



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

FOR OFFICIAL USE ONLY

Report No: PAD3013

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED CREDIT

IN THE AMOUNT OF SDR 145.8 MILLION
(US\$200 MILLION EQUIVALENT)

TO THE

REPUBLIC OF THE UNION OF MYANMAR

FOR A

NATIONAL FOOD AND AGRICULTURE SYSTEM PROJECT

June 17, 2020

Agriculture Global Practice
East Asia and Pacific Region

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

CURRENCY EQUIVALENTS

(Exchange Rate Effective May 31, 2020)

Currency Unit = Myanmar Kyat (MMK)

MMK 1400.10 = US\$ 1

US\$ 1.372 = SDR 1

FISCAL YEAR

October 1 - September 31

Regional Vice President: Victoria Kwakwa

Country Director: Mariam J. Sherman

Regional Director: Benoit Bosquet

Practice Manager: Dina Umali-Deininger

Task Team Leader(s): Mio Takada, Mekbib Haile

ABBREVIATIONS

ADB	Asian Development Bank
ADC	Agricultural Development Committee
ADS	Agriculture Development Strategy
ADSP	Agriculture Development Support Project
AEZ	Agro-Ecological Zone
AI	artificial intelligence
ASEAN	Association of Southeast Asian Nations
CE	citizen engagement
CERC	Contingent Emergency Response Component
CERIP	Contingent Emergency Response Implementation Plan
CFW	cash-for-work
Coop Dept	Cooperative Department
CPF	Country Partnership Framework
CPP	Community Participation Plan
CPPF	Community Participation Planning Framework
CSA	Climate-Smart Agriculture
CSO	Civil Society Organization
DA	designated account
DAR	Department of Agricultural Research
DOA	Department of Agriculture
DOALMS	Department of Agriculture Land Management and Statistics
DOP	Department of Planning
DRD	Department of Rural Development
E&S	environmental and social
EOAO	Ethnic Armed Organization
ECoP	Environmental Code of Practice
EFA	Economic and Financial Analysis
ESAP	Environmental and Social Action Plan
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FIRR	financial internal rate of return
FM	financial management
FMD	foot-and-mouth disease
GAD	General Administration Department
GAP	Good Agriculture Practice
GDP	gross domestic product
GHG	greenhouse gas
GoM	Government of Myanmar
GRM	grievance redress mechanism
ICT	information and communication technology
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contribution
IPF	Investment Project Financing
IPL	Inclusion and Peace Lens
IRR	internal rate of return

ISO	International Organization for Standardization
ISTA	International Seed Testing Association
IWUMD	Irrigation and Water Utilization Management Department
JICA	Japan International Cooperation Agency
LBVD	Livestock Breeding and Veterinary Department
M&E	monitoring and evaluation
MCCSAP	Myanmar Climate Change Strategy and Action Plan
MFFVPEA	Myanmar Fruit, Flower and Vegetable Producer and Exporter Association
MIS	management information system
MOALI	Ministry of Agriculture, Livestock, and Irrigation
MoC	Ministry of Commerce
MoE	Ministry of Education
MSDP	Myanmar Sustainable Development Plan
MTR	mid-term review
NCA	Nationwide Ceasefire Agreement
NCDDP	National Community Driven Development Project
NES	National Export Strategy
NFASP	National Food and Agriculture System Project
NGO	nongovernmental organization
NPSC	National Project Steering Committee
NPT	Nay Pyi Taw
NPV	net present value
O&M	operations and maintenance
OECD	Organisation for Economic Co-operation and Development
PDO	Project Development Objective
PIC	Project Implementation Committee
PIM	Project Implementation Manual
PMU	Project Management Unit
PPSD	Project Procurement Strategy for Development
PWC	Project Working Committee
R&D	research and development
RF	Results Framework
RICE	resilient, inclusive, competitive, and environmentally sustainable
RPF	Resettlement Policy Framework
SCF	standard conversion factor
SMEs	small and medium enterprises
STEP	Systematic Tracking of Exchanges in Procurement
ToC	Theory of Change
USAID	United States Agency for International Development
UXO	unexploded ordnances
VCC	value chain cluster
VPG	vulnerable population group
WLF	women lead farmers
WUG	Water User Group



TABLE OF CONTENTS

DATASHEET	1
I. STRATEGIC CONTEXT	7
A. Country Context.....	7
B. Sectoral and Institutional Context.....	8
C. Relevance to Higher-Level Objectives	15
II. PROJECT DESCRIPTION.....	17
A. Project Development Objective	17
B. Project Components	17
C. Geographic Targeting and Phasing	28
D. Project Beneficiaries.....	29
E. Results Chain.....	31
F. Rationale for Bank Involvement and the Role of Partners	33
G. Lessons Learned and Reflected in the Project Design.....	34
III. IMPLEMENTATION ARRANGEMENTS	35
A. Institutional and Implementation Arrangements	35
B. Results Monitoring and Evaluation Arrangements.....	37
C. Sustainability.....	38
IV. PROJECT APPRAISAL SUMMARY	39
A. Technical, Economic, and Financial Analysis	39
B. Fiduciary.....	42
C. Safeguards	44
V. KEY RISKS	52
VI. RESULTS FRAMEWORK AND MONITORING	55
ANNEX 1. Implementation Arrangements and Support Plan	69
ANNEX 2. Inclusion and Peace Note	82
Annex 3. Targeting and consultation strategy in the conflict-affected townships	91
Annex 4. Economic and Financial Analyses	94
ANNEX 5. Climate Co-benefits and GHG Accounting	100
ANNEX 6. Safeguards	104
Annex 7. Environmental and Social Action Plan (ESAP)	110
Annex 8. Subcomponent 1.d: 4 Improving Irrigation and Drainage Infrastructure	119
Annex 9. Map of the Project Areas.....	121



DATASHEET

BASIC INFORMATION

Country(ies)	Project Name		
Myanmar	National Food and Agriculture System Project		
Project ID	Financing Instrument	Environmental Assessment Category	Process
P164448	Investment Project Financing	B-Partial Assessment	Urgent Need or Capacity Constraints (FCC)

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input checked="" type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input checked="" type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
30-Jun-2020	31-Dec-2025
Bank/IFC Collaboration	Joint Level
Yes	Complementary or Interdependent project requiring active coordination

Proposed Development Objective(s)

The objective of the Project is to increase agricultural productivity and diversification and to enhance market access for Selected Value Chains in the Project Area, and respond to an Eligible Crisis or Emergency.

**Components**

Component Name	Cost (US\$, millions)
Component 1: Agriculture Productivity Enhancement and Diversification	138.43
Component 2: Value Chain Development	51.32
Component 3: Project Management, Coordination and Monitoring & Evaluation	10.25
Component 4: Contingent Emergency Response	0.00

Organizations

Borrower: Republic of the Union of Myanmar
 Implementing Agency: Ministry of Agriculture, Livestock, and Irrigation

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	200.00
Total Financing	200.00
of which IBRD/IDA	200.00
Financing Gap	0.00

DETAILS**World Bank Group Financing**

International Development Association (IDA)	200.00
IDA Credit	200.00

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Myanmar	200.00	0.00	0.00	200.00
National PBA	200.00	0.00	0.00	200.00



Total	200.00	0.00	0.00	200.00
--------------	---------------	-------------	-------------	---------------

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2021	2022	2023	2024	2025	2026
Annual	20.00	30.00	50.00	50.00	30.00	20.00
Cumulative	20.00	50.00	100.00	150.00	180.00	200.00

INSTITUTIONAL DATA**Practice Area (Lead)**

Agriculture and Food

Contributing Practice Areas

Finance, Competitiveness and Innovation

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● High
8. Stakeholders	● Substantial
9. Other	● Substantial
10. Overall	● Substantial

**COMPLIANCE****Policy**

Does the project depart from the CPF in content or in other significant respects?

[] Yes [✓] No

Does the project require any waivers of Bank policies?

[✓] Yes [] No

Have these been approved by Bank management?

[✓] Yes [] No

Is approval for any policy waiver sought from the Board?

[] Yes [✓] No

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Performance Standards for Private Sector Activities OP/BP 4.03	✓	
Natural Habitats OP/BP 4.04	✓	
Forests OP/BP 4.36	✓	
Pest Management OP 4.09	✓	
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10	✓	
Involuntary Resettlement OP/BP 4.12	✓	
Safety of Dams OP/BP 4.37	✓	
Projects on International Waterways OP/BP 7.50	✓	
Projects in Disputed Areas OP/BP 7.60	✓	

Legal Covenants

Sections and Description

Implementation Arrangements

Financing Agreement: Sections I.A. to I.E of Schedule 2



The Recipient shall carry out the Project in accordance with the Implementation Arrangements set out under Sections I.A. to I.E of Schedule 2 of the Financing Agreement.

Sections and Description**National Project Steering Committee****Financing Agreement: Section I.A.1 of Schedule 2**

No later than three (3) months after the Effective Date (or such other date which the Association has confirmed in writing to the Recipient is reasonable and acceptable under the circumstances, as determined by the Association in its sole discretion), the Recipient shall establish and thereafter maintain, throughout the Project implementation period, a National Project Steering Committee (“NPSC”) with functions, composition and resources satisfactory to the Association, which shall be responsible for, inter alia, providing strategic and policy guidance on all activities supported under the Project.

Sections and Description**Project Working Committee****Financing Agreement: Section I.A.2 of Schedule 2**

No later than three (3) months after the Effective Date (or such other date which the Association has confirmed in writing to the Recipient is reasonable and acceptable under the circumstances, as determined by the Association in its sole discretion), the Recipient, through MOALI, shall establish and thereafter maintain, throughout the Project implementation period, a Project Working Committee with functions, composition and resources satisfactory to the Association, which shall, inter alia: (a) oversee the day to day implementation of the Project; (b) review Annual Work Plans and Budgets; (c) resolve any implementation bottlenecks and constraints; and (d) provide guidance on any other matters as requested by the PMU.

Sections and Description**Other Undertakings****Financing Agreement: Section IV of Schedule 2**

(i) The Recipient, through MOALI, shall ensure that the collection, use and processing (including transfers to third parties) of any Personal Data collected under this Project shall be done in accordance with the requirements and procedures set forth in the PIM, and ensuring legitimate, appropriate, and proportionate treatment of such data.

(ii) The Recipient, through MOALI, shall ensure that no payments are made under the Categories of the table under Section III.A. above, where the Recipient or MOALI have financed or agreed to finance any expenditures incurred under any other credit, loan or grant under any contract with the Association, any national or international agency or organization, or a sovereign government.

Sections and Description**Project Management Unit****Financing Agreement: Section I.A.3 of Schedule 2**

(i) The Recipient, through MOALI, shall establish and maintain, throughout the Project implementation period, a Project Management Unit (“PMU”) within DOA, with terms of reference, composition and resources satisfactory to the Association, which shall be responsible for, inter alia, carrying out overall Project coordination, monitoring and



evaluation.

(ii) Without limitation to the generality of the foregoing, the Recipient shall: (i) by not later than three (3) months after the Effective Date (or such other date which the Association has confirmed in writing to the Recipient is reasonable and acceptable under the circumstances, as determined by the Association in its sole discretion), recruit or appoint the following positions within the Project Management Unit: (A) a Project director; (B) a Project manager; (C) a financial management specialist; (D) a procurement specialist; (E) a monitoring and evaluation specialist; and (F) seven (7) safeguards specialists [(including a dam safety specialist)], each with terms of reference, qualifications and experience satisfactory to the Association; and (ii) thereafter maintain such positions throughout the Project implementation period.

Sections and Description

Safeguards

Financing Agreement: Section I.D of Schedule 2

Prior to the commencement of any activity under the Listed Parts of the Project, for which the ESAP requires an update of an existing Safeguard Instrument or the preparation of a Safeguards Assessment and Plan, the Recipient, through MOALI, shall: (i) proceed to have such Safeguard Instrument or Safeguards Assessment and Plan: (A) prepared or updated (as the case may be) and consulted upon adequately with people who may be affected by the Project and in accordance with the provisions of the ESAP; (B) furnished to the Association for review and no-objection; and (C) thereafter adopted and disclosed by the Recipient, as accepted by the Association, in a manner satisfactory to the Association; and (ii) take such measures as shall be necessary or appropriate to ensure compliance with the requirements of such Safeguard Instrument or Safeguards Assessment and Plan in a manner satisfactory to the Association.

Conditions

Type	Description
Effectiveness	The Recipient, through MOALI, has adopted the Project Implementation Manual in form and substance satisfactory to the Association.
Type Disbursement	<p>Description</p> <p>Financing Agreement: Section III.B.1(c) of Schedule 2.</p> <p>No withdrawal shall be made for Emergency Expenditures under Category (2), unless and until the Association is satisfied that all of the conditions listed in Section I.E.2 of this Schedule 2 have been met in respect of said expenditures.</p>



I. STRATEGIC CONTEXT

A. Country Context

1. **With a gross domestic product (GDP) per capita of US\$ 1,325 in 2018, Myanmar is among the poorest countries in Southeast Asia.** It has a population of about 54 million, more than two-thirds of which are living in rural areas. The poverty headcount was estimated at 25 percent in 2017 (down from 48 percent in 2004/05).¹ The poor population is concentrated particularly in rural and conflict-affected areas, with a poverty rate of 30 percent in rural areas and 11 percent in urban areas. About 87 percent of the poor, or more than 11 million people, live in rural areas and are more likely to depend on agriculture for their livelihoods.² Additionally, 14 percent of the rural population—smallholder farmers and casual employees with low income diversification—are vulnerable to shocks from crop failures, natural disasters, and health setbacks.
2. **The COVID-19 crisis is estimated to reduce Myanmar's GDP growth for fiscal year 2019/20 to a range of 2 to 3 percent from 6.3 percent in 2018/19.**³ Myanmar's economic and political reforms over the past decade were accompanied by strong economic growth and macroeconomic stability. The country's GDP grew at an annual rate of 6.0–8.5 percent during 2014/15 and 2016/17. This resulted in household income increases and significant progress in improving food security and poverty reduction. However, the COVID-19 pandemic is having a widespread adverse impact on food and agriculture, tourism-related services, and the manufacturing sector and has contributed to extensive supply chain disruptions in the economy, which is expected to significantly slow the pace of poverty reduction and may result in the reversal of previous progress in lifting millions out of poverty. The agricultural and livestock sector is one of the key sectors that has been adversely affected by the COVID-19 pandemic.
3. **Despite the economic growth and decline in poverty achieved prior to COVID-19, poverty and inequality have remained high.** The COVID-19 crisis is likely to aggravate poverty and inequality in the country and short-term economic fluctuations related to the pandemic are likely to disproportionately harm the poor and vulnerable population. The declines in agricultural production and output prices associated with COVID-19-related food supply disruptions and the reduction in exports will have adverse implications for the nearly 70 percent of the country's population who work in the agriculture sector. Moreover, large variations in poverty incidence exist across the country. The poverty headcount rates in the Coastal and the Hills and Mountains agro-ecological zones (AEZs) are 44 percent and 40 percent, respectively, while they are 32 percent in the Dry and 26 percent in the Delta AEZs.⁴ The Hills and Mountains and the Coastal AEZs have a lower share of the total population, yet they comprise nearly half of the food insecure, and about a third are in the bottom quintile of the expenditure distribution. These two AEZs combined have a 40 percent poverty rate, where one in six people struggle to meet their basic food needs.⁵ It is also notable that a majority of Myanmar's conflict-affected communities are in the Hills and Mountain AEZs.
4. **Significant challenges also remain regarding access to services and infrastructure, location and ethnic disparities, and social inclusion.** The poor have limited access to basic services and infrastructure, including clean water, education, health care, and electricity. Lack of access to markets and services—and indeed social exclusion more broadly—

¹ Estimates are based on the Integrated Household Living Conditions Assessment (2005) and Myanmar Living Conditions Survey (2017).

² World Bank.2019. "Myanmar Living Conditions Survey 2017: Poverty Report 03." World Bank, Washington, DC.

³ World Bank. 2020. "East Asia and the Pacific in the Time of COVID-19." *East Asia and the Pacific Economic Update* (April). World Bank, Washington, DC.

⁴ Myanmar has four AEZs, (Central) Dry, Hills and Mountains, Delta, and Coastal (refer to annex 8).

⁵ World Bank. 2017. "An Analysis of Poverty in Myanmar: Part 02-Poverty Profile." World Bank, Washington, DC.



correlates with location, ethnicity, religion, and citizenship status. Gender equality indicators have slowly improved in recent years, but social norms continue to largely delineate spaces available to men and women, significantly affecting, among other things, women's access to the labor market. A recent study shows that there is a gender gap in access to land since the certificates are normally issued to household heads who largely are male household members.⁶

5. The socio-economic needs of communities in one-third of Myanmar's townships are further compounded by the direct and indirect effects of armed conflict.⁷ There are about two dozen major ethnic armed organizations (EAOs) located in the country who have been working to secure greater political, economic, and social freedoms for ethnic minority groups. The signing of several bilateral ceasefires from 2011 to 2015, and the Nationwide Ceasefire Agreement (NCA) signed by eight EAOs in 2015 followed by another two in 2018, led to some progress toward peace. However, there has been limited progress in the political dialogue around the NCA since then, and about 10 EAOs, including some of the largest in the country, remain outside of the NCA process. Fighting continues in Rakhine, Chin, Shan, Kachin, and Kayin states. Over the past decades, Rakhine State has seen multiple rounds of conflict, notably in August 2017 when violence led to the forced displacement of more than 730,000 people who self-identify as Rohingya Muslims⁸ into Bangladesh. This violence has exacerbated communal tensions and deepened social fractures. The Myanmar Humanitarian Response Plan for 2020 identifies more than 273,000 internally displaced people in the country.

B. Sectoral and Institutional Context

6. Agriculture plays a vital role in reducing poverty in Myanmar, and further progress in the sector will remain important as the economy continues to evolve. Agriculture is the source of livelihood for nearly 70 percent of the population and accounts for nearly 30 percent of national GDP and merchandise exports. The agri-food system accounts for some 42 percent of GDP when forward and backward linkages to primary agriculture are considered. Agricultural growth has significantly helped to reduce poverty. The government's Agricultural Development Strategy (ADS) recognized agriculture's role in achieving food security, increasing foreign exchange earnings through exports, and driving rural development. Indeed, according to the Myanmar Sustainable Development Plan, 2018–30 (MSDP), "agriculture and [small and medium enterprise (SME)] sectors are prioritized as important sources of job creation." More than one-third of the work force identified farming as their primary source of employment and 16 percent are agricultural laborers. The employment share in services and industry was 36 percent and 12 percent, respectively.

7. As noted previously, COVID-19 has created disruptions in the agriculture sector that could significantly affect the rural poor and vulnerable groups. Progress in the agricultural sector has accounted for at least half of the country's poverty reduction between 2005 and 2015. It is the main sector of employment for the poor with 85 percent of the rural population living in a household with one or more members engaged in agriculture. Thus, losses in income from agricultural activities could have a large impact on national poverty. The government's response to contain the spread of COVID-19—including the temporary shutdown of wet markets and animal feed factories, movement restrictions that contribute to labor shortages on- and off-farm, the disruption of logistics and transport systems, and tightened restrictions and the slowing of cross-border flows—has created disruptions in the agriculture and food system. These measures also disrupt the flow of food between production and consumption centers as well as access to essential input markets. Domestic supply chain disruptions have resulted in market losses and increased feed costs to poultry farmers and SMEs.

⁶ MOALI. 2019. Social Assessment - Peaceful and Prosperous Communities Project. P168107.

⁷ The Asia Foundation. 2017. The Contested Areas of Myanmar: Subnational Conflict, Aid, and Development.

⁸ In line with the Report of the Advisory Commission on Rakhine State (2017), the remainder of the document will refer to those who self-identify as Rohingya as "Muslims" or "the Muslim community in Rakhine". This does not include the Kaman Muslims in Rakhine or other Muslims in the country.



