to the knowledge, tools and network required to sustainably adopt climate resilient practices and technologies for rice farming or other sources of food production. Although small-holders are highly reliant upon agricultural extension services and systems, current support services are not organized or capacitated to assist producers to adequately adapt to climate change. There is a lack of access to quality seeds by farmers as the seed system is insufficient to supply good quality seeds of improved varieties. Furthermore, access to required inputs (quality and quantity) remain insufficient while pest and disease management are increasingly inadequate due to more frequent and intense climate variability.

Insufficient collaboration and coordination among farmers' organizations, private sectors such as input suppliers, traders and processors. Smallholder rice producers and women in particular, therefore have limited access to post-harvest technologies, insurance, information, extension services and inputs. Moreover, smallholders in the targeted regions are not well linked to markets or financial institutions, such as micro-credit or micro-insurance, making it very challenging for them to financially sustain their rice production over time. Moreover, these institutions are often reluctant to invest in smallholder producers given their high dependence on unpredictable weather patterns. Private sector investments in the agriculture sectors therefore remain low, including in value-adding activities despite their potential for enhancing rural economies.

2) the baseline scenario and any associated baseline projects

Under the baseline scenario, responses to climate change and related natural disasters in the target areas will continue to be sector- and location-specific, and to lack an adequate base of information and capacities required for them to be fully relevant, effective and sustainable. The interactions between the sectors in relation to climate change will fail adequately to be taken into account, such as the effects of maladaptive practices in one production sector on the resilience of other sectors, and the leakage of the indirect effects of climate change (such as changes in demographic and extractive pressures) between sectors. The lack of an adequate landscape vision in relation to climate change resilience and adaptation will mean that landscape-wide impacts of climate change (including on livelihoods), or landscape-wide resilience benefits, will fail to be recognized and taken into account.

To adopt climate-resilient practices in the rice and other agriculture sub-sectors that can withstand changes in climate, Myanmar will need to apply new technologies, modify existing ones, scale up innovations, revise relevant laws and policies to integrate climate change and enhance capacity to access and use finance and technologies.

There is a solid baseline of institutional investments on which the project will build on, supported by a strong framework of enabling policies and Government programmes including the Myanmar Climate Change Strategy and Action Plan (MCCSAP), the National Adaptation Programme of Action (NAPA), the Myanmar Climate Change Policy and National Environment Policy, the Climate Smart Agriculture Strategy, the Myanmar Rice Sector Development Strategy, the 2018 Agricultural Development Strategy and the 2019 Agriculture Action Plan for DRR (these national and sectoral plans are further described in Section 7).

The government of Myanmar recognizes that investment in a climate-resilient development pathway and adopting climate technologies at an early stage can provide sustainable and resource-efficient opportunities for socioeconomic development, including green jobs and resilient business models. The project will contribute to the implementation of the MCCSAP at a number of levels through integrated sustainable landscape and natural resource management with sustainable and resilient livelihoods. At the higher level, the proposed project responds directly to first of MCCSAP's two main objectives, namely "to increase the adaptive capacity of vulnerable communities and sectors so they are resilient to the impacts of climate change".

Relevant baseline projects

It is foreseen that the project will receive co-financing from a number of different sources, as outlined in the below. This information will be updated during the project preparation phase.

The **Resilient Community Development Project (RCDP)** (2019-2026: ADB/MOALI – Budget: US\$ 100 million) will target areas that are vulnerable to climate and disaster risk (CDR) and will follow a phased, cluster approach, grouping vulnerable townships in the same area. The project has identified clusters of poor townships in regions exposed to CDR using climate projections and 2014 census data. It will benefit about 1.8 million people in 17 townships in Ayeyarwady, Chin, Sagaing, and Tanintharyi. The project will support the Government of Myanmar in strengthening its community-based development policies and procedures. It will strengthen community resilience and reduce the food insecurity and poverty of rural people living in vulnerable areas, by building their capacity and providing resources to invest sustainably in climate- and disaster-resilient and market-oriented infrastructure and livelihoods.

Close coordination and collaboration with the RCDP will be undertaken to prevent duplication in the same regions, and take advantage of potential synergies. In-depth consultations will be undertaken during PPG to strengthen complementarities and a strategy for collaboration will be prepared.

The **Climate-Friendly Agribusiness Value Chain Sector Project** (2018-2025: ADB & GAFSP (ADB/FAO - MOALI) – Budget: US\$ 40.5 (loan) and 27 (grant) million) will provide support to improve access to land, water, finance and skills necessary for the rural poor to engage in productive livelihoods activities. This includes supporting services that reduce malnutrition among children, increase households access to financial services, and create opportunities for the rural poor to engage in the non-farm economy. The project will increase competitiveness in value chains for rice, beans, pulses, and oilseeds in the Magway, Mandalay, and Sagaing regions in the central dry zone (CDZ). The project will also improve climate resilience for critical rural infrastructure, promote quality and safety testing capacity, strengthen technical and institutional capacity for climate-smart agriculture (CSA), and create an enabling policy environment for climate-friendly agribusinesses. The project will reduce food insecurity and rural poverty, increase smallholders' incomes and access to markets, and improve resource efficiency and environmental sustainability for agribusinesses. The project will target women and households who are landless or are farming less than two hectares.

This baseline investment provides initial capacity development of the national and sub-national institutions. Collaboration with this project will be sought when improving national and regional level capacities in promoting climate-smart value chain development. The LDCF additional investment will leverage and strengthen the efforts in developing climate resilient livelihoods in the targeted areas. The LDCF project will concentrate on the Ayeyarwady delta and Sittaung River and thus geographically complement the Climate-friendly agribusiness value chains project.

Other key baseline initiatives related to building climate resilience in the agriculture sectors are ongoing, and will be built upon and collaborated with to ensure complementary between the LDCF project and those initiatives. Furthermore, the LDCF project will utilize the Sustainable Rice Platform (SRP)[\[13\]](#) to promote partnerships and coordination with other relevant initiatives. During the PPG phase, in-depth consultations will be undertaken to establish collaborations and practical modalities for capturing synergies and coordinating with the ongoing activities so that duplication is avoided and LDCF resources will build on the progress and achievements made to date through such programmes and initiatives. The most relevant initiatives are described in detail below.

The **Agricultural Development Support Project** (2017-2023: WB – Budget: US\$ 100 million) aims to support increased commercialization of smallholder agriculture through improved productivity, quality and efficiency of value chains where smallholders participate. The project's central aim is to improve smallholders' access to markets and the competitiveness of their agricultural commodities. The project, therefore, focuses on high potential agricultural areas and adopts a value chain approach to make sure that all levels of the chains are operating efficiently and increasing value added. The ADSP has employed a value chain approach to address challenges faced by smallholder. The value chain approach requires working with all players in potentially profitable agricultural supply chains. Thus, the project beneficiary groups include not only smallholder farmers but also agribusiness enterprises, large-scale estate and commercial farmers, input suppliers, processors, traders, and financial institutions, who form part of the value chains where smallholder agricultural producers exist. The LDCF project will build on this initiative's efforts in promoting sustainable agricultural value chains in targeted regions.

The **Climate Smart Rice Project** (2019-2021: NORAD/SDC – Budget: US\$ 5 million) aims at supporting the Government of Myanmar, the agri-business sector and smallholder rice farmers to stimulate transformation of the rice sector towards sustainability. Focusing on rice-inclusive farming systems, the project will prioritize enhancement of the livelihoods of smallholders through private sector development and partnerships promoting climate smart and resource-efficient best practices. The project will introduce sustainable standards and best practices to 4,000 smallholder farmers around Mandalay, southern Shan, Mon and Bago. The project is funded by the Norwegian Agency for Development Cooperation (NORAD) and the Swiss Agency for Development (SDC) and implemented by a consortium of partners including UN Environment, the Sustainable Rice Platform, Helvetas Myanmar and PRIME Agri Group. The lessons from this project will be taken onboard when designing capacity-building activities for vulnerable, small-holder ricer producers. The LDCF project will also help to develop capacities for private sector entities, particularly small and medium enterprises, to professionalize and expand the rice value chain.