The cattle meat market is significantly affected as it is heavily dependent on border trade with China, which has tightened border controls. Recent estimates show that Myanmar's poverty rate could increase from 24.8 to 28.4 percent if incomes from agriculture were to decrease by 50 percent in one quarter. It could increase to 32.3 percent if the decline lasts two quarters.⁹ This means that among people living in agricultural households, poverty would increase by two million to four million people, respectively. To continue reducing poverty in the country, it is critical for the government of Myanmar (GoM) to proactively respond to the potential effects of COVID-19 on the agricultural sector.

8. The COVID-19 crisis could affect agricultural production through its effect on the rural labor market, where the crisis has resulted in both agricultural labor shortages and large-scale rural unemployment. COVID-19-related travel restrictions led to labor shortages for the timely harvesting of fruits and other agricultural crops. If mobility restrictions continue, labor shortages may have detrimental effects on the monsoon paddy planting and the harvesting of other crops. Given that rice planting is a labor-intensive activity in Myanmar, labor shortages will significantly affect rice production. Myanmar received about 80,000 returnees from neighboring countries (including China, Malaysia, and Thailand), resulting in increasing unemployment. Income losses from remittances means that many households will not be able to afford hired labor. The future of the returnees will largely depend on the situation in the countries they returned from and on the procedure these countries apply to receive migrants back. With appropriate measures, agriculture can play a critical role in absorbing some of these returnees, by re-engaging them in the agriculture sector, or by providing cash for work activities under irrigation schemes and community infrastructure, while at the same time minimizing the risk of labor shortages in the sector. Agriculture has served as a shock absorber in previous economic crises, such as the Asian and global financial crises, when urban or international migrants lost their jobs and returned to their rural families.

9. The availability of food is not yet a major source of concern, but the COVID-19 crisis poses potential risks through multiple channels. In the short to medium term, the disruption of economic activity due to the lockdown is likely to affect incomes of the rural poor who not only rely on labor but also farmers, rural entrepreneurs, and small businesses and services who are at the frontline of the disrupted supply chains. The upstream activities relating to farming (such as the supply of agricultural inputs and services) face major bottlenecks as access to inputs for production are constrained, while transportation of inputs is disrupted as truckers, stevedores, and other transport workers stay home from work and airports, ports, rail, road, and other transport channels have slowed or shutdown due to increased screening and border closures. As a result, farmers and other actors in the food supply chain may find it difficult to plant and harvest as well as transport and sell their produce. Despite the COVID-19 pandemic, appropriate measures need to be taken for agriculture production to continue, and thus mitigate the food insecurity risks and possible increases in rural poverty levels. Labor-intensive development and management of infrastructure can help address the temporary high unemployment levels and improve agriculture productivity in the longer term by securing access to irrigation and improving drainage facilities during the 2020 monsoon season and beyond.

10. Myanmar's agriculture has ample potential for growth and value addition and for inclusive rural growth and poverty alleviation. Myanmar has abundant natural resources, a youthful workforce, and diverse farming systems. Its relatively untapped upstream and downstream agricultural value chains have a clear competitive advantage to meet the increasing food demand from the growing middle class in the country and the region. Increasing urbanization and income growth are also changing the dietary preferences and spending patterns of the population. All these developments are

⁹ EAP Economic Update: East Asia and the Pacific in the Time of COVID-19. March 23, 2020.



expected to accelerate and create growth opportunities for farmers and the private sector across all segments of the value chain and contribute to overall sectoral growth.

11. Yet, the pace of agricultural growth remains slow and unstable, primarily attributed to low productivity. Agriculture grew by an average of 2.5 percent annually between 2010 and 2017, and by 1.3 percent in 2017/18. This growth was roughly half the rates in China and Thailand during the same stage of their economic transformation. Myanmar's paddy productivity, both land and labor, is among the lowest in Asia. Non-paddy crops (including beans and pulses, fruits and vegetables, tea, and oil) have shown stronger yield growth in the past few years and provide opportunities for export growth and improving nutrition. Low productivity is the result of multiple factors, including the inadequate supply of public goods, such as agricultural research and extension services; the low supply of certified and improved seeds; low input (fertilizer and chemicals) quality; and poor knowledge among farmers about proper fertilizer usage. The COVID-19 pandemic is likely to increase these challenges by reducing farmers' access to agricultural inputs and creating disruptions in market infrastructure and logistics, which will affect input supply and distribution with likely price effects. The possibility of input supply delays due to border closures, export restrictions depressing prices, and difficulties in access to domestic buyers, affects farming decisions and productivity in the coming crop seasons in 2020 and beyond.

- **Seeds.** Close to 80 percent of farmers in Myanmar are still using ordinary seeds, whereas the remaining use either certified or hybrid seeds. These farmers largely use their own saved seeds. The public seed production system currently focuses on hybrid rice varieties and needs to broaden its scope to include planting materials for a more diverse range of other crops, including horticulture crops. Myanmar enacted a Seed Law in 2011, which established the rules and regulations for the seed sector related to the government, seed laboratories, and private companies engaged in the seed business. However, private sector involvement in seed production and multiplication has been limited, because of the lack of technical support, access to finance, and difficulties of doing business. While the Seed Policy (2011) aims to promote the supply of quality seeds through private sector participation, the country has insufficient facilities for certification, quality control, and testing.
- **Fertilizers.** Farmers often underapply or overapply fertilizers, as they have insufficient knowledge about the fertility of their soils. This is compounded by the lack of access to appropriate tools, such as mobile testing laboratories that undertake onsite soil fertility tests. Fertilizer quality is a widespread concern in Myanmar since most stakeholders—including farmers, government officials, and many in the private sector—do not have confidence in the quality of the fertilizers available in the country.¹⁰ These apprehensions include adulteration problems (for example, mixing of granular single superphosphate with granular triple superphosphate and selling it as the latter, or adulteration with inferior products); mislabeling of bags to mislead farmers about the brand of fertilizer; and selling in undersized bags. According to a 2014 Organization for Economic Co-operation and Development (OECD) report, most farmers surveyed indicated that they were unable to determine whether the fertilizer purchased (either imported or purchased domestically) was adulterated.¹¹ This calls for the Department of Agriculture (DOA), which is responsible for fertilizer inspection, to strengthen its quality assurance services.
- **Agricultural extension.** Farmers' access to agricultural extension services is limited, due to weak institutional capacity. The ratio of extension staff to farm family is low (nearly 1 to 585, where an extension worker covers 5,081 acres of cropland).¹² In addition, the extension outreach was geared mostly toward paddy crops. There is

¹⁰ International Fertilizer Development Center (IFDC), 2018.

¹¹ OECD Investment Policy Reviews: Myanmar 2014.

¹² "Current Status of Agricultural Extension in Myanmar. MOALI, 2017.



an insufficient number of extension officers to transfer the appropriate knowledge and technologies to farmers for paddy and non-paddy crops and to provide the necessary feedback from the farmers to the agriculture research community. This is particularly true in Myanmar's more rural zones, as well as in areas that are considered conflict-affected. Not only will this limited extension coverage adversely affect the capacity of extension agents to support farmers to improve their farm productivity, but it will also affect the capacity development of farmers on the downstream side, such as access to markets. The government is keen to revitalize the extension system by enhancing technical capacity and increasing efficiency and coverage, including by using digital technologies. The COVID-19 crisis has exposed the limitations of the traditional agricultural extension system where extension agents visit farmers or organize farmer meetings, which are currently not allowed due to movement restrictions.

- **Agricultural research.** Agriculture research and development (R&D) is underfunded and fragmented. It also suffers from weak human resource capacity. The median share of agricultural growth and poverty reduction effects attributed to agricultural research are estimated to be 15 percent and 10 percent, respectively. Yet, agricultural research was the most underfunded function in the sector. In 2016/17, Myanmar's total spending on agricultural research was a meager 0.04 percent of agricultural GDP, which is 15 times less than the average in other Asian countries and 62 times less than the average in developed countries. Agricultural research is also fragmented across many agencies, without close collaboration among them. It suffers from significant gaps in human resources, which limits the capacity to translate agricultural research findings into improved farming practices. Largely because of limited resources, current efforts tend to explore technologies that mostly benefit larger-scale agriculture in the country's Central and Dry AEZs. Broadening this program, through decentralization efforts of agriculture research to other regions, in a targeted manner, will considerably benefit smallholders in mountainous and coastal areas, including ethnic minority and conflict-affected communities.

12. **Growth in the sector has been volatile due to the damaging impact of climate change and extreme weather events, such as El Niño.** In 2012, Myanmar was ranked the country most at-risk to climate shocks within Asia-Pacific, due to the wide range of hazards, including floods, cyclones, earthquakes, landslides, and tsunamis. In addition, it ranked second out of 187 countries in the Global Climate Risk Index during 1999-2018.¹³ In 2015/16, for instance, the El Niño event and the accompanying drought in the central and dry areas resulted in a significant drop in the production of key export crops, such as sesame, beans, and pulses. Agriculture growth recovery since El Niño has been slow. According to Myanmar's Climate Change Strategy and Action Plan (MCCSAP) 2016–30, there will be a general increase in temperature, with more days of extreme heat and rainfall and other extreme weather events like droughts, floods, and cyclones. These extreme weather events will result in high demand for irrigation water in pre- and post-monsoon periods. The MCCSAP, which builds on the 2015 Intended Nationally Determined Contribution (INDC) and Myanmar's Climate-Smart Agriculture (CSA) Strategy (2015), indicates that the agriculture, fisheries, and livestock sectors should adopt climate-resilient and environmentally sound adaptation technologies and climate-smart management practices, supported by international and domestic finance. These include applying new technologies and modifying existing ones to enable the adoption of CSA practices. To conduct the necessary systematic research, Myanmar requires the support of technical experts, access to modern tools, and relevant apparatus.

13. **Myanmar's agricultural policies that primarily focused on paddy crops have limited diversification in the sector, with undesired implications for nutrition.** According to the 2017 Public Expenditure Review, spending on irrigation (54

¹³ Global Climate Risk Index 2020.



percent) and on extension services focused on rice, at the expense of other diverse and profitable crops. While the ADS envisions the sector's shift toward diversification and away from rice concentration, rice still accounted for 35 percent of agricultural output and pulses and beans accounted for another 17 percent. Together, these crops constituted just over 67 percent of gross crop output in 2016, only slightly lower than their 72 percent share a decade earlier. Rice, pulses, and beans occupy about 75 percent of the cultivated area in Myanmar, with rice occupying about 60 percent of the total sown acreage. Myanmar is experiencing some increased production of livestock products, fisheries, fruit, and various industrial crops (including tea and cotton). Owing to increasing incomes in urban areas and the recent increase in agricultural diversification, about 15 percent of rural households are estimated to earn some income from producing horticultural products, thereby also facilitating more diverse diets. Investment in diversification also stands to benefit parts of the country which are, on average, more likely to be conflict-affected and where ethnic minority groups reside. These largely upland zones have received comparatively little technical and material support in the agricultural sector to date.

14. Besides the farm-level challenges, Myanmar's agriculture sector has been characterized by limited value-addition, primarily due to poor value-chain facilities and services. The COVID-19 pandemic has further exposed weaknesses in market infrastructure and logistics. Exports of agricultural raw materials accounted for one-third of Myanmar's merchandise trade in 2017 (compared to just 13 to 14 percent in both Thailand and Vietnam). Although this share already represents a slight decline compared to previous years, it is considerably higher than in other countries in the region. Imports of agricultural raw materials represented a smaller share of overall merchandise imports, at 15 percent of the total in 2017, but this share was also among the highest observed in the region. These findings suggest that a lot of the value addition is happening outside the country. The primary factor limiting value addition is poor value-chain infrastructure, which inhibited the establishment of forward and backward linkages within the agriculture and food system. Poor or costly drying infrastructure, inadequate storage, cold chain and processing facilities, and limited quality assurance services hinder farmers and agribusinesses to add value to their produce. For instance, studies reported an estimated post-harvest loss of 25 to 40 percent of total fresh horticulture produce because of factors such as: (a) improper time of harvest; (b) inadequate post-harvest technologies and treatment, processing, and storage facilities, impeding consistency in quality; and (c) high transport costs.¹⁴

15. Myanmar's agriculture exports have been constrained by a poor enabling environment, including restrictive regulatory systems and weak institutions as well as standards and infrastructure that are not on a par with international standards. Myanmar launched the Good Agriculture Practice (GAP) Protocol and Guidelines Program in 2017, with support from the International Finance Corporation (IFC). Yet, it has been adopted by less than 500 farmers.¹⁵ Lack of accredited laboratories, limited use of certified seeds, poor mapping of soil fertility, and inefficient fertilizer application are among the limiting factors to expand GAP adoption. Myanmar's regulatory agencies are resource constrained, lacking sufficient certified laboratories, testing equipment, and qualified operational personnel.¹⁶ Accreditation toward international standards, such as International Organization for Standardization (ISO) 17025,¹⁷ as well as other sector-specific accreditation schemes (like sugar and seeds testing), will help improve the enabling environment for Myanmar agriculture to become competitive in the global market and ensure compliance with the highest sanitary and phytosanitary measures. There are only a few accredited 17025 laboratories in the country. It is important to address the constraints faced by these

¹⁴ GAFSP (Global Agriculture and Food Security Program). 2016. Agribusiness Country Diagnostic - Myanmar.

¹⁵ IFC.2020. Implementing Good Agricultural Practices in Myanmar.

¹⁶ OECD. 2015. Development Pathways Multi-Dimensional Review of Myanmar Volume 2. In-depth Analysis and Recommendations.

¹⁷ ISO 17025 is the international standard for testing and calibration laboratories. It is a set of requirements those laboratories use to show that they operate a quality management system and that they are technically competent.



agencies, identify and develop trade strategies, and establish partnerships with the private sector to effectively support these strategies while the government retains oversight and legal authority over their implementation.

16. Myanmar has been transitioning from a country with a centrally planned economic system, in which production and marketing were controlled by the government, to a country that encourages the private sector to participate in production and value chain development. At the same time, the continuous fragility and conflict have been detrimental to private sector participation in agricultural value chain development. Myanmar's economy is transforming, and there is need to leverage the power of competition and create space for the private sector to generate inclusive economic opportunities, service delivery, and access to markets. However, structural transformation remains incomplete and is impeded by a restrictive business climate and the high cost of doing business, especially for SMEs. Myanmar is ranked 137 (of 160 countries), according to the 2018 World Bank Logistics Performance Index, the lowest in the Association of Southeast Asian Nations (ASEAN). Linkages to global value chains are largely underdeveloped. About 40 percent of the population, mostly in rural areas, lacks basic access to all-season roads, limiting access to markets.

17. Agricultural fragmentation and a predominance of poorly organized smallholders are key challenges to create strong market linkages for farmers. The sector is dominated by small-scale farmers who are not well organized, limiting opportunities to achieve the economies of scale needed for the development of SME agribusinesses. While they comprise three-quarters of the farm households, small-scale farmers hold just 27 percent of the net sown area in the country.¹⁸ These farmers are less attractive for private input suppliers and output buyers because the average costs of input provision or aggregating outputs to and from these farmers are quite high. This also implies costly service delivery. They are therefore likely to be excluded from forward and backward linkages in agricultural value chain development, such as from contract-farming schemes. Unless they receive adequate capacity building on establishing groups and cooperatives, individual farmers will have significant challenges and limited bargaining power to play key roles in value chain development, especially in creating strong market linkages with buyers. Myanmar's Fruit, Flower, and Vegetable Producer and Exporter Association (MFFVPEA) has been organizing its members (farmers, traders, and other value chain actors) into "clusters" to improve product quality and (export) market linkages for some value chains. Consultations with representatives of the MFFVPEA indicated that the cluster approach has been vital in enhancing farmer linkages with other value chain actors such as crop buyers, wholesalers, distributors, exporters, and suppliers of support services. Some of the relatively successful clusters include mango and small farmer schemes such as the potato groups and farmer markets.

18. There remains a gender gap in productivity due to the limited access to information, technologies, services, and resources among women farmers. There exists qualitative and anecdotal evidence showing productivity gap between women and men farmers that is primarily because of the gender gap in "access" to information, technologies, extension services, and resources such as credit and agricultural land.¹⁹ Evidence shows that only 22 percent of women farmers have access to extension services.²⁰ The data also show that there is a gender gap in access to extension information and communication technologies, as men in Myanmar are 10 percentage points more likely than women to report mobile phone or internet usage. According to another study²¹ that uses focus group discussions in Myanmar, the low access to extension service of women farmers could be related to invitations to meetings and trainings that were typically extended only to men (although women were keen to participate). Moreover, women are less likely to have access to information

¹⁸ FAO. 2016. Social Inclusion and Gender.

¹⁹ FAO, MOALI and UN Women.2016. Including Women and their Priorities in Agriculture

²⁰ ADB, UNDP, UNPF, and UN Women. 2016. Gender Equality and Women's Rights in Myanmar: A Situation Analysis.

²¹ Akter, et al. 2017. Women's empowerment and gender equity in agriculture: A different perspective from Southeast, Food Policy, Vol. (69).



and markets, because of limited mobility, especially in conflict-affected areas.²² Women are also expected to do agricultural work—such as breeding small livestock, cultivation and planting, weeding, collecting fuel and water, tending kitchen gardens, preparing food, and small trading or marketing. Women are also involved in the processing of agricultural products. Yet, women tend to be overlooked in agricultural technology support.²³ As a result of these inequalities, men farmers produce on average over 10 percent higher output per farm than female farmers (6.43 tons for male farms and 5.82 tons for female farms).²⁴

19. The impact of the COVID-19 crisis is likely to be disproportionately higher on women and other vulnerable population groups (VPGs). Because of lower market power vis-à-vis input suppliers and output traders, costs for inputs are often higher and prices for output typically lower for female relative to male farmers and for small-scale than large-scale farmers. As commercial transactions are affected by COVID-19 movement restrictions, the risk is that weaker bargaining power may exacerbate the impact of the crisis on women and other VPGs relative to men and wealthy farmers. Similarly, with relatively small-scale farms, increases in transport costs due to supply chain disruptions may create a disincentive for an intermediary to purchase output from smallholders and prioritize large-scale farmers with larger volumes of output per trip or transaction. Furthermore, due to women's frontline interactions as key players as caregivers and healthcare providers, and in food markets, they face a higher risk of exposure to COVID-19. One solution to reduce the vulnerability of women and other smallholder farmers is to lower their transaction costs by aggregating the demand for inputs and the supply of outputs and coordinating all payments and disbursements of products. This would also increase their market power and reduce physical contact with market actors, which can be done by fostering and leveraging networks of female and smallholder farmers at the community level through existing self-help groups or other women's groups.

20. Myanmar is well positioned to leverage the power of digital technologies to enhance the coverage and efficiency of its agriculture extension system to reach small-scale farmers, women, and other VPGs, including those in remote and conflict-affected states and regions where access to agriculture services is constrained. In addition to near-universal cellphone coverage, Myanmar has one of the highest smartphone penetration rates (80 percent) in developing countries. Agricultural extension workers could use digital applications that could easily run on their mobile phones to more efficiently serve a greater number of farmers. Extension services, such as soil testing geo-tagged to the farmer location and mobile number, combined with weather information, could provide customized information on appropriate fertilizer application. Market information can easily be collected, aggregated, analyzed, and disseminated to farmers using text and other instant messaging services. Applications, such as a disease identification app that use a smartphone camera and artificial intelligence (AI) technology, can be made available with a relatively small investment. These technologies can also mitigate COVID-19 impacts on farmers by raising awareness on COVID-19 and food safety, among other issues. Such digital platforms and services can also serve as a foundation for immediate financial response in future crises.

21. The sectoral transformation will require a shift away from the traditional strategy of food self-sufficiency toward a resilient, inclusive, competitive, and environmentally sustainable (RICE) agriculture and food system that takes advantage of Myanmar's diverse farming systems with a greater private sector engagement.²⁵ With the COVID-19 pandemic situation, it has become even more important and urgent to strengthen institutional capacities to manage an

²² FAO, MOALI and UN Women.2016. Including Women and their Priorities in Agriculture

²³ OXFAM. 2014. Delivering Prosperity in Myanmar's Dry zone: Lessons from Mandalay and Magwe on Realizing the Economic Potential of Small-scale Farmers.

²⁴ World bank, 2019. *Myanmar Rice and Pulses: Farm Production Economics and Value Chain Dynamics*. World Bank, DC

²⁵ World Bank, 2019. From rice to RICE, Integrated strategies for MMR to realize a more resilient, inclusive, competitive and environmentally sensitive food system.



emerging array of risks, including those related to nutrition, environment, economic inclusion, and conflict. Myanmar has the potential to expand its range of agricultural export products and destinations. It has had some success in doing so. Myanmar's National Export Strategy (NES) has identified several priority sectors, including agricultural subsectors, through which it will strengthen sustainable, inclusive, export-led growth.²⁶ Building on its NES, Myanmar could identify several candidates for further value chain development, in particular: fruits and vegetables, tea, cotton, and livestock, which can integrate smallholders to markets for high-value products. Investments, especially in the horticulture and livestock sectors, can promote inclusive growth, since women are particularly active in these sectors while men dominate the trading of paddy, pulses, and oilseeds.²⁷

C. Relevance to Higher-Level Objectives

22. **The proposed project will be an important platform for the implementation of the government's COVID-19 Economic Relief Plan (CERP), which was announced on April 27, 2020.** The National Food and Agriculture System Project (NFASP) will support several action plans proposed in the CERP, which seeks to mitigate the economic impacts of COVID-19 and to facilitate the country's economic recovery. The NFASP will support a timely response to alleviate the impact of COVID-19 on agriculture. With this project, the Ministry of Agriculture, Livestock, and Irrigation (MOALI) will be able to effectively implement the CERP's action plan 2.1.7 "*Support to Farmers, Small Agri-Processors, Seed Farmers and Agri-Businesses for Planting and Income Retention.*"

23. **Leveraging agriculture for economic growth and rural poverty reduction is a top government priority, and this is recognized in the ADS (2018/19–2022/23).** The ADS identified three priority areas requiring support: (i) governance, (ii) productivity, and (iii) competitiveness. Under the governance pillar, MOALI emphasized institutional strengthening to enhance the "capacity of government to design, formulate, and implement policies and discharge functions." Under the productivity pillar, the ADS focuses on: (i) effective agricultural research and extension; (ii) efficient use of agricultural inputs; (iii) sustainable practices and use of natural resources; and (iv) increased resilience to climate change and disasters. Under the competitiveness pillar, the ADS points to the "integration of farmers and agro-enterprises in Myanmar into effective value chains to promote competitiveness in regional and global markets via transforming agriculture from subsistence farming to profitable commercialization." The proposed project is expected to contribute primarily to pillars II and III and secondarily to pillar I. The project will also contribute to achieving Myanmar's INDC goals. It will enhance research capacity for improved adoption of climate-resilient and environmentally sound adaptation technologies and practices, and boost agricultural product quality, safety, and sustainability.

24. **The MSDP 2018–30, which is the government's master plan for development, recognized the agriculture sector as a priority and sets a framework for its sustainable growth.** The MSDP recognizes the agriculture sector's relevance for poverty reduction. In particular, the MSDP views agriculture as playing a central role in two of its pillars: Pillar 2: *Prosperity and Partnership*, whereby the focus is to create an enabling environment conducive to achieving a diverse and productive economy through agriculture and rural development for rural poverty reduction; and Pillar 3: *People and Planet*, whereby the environmental sustainability of agriculture is emphasized. MSDP's strategy (3.1) for *Creating a diverse and productive economy with rural development and agriculture as the foundation* stresses addressing Myanmar's low productivity, supporting value chain development, increasing private sector participation, and eventually boosting agricultural

²⁶ The Republic of Union of Myanmar National Export Strategy, Ministry of Commerce, 2015.

²⁷ A Strategic Agricultural Sector and Food Security Diagnostic for Myanmar, 2014



competitiveness. The proposed project will directly contribute to the achievement of MSDP's objectives by supporting value chain development and agricultural competitiveness.

25. The project supports the World Bank's twin goals of ending extreme poverty and promoting shared prosperity. It is also closely aligned with the FY20-FY23 World Bank Country Partnership Framework (CPF; Report No.147607-MM). Rural poverty reduction is outlined as a focus area with several objectives, including increasing productivity in farming and agribusiness and addressing critical infrastructure and service gaps for the rural poor. The CPF continues its support for rural poverty reduction through rural growth. The proposed project contributes to all three focus areas of the CPF. The project aims to increase private sector participation in agricultural value chains, both upstream and downstream of the value chain. This is aligned with the second focus area of the CPF: *Fostering responsible private-sector-led growth and inclusive economic opportunities*. The proposed project also finances agricultural support services and improved farming technologies that will enhance farmers' resilience to climatic risks, which is the third focus area of in the CPF: *Enhancing climate and disaster resilience and sustainable natural resource and environmental management*. The project will promote inclusion by organizing small farmers into groups to facilitate better access to services and markets, including expanding the coverage of extension services and farmer trainings to marginal and vulnerable population groups, which is in line with the first focus area of the CPF: *Building human capital and fostering peaceful communities*.

26. The proposed project is aligned with the World Bank Group's corporate approach for mobilizing finance for development. The GoM's ADS (Pillar III) recognizes the importance of crowding-in private sector financing into the agriculture sector, particularly for value chain development and export promotion. The project acknowledges the key role the private sector could play in the agriculture sector. It supports several activities to both remove binding constraints to and facilitate value chain linkages between farmers and rural entrepreneurs and buyers through public-private partnership platforms. Project investments to mobilize private finance include the construction or upgrading of existing value chain infrastructures and facilities, such as production collection centers, drying facilities, post-harvest storage structures, processing facilities, and other government-owned facilities. Areas where the engagement of the private sector has been low or nonexistent are research, demonstration, extension services, input supply improvement, and international standard laboratories. These areas could greatly benefit from the promotion of private sector participation. As advocated by the ADS, the GoM is committed to improving the enabling environment for businesses and service delivery to value chain actors while promoting commercially oriented approaches. Progress in improving these value chain linkages would contribute to increased investment by midstream and downstream value chain actors, increased exports, and larger numbers of co-financing arrangements and fee-based businesses in laboratory management.²⁸

27. The project will, in the medium to long run, contribute to improved nutrition, which is a key priority for the GoM. The project will enhance productivity and promote diversified agriculture production by supporting non-paddy crops. It will strengthen the capacity of extension officers to improve household knowledge about diet diversity and nutrition. The project will support the enhancement of the nutritional content of crops (for example, research on and dissemination of biofortified crops) through biotechnology. These activities will contribute to improved nutritional outcomes in making available nutrient-rich, diverse, and safe foods that are part of a high-quality diet. Better nutrition will contribute to improving the human capital of Myanmar in the long run. The project will coordinate with the ongoing nutrition program to ensure its effectiveness (the European Union's budget support to nutrition and food security sector and the World Bank's Maternal and Child Cash Transfers for Improved Nutrition Project [P164129]).

²⁸ MOALI already has a successful experience in private sector participation in the fishery sector.



II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

28. The Project Development Objective (PDO) is to increase agricultural productivity and diversification and to enhance market access for selected value chains in the project area, and respond to an eligible crisis or emergency.

PDO Level Indicators

29. The key PDO-level results indicators include the following:

- Increased yield of the selected value chain commodities²⁹ (percent)
- Increased area of non-paddy crops (ha)
- Increased sales of targeted farmers participating in value chain clusters, disaggregated by gender (percent)
- Farmers reached with agricultural assets or services (Corporate Results Indicator, disaggregated by gender, smallholder farmers, and vulnerable population group; number).

B. Project Components

30. The project has four components and has applied the Inclusion and Peace Lens (IPL) across components. The IPL is a series of questions aimed at ensuring that projects are inclusive; that they “do no harm” in general and specifically in conflict affected areas; and that they support peacebuilding where possible. The project aims at “economic inclusion” of smallholder farmers, including small-scale cattle farmers, with a strong focus on VPGs, returning migrants, and women, who are more likely to be excluded from agriculture-related interventions.

31. As an immediate response to the COVID-19 pandemic,³⁰ the project will finance the restoration of the agriculture supply chain by supporting farmers’ timely access to inputs, which has been disrupted by the global and local lockdown and limited movement. At the recovery stage, the project will support the strengthening of the agriculture sector by developing digital extension services to raise awareness about COVID-19 and food safety; strengthening digital agriculture technology; developing online transaction platforms for inputs; and supporting value-chain development such as by linking farmers with markets. The project will strengthen and accelerate the ongoing agricultural systems transformation in the country and improve the institutional capacity of the agricultural research and extension systems and the enabling business environment for an expanded private sector role in the selected value chains. The project will also support Myanmar’s agriculture sector to become resilient to future global shocks by investing in testing and certification facilities which are in compliance with international standards, to enable Myanmar to diversify trade destinations.

32. **Component 1: Agriculture Productivity Enhancement and Diversification (US\$138.43 million).** This component focuses on improving agricultural productivity and diversification at the farm level by: (a) strengthening the agricultural R&D system; (b) improving the quality and utilization of agricultural inputs; (c) strengthening agricultural extension services, including through the use of digital technologies; and (d) improving the irrigation and drainage infrastructure, which will provide support to poor rural households through labor-intensive cash-for-work (CFW) activities. As an immediate response to COVID-19, the project will support farmers to access agriculture inputs and will generate labor-intensive work to employ the rural population, particularly returnees from outmigration. It will also provide support to

²⁹ The preliminarily selected value chains include fruits, tea, cotton, and meat (cattle) value chains. Others may be added based on criteria set out in PIM.

³⁰ The project is processed under OP/BP 10.00, Paragraph 12 in order to avail from expedited processing of the project under condensed procedures, pursuant to the Bank's procedure Preparation of Investment Project Financing –Situations of Urgent Needs of Assistance or Capacity Constraints.



the delivery of COVID-19-related communications and other extension services through digital platforms (including short and multimedia messaging services, social media, web-based video conferencing, and other machine-assisted communications). It aims to enhance the knowledge of and access to technologies by farmers and agri-enterprises to make Myanmar's agriculture more productive and diversified, responsive to market demands, and more climate-resilient.

33. ***Subcomponent 1.a: Strengthening Agricultural Research and Development System.*** The project will strengthen the national R&D system to make it more responsive to farmers' needs, market demands, and emerging needs in terms of reducing climate vulnerabilities and improving climate resilience. The project will support: (a) upgrading selected regional R&D facilities under the Department of Agriculture Research (DAR) of MOALI to facilitate decentralization of agricultural research; (b) carrying out capacity building activities for MOALI's research staff and supporting research on climate-resilient crop varieties and climate-smart agriculture; and (c) carrying out capacity building activities to adopt farmers' participatory research at selected regional research and development facilities.

34. A preliminary list³¹ of regional research and development facilities was identified during preparation in accordance with the presence of existing regional research centers and farms that require upgrading to provide better quality of research in the local area. The list includes existing research centers and farms in those townships with high levels of monetary and nonmonetary poverty (as captured by the Multi-Dimensional Disadvantage Index or MDI) and in those townships with a high concentration of ethnic minorities, especially in the Hills and Mountain AEZs. It also includes the existing research centers and farms in conflict-affected townships, such as Kyaukme, Kentung and Lashio (Shan), Mohnyin (Kachin), Loikaw (Kayah), and Dawei (Tanintharyi). These facilities are existing government facilities and the catchment areas are in the vicinity of these facilities. As described in annex 3, due diligence will be conducted during the first two years of implementation prior to the final selection of these townships, including conflict analysis and consultation with the full range of stakeholders, including ethnic minority groups, ethnic service providers, and, where feasible and in line with due diligence responsibilities, EAOs. The list will be kept updated in the Project Implementation Manual (PIM).

35. ***Upgrading regional research facilities.*** The project will facilitate decentralization of agricultural research to the regions and states by upgrading the existing regional research centers and regional research farms under the DAR. The decentralization process is expected to effectively respond to localized needs for agricultural technologies and knowledge and to promote better coordination and linkages between agriculture extension services and the agricultural research system at regional and township levels. The decentralization will provide tailored solutions for each region, which will help improve climate resilience.

36. ***Strengthening research capacity for Climate Smart Agriculture (CSA) and marketable crop varieties.*** The project will strengthen the research capacity of the staff of the selected regional research centers and regional research farms by upgrading their knowledge on climate resilient varieties and by supporting research on new climate-smart technologies,

³¹ Myaungmya Regional Research Center, Myaungmya Township, Ayeyarwady Region; Magway Regional Research Center, Magway Township, Magway Region; Letpandon Regional Research Center, Letpandon Township, Eastern Bago Region; Maeaungkan Tropical Fruit Research Center, Yamethin Township, Mandalay Region; Thegon Vegetable Research Center, Thegon Township, Eastern Bago Region. Tatkon Regional Research Farm, Tatkon Township, Naypyitaw; Sibin Regional Research Farm, Yamethin Township, Mandalay Region, Myingyan Regional Research Farm, Yamethin Township, Mandalay; Kyaukse Regional Research Farm, Kyaukse Township, Mandalay Region; Myitthar Cotton Research Center, Myitthar Township, Mandalay Region; Kyauktatar Regional Research Farm, Pyin Oo Lwin Township, Mandalay Region; Naung U Tropical Research Center, Naung U Township, Mandalay Region; KinPonTaung Sugarcane Research Center, Taungdwingyi Township, Magway Region; Zalote Regional Research Center, Monywa Township, Sagaing Region; Pankone Regional Research Farm, Ye U Township, Sagaing Region; Mohnyin Regional Research Farm, Mohnyin Township, Kachin State; NaungMon Regional Research Farm, Lashio Township, Northern Shan State; Kyaukme Regional Research Farm, Kyaukme Township, Northern Shan State; Aung Ban Regional Research Center, Kalaw Township, Southern Shan State; Taryaw Regional Research Farm, Taunggyi Township, Southern Shan State; HtoonBo Vegetable Research Farm, Taunggyi Township, Southern Shan State; Kengtung Regional Research Farm, Kengtung Township, Eastern Shan State; Liokaw Regional Research Farm, Liokaw Township, Kayah State; Azin-2 Regional Research Farm, Mudon Township, Mon State; Dawei Regional Research Farm, Dawei Township, Tanintharyi Region; Naypyitaw, Myanmar.



climate-resilient crop varieties and seeds, and marketable crop varieties (particularly non-paddy), and examine opportunities to improve the climate resilience of existing agricultural supply chains. These include fruits and vegetables, which will be promoted in the selected areas under Component 2 (see table 5.1 in annex 5).

37. *Adopting farmers' participatory research.* The project will support carrying out capacity building activities to adopt farmers' participatory research at the supported regional research centers and research farms. Rigorous communication will be conducted through existing networks, such as farmers TV, village-level farmers groups, and lead farmers, as well as township-level extension workers, on participatory research opportunities. The communication campaign will reach out to smallholder farmers (owning less than five acres of land) and VPGs, which are defined as the segment of the population that includes ethnic and religious minorities, economically and socially disadvantaged people (like the landless), and farmers in conflict-affected, remote, and geographically disadvantaged areas as well as female-headed households and women farmers. Participatory research is expected to improve responsiveness to farmers' localized demands and needs through direct discussions; consultations and testing on locally adaptable marketable crop varieties; climate-resilient crop varieties and seeds; and CSA technologies.

38. Further, the project will support regional research centers and farms to hold on-farm demonstrations to reach those who cannot access TV or the internet or who live outside of areas where extension workers operate, particularly in remote areas with high concentrations of ethnic minorities.

39. ***Subcomponent 1.b: Improving the Quality and Utilization of Agricultural Inputs.*** The project will provide support for increasing the market supply of certified seed varieties and quality fertilizers and will promote a more sustainable, climate-resilient, and cost-effective use of fertilizers among farmers. The specific activities include: (i) facilitating access to agricultural inputs as immediate COVID-19 relief; (ii) designing and implementing a financial support mechanism through e-vouchers for agriculture inputs; (iii) strengthening public-private partnership in the inputs supply chain; (iv) enhancing farmers' knowledge of appropriate fertilizer use; (v) strengthening the seed production and certification systems; and (vi) strengthening the fertilizer inspection system.

40. *Facilitating access to agriculture inputs.* Due to the lockdown and restricted movement in response to the COVID-19 pandemic, agriculture input supply has been disrupted since March 2020. On top of the loss of income from remittances, a study estimates that the disruption will affect agriculture production³² and that immediate action is critical. As a COVID-19 relief response, the project will provide support to the MOALI Cooperatives Department (Coops Dept.) and the DOA to facilitate interventions to ensure access to emergency "production packages" for smallholder farmers such as providing paper-based vouchers to enable them to access inputs in a timely manner. The package may include fertilizer for the 2020 monsoon season and other inputs for the following dry season as necessary. Improved access to inputs, including the selection of the best phenotypic seeds for given environmental and climatic conditions will reduce climate vulnerability of farmers. Investment on a centralized seed center to process, treat, store, and test seed will improve the long-term adaptation capacity of farmers to climate shocks.

41. The project will have a rigorous targeting mechanism to capture farmers who are vulnerable to the COVID-19 crisis. The geographical targeting criteria include areas where: i) a significant number of poor households reside; ii) a significant number of households are involved in agricultural activities; iii) there is a high prevalence of malnutrition; iv) there is a high prevalence of returnees or households dependent on remittance; and iv) limited logistical obstacles exist

³² IFPRI, Assessing the Impacts of Covid-19 on Myanmar's economy, May 2020



or where the cooperatives network is strong. Based on available data, the preliminary list will likely include selected townships in the Ayeyarwady Region and Shan State.³³ The beneficiary selection criteria will be defined in a fair and inclusive manner and will focus on small-scale and female-headed farm households and VPGs as defined in the beneficiary section. The voucher will be distributed to beneficiaries (both cooperative members and nonmembers) through the cooperative network and will allow them to obtain the input package at local shops.³⁴ The local staff of the MOALI Cooperatives Department will redeem the vouchers at the township level. Based on the lessons from this intervention, the project will then support MOALI to develop a “smart subsidy program” (that is, an e-voucher system) that can be used for future input support programs. The e-voucher system will be integrated with the e-extension system that the project will support under Subcomponent 1.c.

42. *Strengthening public-private partnerships to restore the inputs supply chain.* The project will support DOA to enhance its coordination and partnership with private sector agriculture input suppliers, who have confirmed its sufficient stock of inputs, but whose movement has been limited due to the lockdown situation. More specifically, the project will enable DOA to formally establish frequent and regular meetings with the private sector in the selected townships, develop a communication campaign on agro-logistics movement, and support the development of a certificate for agro-logistics companies to allow them to move to different townships. Learning from the experiences of China and the Philippines, MOALI’s frequent and formal contacts with input suppliers, operators, and logistic companies will be accompanied by the issuance of certificates or “passes,” which will be able to help reduce continued disruption to the supply chain because of inadequate communication and coordination between different layers of the government.

43. *Strengthening farmers knowledge of area-specific fertilizer utilization.* This project will support the development of Myanmar’s area-specific fertilizer recommendation system, which will build on the analytical work and lessons from Wageningen University’s technical support to national governments on the topic. The current nationwide single standard for fertilizer applications will be replaced by area, soil, and crop-specific fertilization recommendations, which will result in more tailored fertilizer recommendations to be specifically adapted to the respective areas, reducing fertilizer use and greenhouse gas (GHG) emissions. In situations where there is a shortage of chemical fertilizers because of COVID-19-related disruptions, the area-specific fertilizer recommendation application provides recommendations for alternative fertilizers, such as organic compost. The app will support farmers in deciding about the balance between animal manure, other organic manure (for example, compost), and chemical fertilizer, and recommend amounts to be applied. This activity will be implemented in selected districts in five regions (Ayeyarwady, Bago, Magway, Mandalay, and Sagaing) and will specifically target women, smallholder farmers, marginal and landless farmers, and ethnic minorities. Rigorous communication will be conducted through existing networks, such as farmers TV, village-level farmers groups, and lead farmers, as well as township-level extension workers in these targeted regions, to reach out to smallholder farmers, ethnic minorities, economically and socially disadvantaged people (like the landless), as well as female-headed households and women farmers. To ensure broad and inclusive coverage, the project will support the development of a digital platform that will be accessible to end users, both through a smartphone app and an online tool.