Eastern States Agribusiness Project (ESAP) (2018-2024: IFAD – Budget: US\$ 56.73 million) aims to develop an inclusive, sustainable and scalable model for smallholder agriculture and community agroforestry in the eastern states of Kayin and Shan (South). The project will promote commercialized smallholder agriculture linked to agribusiness; improve living standards in forest communities; reverse environmental degradation in sloping areas; and generate substantial benefits for households belonging to the Karen, Shan, Paoh, Intha and Mon ethnic groups. The target group consists of poor rural women and men in the project areas. These include farmers in irrigated lowlands, farmers in the rainfed uplands, and agroforestry households in mountainous areas of northern Kayin. The proposed LDCF project will build on the practices supported by ESAP, with emphasis on mainstreaming climate resilience into agribusinesses, and facilitating market linkages.

Enhancing Climate Resilience in the Third Pole (2018-2023: GCF-WMO – Budget: US\$ 27 million). The proposed Programme seeks to strengthen the use of weather, water and climate services in the LDCs across the Third Pole region (the Hindu Kush-Himalayan ecoregion) – including Myanmar – to adapt to climate variability and change and to apply well-informed risk management approaches and will be implemented under the umbrella of the Global Framework for Climate Services (GFCS). The programme's objectives will be achieved by strengthening regional support networks and institutional capacities, developing tools and products that are needed for anticipating climate variability and change. The programme's direct and indirect beneficiaries from the region will gain access to critical weather and climate information, which will result in reduced disaster risk, improved water resources management and improved agricultural productivity. The proposed LDCF project will coordinate with the GCF Third Pole project and will complement and build on the activities implemented in Myanmar. In particular, the project will ensure close coordination with WMO on project activities related to risk assessments and climate information services to address gaps, enhance synergies and avoid duplication of efforts.

Irrigated Agriculture Inclusive Development Project (2017-2023: WB – Budget: US\$ 102.5 million) will help to strengthen agriculture production and value chain development by improving and modernizing irrigation systems in three regions of the country's central dry zone. The proposed project will build on this initiative's efforts in promoting sustainable agricultural value chains in targeted areas.

The **Project for improvement on Accessibility of Rice Certified Seed** (2017-2022: JICA – Budget: Ypn YEN 558.93 million) aims to increase the farmers' accessibility to rice certified seeds (CS) in the Shwebo District, Sagaing Region and Ayeyarwady Region in order to improve the productivity and quality of rice in the area. The LDCF project will coordinate with this initiative during the design and implementation of Component 2, particularly to promote cultivation of premium market seeds with tolerance to climatic and biotic stresses, and by improving exports arrangements and improving access to markets.

The **Project for profitable Irrigated Agriculture in Western Bago Region** (2017-2022: JICA – Budget: US\$ 5.52 million) aims to increase agricultural productions by developing irrigation systems in Western Bago Region, thereby contributing to improve living standards of farmers in the region and economic development of Myanmar.

The **Agricultural income improvement project phase II** (2018-2026: JICA – Budget: under discussion) seeks to improve agricultural productivity by rehabilitating and building infrastructures for agricultural production and distribution in Ayeyarwady region as well as promoting agricultural expertise extension and mechanization. The proposed LDCF project will significantly leverage on these activities on the promotion of rice-based livelihoods in selected target areas, and will take into account and build on efforts in improving agricultural incomes.

Strengthening Agriculture Extension in Myanmar (2019-2021: KOICA– Budget: US\$ 9.48 million) Promoting agricultural extension services, capacity development, e-data collecting system, technology dissemination, monitoring & evaluation. The proposed LDCF initiative will build on the existing extension system supported by this project, with emphasis on mainstreaming climate resilient practices in the extension services, and facilitating value chain linkages.

Dry Storage and Rice processing complex (2016-2019: KRC – Budget US\$ 3.5 million) Providing for storage facility, Drying equipment, Septic tank, ground tank, earth embankment, road way (earth work), road construction, farmer market, rice processing machine, power supply. The proposed project will collaborate with this project in designing and implementing improvements in the rice processing under Component 3.

Microfinance Facility Agreement for Myanmar Rural Development (2014-2024: The Export Import Bank of China – Budget: US\$ 400 million) aims to increase small-holders' access to finance in rural communities by providing micro-loans. The LDCF additional investment will leverage and strengthen the efforts in improving access to micro-finance in the targeted areas.

The **Livelihoods and Food Security Fund (LIFT)**, a multi-donor fund established in 2009 to improve the lives and prospects of smallholder farmers and landless people in rural Myanmar. The LIFT aims to strengthen the resilience and sustainable livelihoods of poor households by helping people to reach their full economic potential. This is achieved through increasing incomes, improving the nutrition of women and children, and decreasing vulnerabilities to shocks, stresses and adverse trends. From January 2019, LIFT has been guided by a new five-year strategy that puts 'leaving no one behind' at the center and will in particular focus on social inclusion and cohesion, increased support to areas affected by conflict, bringing displaced people into LIFT's development programmes and working with Government at all levels on targeted policies that achieve gains in these areas. The proposed project will build on LIFT's efforts in promoting sustainable livelihoods in targeted regions. The project will also utilize LIFT's guidance for Conflict-Sensitive Programming and apply its Conflict Sensitive Principles, to build responsiveness and practicality in the project design, and sustainability and resilience into implementation and beyond project closure.

The **Gulf of Mottama project Development** (2015-2021: SDC – Budget: CHF 12 million) aims to strengthen the capacities of government and communities to effectively manage, govern and value its coastal natural resources to sustainably improve livelihoods of people depending on them, while reducing the pressure on natural resources and conserving its unique environment and threatened biodiversity. The LDCF project will complement and build upon lessons learnt for improving livelihood security for vulnerable women and men in targeted coastal areas of the Gulf of Mottama, through sustainable and equitable use of natural resources and diversification of livelihoods.

The **Ayeyarwady basin management project** (2014-2020: WB – Budget: US\$ 100 million) addresses issues of water resource management institutions, decision support systems and capacity building, hydro-meteorological observation and information systems modernization, navigation enhancement and contingent emergency responses. Collaboration with this project will be sought when improving national and state-level level capacities in weather forecasting, agro-met services and early warning systems (Component 1). The tools being piloted, if proved successful can be scaled up in the project targeted areas for flood risk monitoring and management.

The **Myanmar Climate Change Alliance (MCCA) programme** (2013-2019) supports the Government of Myanmar in addressing the challenges posed by climate change. The MCCA programme is an initiative of the Environmental Conservation Department (ECD) of the Ministry of Natural Resources and Environmental Conservation (MoNREC). The MCCA was funded by the European Union with EUR 3.9 million as part of the Global Climate Change Alliance (GCCA) and implemented by the United Nations Human Settlements Programme (UN-Habitat) and UN Environment. Its primary objective was to mainstream climate change into the Myanmar policy development and reform agenda, and the Myanmar Climate Change Policy, and accompanying Myanmar Climate Change Strategy and Master Plan, was a direct result of these efforts. A second phase is due to be launched in the coming year. Cross-ministerial and cross-sectoral coordination in climate change adaptation and agriculture will be improved by taking stock of the achievements of the CCCA and collaborating with CCCA to target gaps (Component 1).

3) the proposed alternative scenario with a brief description of expected outcomes and components of the project

The project's alternative scenario is to increase climate resilience and adaptive capacities of vulnerable rice-producing communities in the lower Ayeyarwady and Sittaung River Basins by applying an ecosystem-based and market-driven approach. The project aims to improve livelihoods through diversification, income-generating and value-adding activities by improving the enabling policy and institutional environment, promoting climate-resilient farming practices, and improving the resilience, efficiency and profitability of rice and other commodity value chains. The project will promote adaptation technologies and nature-based solutions to strengthen the resilience in production systems and reduce vulnerability to climate risks and hazards. The project will also promote a market-based approach to improve climate resilience through the engagement of local private sector and will enhance resilient livelihoods of the targeted communities through agribusiness and small-scale enterprise development.