44. *Strengthening the seed production, certification, and quality control system.* As a COVID-19 medium-term recovery activity to strengthen the agriculture seed supply system, the project will support various levels of seed cooperatives to

³³ Shan State and Ayeyarwady region has i) more than 1.5 million of poor exist (Myanmar Living Condition Survey 2017: Report 3-Poverty Report), ii) the greatest number of stunted children live (MS-NPAN (<https://www.mohs.gov.mm/page/7190>), and iii) significant land area is sown for monsoon rice and maize production (GAIN, Union of Burma - Grain and Feed 2018 Annual Report). The Shan state is the third state in the country both in terms of receiving remittance (Myanmar Living Conditions Survey 2017) and the number of migrants (<https://www.iom.int/countries/myanmar>).

³⁴ The collection use and processing (including transfers to third parties) of any personal data collected under the project will be done in accordance with the requirements and procedures set forth in the PIM, and will ensure legitimate, appropriate, and proportionate treatment of such data.



upgrade their production system to produce quality seeds. The project will provide technology and training to seed cooperatives in the selected regions and states. The project will upgrade the seed testing laboratories in Pyinmana township in Naypyitaw (NPT), Hmawbi township (Yangon), and Maharaungmyay township (Mandalay), which will inspect and certify the quality of seeds produced in the country, both for local use and for exports. The project will support these laboratories to obtain International Seed Quality Assurance accreditation, under the International Seed Testing Association (ISTA). Accreditation with ISTA would allow laboratories to test the quality of imported seeds. Further, the project will upgrade the seed processing units in the selected seed testing facilities in Ayeyarwady, Magway, and Shan, where private sector seed processors are not present.

45. *Strengthening fertilizer inspection capacity.* The project will build a new fertilizer inspection laboratory under the Land Use Division of MOALI at the border area with China (Muse Township, Shan State) and will strengthen the associated staff's analytical and inspection capacity on marketed fertilizers. Myanmar imports more than 80 percent of its fertilizer, mostly from China, which enters the country mainly through Muse, which is one of the conflict-affected townships. The laboratory will be built in the existing MOALI compound and is not expected to be the subject of contention or contest. It is expected to enhance the market supply of quality fertilizers as a result of improved inspection, and thereby support MOALI with the enforcement of the Fertilizers Law of 2002 (as amended in 2015), which directed the market supply of inspected fertilizers.

46. ***Subcomponent 1.c: Strengthening Agriculture Extension Services through Digital Technologies.*** The project will support developing a digital extension package and expanding its outreach, upgrading the training facilities to be digitally enabled, building the capacity of extension workers, and conducting specific outreach measures to benefit small farmers and VPGs. This subcomponent will have a key role in economic inclusion and the COVID-19 response, especially in terms of creating awareness and information-sharing tools.

47. *Developing digital content of extension services and dissemination.* The project will support development of digital content of extension packages, including on-farm management techniques, GAP, post-harvest technologies, CSA technologies and practices, improved crop varieties, sustainable use of agriculture inputs, and market information with aggregation and analysis. As an immediate response to COVID-19, the extension messages will include COVID-19-related awareness messages, such as hand-washing and social distancing, food safety, and animal health-related messages as per Ministry of Health guidance. The extension materials will also include information on climate-resilient farming practices, such as the use of heat- and drought-resistant crop varieties; the sustainable use of agriculture inputs, such as reduced fertilizer use, reduced tillage to improve soil carbon content, use of agricultural waste (bagasse, rice husks, etc.), rangeland management, water management techniques to increase water efficiency use; and mechanisms to reduce farmer exposure to climate change-induced natural disasters, such as weather insurance. In addition, it will include materials on precautionary measures and proper handling of pesticides and risks related to pesticide exposure, which will specifically benefit landless agricultural laborers. Considering the risks to farmers of unexploded ordnances (UXOs) and landmines in conflict-affected areas, the digital content will include information on landmine and UXO risks related to agricultural activities. In view of the country's challenges in addressing malnutrition and diet diversity, advice on these topics will also be provided to specifically benefit women. Digital content will include short films and visual information to avoid the exclusion of the illiterate population and to reach more women. Evidence from Digital Green indicated that women farmers react more effectively to visual content and short films taken by peer farmers through a pico-projector, rather than to conventional extension services.³⁵

³⁵ Evidence from Digital Classroom, Digital Green: <https://www.digitalgreen.org/blogs/digital-classrooms-for-farmers/>



48. The project will support the dissemination of digital extension messages through existing platforms, such as the Farmer TV Channel, social media platforms, and by private sector mobile phone application providers, text, and other instant messaging services as well as the extension network, the Agri-Business News Journal, and other farmer journals to reach a wide range of producers and farmers in the project area.

49. Furthermore, the project will support the upgrading of information and communication technology (ICT) facilities in the regional extension training centers in selected townships³⁶ in Bago, Magway, Mandalay, NPT, and Yangon regions so that the current extension services become more digitally enabled. The project will also support the provision of mobile facilities and ICT technology for extension services and material support to disseminate knowledge and techniques in other selected townships. The project will support provision of mobile laboratories in the selected townships, which will be equipped with small-scale laboratory facilities and audio equipment for the dissemination of knowledge in efficient use of agri-inputs and improved production technologies. The project will also support the capacity building activities of extension workers in these townships on digital technologies.

50. Finally, the project adopts a conflict-sensitive approach, as described in annex 3. The project will include some conflict-affected townships, which range from those that are minimally and historically affected by armed violence to those that are presently affected in some manner. As such, many also contain pockets of territory either contested or controlled by EAOs (usually more remote and rural sections of townships). To ensure the “inclusion” of farmers in such areas, the project will support “knowledge transfer” from government research farms and value-chain research facilities within the target township (and without any physical interventions or activities of the project in the contested areas) through: (i) township on-farm demonstration and extension camps to share information; (ii) training of trainers (also held in existing government facilitates); and (iii) digital extension messages through existing networks. Such knowledge transfer will be facilitated through ethnic service providers and community-based organization (CBO) representatives that are trusted by nongovernment stakeholders. The proposed training of trainers will be facilitated either by township extension workers, who will be trained on conflict-sensitive approaches or farm advisers working in CBOs, civil society organizations (CSOs), and nongovernmental organizations (NGOs). The details will be determined during the initial years following consultation with key stakeholders and will be specific and adapted to the situation in each township.

51. ***Subcomponent 1.d: Improving Irrigation and Drainage Infrastructure.*** Under this subcomponent, the project aims to mitigate the impacts of the COVID-19 pandemic on agricultural production and rural unemployment by investing in maintenance and rehabilitation activities in existing irrigation schemes, drainage, and flood protection works serving some 50,000 acres, mainly using labor-intensive CFW approaches. The project will also support the establishment and strengthening of Water User Groups (WUGs) and the improvement of farmer-owned water management infrastructure, which is needed to create cropping flexibility for farmers and more equitable and efficient water distribution. Higher value but lower water consuming crops and new water-saving irrigation technologies will be introduced. These are expected to contribute to improved agriculture performance in beneficiary farms and an increase in crop area with the same amount of water so that the original command area would be provided with water. This activity also contributes to climate resilience and food security by ensuring water availability for farmers, reducing their vulnerability to droughts and floods, improving water use efficiency, and ensuring its long-term sustainability.

52. The Irrigation and Water Utilization Management Department (IWUMD) has experience in conducting labor-intensive CFW by employing communal workers in local villages. The project will support specific targeting criteria so that

³⁶ The preliminary list of 25 TSs include Mahlaing, Myingyan, Thaungtha, Kyaukpadaung, Pyawbwe (Mandalay); Sagaing: Ayadaw, Kani, Tabayin, Kanbalu, Pinlebu; Magwe: Gangaw, Seikphyu, Yenangyaung; Bago: Taungoo, Kyauktada, Pyay, Tharawaddy, Nattalin



most affected people will be able to participate in the CFW program, such as returning migrants, households who lost remittances, and other types of VPGs. WUGs will serve as an intermediary in selection and engagement of the targeted beneficiaries for CFW. The criteria and selection process, as well as the wage scale will be defined in coordination with other CFW projects within MOALI and will be included in the PIM. IWUMD will be supported by technical assistance for the development of safeguard instruments, technical assessments, feasibility studies, detailed designs, and WUG strengthening.

53. The preliminary list includes existing irrigation and drainage schemes in the Ayeyarwady, Bago, Magway, Mandalay, and Sagaing regions and maintenance and rehabilitation activities. In addition, CFW for minor repair work, such as canal cleaning, and special maintenance will be conducted in Kachin, Kayah, and Mon states, and the NPT region. The final selection of irrigation schemes will be based on the criteria presented in annex 8. The preparation and incorporation of safeguard requirements should be completed in accordance with the Environmental Social Management Framework (ESMF) prior to implementation (a detailed project safeguard process is presented in annex 6).

54. The project has received an exception of riparian notification under OP/BP 7.50 (international waterways) for the irrigation rehabilitation work. New irrigation activities that would trigger the notification requirement under OP/BP 7.50 have been excluded, and this will be specified in the PIM.

55. **Component 2: Value-Chain Development (US\$51.32 million).** This component focuses on enhancing value-chain development and expanding market access to selected value chains by: (a) financing value-chain facilities and services; (b) supporting value-chain clusters (VCCs) and farmer cooperatives by strengthening market linkages and promoting contract farming; and (c) financing value-chain-related laboratories to meet international standards. It aims to enhance value-chain actors' access to technology and value-chain services to improve product quality. The project is expected to strengthen the capacity of VCCs, cooperatives, and other value-chain actors to connect to markets and be able to respond to market requirements more effectively. The project will help lay the foundation for fostering public-private partnerships with locally relevant and credible businesses, expanding opportunities for capturing high-value markets, enhancing Myanmar's agriculture and agribusiness to better compete with imports and in the international markets, thus diversifying its trade destinations, which will strengthen agriculture resilience to future global shocks in the long term.

56. **Subcomponent 2.a: Supporting Value Addition and Market Access.** The project will support activities that will contribute to increased value addition of the selected value chains and expand farmers' market access by creating VCCs, strengthening cooperatives, and promoting partnerships between these clusters and cooperatives and the private sector.

57. MOALI has identified a preliminary list of value chains, which include, fruit, tea, cotton, and (cattle) meat, aiming primarily to promote international and regional exports. The selection of these value chains was based on multiple criteria, including their contribution to diversification (and to enhancing nutrition); value-addition opportunities; suitability in the selected AEZs; domestic, regional, and international market demand trends; and (to some extent) their role in promoting inclusion. For instance, the fruit and meat value chains create huge opportunities for all these aspects. With increasing demand from urban centers both domestically and in the regional market, the fruit and meat subsectors have a large value-addition potential in the country.³⁷ Women are heavily involved in the fruit sectors. Cattle value-chain activities will also benefit landless farmers. Furthermore, the inclusion of tea, cotton, and cattle meat was considered important, as

³⁷ Export from the livestock sector increased by about 36 percent between 2011/2012 and 2017/18. In May 2019, the GoM has relaxed some of the livestock trade policies and this has increased demand from neighboring countries especially from the China market.



these commodities are mainly exported to China, and as a result, these sectors are likely to be hard-hit by COVID-19 until the Chinese market returns to normal. Myanmar is also targeting high-end tea markets, including in Europe and the United States, for its specialty tea.³⁸ Improving tea quality and standards will be critical to comply with the requirements of these markets and to reap premium price benefits and diversify its trade destinations. Tea production and value-addition are predominantly undertaken by ethnic minorities such as the Pa-O and Palaung in Shan State, and other minorities in Chin and Kachin states. Some of the targeted townships are also post-conflict- or conflict-affected (annex 3). Tea is a labor-intensive value chain; hence landless agricultural laborers will gain access to job opportunities by the establishment of demonstration farms in tea-growing areas. Cotton, which is one of Myanmar's national strategic export crops and one of the few crops where genetic modification is allowed in the country, has experienced a rise in price and demand, primarily from China, where half of Myanmar's cotton is exported.³⁹

58. The preliminary list of the selected value chains will be further reviewed during the initial years of implementation, based on further consultations with the private sector, additional diagnostics on market demand, and MOALI's strategic priorities. The final selection of the value chains will be specified in the PIM.

59. *Value chain facility and research.* The project will support investments that are important to increase the value-addition of selected value chains, which include: value-chain research; identification of major climate risks and their impacts on the value chains; construction or upgrading and installation of climate resilient and energy efficient value-chain facilities, such as cold storage and processing facilities; demonstration farms and training centers; and artificial insemination services. The investments will also include capacity building and awareness raising on post-harvest technologies, cold-storage management, cattle breeding (including artificial insemination services), and other technologies and knowledge relevant to value-addition. It will promote climate-smart value chains through the assessment of major climate risks and their impacts on the selected value chains and the development of associated climate-smart adaptation strategies. These investments will enhance competitiveness and value-addition by, for instance, extending the shelf life of the selected fruit products.

60. More specifically, these activities include: (a) support to research on quality-oriented cotton and silk in Mandalay; (b) financing post-harvest (cold storage) facilities, demonstration farms for improving fruit quality, and research on post-harvest technologies at six horticulture research farms;⁴⁰ (c) construction and installation of energy efficient processing and packaging facilities for different tea varieties—this activity also includes research for high quality tea production and processing technology;⁴¹ (d) promotion of artificial insemination services and upgrading natural breeding units in multiple townships located in Bago, Magwe, Mandalay, Sagaing, and Yangon; and (e) upgrading and construction of cold-storage facilities for livestock and dairy products. All these facilities will be in the MOALI compound or within government land. During implementation, wherever possible, private capital co-financing, based on agreed joint business plans, can be used to finance the long-term management of these facilities to promote business sustainability. For all facilities, an environment and social safeguards plan to ensure appropriate safeguard measures, particularly on waste management, will be prepared.

³⁸ Myanmar can receive a higher price from these markets, with current reports showing prices to be higher by 25 percent.

³⁹ The value of Myanmar's cotton export was three times more between 2013/2014 and 2016/2017 (reaching US\$10 million). This trend is expected to grow even faster because of the trade issues between China and the United States where China sources most of its domestic cotton demand.

⁴⁰ These research farms (TSs) include the Doe Kwin farm (Pyinoolwin), Pinlaung farm (Pinlaung), Heho farm (Kalaw), Namlatt farm (Taunggyi), Myitkyina farm (Myitkyina), and Kyawboat farm (Hakha).

⁴¹ This activity will be implemented at six townships in the states of Shan, Chin, and Kachin.



61. *Expanding market access.* As part of the COVID-19 recovery response and for long-term sustainable development, it will be critical to link farmers with markets, input suppliers, and financial services. The project will establish and support VCCs and cooperatives and create market linkages by facilitating regular public-private engagement platforms. This supports the ADS' overall strategy to promote "contract farming" and market linkages. Myanmar already has extensive successful experience in promoting contract farming for rice, which could be further scaled up.

62. First, the project will support the formation of farmers' VCCs and the strengthening of selected existing cooperatives, which are formal groups registered under the Department of Cooperatives. The selection criteria for locations include (i) proximity to the value-addition facilities to be supported by the project; (ii) those townships that can benefit from digital extension services under Subcomponent 1.c; and (iii) townships with higher poverty counts as per Myanmar's MDI. Within the selected townships, formation of these clusters will be facilitated by the planning and extension divisions of the DOA, MOALI with an aim to particularly target smallholders, women, and VPGs. While farmers will participate based on self-selection, the project will conduct outreach activities to attract VPGs and will ensure participation is fair, inclusive, and transparent.⁴² In addition, women lead farmers (WLF) will be identified during the process of formation of VCCs to serve as facilitators between the extension workers and women farmers participating in VCCs.⁴³ The Department of Cooperatives will identify those targeted cooperatives from the existing list of cooperatives.

63. Secondly, these VCCs and cooperatives will be supported through technical advisory services and capacity building to enable them to achieve measurable targets in terms of improved product and service specifications (such as quality, quantity, and delivery conditions) through the value-addition facilities to be supported by the project. The project will provide demand-driven organizational development and entrepreneurial training to VCCs and cooperatives. There will be a special emphasis on business planning, CSA practices and technologies, quality control, financial planning, market analysis, marketing, and dealing with middlemen, traders, retailers, and wholesalers. The project will also provide capacity building in post-harvest handling in priority value chains to minimize losses and reduce perishability. The project will then provide capacity building in capturing value, by promoting quality enhancing and pre-processing activities, such as cleaning, grading, sorting, and packaging. To ensure that women farmers participate, the selected WLFs will demonstrate good agricultural and business practices, new technologies, and act as mentors to groups of women farmers who participate in the VCCs and cooperatives. Capacity building support can be extended to VCC partners, such as agro-input dealers, so that they have access to additional training resources via a smartphone or TV to ensure social distancing by clients at their stores and to avoid multiple handling of stock by staff and clients to the extent possible.

64. Finally, these VCCs and cooperatives will be linked with processors, buyers, marketing entrepreneurs, and financial institutions through the public-private partnership platforms to be established by the project. WLFs are expected to participate in these platforms and represent women farmers and facilitate their linkage with buyers, input suppliers, and creditors. Through the regular platforms, VCCs and cooperatives will enhance their knowledge and familiarity with the required quantity and quality specification for their agriculture products to gain premium prices. Buyers and processors will know better about their potential source of inputs and agriculture products. The project will assist VCCs and cooperatives to access markets and microfinance sources by supporting their ICT infrastructure and through provision of financial advisory support by the private sector. This integrated approach for value-chain actors supports the MOALI's strategic policy for the promotion of contract farming.

⁴² The selection criteria will be laid out in the PIM.

⁴³ The WLF model will build on the experiences initiated by MEDA with successes of engaging women farmers. It was tested in Myanmar since 2019 in a limited scale.



65. While the ADS recognizes the importance of private sector participation, MOALI has less experience in engaging the private sector in value-chain-related investments and financial access. Several mechanisms will be applied to attract midstream and downstream value-chain actors (processors and buyers) to the proposed platforms and to be linked with the VCCs. During the first year of implementation, the project will organize consultation workshops with the private sector in the selected townships to identify potential private sector partners. During the consultations, the project will leverage existing IFC clients to engage private sector players, particularly agro-enterprises. The project will also work in close collaboration with private sector associations, including MFFVPEA, which has extensive experience in forming clusters and facilitating linkages with buyers. Considering that access to rural and agricultural finance is low in Myanmar compared to its regional peers,⁴⁴ the project will facilitate access to finance for farmers indirectly by encouraging them to join the regular platform. It is expected that the formation and operation of VCCs with value-addition technical support from the project can make them relatively more bankable. The project will link with the ongoing World Bank-financed Financial Sector Development Project (FSDP, P154389), which supports technical capacity building of the Agriculture Development Bank. Building on lessons from the recent pilot project of Digital Credit for Smallholders through the Korea–World Bank Partnership Facility, the project will also explore supporting VCCs to link with existing micro-finance institutions in the selected townships. Further buyers and processors participating in the platform may be willing to extend credit to value chains during the planting season provided the latter agree to supply quality outputs at harvest (contract-farming).

66. **Subcomponent 2.b: International Standard Certification and Animal Disease Control.** The project will support investments to improve laboratory infrastructure, equipment, and human capacity needed to ensure international standard certification (such as ISO 17025 and other applicable international standards). These investments are intended to overcome market failures that currently limit exports of Myanmar's crops and animal products in markets with high quality standards. This will be fostered through research on new crop varieties or enhancement of local varieties (which are activities under component 1), and by increasing the areas and crops covered by GAP. This enables the national GAP standard to align with the ASEAN GAP (and global GAP), thereby enhancing export opportunities for certified producers in the medium and long run.

67. **Laboratories with ISO standard.** The project will support upgrading and establishment of new laboratories that will be critical to achieve international quality accreditation and GAP standards. These facilities will consider climate resilience and energy efficiency solutions. More specifically, the project will support the following laboratories.

- The Plant Biotechnology Laboratory in Yangon will be upgraded to be able to develop climate resilient crop varieties and to improve food safety and nutrition through cloning and genetic crossing. It will also install an accredited biosafety laboratory facility to develop and test crops genetically modified through DNA technologies, particularly for the cotton value chain. It will also upgrade laboratory facilities that will support the promotion of geographic indication (GI) products, such as mango and Pawan San rice, which are local special varieties known in Myanmar. The project will support the laboratory to meet the requirements for ISO 17025 accreditation.
- The project will support upgrading of the Land Use Laboratory in Yangon and finance the construction of a new one in NPT. It will support these laboratories to meet the requirements for accreditation under ISO 17025, so that they facilitate and support implementation of global GAP. This support will upgrade the laboratory facilities to (a) analyse soil, plant, and irrigation water quality to detect and prevent contamination and (b) provide services to

⁴⁴ Enabling Business for Agriculture Myanmar Country Profile. World Bank, 2019.



fertilizer importers and dealers by issuing analysis certification. These services are important to upgrade the Myanmar GAP, which is currently not recognized in export destination countries, to global (or ASEAN) GAP.

- The Sugarcane Quality National Reference Laboratory in NPT will be upgraded to meet the requirements for an accreditation under the International Commission for Uniform Methods in Sugar Analysis scheme. This will enable the country to improve the quality of sugarcane and to develop new varieties and possibly reduce sugar imports.

68. *Animal Disease Control.* The project will provide support to the livestock sector by laying the foundations for the establishment of disease-free zones for foot-and-mouth disease (FMD). The potential for exports of animals and animal products from Myanmar is limited by the ongoing presence of FMD, leading to economic losses for cattle farmers. The project will finance the purchase of laboratory reagents (test kits) for testing for important animal diseases, including FMD; assessment of specific epidemiology of FMD, including its prevalence, spatial distribution, and transmission pathways; and designing and implementing an FMD control program that includes measures, such as vaccinations and ongoing surveillance eventually leading to the establishment of disease-free zones. The goal is to transit the designated zone from free with vaccination to free without vaccination. In the short term and as a response to the COVID-19 pandemic, the project will strengthen quarantine services and centers to ensure that animal movement (from outside and within the country) is safe and meets health standards. It will also strengthen laboratory capacities in disease diagnosis and building awareness to extension and veterinary workers on a one-health approach. The project will also support awareness creation campaigns at the community level on food safety and animal health.

69. *Capacity building.* The project will support a comprehensive capacity building program for staff of these laboratories and the development of business plans, safeguard measures, and a human resource plan. Several positions in most laboratories are occupied by women. For instance, about 65 to 73 percent of DOA staff working for the land use and sugar cane divisions are women. Hence, female staff are specifically targeted for capacity building and training opportunities. Prior to the investment, a comprehensive business assessment and skill-set analysis, as well as relevant policy compliance reviews will be conducted. Each laboratory will develop a plan for regular consultation with the private sector to strengthen relationships, establish collaboration when appropriate, and identify priority areas for driving skills development and investments. Consultations with the Ministry of Commerce (MoC) are also expected to be reinforced, to enhance decision-making processes and actionable plans by MOALI management. This will be accompanied by a safeguard plan to ensure that appropriate safeguard measures, particularly on waste management, are in place. The laboratories will also have a human resource development plan, which will identify skills gaps and other learning needs, to strengthen the capacity of the entire MOALI's technical personnel, including for higher education and hands-on skills in a harmonized manner, such as dedicated training sessions delivered by a third party and consultants with recognized capacity in the relevant fields of interest. Specific programs will be developed to achieve more efficient practices, best leverage increased technical capabilities, and foster staff motivation to achieve them.

70. **Component 3: Project Management, Coordination, and Monitoring and Evaluation (US\$10.25 million).** Activities under this component will support effective project management systems for financial management (including internal and external auditing); procurement, social and environmental safeguards management at the union, state, and township levels (including attention to peace and inclusion, marginalized and vulnerable population groups, and gender); and monitoring and evaluation (M&E), including baseline, midline, and final impact assessment surveys. In addition to conventional project management and M&E functions, this component also includes building capacity of MOALI's Department of Planning to strengthen its policy level coordination and M&E capacity to manage various programs and policies under the Ministry. In addition, considering that restricted movement may continue, the project will support



building the capacity of the Project Management Unit (PMU) to leverage field-appropriate ICT tools for remote supervision and monitoring as well as third party monitoring.

71. **Component 4: Contingent Emergency Response (US\$0 million).** Following an eligible crisis or emergency, the recipient may request the World Bank to reallocate project funds to support emergency response and recovery. The project will prioritize emergencies having significant impact on agriculture, livestock, and rural development. The Contingent Emergency Response Component (CERC) would draw upon the uncommitted credit resources from other project components to cover emergency response, relief, and rehabilitation activities. MOALI will develop a Contingent Emergency Response Implementation Plan (CERIP) for the project acceptable to the World Bank. Triggers for the CERC, acceptable to the World Bank, will be clearly outlined in the CERIP. Disbursements will be made against an approved list of goods, works, and services required to support crisis mitigation, response, and recovery.

72. **Project Financing.** The overall cost of the proposed IPF operation is estimated at US\$200 million equivalent which will be funded from resources under an IDA Credit. During implementation, discussions will continue with various development partners to leverage additional grant funding and technical assistance services to be linked to the project.

Table 1. Project Components and Costs

Project Components	Project Costs (US\$ million)
Component 1: Agriculture Productivity Enhancement and Diversification	138.43
<i>Strengthening the Agricultural Research and Development System</i>	33.00
<i>Improving Quality and Utilization of Agricultural Inputs</i>	44.68
<i>Strengthening Agricultural Extension Services through Digital Technologies</i>	12.83
<i>Improving Irrigation and Drainage Infrastructure</i>	47.92
Component 2: Value Chain Development	51.32
<i>Supporting Value Addition and Market Access</i>	29.32
<i>International Standard Certification & animal disease control</i>	22.00
Component 3: Project management, Coordination, and Monitoring & Evaluation	10.25
Component 4: Contingent Emergency Response	0.00
Total Costs	200.00

C. Geographic Targeting and Phasing

73. The project will primarily target seven regions (Ayeyarwady, Bago, Mandalay, Magwe, Sagaing, Thanintharyi, and Yangon), five states (Chin, Kachin, Kayah, Mon, and Shan), and one Union Territory (NPT) in three AEZs (Dry, Hills and Mountains, and Delta) (annex 9).⁴⁵ The specific townships will be identified in the PIM in those target regions and states, and in other states. The project will have flexibility to adjust the project targeted areas, based on the phased approach, which will allow for conducting appropriate due diligence first and which will be based on the emerging needs (annex 3).

74. These targeted regions and states in the three AEZs have a higher presence of agriculture production. Moreover, the Dry AEZ has been increasingly affected by climate change and a shortage of rainfall. Further, the Dry Zone (Magwe, Mandalay, and Sagaing), Ayeyarwady region, and Shan State are known to have a high level of out-migration; and an influx of returnees and loss of remittance income are expected in these places because of the COVID-19 pandemic and the resultant lockdown. Thus, priority was given to these states and regions because of agricultural growth prospects and

⁴⁵ Dry AEZ: Mandalay, Magwe, Sagaing, NPT; Hills and Mountains: Shan, Kachin, Chin; Delta: Ayeyarwaddy, Bago, Yangon.



emerging needs. The project will also support national reference laboratories which will serve farmers and agro-enterprises nationwide. The project townships will be identified based on the following criteria and consideration.

- a. First, MOALI identified a list of priority facilities as entry point that it wishes to upgrade or improve. These facilities are existing or new facilities in the existing MOALI compound in townships, and their catchment area is the vicinity of the facilities at the township level, except for those facilities which offer national coverage (Subcomponent 2.b). Identification will also involve the list of cooperatives that have a large coverage area, are active and need support.
- b. Secondly, prioritization was made based on the potential for scale-up of agriculture and livestock production and value-chain activities. Priority was given to those townships which have agri-business activities by reviewing the number of agribusiness-related associations. As a result, townships in Mandalay, NPT, and Yangon, which are the country's economic centers, have been prioritized. Seventy percent of the targeted townships are located in these three regions. Further, townships in Ayeyarwady, Bago, Magwe, Sagaing, and Thanintharyi regions and townships in Chin, Kachin, Kayah, Mon, and Shan states were included, where agribusiness associations are active and viable value chains exist.
- c. While prioritizing townships, the following were also considered as a set of sub-criteria.
 - *Multi-Dimensional Disadvantage Index*: Townships which score high on the MDI were included.
 - *Ethnic Minorities*: Townships with a high concentration of ethnic minorities were included (Chin, Kachin, Kayah, Mon, and Shan, and some townships in Bago, Mandalay, Sagaing, Yangon, regions that have ethnic minorities).
 - *Conflict-Affectedness*: Townships with pockets of areas either directly or indirectly conflict-affected in the preliminary list of facilities provided by MOALI were not excluded outright because of this status. The project instead assessed each to determine the risk of significant armed violence occurring and excluded those where security and access issues were of deep concern. Facilities in conflict-affected townships where the conflict risk remains relatively low have been included.
 - *Returning migrant workers*: It has been reported that more than 80,000 migrant workers have returned to Myanmar, most going back to rural villages.⁴⁶ Townships with high levels of influx will be prioritized especially for CFW activities (under Subcomponent 1.d).

75. The project will follow a phased approach. It will first focus on Mandalay, NPT, and Yangon (70 percent of the selected townships), which are economic centers and have a higher potential for success, in the first 1 to 2 years. In the second phase (years 3 to 4), the project will then be rolled out to other states and regions and will likely include some conflict-affected townships. The phased approach will allow for sufficient due diligence to be conducted before implementation begins (annex 3).

D. Project Beneficiaries

76. The project's total direct beneficiaries are estimated to be 560,000 people across the country, including (a) smallholders and those belonging to VPGs (both men and women) and agricultural workers; (b) medium-scale farmers; (c) extension workers; (d) inputs suppliers, especially seed farmers and fertilizer suppliers; (e) agricultural researchers; (f)

⁴⁶ OCHA Situation Report No. 04, May 18, 2020.



farmer cooperatives, agri-entrepreneurs, agro-industries, wholesalers, traders, exporters, and buyers participating through value chains; (g) returning migrants; and (g) MOALI departments, divisions, and units participating in the project.

77. The project aims at the “economic inclusion” of smallholder farmers (owning less than 5 acres), including small-scale cattle keepers, with a strong focus on VPGs and women, who are more likely to be excluded from agriculture-related interventions.

78. About 450,000 beneficiaries that belong to smallholder farming families are expected to be supported by the project. Out of them, approximately 200,000 farmers are expected to belong to VPGs. Across all beneficiaries (small- and medium-scale farmers), about 220,000 are expected to be women.

79. The project preparation involved the use of the IPL, which identified groups in the population who are more at risk of exclusion from project benefits and activities (annex 2). Based on this preliminary analysis, the project was designed with key features to ensure their inclusion and access to project benefits. More specifically, the project will support the following VPG beneficiaries:

a. *Smallholder farmers of ethnic minorities:*

- These ethnic minorities such as Shan, Danu, Pa-O, Palaung, Taungyo, Lahu, Akha, Kachin, Jinghpaw, Rawang, Kayah, and Chin have less access to regular extension services, as extension messages are often developed in the Burmese language. The extension messages will be translated into the local languages of minority and ethnics groups where needed to facilitate their access to the information (Subcomponent 1.c). Continuous consultations will be made with village tract clerks and administrators to ensure that ethnic minorities are included and benefit from the project. Regional research farms in ethnic minority areas will be supported by the project (Subcomponent 1.a), including the Mohnyin Regional Research Farm in Kachin State; NaungMon, Kyaukme, Aung Ban, Taryaw, and HtoonBo Regional Research Farms in Southern Shan State; and Kengtung Regional Research Farms in Eastern Shan State. Decentralized research facilities will enable the research outputs to be locally tailored. Project activities under Component 2 will provide market opportunities, especially for tea farmers, who are predominantly ethnic minorities.
- Moreover, these ethnic minorities are mostly in remote and geographically marginalized communities in the Hill and Mountain AEZ. Digital and ICT-based extension services under subcomponent 1.c are expected to facilitate outreach through smartphone-based services.

b. *Smallholder Farmers in conflict-affected areas:*

- The preliminary list of MOALI facilities include some townships that are either directly or indirectly conflict-affected and some of which contain pockets of mixed administration by the government and EAOs. Most of the MOALI facilities in these townships have existed in their current form for a number of years, and their main catchment areas are the vicinity of the facilities. Smallholder farmers in EAO-controlled areas grow the same crops as other farmers in other parts of the same townships, but they have less access to various agriculture services and knowledge on new crop varieties and technologies. To facilitate their access to project benefits, the project will promote “knowledge transfer” from government research farms and tea research facilities within the target township and without any physical interventions or activities of the project in contested areas (under Subcomponent 1.c).
- c. Although on a limited scale, the project will support landless agricultural laborers through demonstration farms and extension services under Component 1, to enable them to gain new knowledge and technology on farming and



agricultural practices. Agriculture extension services and the fertilizer recommendation program will also be able to transfer their knowledge to the landless agricultural laborers. Under Component 2, animal health workers will be able to transfer knowledge to landless laborers on artificial insemination and animal health. The value-chain development activities are expected to create job opportunities for the landless.

- d. The project will support returning migrants through the CFW under Subcomponent 1.d. Although they might not be small farmers, returning migrants are mostly members of farming households.

80. The project will have a strong focus on *women*. The project aims for women to make up at least 40 percent of all beneficiaries. Women, particularly, female headed households, are more likely to be excluded from benefits, as there is a gender gap in access to services, technologies, information, markets, and, to a lesser extent, credit.

81. Under Subcomponent 1.a, female-headed households and women farmers will participate in research to provide their feedback to make the research programs more gender-sensitive. Agricultural extension services under Subcomponent 1.c will be developed to be gender-sensitive and to be tailored to the needs of female-headed households and women farmers. The content of extension services will be digitized and disseminated through digital platforms, which will reduce mobility constraints for women. More than 50 percent of extension workers are currently women, and they will benefit from training and capacity building. Experience in other countries indicates that women extension providers encourage women farmers to participate more in extension activities. Further, under Subcomponent 2.a, women lead farmers will be identified through the formation of VCCs. These women lead farmers are expected to be facilitators between MOALI's extension workers and farmers participating in VCCs and are expected to play a key role in disseminating information about market and value-chain technologies, particularly to women farmers participating in the clusters. The project will not directly address the gender gap in land ownership, which is the underlying cause for the smaller size of land owned by women compared to that owned by men, as described in the sectoral context. Instead, the project will indirectly support women farmers by increasing the productivity of their land through improved access to services and technologies. The project will support landless female agricultural laborers on a limited scale as described earlier.

82. Finally, with regard to the potential risk of child labor, the project has a low risk of involving child labor on farms, as the proposed activities focus on research and demonstration under Component 1, and research and knowledge transfer on tea processing and the improved variety of cotton under Component 2. Targeted participants will be small farmers and VPGs. Nevertheless, the project will closely monitor this through the PMU and associated specialists.

E. Results Chain

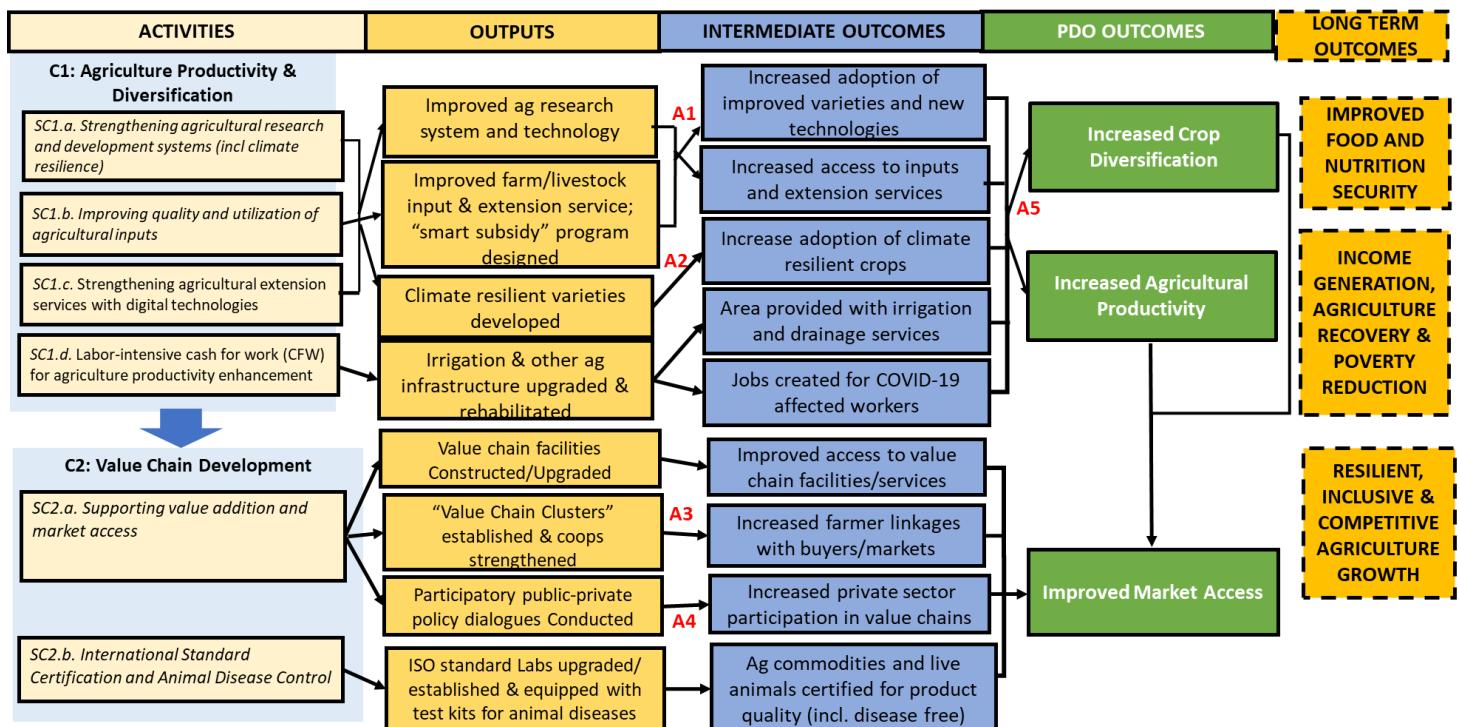
83. The project's Theory of Change (ToC) (Figure 1) outlines the proposed project interventions and the pathways to achieving the PDO. The ToC is built on the problem statement that Myanmar's agriculture is characterized by low agriculture productivity and slow progress in agriculture diversification, while its competitiveness is weak in regional and international markets. The main factors for the low productivity and diversification are past agricultural policies and investments that focused solely on rice to attain food security; limited agricultural R&D; the low quality of agriculture inputs; poor farming knowledge and technologies; inadequate supply and quality of agricultural extension services; and vulnerability to climate change. The COVID-19 pandemic also poses risks to the agricultural sector through its likely effects on farmers' access to agricultural inputs, which can lower productivity even further. The pandemic also affects agricultural production through its effect on the rural labor market, where the crisis resulted in both agricultural labor shortages and high unemployment among agricultural workers. The main factors for weak competitiveness in regional and global trade derive from limited value-addition processes due to inadequate value-chain infrastructure, limited private sector



participation, inadequate compliance with international standards for export (in food quality and safety), and a large number of unorganized small-scale farmers, which make backward and forward linkages difficult.

84. The proposed project finances two key interventions. The first focus area is *agricultural productivity enhancement, recovery, and diversification*, which includes supporting agricultural R&D, improving access to technology and inputs, supporting agricultural extension services, and enhancing climate-resilient farming systems. As an immediate response to the COVID-19 pandemic, the project will contribute to the development of digital extension, which includes COVID-19 awareness, assistance with agriculture sector recovery, and the creation of rural employment by providing support to poor rural households through CFW programs (for example, labor-intensive activities for the rehabilitation of irrigation schemes) and to increase access to agricultural inputs so that agricultural production continues smoothly, which will be critical to avoiding serious food insecurity threats in the coming months. The second focus area is *value-chain development*. This is achieved through three main activities: (a) upgrading and improving value-chain facilities and services, (b) supporting ISO certification and accreditation, and (c) supporting farmers to become part of “value chains” by fostering public-private partnerships. The project activities will lay a strong foundation for Myanmar’s agricultural competitiveness by, among other things, (a) increasing input quality and adoption of GAP; (b) supporting agricultural value-addition services (such as trainings and demonstration of improved packaging, sorting, and storage); and (c) strengthening product quality assurance and certification for the export market.