The project is fully aligned with priority actions and intervention areas identified in MCCSAP, the Climate Smart Agriculture Strategy, NAPA priorities and Myanmar's NDC. Through an integrated approach to strengthen resilience in landscapes and livelihoods in rice-based communities in Myanmar, the project will target the following key aspects:

Adaptation mainstreaming: the project will enhance institutional coordination mechanisms; strengthen the capacity of actors at various levels; and increase the integration of climate change adaptation and disaster risk management into sectoral plans and policies.

Resilient livelihoods: The project will identify and strategize actions for climate-resilient rice and other agricultural systems; improve the adaptive capacity of smallholders, marginalised and women-led households in climate-sensitive geographic areas; increase skilled human resources including through improved extension services; improve access to adaptation technologies and practices at production level and along the value chain.

Nature-based solutions: the project will recognise and help to realise the potential of natural systems to contribute to resilience to the effects of climate change and climate-related natural disasters, such as the effect of coastal mangroves in buffering storms and the wave impacts associated with sea level rise, the effects of riverine forests in protecting against river flood impacts, and the effects of freshwater wetlands in storing and buffering water flows.

Market-based solutions: The project will help to increase climate investment including from private sources; strengthen the financing framework for climate-resilient rice; foster small and medium-sized enterprise (SME) and agribusiness development in the rice sector and through diversification; scale up incubator/accelerator support for innovations; encourage multi-stakeholder partnerships for innovations, technology transfer and implementation of adaptation technologies.

Project components and their related outputs are aligned to the priority interventions identified in the above-mentioned government programmes and plans, and address the outlined barriers to climate-resilient development in the targeted regions. They are described below.

Component 1: Enhancing the enabling environment for climate change adaptation mainstreaming in priority sectors through integrated policies and planning

This component will seek to improve the policy institutional environment for climate change mainstreaming into targeted sectors. The project will strengthen the capacity of national and sub-national institutions (including MOALI, MONREC and local governments), to integrate climate change actions into their programming and planning frameworks (Output 1.1). Cross-ministerial and cross-sectoral coordination in climate change adaptation and agriculture will be improved (Output 1.2) and capacity building programmes will help enhance climate change awareness in priority areas among government institutions (Output 1.3). LDCF resources will be also be used to consolidate existing knowledge institutions into a climate change education center to enhance awareness and advocacy at various levels (Output 1.4). The center is expected to be hosted in Ayeyarwady Region and will be run by a government institution, potentially the Environmental Conservation Department (ECD). Center will provide education to various stakeholders through strengthening existing Climate Change Division of ECD. Detailed function and activities are to be further identified during PPG stage.

Existing climate vulnerability assessments will be utilized (such as through the UNEP GEF-5 LDCF project, described in section 6) or conducted if needed for the targeted areas (Output 1.5), as a basis to inform the development and implementation of location-specific adaptation plans and strategies for Components 2 and 3. This will feed into the identification of evidence-based adaptation practices, appropriate technologies and innovative approaches to scale up community adaptation and enhance resilience of the selected value chains. Furthermore, technical support will be provided to improve the enabling environment for financial incentive mechanisms and project stakeholders will be supported in increasing their access to domestic and export markets, through the project's engagement with the SRP (Output 1.6).

Component 2: Promoting nature-based solutions across the landscape for resilient livelihoods

This component will seek to increase the resilience of production systems, landscape and communities in the targeted regions (Outcome 2.1). The project will introduce and strengthen mechanisms for promoting innovations in nature-based solutions (NBS), including through farmer field schools and improved extension services as well as SRP standards (Output 2.1). Output 2.1 will also incorporate on-farm diversification approaches (such as seasonal rotation, cover crops, rice-fish-duck systems, integrated farming system, vegetable gardens, etc.), which will be demonstrated and scaled up to improve landscape resilience, particularly of women and women-led households, against climatic variations, improve soil fertility, increase income and improve food security and nutrition. When selecting approaches to promote crop diversification, attention will be paid to synergies with rice production and the presence of market for the crop as well as labour availability at farm level.

Capacities for access to basic agro-meteorology services/agro-climatic information systems will be strengthened (Output 2.2), allowing for better-informed extension services provided under Components 2 and 3 and will also be linked to the climate change education center (Output 1.4). Building on this includes initiatives for NBS, with an emphasis on community-based measures and the strengthening of community governance and organisation for NBS initiatives (Output 2.3).

The supply and uptake of premium market rice seeds with tolerance to climatic and biotic stresses will be improved as part of Output 2.4. This will be achieved by i) training of farmer groups in seed production; ii) conducting demonstrations of seeds' effectiveness in increasing yield and reducing the need for pesticide; iii) promoting the use of seeds among large exporters; iv) developing institutional capacities within MOALI to implement seed certification on national and state levels; and v) exploring the option of subsidizing premium market varieties in order to reduce price differential with non-premium varieties.

Other climate-resilient and innovative on-farm practices for rice production will also be promoted via training, demonstrations and financial support. These will include improved water management and irrigation systems (Output 2.5). Additional measures cover integrated pest management and integrated nutrient management as well as conservation agriculture. Lastly, the project will seek to improve farmers' access to credit, thus facilitating uptake of above-mentioned technologies and practices (Output 2.6). This will be done in collaboration with agricultural development banks, local MFIs and MDBs, and various models will be explored (matching grants, soft loans to agricultural cooperatives, blended finance, etc.).

Component 3: Scaling up adaptation technologies and innovations in selected value chains, and improving market access

This component will seek to enhance the adaptive capacity of local private sector through the transfer and deployment of adaptation technologies to improve value addition and supply chain infrastructure for rice and other priority commodities. Outcome 3.1 focuses on introducing and upscaling post-harvest technologies to enhance the climate resilience of local supply chain infrastructure and promote innovations through value addition. LDCF resources will be used to climate proof the supply chain through technology interventions along key stages of the chain. Efforts will be targeted at improving market access and developing marketing systems for diversification of activities to enhance the climate resilience of local SMEs, agro-industries and agribusinesses involved in the processing and marketing of rice and related products.

LDCF resources will be used to provide technical support and capacity building to strengthen agricultural cooperatives (including targeted efforts for engaging youth and women) for rice and other priority products (Output 3.1). Technical support and capacity building will also be provided to SMEs and producer organization groups in the development of business plans and marketing strategies for rice and other selected products and commodities (Output 3.2). Furthermore, these actors will be linked with micro-credit institutions and supported in increasing their access to domestic and export markets, through the project's engagement with the SRP and other institutions.

Climate-resilient storage facilities and drying and milling technologies will be introduced to improve processing, preservation and quality and reduce post-harvest losses (Output 3.3). Technology innovations for applications that integrate renewable energy/energy efficient measures, including off-grid solutions, will be sought where possible. Local SMEs and producer organizations will also receive training in appropriate post-harvest handling and collection centers will be established in strategic locations.

Contract farming between agricultural cooperatives and rice processors will be demonstrated and upscaled to create further incentives for farmers to engage in climate-resilient rice production and reduce incentives for direct selling of paddy. This will simultaneously improve processor's access to high-quality paddy delivered on time, enhancing their access to high-value export markets in Europe, China and elsewhere. Finally, guarantee systems (such as the SRP standard) for climate-resilient and sustainable rice production will be established at selected agricultural cooperatives, allowing them to work towards SRP adoption (Output 3.4).