Figure 1. Theory of change



Note: Critical assumptions include the following: A1/A2 – Farmers can afford newly developed farm technologies and crop varieties; A3 – Farmers and buyers are willing and able to participate in “value-chain clusters;” A4 – There will be strong policy support to improve private sector participation in agricultural value chains; and A5 – The right technologies and inputs are accessed by farmers at the right time.



85. There is strong interdependence between activities in components 1 and 2. Farmers' access to agricultural technologies, improved seed varieties, and extension services will increase their productivity, thereby increasing farmers' marketable surplus. At the same time, farmers are incentivized to invest in and adopt better quality seeds and varieties if they have better access to markets with premium price opportunities. Further, the public-private platforms financed under component 2 are applicable for both components, encouraging more private sector participation in the input market as well as laboratory management. The expected outcomes include improved access to markets and related infrastructure services to support value-chain operators; increased farmer linkages to agribusinesses; improved farming and post-harvest practices; increased adoption of modern technologies and inputs; and increased adoption of climate-resilient crops. The expected PDO-level outcomes align with the government's long-term goals (including enhanced exports and agricultural sector competitiveness, improved nutrition, and higher incomes and poverty reduction) as articulated in the MSDP 2018–30 as well as the ADS 2018/19–2022/23.

F. Rationale for Bank Involvement and the Role of Partners

86. The World Bank has been providing support to the Myanmar agricultural sector through the Agriculture Development Support Project (ADSP, P147629) that has been instrumental in improving irrigation schemes and increasing agricultural productivity, particularly for paddy crops. It is timely to consolidate and scale-up the positive results already achieved and to address systemic agri-business environment constraints. The World Bank brings global experience to help enhance productivity and diversification of the agriculture sector and strengthen linkages between the private sector and farmers to integrate them into selected value chains. The project has synergies with the health and nutrition project, *Maternal and Child Cash Transfers for Improved Nutrition Project (P164129)*, which is providing support to set up the national nutrition system and food safety; and several trust funds supporting analytical activities that provide a good knowledge base for MOALI's operations. Since it is providing support to several countries in their efforts to mitigate and respond to COVID-19, the World Bank also brings vast global experience in providing agricultural response and recovery. Moreover, the project has been developed in close coordination and partnership with the IFC, which has several investment and advisory activities supporting MOALI, including support to MOALI–DOA through the *Myanmar Agriculture Inputs Reforms Project*.

87. The project was prepared in close coordination with other development partners—including the Asian Development Bank (ADB), International Fund for Agricultural Development (IFAD), United States Agency for International Development (USAID), Japan International Cooperation Agency (JICA), and others—building on the consultative network of the development partners in the agriculture sector. Further, the project was discussed with the universities and research institutions supporting MOALI, particularly the Wageningen University in the Netherlands. These partners will foster synergies with their ongoing operations and may provide parallel financing or technical assistance to some related activities. Broad consultations with representatives from the private sector and producer and processor organizations during project preparation have been critical to build a coherent project design ensuring good complementarity of activities between public sector support and private ventures. The World Bank will maintain close dialogue with development partners working in the agriculture sector in Myanmar throughout project implementation to identify and build synergies as new operations evolve.

88. The project will take the first steps to mobilize private sector engagement as part of promoting market access for farmers. The project actively engages IFC in design and implementation. It will leverage existing IFC clients to develop value chains and their technical assistance to improve access to finance, including the Country Private Sector Diagnostic – Building Markets, Boosting Development. The project is also collaborating with IFC to engage with private sector players,



particularly agro-enterprises sourcing their outputs from farmers. During implementation, the proposed project will further identify other investments existing in the specific project areas to avoid duplication and ensure complementarity.

G. Lessons Learned and Reflected in the Project Design

89. The project is designed taking into account lessons from the World Bank-financed ongoing ADSP that is implemented by MOALI. Such lessons include setting up a multi-departmental coordination committee to facilitate technical information flow and fiduciary controls. Continuous consultation processes and effective social safeguards implementation plus an efficient procurement implementation set-up will be embedded in the implementation arrangements of this project. Experience from the ADSP also highlights the importance of strengthening the effectiveness of MOALI's and allied agencies' core functions for improved service provision to farmers. This includes improving links between farmers and research and extension offices—with a strong focus on inclusion—such as with DOA's Extension Division, Seed Division, Land Use Division, and Plant Protection Division; DAR; and the Agriculture Mechanization Department, and building partnerships with a third-party extension service provider to enhance the provision of pluralistic, conflict-sensitive, and inclusive advisory services. Also, broader synergies and complementarity between the ADSP and similar work programs in the region demonstrated that achieving stronger results is possible through effective delivery of interventions, such as on-farm trials and demonstration farms showcasing agricultural technologies, GAP, and agricultural mechanization. These were essential for other projects to achieve satisfactory outcomes in promoting the adoption of improved agricultural technologies and sustainable land management practices. However, an effective coordination mechanism is necessary in this regard to ensure greater agricultural diversification (especially toward non-rice crops).

90. Good quality inputs are essential for productivity improvement and some lessons from the IFC's *Myanmar Agriculture Inputs Reforms Project* on fertilizer quality and food safety are incorporated under component 1. This project showed that smallholder farmers are largely disconnected from the midstream and downstream stages of the value chain and that creating this linkage is critical. The project was also successful in organizing farmers and worked with the private sector to support farmers to achieve GAP to create markets (domestic and international) for local agricultural produce. IFC developed a pilot concept of the GAP Fair and Workshop and initiated discussions for an effective internal collaboration as they could bring in private sector firms (finance, agri inputs, post-harvest, and mechanization providers, as well as market buyers) to participate by showcasing their products and by presenting to farmers the standards of agricultural products sought by the market in Myanmar and overseas. This multi-dimensional support through the promotion of the Myanmar GAP protocols and guidelines, quality inputs, training events, and an awareness campaign was successful in bringing together many farmers and other value-chain actors.

91. The project has also benefited from lessons from other major development partners' projects in the agricultural sector. The USAID's Value Chains for Rural Development Project had success with coffee—in linking quality coffee to international buyers—and worked on a range of other crops with variable outcomes (including sesame, soy, melon, and ginger). Consultation with USAID shows that organizing farmers into smaller groups and farmer-to-farmer trainings were important for the success of their projects. ADB is also financing a project to improve the quality of private sector products through trade promotion, upgrading of the marketing information system that covers several commodities including kitchen crops in more than 20 markets, and creating a public-private platform and producer clusters for the beans and pulses value chains. JICA is developing a strategy for livestock sector development and is investing in horticulture value-chain development. The project also reflected the lessons from the Wageningen University's technical support and studies with regard to national fertilization recommendations. The project team consulted with several development partners



(including USAID, ADB, JICA, and the German Agency for International Cooperation (GIZ) and with the private sector (including the MFFVPEA; the Myanmar Pulses, Beans and Seeds Merchants Association; and other traders). The key lessons were that organizing farmers into groups, providing them with technical advice to ensure GAP, and linking them with markets are critical to increase economies of scale and to produce good quality products.

92. Project preparation has also greatly benefitted from rich resources of various analytical work and consultation processes with key stakeholders, which identified the key bottlenecks in the agriculture sector that the project will aim to address. First, the project design benefited from two related studies on *Farm Production Economics and Value Chain Dynamics*, which were based on longitudinal farm-level data on the farming systems of paddy and non-paddy crops during 2013/14 and 2017/18. The project also benefited from the *Myanmar Agriculture Public Expenditure Review* conducted in 2017. The third study that informed the project's design was *From Rice to RICE: Integrated strategies for Myanmar to realize a more resilient, inclusive, competitive, and environmentally sensitive food system*, 2019. In addition, several insights on the status of Myanmar's food systems were highlighted during the recent "Workshop on Modern Food Systems in Myanmar" (February 2018)⁴⁷ as well as from client and donor consultation workshops conducted in May 2019 on *Farm Production Economics*. The workshop discussions noted the ongoing challenges and opportunities for the development of Myanmar's food systems, and these are captured in this project document.

93. On private sector engagement, the project will also benefit from IFC's Country Private Sector Diagnostic—Building Markets, Boosting Development to identify key constraints and opportunities in the related agri-business subsectors. During preparation, private sector consultations were organized with agribusiness associations (fruits, vegetables, cotton), which provided concrete feedback and recommendations about the improvements needed in the laboratories system to promote private sector engagement and the proposed value-chain development design.

94. Finally, experience from the ongoing World Bank-supported National Community-Driven Development Project (NCDDP, P132500), which is implemented by the Department of Rural Development (DRD) of MOALI, offers some important lessons for planning and managing operations in conflict-affected townships. As the NCDDP scaled up into these areas, it found that staff at the township level and below faced an additional, unique set of risks and challenges. These included managing relationships with multiple stakeholders (both government and nongovernment), monitoring and assessing the security situation, ensuring the safety of field staff, and brokering and negotiating terms of conditionality for operations in contested areas. In response, the DRD chose to invest in building the capacity of staff at the township level on conflict sensitivity, as well as conflict-sensitive facilitation and conflict-resolution skills. Furthermore, to ensure lessons and best practices were documented, the World Bank commissioned a study under the NCDDP on conflict-affected townships. The NFASP will build upon this to ensure its efforts to develop the agriculture sector in Myanmar are conflict sensitive.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

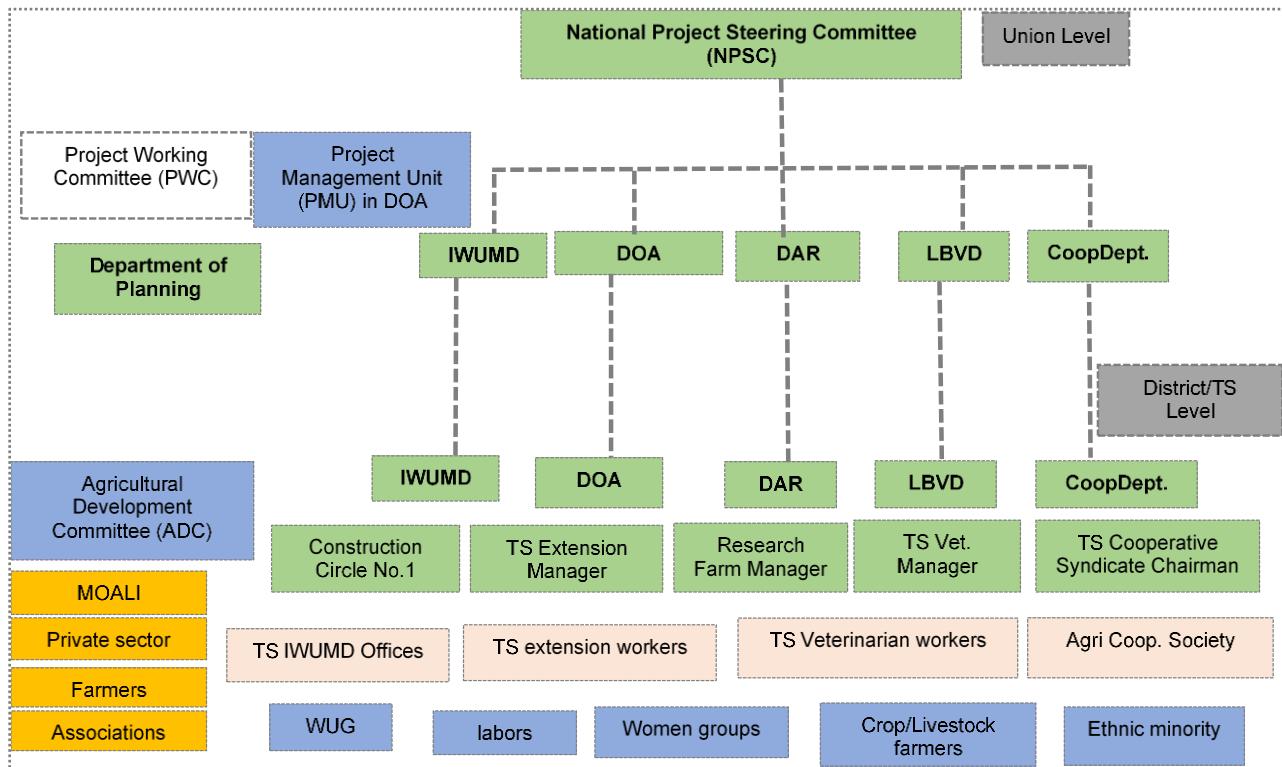
95. MOALI will be the implementing agency for the project. MOALI is responsible for the development and management of agricultural support services, livestock sector, and irrigation and water management (figure 2). With a staff of more than 70,000, it is one of the largest ministries and covers a wide range of activities, including agricultural

⁴⁷ The World Bank and MOALI, 2018. Modern Food Systems in Myanmar Workshop Compendium.



research and extension services, agricultural inputs, mechanization, and irrigation and water management. Annex 1 has a detailed description of the implementation arrangement.

Figure 2. NFASP Implementation Arrangement



96. The project will be governed at the union level in NPT by the NPSC, which has several functions, including providing policy and strategic guidance to project implementation and resolving any issues of a policy nature that might arise during project execution. It is envisaged that the NPSC will involve other relevant ministries including the MoC, which has a mandate for export promotion (Department of Trade) and Ministry of Education (MoE), which has a mandate to establish National Quality Infrastructure in Standardization, Accreditation and Metrology (National Standards and Quality Department). The NPSC will be chaired and co-chaired by the Deputy Minister and the Permanent Secretary of MOALI, respectively, and its composition will be defined in the PIM. The NPSC meeting will be held every six months. The PMU will serve as the NPSC's secretariat. The NPSC will be set up through a special order from the Minister of MOALI not later than three months after the project's effective date.

97. The PMU will be established not later than three months after the effectiveness date within DOA, which is the focal department for the project and will have the mandate to implement the project. The PMU will be managed under the direction of the project director, who will ensure that the project implementation is closely aligned with MOALI's strategic plans, coordinate the work between various departments, and ensure that the project receives proper attention from MOALI senior management to resolve urgent implementation issues. The day-to-day operation of the PMU will be managed by a project manager, who will be recruited through a competitive external process. The PMU staff will include both seconded MOALI staff and consultants: a financial management (FM) specialist; national procurement specialist; M&E specialist; safeguards specialist; and technical support staff, depending on evolving needs. The PMU will ensure that



annual work plans and budgets are prepared and implemented on time and that the management of project funds is in line with the provisions of the project's eligibility guidelines. The PMU will be responsible for the project's FM, procurement, and safeguards functions together with DOA Financial and Procurement Divisions, who second their staff to the PMU.

98. Project implementation will be carried out by the six technical departments (DOA, DOP, DAR, LBVD, IWUMD, and CoopDept) through their central-, regional-, district-, and township-level structures. DOA will be the focal department for the overall project, DAR will lead subcomponent 1.a on R&D; and IWUMD will lead subcomponent 1.d. The CoopDept will coordinate with DOA for subcomponent 1b and LBVD will lead livestock-related activities of subcomponent 2.a. A Project Working Committee (PWC) will be established, not later than three months after the effectiveness date, to support project implementation and to overcome project constraints, review project work plans and project progress, resolve implementation bottlenecks, and provide guidance on any other matters as requested by the PMU.

99. The project will be governed Agricultural Development Committees (ADCs), which are township-level structural coordination bodies that have a broad-spectrum representation of township-level stakeholders. They cover representatives of all respective departments of MOALI Hluttaw (Parliament) members. The ADCs are chaired by the General Administration Office under the Ministry of the Office of the Union Government and the DOA Township/District Manager led ADCs in some townships and districts. The main function of the ADC under the project is to provide a platform for joint (MOALI–farmers–private sector) planning and monitoring of project activities in the project areas. ADCs would have to ensure coordination of project activities between implementing departments, participate in the bottom-up formulation of the annual work plans, review implementation progress, and provide guidance to field staff. The project envisages to involve private sector representatives, associations (livestock, seed, and crops), agricultural centers, and universities in ADC meetings to enhance coordination and partnerships. Implementation of project activities at the township level will be coordinated by Project Implementation Committees (PICs), which are subcommittees under the ADC, and include field level staff of the implementing MOALI departments (DOA, DOP, DAR, IWUMD, LBVD, and Coop Dept) who follow the work plans developed by the respective departments for Components 1 and 2.

100. Extension workers (DOA), research farm officers (DAR), township IWUMD officers, veterinarian officers (LBVD), and township cooperative syndicate chairmen are assigned as the district and township implementers. They are based at the township level; locally recruited; familiar with the local context and the agriculture and livestock conditions; and speak the local languages. They will reach out to farmers and producers with information, trainings, and demonstrations to the small farmers, including women and ethnic minorities.

B. Results Monitoring and Evaluation Arrangements

101. The PMU will be responsible for coordinating all M&E activities and ensuring that data and information from technical divisions (DOP, DOA, DAR, IWUMD, CoopDept, and LBVD) as well as the respective township offices are produced and collected on time and are of good quality. The PMU will monitor progress against the agreed project outcome indicators in the Results Framework (RF, section VI). The project M&E system will focus on tracking and assessing project implementation progress, output, outcomes, and impacts across all three components. The PMU will be responsible for consolidating the “Implementation Progress Report” on a bi-annual basis for the project director, who will submit the reports to the PWC and the World Bank for review and for any corrective measures. The PMU will also be responsible for monitoring any changes in the security situation in the conflict-affected townships, in coordination with township ADCs, and for documenting this and taking actions to protect staff and communities.



102. A management information system (MIS) will be developed to monitor project progress and to integrate information from different sources, levels, and technical departments. In addition to regular monitoring and reporting, periodic surveys will be carried out to assess project impact and to track the progress of economic inclusion through disaggregated data. This will involve three surveys including: (a) a baseline survey during the first year of project implementation; (b) a mid-term survey after the third year of project implementation; and (c) an end of project survey at project closure. Considering that restricted movement may continue, the project will explore utilizing field-appropriate ICT tools for remote supervision and monitoring as well as third-party monitoring.

103. The RF has several indicators that are disaggregated by gender and by VPGs. The previously mentioned periodic surveys, including baseline, mid-term review (MTR) and end of project surveys, will establish the baseline of the farmers belonging to VPGs at each township and will track disaggregated indicators to investigate specific economic-inclusion challenges both through qualitative and quantitative data collection mechanisms. As a part of the MTR and end-line assessment, the project will conduct a study to monitor that the VPGs are indeed successfully integrated in project benefits, as envisaged.

104. The project M&E will also use data from the updated grievance redress mechanism (GRM) system and information from an inclusive consultation process (local social assessment, outreach, consultations through the ADCs, use of short phone-based [call or text] beneficiary engagement surveys) to monitor whether beneficiaries are benefiting from and satisfied with project activities.

105. In addition, a few specialized studies may be commissioned, as a part of the MTR, to explore and document aspects of the project which deviate from its average experience across townships, for example, on conflict-sensitive agricultural extension in contested areas or the effects of value-chain development of tea plantations on participation in conflict-linked activities.

C. Sustainability

106. The project's sustainability is bolstered by the GoM's strong ownership of the overall project concept and design elements, which build on the strategic pillars of the ADS. The project supports activities that were thoroughly identified and selected during consultations with MOALI, development partners, and many other stakeholders. The project's sustainability is also reinforced by MOALI's commitments to further agricultural reforms, as envisaged in the ADS. The project's investments will complement and strengthen the agricultural sector reform agenda.

107. The public-private platform, which is supported under component 2, will promote private sector participation while MOALI will gradually shift its focus to oversight of the regulatory framework. The project will support MOALI laboratories to develop business plans to sustain their management in a suitable manner. To ensure the sustainability of the MOALI laboratories that will be supported by the project under components 1 and 2, priority will be given to laboratories that (a) develop sound business plans (including trade destinations) in partnership with the private sector; (b) have sufficient staffing and a capacity-building plan; (c) have proper regulatory frameworks and policies in place; and (d) address pre-identified safeguard risks and put safeguard measures in place. Capacity building and safeguard measures related to investments will be financed by the project (annex 6).