Component 4: Monitoring & Evaluation, communication and knowledge transfer

This component covers the project's Monitoring and Evaluation (M&E) activities, including reporting and the organization of the mid-term and end of project evaluations, and a project-specific communication strategy and plan developed to ensure common understanding of key project messages and activities, with project results and lessons captured and distilled and made available periodically. This component also includes the promotion of the key project aims and messages to ensure all the stakeholders and partners have a common understanding of the project's aims and activities, set out in a project-specific communication plan. Project resources will be strategically used for incubation and accelerator at national as well as regional level through the SRP and other GEF/LDCF projects: sharing of evidence based best adaptation practices/technologies for rice production in South-East Asia.

4) Alignment with the GEF focal areas

The proposed project is expected generate co-benefits that contribute to the GEF focal areas of the **GEF-7 Programming Directions**. With regards to the climate change mitigation focal area, the project will contribute to reducing methane (CH_4) emissions from paddy fields through introduction of technologies for improved water and organic inputs, including alternate wetting and drying (AWD). Where possible, the project will also promote the uptake of technology innovations for processing that integrate renewable energy/energy efficient measures, including off-grid solutions. Such interventions are expected to deliver mitigation co-benefits from reduced CO_2 emissions otherwise associated with inefficient and non-renewable energy consumption.

The project will contribute to the land degradation and biodiversity focal areas through sustainable land practices and by promoting sustainable rice cultivation and diversification strategies, which will contribute improve the health of the surrounding ecosystems. The project will also reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape, including numerous oxbow lakes, marshes, mangroves and globally important tidal mudflats. By increasing rice farmer income, the project will reduce pressure on nearby protected areas (including both Ramsar sites and Key Biodiversity Areas[14]), thus reducing habitat degradation and contribute to wildlife conservation, including habitats of the critically endangered spoon-billed sandpiper (*Calidris pygmaea*), Irrawaddy dolphin (*Orcaella brevirostris*) and Ganges shark (*Glyptis gangeticus*). The project will also help to conserve and promote the sustainable use agro-biodiversity through diversification and uptake of climate-resilient and stress-tolerant varieties, thereby contributing to the ecological integrity and sustainability of the delta ecosystems.

The project will also help to enhance water security and quality in the delta ecosystems through improvements in integrated water resource management and early warning systems. Finally, the project will contribute to improving management of agro-chemicals and their wastes by promoting integrated pest management and the correct application of fertilizers.

5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

Myanmar is a least developed country and has been ranked as the third most vulnerable country in the world to the effects of climate change.^[15] The risk of climate hazards therefore pose an increasingly severe threat to rural communities whose livelihood depends on the agriculture sectors, particularly in Myanmar's rice farming deltas. The increasing impacts and exposure of climate-sensitive sectors combined with persistent poverty and low capacities to adapt to climate change add to the precarious situation of vulnerable communities in the targeted regions. Moreover, unsustainable land-use practices and use of chemicals, saltwater intrusion, shifting cultivation and loss of mangroves are eroding the resilience of the landscape, leaving the ecosystem extremely vulnerable to climate change impacts.

In the absence of alternative livelihoods such as diversification, access to markets and income sources and with limited availability of evidence-based knowledge, tools and skills to adopt appropriate adaptation practices and technologies, communities are left with little means to implement resilient livelihood strategies. Without the LDCF intervention, Myanmar's agriculture sectors will increasingly suffer under the impacts of climate change. Agricultural production and livelihoods, particularly the majority of smallholders in rural areas, will remain impacted by a variety of climate hazards.

Without targeted investments and technical inputs, this negative trend is likely to escalate further as climate change impacts continue to increase in intensity and frequency. Moreover, given Myanmar's LDC status, there is limited public financing available to provide the support needed at community level. In terms of alternative sources of financing for the project, private investment to support smallholder producers and SMEs in the forms of technology transfer, contract farming arrangements at scale, etc. is currently unlikely due to the investment risk involved (at least in the short-term, given coordination problems and prevailing insecure property rights). Additionally, due socio-economic conditions in the targeted regions, smallholder producers and SMEs do not have the financial resources nor access to credit to climate-proof their practices, supply chains and businesses without external support. The proposed project will therefore not take place without the involvement of the LDCF.

The proposed LDCF project builds on, and is complemented by, the efforts of several ongoing baseline initiatives that operates the targeted scope and regions (see section 2). The use of LDCF funds will target the margin between the current baseline investments and a climate-resilient development scenario that promotes adaptation technologies and incorporates innovative approaches and practices to enhance community resilience.

6) adaptation benefits

The proposed project is fully aligned with the goal of the LDCF/SCCF Programming Strategy 2018-2022, through its efforts to strengthen resilience and reduce vulnerability of Myanmar's rice-farming communities and delta ecosystems to adverse impacts of climate change. In response to the enhanced emphasis on private sector engagement in the LDCF strategy, the project is promoting an ecosystem-based and market-driven approach to build resilience in key ecosystems and to strengthen the adaptive capacities of local private actors and SMEs. The project's alignment with the first two objectives of the LDCF strategy and consequent adaptation benefits are outlined below.

LDCF Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation. LDCF resources will be used in a catalytic and complementary manner to enhance the resilience of the rice sector that contribute to the livelihoods of the targeted communities, in particular women in a holistic manner. This will be achieved by introducing, testing and adapting selected appropriate technologies and innovative practices as well as associated knowledge and skills to increase the efficiency and profitability of the rice sector while decreasing pressure and degradation of the deltas and vital ecosystem services that communities depend upon. More specifically, the project will reduce vulnerability and increase resilience of 162,000 people and 57,000 ha across the targeted regions by promoting the use of improved contract farming, Participatory Guarantee Systems (PGS) and SRP standards as well as diversification. These innovative approaches will create incentives for farmers and SMEs to engage in climate-resilient practices and in terms of technology transfer, the project will promote a greater uptake of climate technologies which improve climate resilience in rice production and processing.

LDCF Objective 2: Mainstream climate change adaptation and resilience for systemic impact. The project will lead to the mainstreaming of climate resilience and adaptation into sectoral planning and programming in the targeted regions. At national level, the project will strengthen the capacity of national institutions to integrate climate change adaptation into their programming. At the regional level, lessons learned from the project will be disseminated via communications material, encouraging uptake of successful practices in other projects. The project is also expected to contribute to strengthening regional and global partnerships, innovations and knowledge sharing through its engagement with the SRP. Furthermore, the project will seek to improve a number of enabling conditions for climate change adaptation in the rice sector, including nature-based solutions, and national and sub-national capacities in weather forecasting, agro-met services and early warning systems, as well as through diversification strategies.

7) Innovation, sustainability and potential for scaling up

Innovation

The project provides an innovative approach to community-level climate change adaptation through an ecosystem-based and market-driven approach to build resilience in production systems and value chains and reduce vulnerability to climate change.

The project's market-driven approach is innovative in terms of climate change adaptation, particularly the activities for identifying and introducing appropriate technologies and practices to support vulnerable communities in accessing market opportunities that they are currently excluded from. The project will deliver innovative climate-resilient agriculture practices and technologies to farmers, designed to adapt to increasing hazards such as floods. It will reduce costs and risks associated with the adoption of climate-resilient production systems in the target deltas by removing information, financial and institutional barriers to their adoption.

This project expands the positive impacts of adaptation technologies and practices tested in Myanmar, by linking these practices with incentive mechanisms that ensure profits from such practices accrue to the producers, as well as others in the value chain. Approaches such as the contracts through PGS and the SRP Standard vertically connect producers with other value chain actors. These mechanisms ensure that standards of sustainable practices are being followed, and market incentives for safe and sustainably-produced food exist to encourage and sustain these practices.

Sustainability

The proposed LDCF project aims to tackle various scales, sectors and stakeholders in a multi-governmental approach that involves national authorities, private sector and local communities and leaders. In terms of developing ownership for adaptation measures among the local communities, participatory approaches will be a key tool in the project planning process.

Through the SRP, the involvement of value-chain stakeholders at various scales and with a commitment to environmental sustainability, food safety and quality, and economic benefits for smallholders will create incentives to encourage climate-resilient practices and investments in adaptation technologies along the value chain. This will also help to incentivize private sector investments, including for climate-resilient post-harvest technologies. Such links, coupled with enabling policies and alignment with national programmes, will help to ensure sustainability of the initiatives established by the project beyond project closure.

Government extension staff, lead farmers in agricultural cooperatives and SMEs will be trained in adaptation measures, creating a core of highly qualified staff which can pass on this knowledge to other extension workers and farmers. Establishment of a climate change education center, and with the targeted inclusion of women will also contribute to dissemination of knowledge on climate-resilient practices and agribusiness development, after project completion.

In terms of financial sustainability, existing studies of yield improvements and cost reductions delivered by SRP-compliant farm practices (in terms of gross margins of crop financial budgets) indicate that farmers have a clear financial incentive to undertake climate-resilient practices even in the absence of premiums. By promoting the uptake of PGS and the SRP assurance scheme, the project will facilitate a steady market for rice produced in a sustainable and climate-resilient way, creating further incentives for farmers to continue with climate-resilient practices while also improving investment in post-harvest infrastructure, after project completion.

Scaling up

The project will scale up climate-resilient agriculture practices and technologies for rice production that are suited to wider dissemination and large-scale adoption in Myanmar. By illustrating that these technologies lead to increased farmer incomes, improved value chain efficiency and reduction in income variance, the project will promote their uptake elsewhere in Myanmar, as well as in neighboring countries.

Two parallel strategies can further support the upscaling of adaptation measures promoted by this project. One is the proliferation of private-sector links for farmer groups and SMEs to integrate with markets and industries that support sustainable practices. The other is the integration of such practices and technologies within national development programmes implemented by government and other partners. Additionally, it is important to note that progress has been made in the country with PGS for rice, with potential to expand further and build market access for organic rice. This has potential for scaling up via the project's resilient value chains (Component 3) facilitated through private and public sector partnerships (particularly the SRP) and the use of IT tools such as Golden Paddy[16].

Component 4 will capture the insights that can be shared with government agencies and development partners for potential inclusion in similar projects in Myanmar. Additionally, the project's integration with the SRP and similar GEF/LDCF funded projects provides solid platform for scaling out the innovations and best practices generated by the LDCF to other countries in region.

[1] https://themimu.info/sites/themimu.info/files/documents/Core_Doc_Myanmar_Sustainable_Development_Plan_2018_-_2030_Aug2018.pdf

[2] MCCSAP, 2018

[3] Driel and Nauta 2013, Denning et al. 2013, Myanmar CSA Strategy 2015.

[4] <https://sites.google.com/site/bagosittaungriverbasinanalysis/system-discription/b-socio-economical-system/ii-water-users>

[5] Myanmar Climate Change Alliance (MCCA, 2018).

[6] Agriculture Action Plan for DRR (AAPDRR).

[7] Myanmar CSA Strategy 2015

[8] PDNAs: 2015 Floods and Landslides and Cyclone Nargis

[9] MOALI and FAO, 2018

[10] FAO and ActionAid Myanmar, 2017

[11] Agriculture Action Plan for DRR (AAPDRR)

[12] Myanmar NAPA 2012.

[13] SRP is a multi-stakeholder platform, co-convened by United Nations Environmental Programme (UNEP) and the International Rice Research Institute (IRRI) to promote resource efficiency and sustainable trade flows, production and consumption operations, and supply chains in the global rice sector.

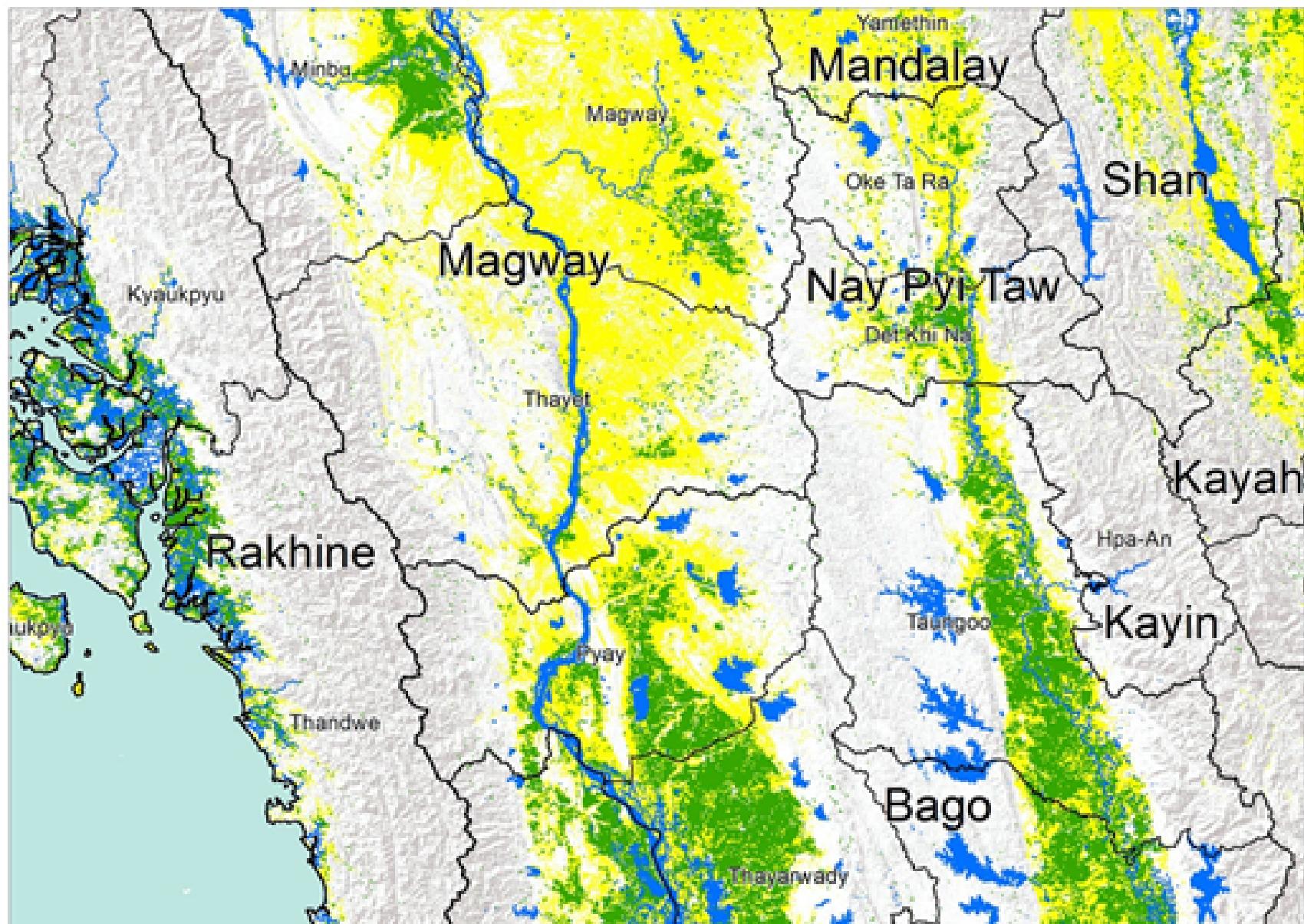
[14] Lower Sittaung Key Biodiversity Areas: Gulf of Mottama, Moeyungyi Wildlife Sanctuary, Kelatha, Kyaiktiyoe; Lower Ayeyarwady KBAs: Ayeyarwady Delta, Yelegale, Maletto Inn, Hlawga Reservoir.