108. The project will strengthen public institutions through staff training, support for more efficient organization, and the provision of adequate support for agriculture service delivery. The project will introduce a digital platform for extension services, market information, and agricultural advisory services. The enhanced capacity of public institutions



and service providers, and the creation of digital platforms under the project, would enable the upgrading of service content, quality, and utilization after the project ends. The project's efforts to improve capacity to respond to development challenges while prioritizing conflict-sensitivity also contributes to stronger institutions.

109. Finally, the project will also support MOALI to develop a guideline for sustainable management of MOALI laboratories from the safety and safeguard perspective, which is currently absent in the country. The project will also contribute to climate change adaptation and mitigation through the promotion of CSA, both being key pathways to poverty reduction and shared prosperity, beyond the end of the project.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic, and Financial Analysis

110. **Technical design.** The technical design of the proposed project is kept flexible reflecting the early stages of reforms and country capacity and the need for a sequential approach. Overall, the project is designed to address the major constraints for Myanmar's agricultural growth—low productivity and slow progress in diversification, and weak competitiveness in regional and international markets. The technical design of Component 1 focuses on productivity and Component 2 focuses on value-chain development. They are based on well-established and tested local and global practices and lessons gained from various the World Bank-, ADB-, IFAD-, JICA-, and USAID-supported projects in Myanmar, ensuring synergy and complementarity.

111. The technical design of Component 1 will be based on an assessment of options from international experiences and local consultations and ongoing research on the national area-specific fertilization program and recommendations. The enhancement of national GAP and certifications will build on the ongoing ADSP's successful results.

112. The Irrigation and drainage activities under Component 1 aim to respond to urgent irrigated agriculture development needs as well as COVID-19 emergencies. They will focus on structural and nonstructural measures through investments in institutions, which are needed for efficiency, effectiveness, and sustainability, and in infrastructure rehabilitation that will deliver tangible benefits. The focus is on generating local incomes using labor-intensive CFW approaches for special maintenance and rehabilitation. The design will build on the experiences of the ADSP using consultative and participative approaches for those irrigation and drainage systems, which, after a detailed assessment, are found eligible for funding under the project. Civil works in the main irrigation and drainage systems will initially be implemented though the present system of using their own resources (called the "forced account" method in the World Bank's Procurement Guidelines) including labor, machinery, and buying other materials, such as cement and fuel, among others.

113. The technical design of Component 2 aims to boost the development of agricultural value chains, while ensuring the inclusion of minorities and other marginalized groups. The project will ensure the inclusion of poor and disadvantaged farmers by (a) identifying townships with high poverty rates, (b) conducting deeper consultations to verify and refine targeting strategies, and (c) using this evidence base, among other considerations, to form value-chain clusters. In this context, the added value of the World Bank's support includes global knowledge and operational know-how brought from international experiences, such as the productive alliance model from Latin America to address market failures.

114. Components 1 and 2 are closely inter-linked. The promotion of GAP will strengthen the trade position of the participating value-chain actors and the entire sector. Improving awareness and providing training and access to relevant



certifications are crucial for producers, processors, and exporters. Conflict-sensitivity is a cross-cutting theme and will be ensured through multiple project initiatives, which include capacity building, participatory approaches and platforms, and specialized reviews and studies.

Economic and Financial Analysis

115. **Project benefits.** The quantifiable benefits include (a) increased productivity of crops and livestock and (b) reduced GHG emission from meat (cattle) production. There are also other indirect benefits that may not necessarily be captured by the economic and financial analysis (EFA), such as trade, employment, nutrition, and climate adaptation impacts. The project's main benefits will come from Components 1 and 2 supporting the Myanmar's agricultural growth. Component 1 will increase crop and livestock productivity through increased adoption of improved and more sustainable farming technologies and climate-resilient crops, and increased access to improved inputs (that is, fertilizer quality) and extension services. Component 2 will increase value-chain competitiveness through improved export market access and increased farmer links to downstream buyers. See annex 4 for a detailed discussion of project benefits.

116. **Rationale for public interventions.** Besides commercial products, agriculture provides societal public goods, such as food security. Given the public goods nature of agricultural research and related project investments and the limited private sector involvement in some of the targeted value chains due to market constraints, public sector provision is needed to fix the market failures. For example, support for the development of drought-resistant varieties or extension services, given the market scale and provision of these services in Myanmar, is considered of high risk and not profitable for private sector investment. Unlike developed countries, private sector participation for the development of locally adapted varieties or the supply of extension services is limited or almost nonexistent in Myanmar. Thus, the government needs to step in to provide agricultural research and extension services as a public good. The COVID-19 response activities will support farmers in the provision of economic relief through the CFW program and provision of agricultural inputs.

117. **Rationale for World Bank involvement.** The rationale to engage the World Bank and its staff in this project is its technical input and international experience in developing similar projects in other countries. At the same time, local expertise in Myanmar is either not available or has limited technical capacity. The involvement of World Bank support has benefited the project design and interventions, accounting for issues that may have been overlooked or not accounted for. For example, the involvement of the private sector, included upon the World Bank's advice with the support of IFC, may lead to an increase in the project's development impact beyond the original design with the GoM's own resources.

118. **Economic analysis.** The economic analysis is based on the illustrative crop and enterprise models that are considered representative of the production systems supported under Components 1 and 2. The economic internal rate of return (EIRR) of the overall project for the base case is 22.8 percent (including also costs of Component 3). The net present value (NPV), discounted at 13 percent, is US\$296 million (MMK415 billion), with a benefit-cost ratio of 3.45. A sensitivity analysis has been conducted to assess the potential impact of these risks, resulting in increased costs or delayed benefits. The economic viability of the project is quite robust, and the EIRR remains above 13 percent for most scenarios. Considering that several potential project benefits have not been quantified in economic terms (for example, environmental benefits, other direct and indirect benefits for the rural economy, and additional direct benefits from institutional development under Component 2), the project has a strong justification on economic grounds.

119. **Financial analysis.** The financial analysis uses the same crop and enterprise models, with all commodities and input values using a standard conversion factor (SCF) of 0.90, taxes removed, and with family labor quantified but not valued. The results of the financial analysis produced a financial internal rate of return (FIRR) of 23.1 percent indicating



that the investment is financially viable. The analyses clearly show the financial viability of the production and processing activities supported by the project, and the potential for significant increases in gross margins, net profits, return to labor, and return on investment resulting from the project.

120. **GHG emissions reduction and the shadow price of carbon.** The net balance of all GHG emissions (expressed in CO₂-equivalent) that would be emitted or sequestered within the potential project activities was estimated and accounted for in the economic analysis using the social price of carbon. The EFA uses a low and high estimate of the carbon price starting at US\$40 and US\$80, respectively, in 2020 and increasing to US\$50 and US\$100 by 2030. According to the calculations using the FAO's EX-ACT tool, the project showed a total reduction during the project lifetime of 6.5 million tons of CO₂-equivalent, which means that the project will have a positive carbon sequestration balance. The overall carbon benefit is estimated to range between US\$105 million in the low shadow price of carbon scenario to US\$209 million in the high shadow price of carbon scenario. Incorporation these economic benefits into the economic analysis increases the economic rate of return of the project between 26.9 and 31.5 percent, under the low and high price of carbon scenarios.

121. **Additional project benefits on agricultural production, trade, and employment.** The project will result in additional indirect positive impacts on national GDP, terms of trade, and employment in agriculture that are not necessarily captured in the benefit-cost analysis. Using a general equilibrium model, the project is estimated to have positive impacts on employment and tax revenues. The increased income and employment would result in increased demand for goods and services in the project areas, which is expected to generate additional income and employment effects, and further increase government tax revenues. The results presented in annex 4 show that a 1 percent and a 5 percent impact on agricultural productivity, will have a positive impact on the overall economic activity, with changes in GDP between 0.5 percent and 2.5 percent. Due to the increased productivity, exports will increase between 4 percent and 20 percent, while agricultural imports will decrease between 1 percent and 6 percent. These results show the increased domestic production and self-sufficiency of the agricultural sector, while reducing agricultural and farm gate prices between 1.9 percent and 8.6 percent. These positive changes in agricultural production and employment will have an overall positive impact on the welfare of the population equivalent to between US\$250 million and US\$1.14 billion. In addition, foreign exchange earnings are expected from increases in exports.

122. **Climate co-benefits.** Annex 5 provides an extensive discussion of the potential climate co-benefits resulting from the project. Among those climate co-benefits related activities, the project under Components 1 and 2 will support the development of climate-resilient varieties of crops and seeds (Subcomponent 1.a and 1.b), and dissemination of CSA practices, such as the use of improved seeds and planting materials or crop rotation enhancements, efficient water, expanded irrigation, and integrated management of soil and nutrient fertility (Subcomponents 1.b, 1.c, and 1.d). The project will also develop, demonstrate, and promote climate-resilient activities, such as the leveling and manuring of farms to improve soil fertility. These activities will help strengthen the resilience of smallholder farmers to the negative impact of climate change.

123. As described in the EFA, the project also has the potential to reduce GHG emissions from improved and more efficient livestock production. However, there are also other climate mitigation co-benefits that are not quantified and that might reduce GHG emissions, such as reductions in seed and fertilizer use (Subcomponents 1.a and 1.b); improved manure management; adoption of CSA practices (Subcomponents 1.a and 1.c); increased climate resilience to droughts from increased land under irrigation (Subcomponent 1.d); increased efficiency in value-chain processes (for example, cold storage) (Subcomponent 2.a); and potential reduced use of fuel for transport in the selected value chains (Subcomponent 2.b) and fuel for water pumping (Subcomponent 1.d). Please refer to annex 5 for more details.

**B. Fiduciary****(i) Financial Management (FM)**

124. An FM assessment for the proposed project has been carried out. The assessment has concluded that the project meets the World Bank's minimum FM requirements, as stipulated in the World Bank Policy/World Bank Directive for Investment Project Financing.

125. Overall the FM risk is high before the mitigation measures and *substantial* after the mitigation measures. The main financial risks identified include the following: (a) inadequate documentation of policies and procedures and lack of clarity on applicable government rules; (b) implementation by several departments and divisions leading to difficulty in coordination; (c) little experience of staff members with contracting and monitoring the quality and output of services provided by contractors and consultants in all departments and divisions; (d) the use of manual processes for recording receipts and expenditures; (e) paper voucher-based input may reach the wrong beneficiaries with the wrong value or quantity and may not be reported in a timely manner; and (f) the project staff who are responsible for e-voucher system may not have the required experience and expertise to manage the new procedure.

126. These risks will be mitigated by: (a) having in place an acceptable FM manual as part of the PIM, including the guidance and procedures for using voucher systems that includes effective targeting through identifying the intended beneficiaries, maintaining the list of beneficiaries and suppliers, and reconciling the list of the beneficiaries who received vouchers with that of the suppliers' records; (b) establishing a finance unit as part of the PMU with focal persons from DOA to support all other implementing departments and divisions in establishing effective coordination and building an efficient working environment, especially for FM project issues; (c) providing trainings in FM, MIS, and contract management for all staff who will be involved in project implementation; (d) supporting the voucher system and CFW operations at the field level, including maintaining the list of beneficiaries with complete information including their national ID and contact numbers at different locations and sites and recording transactions at union offices, employing the use of Excel to record transactions by project components and disbursement categories and according to government chart of accounts until a bookkeeping application like the government accounting system is operationalized and the use of online systems and emails for recording, reporting, and communication is adopted; (e) installation of the MIS system in the later stage of project implementation as technical assistance to develop the e-voucher system to: (i) support the voucher system, capturing the information of beneficiaries and input suppliers at different cooperative locations; (ii) serve as the basis for verifying the paid amount and quantity; and (iii) generate the required reports on all payments and balances of individual beneficiaries and cooperatives; (f) to ensure the transparency of project implementation, especially for the force account implementation, the provision of vouchers, and the supervision of NPSC and PMU; and (g) development of internal audit functions to ensure that the project is effectively and efficiently implemented.

(ii) Procurement

127. Procurement under the proposed project would be carried out accordance with the World Bank Procurement Regulations for IPF Borrowers, dated July 1, 2016, and revised August 1, 2018. World Bank standard procurement documents would be used for all procurements under international competitive bidding and all consultant selection processes. The project will use a web-based Systematic Tracking of Exchanges in Procurement (STEP) to communicate procurement review requests with the World Bank. Key procurement approaches will include national competitive bidding or shopping procedures. Consultant contracts will be identified depending on project needs, with selection methods based on threshold amounts and complexity.



128. A procurement capacity assessment for the proposed project has been carried out by the World Bank. It found that while the responsible Ministry, MOALI, is currently implementing the World Bank-funded ADSP, six implementing departments under the Ministry for this project—DOA, DAR, LBVD, CoopDept and IWUMD—are relatively new to the World Bank-financed project with limited prior experience with World Bank Procurement Policies and Regulations. DOA will be focal department (PMU) for the implementing agency of the project. Among the five departments, the irrigation department (IWUMD) is currently implementing the ADSP project and is the most experienced department under this new project. A draft Project Procurement Strategy for Development (PPSD) has been prepared and includes a strong set of measures to build the procurement capacity of DOA, DAR, LBVD, CoopDept, and IWUMD. The strategy includes capacity building support to the PMU, development of procurement guidance as part of the PIM, and a procurement training program for the project staff.

129. DOA will lead the project procurement implementation and will set up a PMU. There are six divisions involved under DOA, one in DAR, and one in LBVD, CoopDept, and IWUMD. Therefore, there are totally 10 units that will hold separate budget responsibilities and will implement the project procurement accordingly. DOA will be the coordinating body for all units and the PMU will attach with DOA. The DOA Procurement Unit will manage the PMU procurement team on a daily basis and will procure for DOA, DAR and LBVD. CoopDept and IWUMD will set up the separate procurement unit to implement their relevant component's procurement.

130. DOA, DAR, CoopDept, and IWUMD will implement Component 1 and DOA, LVBD, and CoopDept will implement Component 2. Since all five main departments have limited prior procurement implementation experience, international and national procurement consultants will support and build the capacity of the agency's staff. All units will assign one focal staff to work with the PMU and coordinate each stage of procurement.

131. The initial PPSD developed by MOALI shows that most of the procurement packages are simple and small- to medium-size contracts. Given the emergency nature of the project, streamlined procurement approaches would be used as much as practicable to hasten project implementation. Given the difficulty that MOALI has experienced to attract qualified and experienced local and international contractors to rehabilitate small-size irrigation facilities in remote areas where they are located, IWUMD, which has constructed several comparatively bigger dams all over Myanmar would provide such works using the force account approach. Protocols that were used to provide similar services under the ADSP would be adopted and regular supervision put in place to monitor quality and control integrity issues.

132. The risk rating for procurement management is *Substantial*. The key procurement risks that could negatively affect attainment of the PDO include the limited procurement staffing at DOA, DAR, LBVD, CoopDept, and IWUMD; lack of experience in implementing a World Bank-financed project; weak procurement capacity; and a lack of comprehensive procurement frameworks, standard procurement documents, detailed procurement procedures—no standard documents and forms of contract exist and these must be adopted from various sources; weak coordination among the different implementing agencies; delays due to lengthy approval processes; and lack of delegation to heads of departments. Proposed mitigation measures for the above risks include recruitment of additional procurement consultants to work with and train assigned procurement staff at DOA. A PIM will be prepared to provide a clear set of guidance for procurement, and training will be provided to all project staff involved in procurement. Details of the procurement risk mitigation arrangements and procurement methods and approaches are described separately in the PPSD for the project drafted by MOALI.



C. Safeguards

133. The proposed project is a Category B project under the World Bank environmental and social screening guidelines as the activities and investments are not likely to cause significant or irreversible environmental impact. The proposed project finance was originally US\$85 million and scheduled for Board approval in FY21. However, given the urgency to respond to the COVID-19 crisis in the country and particularly in the agriculture sector, the Government of Myanmar requested the World Bank to scale up the project finance to include COVID-19 response activities as well as more townships and beneficiaries. In support of the government's request, the project financing has been increased to US\$ 200 million, and the Board date has been advanced to June 2020.

134. In order to accelerate preparation and meet the new project board date, the team received approval on May 18, 2020 from the CD, (i) to apply paragraph 12 of Section III of the Bank Policy: Investment Project Financing to the proposed project, due to a situation of a natural disaster or man-made crisis; and (ii) to process the Project under condensed procedures, pursuant to the Bank's procedure "Preparation of Investment Project Financing—Situations of Urgent Needs of Assistance or Capacity Constraints".

135. The restricted movement for both the Government and the World Bank as well as accelerated Board date did not allow the client to update the existing safeguards instruments and prepare the new additional instruments nor carryout the needed consultations and disclosures. Therefore, approval from the Regional Vice President (RVP) was obtained on May 29, 2020, to defer the preparation of safeguard instruments for newly added activities until the project implementation phase.

136. The safeguard category will remain as category B, given the nature of these new additional activities, which include the irrigation rehabilitation and maintenance through labor-intensive work (component 1.d), agriculture inputs support through voucher (Component 1.b), support to seed cooperatives (component 2.a).

137. The original ESMF is being updated to include the additional activities and to include specific sections addressing the additional requirements to fully comply with OP/BPs -Involuntary Resettlement (OP/BP 4.12) and Indigenous Peoples (OP/BP 4.10), which were already triggered in the original ESMF, and to comply with additional OP/BPs on Safety of Dams (OP/BP 4.37) and Projects in International Waterways (OP/BP 7.50). An exception to the riparian notification under OP/BP 7.50 for the irrigation rehabilitation works was approved by the RVP on May 28, 2020. The dam safety assessments of the irrigation schemes dependent on dams will be conducted prior to any works commencement, and irrigation schemes that depend on dams that have a high risk, or significant and complex safety issues will not be eligible under the project. New irrigation activities that would trigger the notification requirement under OP/BP 7.50 will be excluded, and this will be specified in Project Implementation Manual.

138. Accordingly, An Environmental and Social Action Plan (ESAP) was therefore prepared, outlining the additional safeguards measures MOALI will prepare during the early phase of implementation. During early phase of implementation, the project will revise the ESMF, conduct additional required assessments, consultation and prepare the necessary instruments, including RPF, CPPF, CPP as identified in the ESAP. After additional consultations, the revised ESMF and other instruments will be re-disclosed.



(i) Environmental Safeguards

139. **Environmental Assessment (OP/BP 4.01).** Overall, the project is expected to deliver a number of environmental benefits, such as improved soil and water management practices considering the agro-ecological context of the project intervention area. Major potential environmental impacts are limited to the following categories: (a) rehabilitation of existing irrigation and drainage works (b) construction of new and upgrading of infrastructure and facilities; (c) maintenance and operation of facilities (for example, processing and cold-storage facilities); (d) agriculture and livelihood activities; (e) procurement of equipment, materials, chemicals, and others; and (f) provision of services. Table 2 summarizes the potential environmental impacts and the instruments for impact mitigation in each type of activity.