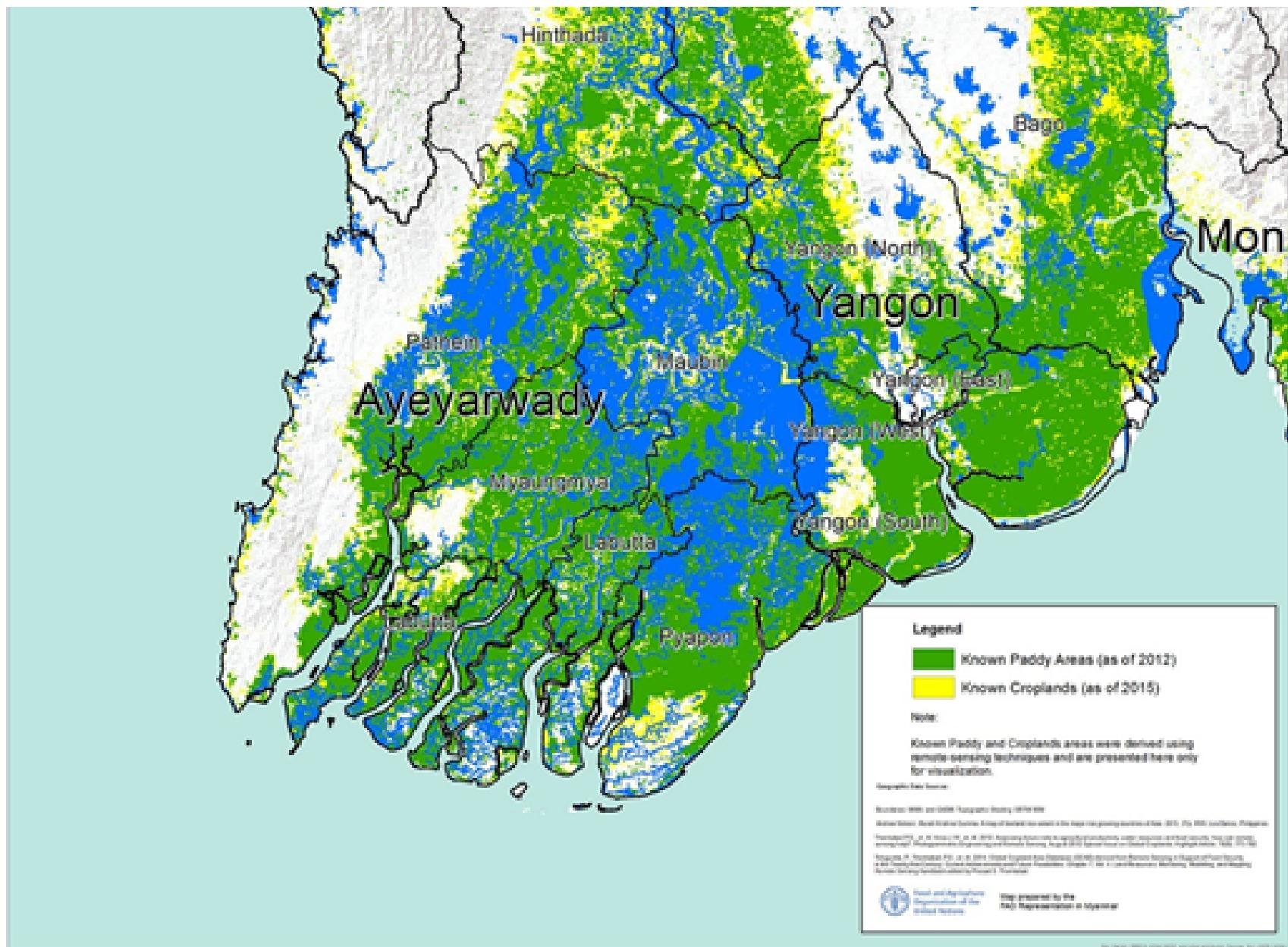
[15] According to the Global Climate Risk Index in: Eckstein, Künzel and Schäfer 2018.

[16] <https://www.impactterra.com/golden-paddy>

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.





2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Consultations have been conducted with relevant central-level government ministries, research institutions, civil society organizations, and private sector entities, and their inputs have informed the design of the LDCF project. The main stakeholders engaged include the Ministry of Natural Resources and Environmental Conservation (MONREC) – Environmental Conservation Department (ECD) & Ministry of Agriculture, Livestock and Irrigation (MOALI) – Department of Agriculture. Consultations with other relevant stakeholders include the International Water Management Institute, BANCA Biodiversity Centre, Fauna and Flora International (FFI), Indawgyi Natural Farming Association (INFA), Community Forestry Groups, NORAD, Helvetas, Wildlife Conservation Society (WCS) and the International Rice Research Institute (IRRI) as well as other SRP members.

Local CSOs/NGOs are expected to be engaged throughout the project (such as through LoAs) and will be identified during the PPG phase. Community groups will also be identified at an early stage given that they are expected to form part of the targeted beneficiaries. The project will also involve ethnic minorities as the areas targeted by the project comprise of at least seven ethnic groups, with Bamar and Kayin being the majority. The majority of the people in targeted areas are Buddhist, with small minorities of Christians, Muslims and Hindu. FPIC will be applied during PPG to ensure the involvement and contribution of all ethnic groups within the project sites. The project will also utilize Conflict Sensitive Principles in its design and implementation, following guidance by LIFT's Conflict-Sensitive Programming. In addition, the project will undertake in-depth consultations with the General Administration Department (GAD) and other related stakeholders at Township level and Village Administrator at village level, to orient them about the objectives, target groups and interventions of the project, during the PPG phase.

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

The project will follow the guidance and recommendations of both the GEFs and FAOs Policy on Gender Equality and the GEF Gender Implementation Strategy, and will be guided by the principles of National Strategic Plan for the Advancement of Women (2013-2022). Building upon the gender considerations laid out in the MCCSAP, a gender analysis and assessment will be undertaken during the PPG phase to provide the basis for understanding gender roles and relations, identify existing structural and socio-cultural constraints as well as opportunities for meaningful participation in the project by women. To ensure that they get equal and priority access to project services and benefits, the LDCF project will adopt measures to increase women's participation and influence in (among others) community-based participatory planning, and a minimum level of approved activities must be a priority for women. The extent to which women in project areas are affected by climate-related events and by consequent impacts on agricultural production will be studied during project preparation and will inform project design.

Gender-specific groups will be established to identify and support potential women entrepreneurs, in particular for post-harvest handling of rice and other commodities. Efforts will also be undertaken to examine specific roles for women in value addition and/or participation in guarantee systems, and identify specific opportunities for women in product diversification. The choice and promotion of diversification will also be considered in the context of the different uses and practices of men and women in the targeted areas.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources; Yes

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

TBD

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

Strengthening the adaptive capacities of local private sector, including SMEs through climate resilient rice value chains and agribusiness development is the essence of the project. The project will focus on introducing/ strengthening producer organizations and private sector entities engaging in rice value chains. This will include producer associations and national companies (such as AWBA, Myanmar Farmer Association and Myanmar Farm Crop Producers Association) but also global corporations including companies that are members of the World Business Council for Sustainable Development and other members of the SRP, will support climate-resilient rice value chains (site-specific interventions, traceability and market access). The project will also collaborate with Golden Sunland Company, which specializes in hybrid rice farming and promotes responsible farming from seed to table in Myanmar. Golden Sunland is working in Labutta Township of the Delta producing hybrid rice seeds with buy back agreements and exporting to Singapore. They collaborate with smallholder farmers at the ground level in all aspects of farming in order to bring higher crop yield while reducing farm inputs to achieve sustainability and lower the overall carbon footprint.

Social enterprises will improve farmers' and value chain actors' access to information on productivity, markets and financing opportunities for climate-resilient SMEs and agribusinesses. Private sector corporate social responsibility schemes will contribute to the restoration of ecosystems through NBS, while it is expected that private finance institutions will provide accessible finance to farmers for climate-resilient rice and agriculture.

5. Risks

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Risk and description	Scale	Potential mitigation measures
<p><i>Required multi-sectoral support to enhance community resilience is not available as the project is seen as primarily an agriculture related project</i></p> <p>Though the project focuses on rice landscapes, the project may be still perceived as a rice related project and not about strengthening climate resilience, thereby reducing the interest from other sectors in supporting a holistic approach to climate resilience of local communities</p>	Medium likelihood, medium impact	The project will work directly with different sectors to build their knowledge and capacities so that this issue is addressed from national to local levels. The roles of local governments will be particularly emphasized to ensure different stakeholders are brought together to support local communities.
<p><i>Strong local economic forces lead to significant land use changes in project sites from rice to non-rice or significant changes in local livelihoods</i></p> <p>Increasing urbanization and other development could incentivize farmers to transform their rice fields into non-rice or for farmers to move out of farming to other non-farm livelihoods (including migration). That could mean that in some proposed areas, at localized places, project actions to target most vulnerable rice farming households may become irrelevant.</p>	Low likelihood but high localized impact	Selecting sites that are relatively less touched by urbanization and are in more remote areas could mitigate this problem. This would have additional benefit of actually targeting more vulnerable communities.
<p><i>Significant climate disaster events (storms and/or flood; droughts) and other natural disasters may greatly undermine attempts to increase community vulnerability</i></p> <p>Increasing community resilience to climate variability and change is a longer term process. Project investments in increasing household and community resilience may be severely under</p>	Medium to high likelihood with high impact	To mitigate this, the project will (i) increase the availability of information on climate change and (ii) as necessary, help introduce more resilient technologies, and ensure that strong partnerships are developed with disaster mitigation authorities and other partners.

mined by greater than anticipated climate and non-climate related disasters.		
<p><i>Private sector involvement will be low due to low perceived benefits from their participation.</i></p> <p>Private sector in Myanmar is still under development – particularly in more remote rural areas. Therefore, the emerging private sector may not be aware of opportunities of their engagement and mutual benefits for them and local communities through their engagement in project supported activities</p>	Medium to high likelihood with medium impact	The project will ensure strong communication with the private sector from the project design stage and will undertake special needs assessment to understand barriers to private sector engagement in the project and develop joint mitigation measures.
<p><i>Political risks such as change in government and conflicts in the project regions (especially some areas in Sittaung River Basin) may affect stability in the project area</i></p> <p>Elections are coming up 2020 and Myanmar has a history of political instability, with almost one-third of the country being conflict-affected.</p>	Medium likelihood with medium impact	It is foreseen that the current party will win the 2020 general election. Government institutions are expected to remain the same and project activities are supposed to be implemented by the counterpart departments. The project is also targeting areas that are not directly affected by active conflicts or other complex situations. Furthermore, the project will ensure a transparent and responsive approach to mitigate any potential conflicts. In this regard, the project will apply Conflict Sensitive Principles in its design and implementation, guided by LIFT's Conflict-Sensitive Programming.

6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

During the PPG process, an operational capacity assessment will be conducted of the Ministry of Natural Resources and Environmental Conservation (MONREC) & Ministry of Agriculture, Livestock and Irrigation (MOALI) with the intention of both ministries being the main executing partners for the project.

A Project Steering Committee (PSC) and a Project Implementation Unit (PIU) will be established to ensure satisfactory delivery, monitoring and reporting of project outputs. The PSC will provide policy and strategic advice for project implementation, and communicate project outcomes with other ministries. It will comprise representatives from MOALI and MONREC as well as representatives of the subnational governments in targeted states/regions, leaders of rice and agricultural cooperatives, and civil society and private-sector stakeholders.

Responsibilities of the PIU will include project implementation planning, budgeting, preparation of bidding documents for all services to be procured, awarding contracts, engaging consultants, assuring quality assurance for all project-financed activities, disbursement of funds, assuring compliance with due diligence, liaising with relevant ministries and their subnational agencies, establishing project performance and financial management systems, and assuring regular progress reporting to regional and national authorities as well as financing institutions. The PIU will appoint incremental staff to assist in day-to-day project management activities. The PIU will be supported by project management and implementation consultants.

The project will coordinate with relevant agencies and projects (described above and below as well as in the section on associated baseline projects) to avoid overlap and double-spending of resources. Synergies and areas for collaboration with these other initiatives will be mapped during the PPG phase, with agreement on common activities and cost-sharing explored and agreed. This mapping exercise will help to identify key findings and emerging lessons learnt that can be upscaled and outscaled as well as identifying existing gaps that can be addressed by this project. Coordination with the GCF-funded 'Enhancing Climate Resilience in the Third Pole' initiative will also help to establish GCF-LDCF complementarity efforts, thereby laying ground for enhanced coordination with future planned GCF investments in the country.

Preparation of the project implementation plan and schedule will be completed within the first six months of the project. It will involve all the key stakeholders at ministerial, region/state, district and township levels, with PIU taking the lead. The project reporting system will be based on the monitoring and evaluation system, and will include quarterly, annual, mid-term and final reports. During the first year of the project, a baseline survey will be completed to ensure that project progress can be properly assessed.

The LDCF project will also build on and align with GEF-7 framework by upscaling best practices of GEF projects and adaptation initiatives in the country. Further to that, the proposed project will draw on the existing and planned investment in the agriculture and water sectors in the targeted areas. Close coordination with these initiatives will ensure the projects' impact at scale while avoiding potential duplication of effort.

The proposed project will leverage on projects funded by GEF and LDCF as a baseline and build upon good lessons and practices in the targeted areas. Such initiatives include;

GEF-funded project "**My-Coast: Ecosystem-Based Conservation of Myanmar's Southern Coastal Zone**" (FAO, GEF-6, concept approved November 2017), which focuses on the Thanhinthyi region in the south of the country. There will be opportunity for the exchange of lessons learned between the two projects, but no geographical overlap.

GEF-funded project "**Sustainable cropland and forest management in priority agro-ecosystems of Myanmar**" (FAO, GEF-5, approved for implementation April 2015) supports and promotes climate smart agriculture (CSA), sustainable land management (SLM) and sustainable forest management (SFM) policies, techniques and practices in three agroecological zones. There will be opportunity to build on lessons learned by that project, as its areas of work include the Ayeyarwady Delta.

LDCF-funded project "**Reducing Climate Vulnerability of Coastal Communities of Myanmar through an Ecosystem-based Approach**" (UNDP, GEF-6, concept approved March 2018), which focuses on Rakhine State. There will be opportunities for exchanges of lessons learned, especially given that the project includes mangrove-based NBS, but no geographical overlap.

LDCF-funded project "**FishAdapt: Strengthening the Adaptive Capacity and Resilience of Fisheries and Aquaculture-dependent Livelihoods in Myanmar**" (FAO, GEF-5, approved for implementation August 2016), in southern Myanmar: the proposed project will incorporate lessons learned by FishAdapt in relation to adaptation in fisheries and aquaculture, integrating them into a broader multi-sector, landscape and livelihoods approach.

LDCF-funded project "**Adapting Community Forestry landscapes and associated community livelihoods to a changing climate, in particular an increase in the frequency and intensity of extreme weather events**" (UNEP, GEF-5, approved for implementation December 2016), in the Central Dry Zone, Rakhine Coastal State and Ayeyarwady Region. The Ayeyarwady regional coincides with the geographical area of the proposed project: the proposed LDCF project will build on methodologies and approaches for vulnerability assessment developed by this project and integrate the lessons learned through the community forestry landscapes project into a broader, multi-sector resilient landscape management framework.

The **Gulf of Mottama project**, support by Helvetas, Fauna and Flora International and IUCN to livelihoods and conservation in the Gulf of Mottama and surrounding landscapes: the two projects will complement each other spatially given that the Sittaung river flows into the Gulf of Mottama; this complementarity will help to address issues such as flows of demographic and productive/extractive pressures between the Sittaung flood plain and the Gulf.

World Bank **Ayeyarwady basin management project**. This has four components: 1) water resource management institutions, decision support systems and capacity building; 2) hydro-meteorological observation and information systems modernization; 3) navigation enhancement on the Ayeyarwady River; 4) contingent emergency response. The project will respond to the analyses and proposals included within the WB-supported State of the Basin Assessment (SOBA) for the Ayeyarwady.

Asian Development Bank “**Resilient Communities Development Project**”: this project will support government's policy of strengthening resilience through rural livelihoods and village infrastructure by incorporating climate and disaster risk considerations in planning, design and implementation of community interventions. It will also build capacities of villagers, township and village tract level administrations and strengthen mechanisms in delivering basic services and livelihood support to the poorest communities in rural Myanmar.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

Myanmar's development agenda is guided by the **2011-2030 National Comprehensive Development Plan** and **2018-2030 Myanmar Sustainable Development Plan (MSDP)**, which provides a long-term vision for achieving inclusive and transformational economic growth. Recognizing the increasing threat from climate change, the MSDP underscores the need for a climate resilient development trajectory and outlines a strategy to "increase climate change resilience, reduce exposure to disasters and shocks while protecting livelihoods", as part of delivering the goals of the MSDP. The MSDP also emphasizes SME development as a key driver of private sector-led economic growth and essential for sustained, broad-based job creation. The proposed LDCF project is fully aligned with those priority actions and strategies outlined in the MSDP and is expected to accelerate implementation progress for achieving the strategic goals related to natural resources and private sector growth.

The project is fully aligned to the **2016 – 2030 Myanmar Climate Change Strategy and Action Plan (MCCSAP)**, which spells out the overarching vision for a climate-resilient, inclusive development pathway and presents a roadmap to guide Myanmar's strategic responses and actions to climate-related risks and opportunities. At the higher level, the proposed project responds directly to first of MCCSAP's two main objectives, namely "to increase the adaptive capacity of vulnerable communities and sectors so they are resilient to the impacts of climate change". Doing so, the project activities cut across MCCSAP's six action areas, while making significant contributions towards achieving target sectoral outcomes, particularly those on "Climate-smart agriculture, fisheries and livestock for food security" and "Sustainable management of natural resources for healthy eco-system" along with their outlined responses. The implementation of the project will directly contribute to the delivery of the three expected results for achieving the sectoral outcomes: 1) climate change integration in relevant policies, planning and budgeting procedures, including gender considerations; 2) adoption of adaptation technologies and resilient management practices; and 3) establishment of institutional coordination and multi-stakeholder engagement framework to support the implementation in the agriculture sectors, including innovative business models and gender-sensitive approaches. The project will also contribute to priority areas for "Education, science and technology for a resilient society" by strengthening information and education systems at various levels related to the project's sectoral scope.

Following the MCCSAP, the government has recently (June 2019) adopted the **Myanmar Climate Change Policy**, and the project activities are aligned to the policy recommendations and measures within its six sectoral clusters, namely those related to a) food and water security; b) healthy ecosystems; f) knowledge, awareness and research. Furthermore, the project is directly aligned with the **Myanmar Climate Change Strategy (2018-2030)** and **Myanmar Climate Change Master Plan (2018-2030)**, which builds on the MCCSAP, including its strategic focus areas and high priority activities related to climate resilient agriculture for food security, sustainable management of natural resources for healthy ecosystems as well as building a resilient society through education, science and technology. In particular, the MCCMP presents a roadmap to transform Myanmar into a climate-resilient and carbon-efficient nation that is capable of harnessing the benefits of low-carbon, resilient development for present and future generations in a sustainable and inclusive manner.

At the sectoral level, the project responds to the **Myanmar Rice Sector Development Strategy**, by contributing to the resilience and sustainability of rice production, which is key to ensuring achievement of the goals for boosting rice production and ensuring food self-sufficiency. The project will also address barriers identified in the **National Export Strategy for Rice (2015-2019)** and contribute to objectives in relation to strengthening the rice sector to promote 'health, equitable growth and environmental sustainability.' The project is also in alignment with Myanmar's **Climate Smart Agriculture Strategy** which is primarily focused on rice-based farming systems and outlines the priority programmes for adaptation in the targeted regions. Furthermore, the project is aligned with the **(2018-2023) Myanmar Agriculture Development Strategy and Investment Plan** including in terms of outputs such as "improved resilience of farmers to climate change and disasters".

The proposed project is also in alignment with Myanmar's submissions under the UNFCCC. Its' **Nationally Determined Contribution (NDC)** prioritizes the adaptation actions established by the NAPA, highlighting efforts to strengthen resilience in the agriculture sector, develop early warning systems along with forest preservation measures as top priorities. The NDC also outlines adaptation initiatives by the Government of Myanmar where the proposed project will contribute to the implementation including: *sectoral actions* on mainstreaming adaptation into planning, research to reduce vulnerability in subsistence farmers, etc.; *policy and legal instruments* such assistance entitlements of farmers affected by disasters; and *capacity-building, education, awareness and communication* to provide technical support on disaster management.

The project responds directly to Myanmar's **National Adaptation Programme of Action (NAPA) (2012)**, which prioritizes adaptation projects in the agriculture sector, giving first priority to reduced climate change vulnerability of rural and subsistence farmers through locally relevant technologies. The NAPA-proposed priority projects include the use of climate-resilient rice varieties, crop diversification, and adaptation approaches to reduce climate change vulnerability and increase resilience of subsistence farmers, all which are covered by the project's activities.

Myanmar has submitted its **Initial National Communication (INC)** under the UNFCCC in 2012, which highlighted agriculture, water resources and biodiversity sectors as some of the most vulnerable areas to climate change in the country. Vulnerability assessments conducted for the agriculture sector indicates the Ayeyarwady Delta (the country's rice bowl) as being the most vulnerable region. The project is in line with the strategies outlined in the INC for the agriculture sector, including the need to (i) improve rice cropping systems and water management, (ii) promote organic farming, (iii) do research and development on crop varieties adaptable to climate change. The project will contribute to both the mitigation measures and specifically adaption actions on: adjusting cropping systems, improving farm management including post-harvest technology; use of stress-resistant plant varieties and ensure climate-resilient agriculture; promote water use conservation and efficiency; promote organic farming and use of bio-fertilizers, etc.

Finally, the LDCF project is aligned with the prioritized sectors and adaptation technologies currently in the process of finalization for Myanmar's **Technology Needs Assessment (TNA)**.

8. Knowledge Management

Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

The project will develop an M&E plan and an accompanying strategy for sharing lessons learned, so that they can be shared with stakeholders to ensure effective dissemination of project findings and promote the uptake of successful practices by the government and other projects. The project will also work to ensure that project outcomes influence future public and private investments in the agriculture sector by establishing methods, processes and guidance to allow for mainstreaming of climate-resilient production systems and value chains into policy planning and master planning processes.

The project will produce semiannual, mid-term and final reports which will be shared with stakeholders to disseminate lessons learned. If successful, the project will also deliver knowledge products and events on its activities and results, thus showcasing and promoting the uptake of its methodology.

The climate-proofing techniques and technologies applied by the project will be documented in project reports, facilitating their take-up in similar projects. The project will also produce training materials that will incorporate climate change adaptation elements; these will be disseminated among various Myanmar government agencies and development partners. Furthermore, the project will utilize the climate change education center for dissemination of project results and for sharing lessons learned and best practices in the rice sector identified from the project's work in the target areas, and include of mechanisms for peer-to-peer learning.

The project will explore additional means of knowledge sharing during the PPG stage to ensure wider dissemination of knowledge created by the project to various stakeholders. This includes the potential use of electronic and print media, as well use of ICT such as mobile phone applications/ text and voice messaging etc. It is recognized that many of the targeted rice-based communities lack access to web-based approaches and traditional communication means/channels will continue to be understood, viewed and harnessed where effective. Exact communication plan and information sharing details will be worked out further, and once a detailed analysis of penetration of relevant medium/media is carried out during PPG stage.

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Hla Maung THEIN	GEF Operational Focal Point and Director General	MINISTRY OF NATURAL RESOURCES AND ENVIRONMENTAL CONSERVATION	10/9/2019

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