Table 2. Potential Likely Impacts and Measures for Different Type of activities

Type of Activity	Potential Impacts	Environment and Social Instruments and Other Tools for Impact Mitigation
1. Rehabilitation of Distributary Canal and water courses, and strengthening of embankment for protection of flood and sea water intrusion	<p>Stage 1 of the rehabilitation works (non-reservoir irrigation schemes) involve minor repairs and maintenance such as canal cleaning, re-sectioning, improvement of access road, minor repairs. Potential impacts and risks are related to minor repair activities including OHS and community health and safety. There is also a potential risk that the sludge from the cleaned-up canals could be contaminated especially with the washed agrochemicals residues. The project will have proper sludge handling and management procedures under ECoP to manage the cleaned-up sludge and to prevent harmful exposure to the workers and community.</p> <p>Stage 2 rehabilitation works involve schemes from the existing Bank's project (ADSP) which dam safety studies already conducted and available. Potential environmental impacts and risks are limited to the construction-related activities: noise, dust, waste disposal, management of storm water and community and workers health and safety. These impacts can be readily managed through standard mitigation measures, Code of Conducts for OHS, good engineering designs and good practices for civil construction and transport-related impacts.</p> <p>Transport impacts along haul routes associated with heavy vehicles are noise, dust, road safety, road surface condition. These can be managed through establishment of traffic management plan.</p> <p>Stage 3 will involve schemes connected to existing dam without previous/existing dam safety assessments. Dam Safety (OP4.37) is</p>	<ul style="list-style-type: none">For Stage 1 rehabilitation works, the project will develop/draft an Environmental Code of Practice (ECoP) for minor construction works on existing irrigation schemes. The ECoP is to be annexed into the current ESMF.For Stage 2 rehabilitation works, (i) the project will adopt recommendations from all relevant dam safety reports/plans under ADSP (ii) for all dams relevant for the project implementation, existence and effectiveness of emergency preparedness and response plans will be reviewed before commencement of the works, and (iii) update the ESMF accommodating potential impacts and risks from this additional activity.,For Stage 3 rehabilitation works, (1) Dam safety assessment will be performed in line with O 4.37. In this case, MOALI is to arrange for an independent dam specialist to: inspect/evaluate safety status and its performance history, review/evaluate the operations and maintenance (O&M) procedures, and provide a written report of findings and recommendations for any remedial or safety-related measures;(2) Based on the results from this assessment, the project will develop safeguards instruments: for those dams with low and medium risks: ESMP/IEE will be prepared, or (b) high risk: ESIA will be prepared, consulted, and disclosed. The project will also develop the Emergency Preparedness and Response Plan for each connecting dam and scheme;(3) MOALI to adopt recommendations from all relevant dam safety reports/plans.



Type of Activity	Potential Impacts	Environment and Social Instruments and Other Tools for Impact Mitigation
	<p>triggered as the performance of the Bank financed project (or in this case, rehabilitation of existing schemes) is dependent on an existing dam. In this case, a due diligence will be needed.</p> <p>There is the potential risk for land acquisition for a range of activities, including but not limited to: (i) establishment of construction camp; (ii) temporary construction roads; (iii) improvement of access roads requiring widening of such roads/ bridge approaches; (iv) requirement for widening of irrigation channels; (v) need for borrow pits for construction materials; (vi) spoil disposal area's to dispose of the materials removed when repairing the existing channel and (vii) encroachment. Each of these potential issues/activities will potentially require land acquisition, either temporarily or permanently. The activities risk directly impacting Ethnic groups as well as their exclusion from participation in WUGs.</p>	<ul style="list-style-type: none">The ESMF has an Resettlement Policy Framework (RPF) and Community Participation Planning Framework (CPPF) annexed to it. These will be updated to reflect the risk of land acquisition and direct impacts to Ethnic Groups. Activity screening during implementation preparation will determine if an (A)RAP or CPP is required.
2. Construction (new and upgrading)	Noise, dust, waste disposal, hazardous substance and materials, management of stormwater, and health and safety of workers and nearby community	<ul style="list-style-type: none">ESMF to screen activities ensuring that relevant safeguards policies are adequately addressedSite-specific Environmental and Social Management Plan (ESMP) to manage mitigation measuresEnvironment, Health, and Safety guidelines for reference as a generic environmental management plan, particularly for construction-related activitiesECoPGood engineering designs and good practices for civil constructionDevelopment of guidelines for hazardous waste management, which includes standardized safety measuresCode of conduct for workers
3. Maintenance and operation of facilities	Hygiene, reliable and adequate water and power supply, health, and safety	<ul style="list-style-type: none">ECoPGuidelines for biosafety protocol; storage for chemical materials; and environmental, health, and safety
4. Agriculture and livelihood activities	Soil erosion, health and safety related to the use and handling of chemical materials including pesticides and fertilizers, community health, eutrophication of surface water resources from surface runoff and leaching of nutrients, air emissions (ammonia and odors) from livestock	<ul style="list-style-type: none">The ESMF to screen activities ensuring that relevant safeguards policies are adequately addressedSite-specific ESMP to manage mitigation measuresECoPGAPCPP



Type of Activity	Potential Impacts	Environment and Social Instruments and Other Tools for Impact Mitigation
	activities, solid wastes generated by livestock activities (waste feeds, animal wastes, etc.)	
5. Procurement of equipment, materials, chemicals, and others	Health and safety of workers and nearby community	<ul style="list-style-type: none"> • Negative list for banned hazardous materials • Training for staff on the use and handling of hazardous materials
6. Provision of services	Ethnic people, gender	<ul style="list-style-type: none"> • ECoP • CPPF

140. **Natural Habitats (OP/BP 4.04).** The policy prescribes “Natural Habitats” as areas where (a) the ecosystems’ biological communities are formed largely by native plant and animal species and (b) human activity has not essentially modified the area’s primary ecological functions. The ESMF provides screening mechanisms for project activities to exclude any activities that would involve significant conversion or degradation of natural habitats.

141. **Pest Management (OP 4.09).** The project will also contribute to integrated pest and disease management through the adoption of sustainable practices by supplying biological controls, such as the use of natural enemies to manage the population of pest organisms. The policy is triggered as a precaution because pesticide use is a necessity in agricultural activities in the region. The ESMF promotes integrated pest management as a standard practice. A screening mechanism is included in the ESMF to determine if there are any activities with significant pest management issues; if so, a separate pest management plan will be required to ensure that these materials are well managed for those activities. The project will promote integrated pest and disease management, including through the adoption of sustainable pest and disease management practices by supplying biological controls and the use of natural enemies to manage the population of pest organisms. The ESMF provides more detailed information on the application of this method.

142. **Safety of Dams OP/BP 4.37.** Although the project will not finance the construction of new dams, the project-financed irrigation systems will involve schemes connected to existing dams. The OP is triggered as the performance of the World Bank-financed project (or in this case, rehabilitation of existing schemes) is dependent on an existing dam. The project will arrange for an independent dam specialist to: (1) inspect and evaluate its safety status and performance history, (2) review and evaluate the O&M procedures, and (3) provide a written report of findings and recommendations for any remedial or safety-related measures. A dam safety assessment will be performed in line with OP 4.37. Based on results from this assessment, the project will develop safeguards instruments and an Emergency Preparedness and Response Plan for each connecting dam and scheme. The project will explicitly exclude the irrigation schemes which involve high-risk dams that will require significant and complex improvements, present significant risks to the environment and population, and require reclassification of the project as a Category A project.

143. **Projects on International Waterways OP/BP 7.50.** The policy is triggered because the proposed rehabilitation of existing irrigation and drainage systems are nationwide⁴⁸. Given the rehabilitation nature of the irrigation-related activities

⁴⁸ Some of these existing schemes are in the Ayeyarwady River Basin, and are located in the Mandalay, Sagaing, Magway, Shan, Yangon, Bago and Ayeyarwaddy states/regions. These systems are selected for special maintenance, light rehabilitation and improvement, including development of flood protection embankments to strengthen resilience of systems in the Ayeyarwaddy Delta. The selected schemes are located on tributaries of the Ayeyarwady river, fully located in Myanmar, and in the Delta area. Some minor agriculture system improvement works which may include special maintenance and light rehabilitation of small irrigation systems will be implemented also in existing irrigation systems in the Salween/Thalwin river basin in the states of Kachin, Chin, Mon, Kayah, Shan.



that would not exceed or alter the purpose of the original schemes, the proposed project falls within the exception to the riparians notification requirement. An exception to this notification requirement was approved on May 29, 2020. To facilitate pollution prevention due to the proposed laboratories that may pose substantial pollution risks due to the lack of capacity for hazardous waste management, the ESMF provides a screening mechanism to exclude high-risk laboratories that would result in pollution of any international waters.

(ii) Social Safeguards

144. **Physical Cultural Resources (OP/BP 4.11).** The policy is triggered to ensure that any “chance finds” or other physical cultural resources during excavation or other earth-moving activities are adequately protected. The project’s ESMF consists of a chance find procedure, which requires that should any areas of potential cultural importance or artifacts be identified, works should stop and government-related agencies, such as Department of Archaeology and National Museum under the Ministry of Religious Affairs and Culture, should be contacted. No work should continue until approval has been sought from these agencies.

145. **Involuntary Resettlement (OP/BP 4.12).** The policy is triggered on the basis that the irrigation system rehabilitation could require land acquisition for any of its activities, such as soil areas, worker camps, and so on. The other project components will primarily support the upgrading of existing government facilities and research and demonstration farms. The footprint will be small in scale. Although project activities will take place within existing government facilities, it is possible that additional small strips of land may be required to enlarge the footprint of the facilities to accommodate new buildings or to accommodate farmers and cattle ranchers using the land within these government compounds that are required to enforce access restrictions. Any land acquisition will not be funded through World Bank financing. Considering that the exact scope and design of the project’s work remains to be determined, an RPF has been prepared and disclosed as a stand-alone section of the ESMF report. The RPF will not allow for voluntary land donations, since the landowners are not direct project beneficiaries. The ESMF instruments, including the RPF, were disclosed on the Bank’s website⁴⁹ on June 10th. Prior to their disclosures on the Bank’s website, the ESMF instruments, including RPF were disclosed on MOALI’s website (<http://www.doa.gov.mm/doa/?route=common/home>) in January 2020 to reflect feedbacks provided on risks, impacts, and mitigations as part of the consultation process, with the final version was re-disclosed on June 2nd. Feedback received from the consultations have been incorporated into the project design and RPF. The ESMF provides a screening mechanism to exclude any activities that have land legacy issues. The RPF will be updated as part of the update of the ESMF to reflect the changed project activities and scope.

146. **Indigenous Peoples (OP/BP 4.10).** Myanmar is one of the most ethnically diverse countries in Asia and the project will fund activities in areas where ethnic minorities are present. Under both Components 1 and 2, there may be risks that ethnic minorities do not have equal and culturally appropriate access to benefits and may not be adequately consulted in decision-making. Under the additional COVID-19 activity on irrigation schemes, there is the potential risk of direct impact through land acquisition. Ethnic minorities will be deliberately targeted and included as project beneficiaries (as part of the VPGs) to ensure they benefit from improved seeds and breeds and other project benefits. To ensure meaningful consultation and compensation if impacted directly, OP 4.10 has been triggered. Considering that the exact scope and the project’s work remains to be determined, MOALI prepared, a draft CPPF,⁵⁰ included as a stand-alone section of the project’s ESMF. For activities where ethnic minorities are present, MOALI will conduct a social assessment and ensure that

⁴⁹ <http://documents.worldbank.org/curated/en/803751591851400917/Environmental-and-Social-Management-Framework>

⁵⁰ Equivalent of an Indigenous Peoples Planning Framework under OP 4.10.



free, prior, and informed consultations are held to reach broad community support and prepare community participation plans (CPPs) as required under the CCPF. The draft CCPF was disclosed in January 2020 as part of the ESMF and consultation meetings were completed by in March 2020. These meetings included consultations in conflict-affected townships in Shan and Kayah states with CSOs, ethnic group organizations, and farmers groups. Feedback received from the consultations has been incorporated into the project design and CCPF. Further consultations will be conducted during project implementation in accordance with the phased approach. During the initial years of implementation, if ethnic minorities are found to be present, a CPP will be prepared. The CCPF will be updated as part of the update of the ESMF to reflect the changed project activities and scope.

147. The project includes mitigation measures to ensure that the local communities affected by the project are properly notified of the timing and scope of the planned work and disturbances are minimized. Such minimization of disturbances may include limiting working hours to daylight, special precautions when the work is carried out near children's institutions, or traffic management, such as, if required, the establishment of alternative temporary traffic routes.

148. As part of project preparation, MOALI has prepared a comprehensive ESMF. The ESMF includes environmental and social assessment and identifies the overall management plan with appropriate measures, including ECoPs for ensuring that the project benefits are realized, and risks are mitigated in line with the World Bank's Safeguard Operational Policies. A summary of the ESMF is included in annex 6.

149. **For the expended scope as a response to the COVID-19 pandemic, the Environmental and Social Action Plan (ESAP) is prepared and attached to the ESMF as addendum.** The project will revise the ESMF, conduct additional required assessments and consultations and prepare the necessary instruments within the agreed timeline mentioned in the ESAP. The project will not finance Category A investments. Only activities which fall into Category B after screening of site sensitivity are eligible under NFASP.

150. **Specific ESMPs will be prepared for the proposed activities and facilities with potential high risks in accordance with screening outcomes.** During preparation, MOALI developed an ESMP of the facility for the promotion of artificial insemination services under Component 2. Considering the limited capacity of the MOALI in developing safeguards instruments, it is envisaged that, during the first year of implementation, the PMU will assess the proposed activities and facilities to ensure they comply with Category B project requirements. For those facilities that are pre-identified as having substantial risk, they will be rolled out at a later stage of implementation. The PMU will use the first one or two years of project implementation to develop detailed ESMPs to be approved by the World Bank and to execute appropriate measures in reducing the associated risks prior to being eligible to be funded through NFASP. Investments related to safeguard measures will be financed by the project, which is expected to support some laboratories that are considered to have substantial to high risks due to lack of capacity for hazardous waste management and lack of human resources.⁵¹ For such laboratories, the ESMF has provided a list of measures which may include (a) developing standardized guidelines and standards on hazardous solid and liquid waste material management; (b) health and safety management systems for all laboratory facilities under this project; and (c) ensuring that the developed guidelines and standards are implemented properly. Only after complying with such conditions, will these laboratory facilities be eligible for funding under NFASP.

151. **Safeguards Implementation and monitoring.** The PMU is responsible for implementing and monitoring the E&S safeguard instruments (ESMF, ESMPs, RPF, and CCPPF) through their dedicated E&S specialists and consultants during

⁵¹ The location of the Ruli River (the closest lab to one of the project financed labs in Muse district) is about 50 km, with a low pollution possibility, and the proposed measures will also reduce the residual risks of pollution to the surrounding environment.



project implementation. The PMU, staffed with E&S safeguard specialists (consultants) is responsible for: (a) revising the ESMF, (b) implementing the ESAP meeting the set timelines, (c) ensuring that project activities implemented by each department are in compliance with safeguard requirements, and (d) reporting on environmental and social aspects. Each of the four technical departments (IWUMD, DOA, DAR, and LBVD) will assign E&S focal points to its internal coordination on safeguards. The performance and compliance with E&S safeguard instruments will also be subject to regular supervision from the World Bank task team. MOALI PMU staff, contractors, supervision consultants, and local community representatives will receive training on the safeguard instruments to be applied to the project.

152. Public consultations and information disclosure. The draft ESMF was disclosed on the MOALI website⁵² on January 23, 2020 and redisclosed on June 2, 2020; and disclosed on the Word Bank website on June 10, 2020⁵³ to accommodate additional activities. Consultations for the ESMF have been carried out during February 3-20, 2020 in Mandalay, NPT, Sagaing, and Yangon. Additional public consultations to address issues of conflict and inclusion took place in the first week of March 2020 to specifically meet with conflict-affected communities and township government staff in Pinlaung and a number of CSOs in Taunggyi township (Shan State) and Loikaw township (Kayah State). Ethnic minorities (including Shan, Danu, Pa-O, Palaung, Lahu, Akha, Kachin, Jinghpaw, Rawang, and Chin), smallholders, and women were invited to the meetings. Results of these consultations have been incorporated in the revised ESMF, which was disclosed on the World Bank's website on June 10, 2020. Consultations on the draft ESMP for the artificial insemination production center (Component 2) were conducted on November 13, 2019. The feedback received from the consultation was incorporated in the ESMP. Public consultation on the draft ESMP took place on February 17, 2020. Results of this consultation have been incorporated into the updated ESMP. Through the support provided, the project will be able to ensure that (a) activities are duly screened for their environmental and social impacts, and, where appropriate, the relevant safeguard instruments are prepared, submitted for consultation, disclosed, and executed on time; (b) bidding documents for construction include the relevant environmental and social aspects that contractors must consider in their proposals; (c) work contracts include appropriate provisions of the implementation of E&S aspects; and (d) contractors effectively implement the ESMPs or ECoPs.

153. With the project coverage and design expanded, an additional round of national consultations with key national stakeholders will be conducted to update the ESMF, which will be redisclosed accordingly. This will be followed by provincial or site-specific consultations for subcomponents located in specific areas such as the irrigation schemes.

154. Citizen engagement (CE). CE has been done throughout the social assessment process, where local communities including farmers and agricultural businesses have been informed of the proposed project activities and consulted on their views and feedback. The consultations also included related project impacts, such as opportunities for increased income through improved seed, agricultural extension services, and laboratories, and any negative impacts related to project activities. There is wide support from farmers in the project areas. The consultative process will continue during project implementation, reaching out to stakeholders and citizens at-large through targeted communication tools, consultative processes, such as workshops and focus group discussions, and feedback mechanisms to build ownership of project interventions and enhance the sustainability of outcomes. M&E includes specific indicators to monitor continued CE for

⁵² <http://www.doa.gov.mm/doa/?route=common/home>

⁵³<http://documents.worldbank.org/curated/en/803751591851400917/Environmental-and-Social-Management-Framework>



further guidance in adopting better citizen engagement practices in subsequent project years. Staff receiving feedback or complaints from affected people will be appointed and trained to manage these grievances and complaints.

155. **Gender.** There exists qualitative and anecdotal evidence showing that there is gap in productivity between men and women farmers that is primarily a result of the gender gap in “access” to information, technologies, extension services, and resources such as credit and agricultural land.⁵⁴ Evidence shows that only 22 percent of women farmers have access to extension services.⁵⁵ The data also show that there is a gender gap in access to extension services and communication technologies, as men in Myanmar are 10 percentage points more likely than women to report mobile phone or internet usage.⁵⁶ According to another study⁵⁷ that uses focus group discussions, the low access to extension service of women farmers in Myanmar would be related to meeting and training invitations that were typically extended only to male farmers (although women farmers were keen to participate). Moreover, women farmers are less likely to have access to information and markets, because of limited mobility, especially in conflict-affected areas.⁵⁸ Women are quite involved in labour-intensive agricultural activities but they tend to be overlooked in agricultural technology support.⁵⁹ As a result of a combination of these inequalities, male farmers produce on average over 10 percent more output per farm than women farmers.⁶⁰

156. The proposed project attempts to close several of these underlying gender gaps, including access to agricultural extension services, technologies, seeds, and trainings. More specifically, the project will address the agricultural productivity gender gap through facilitating women’s access to extension services, improved agricultural inputs and seeds, and technologies. Specific project actions include: (a) setting a quota that 50 percent of the total farmers participating in all training and capacity-building events are women. The project will have extensive outreach to potential women participants and will make sure women farmers receive “invitations”. The associated indicator for this action targets at 10,000 women farmers (of the 20,000 total beneficiaries) to benefit from agricultural trainings. (b) Ensuring that extension services and market information are optimized for accessibility by women farmers. The project will support 10,000 (of the total 20,000) women farmers in improving their access to extension services and market information (see *Results Framework*). This will be pursued both by building the capacity of female extension workers and by developing content on digital platform services oriented toward female-headed households and women farmers, so as to reduce their mobility constraint. (c) Setting a quota that at least 40 percent of the total farmers who will get access to climate resilient seeds from the project are women. The project will monitor the progress by ensuring at least 3,400 of the 8,400 farmers that the project will facilitate access to improved seeds are women. The project will prioritize and apply a quota system for women farmers to benefit from these project activities. The indicator, “percent of women supported with extension services” with a target of 50 percent, will measure whether the project’s actions (such as quota and invitation mechanisms) have been successful in increasing women’s ability to benefit from extension services. Furthermore, the indicator that measures *increase in sales* is disaggregated by gender to measure whether the activities listed above are successful in reducing the gender gap in productivity.

157. **Grievance Redress Mechanisms.** The project will have an internal GRM that the aggrieved parties can use to lodge their complaints and get them amicably settled. The GRM will become operational at the project effective date. During

⁵⁴ FAO, MOALI and UN Women.2016. Including Women and their Priorities in Agriculture

⁵⁵ ADB, UNDP, UNPF, and UN Women. 2016. Gender Equality and Women’s Rights in Myanmar: A Situation Analysis.

⁵⁶ World Bank. 2018. “Myanmar Living Conditions Survey: Key Indicators Report”, June 2018, p. 92.

⁵⁷ Akter, et al. 2017. Women’s empowerment and gender equity in agriculture: A different perspective from Southeast, Food Policy, Vol. (69).

⁵⁸ FAO, MOALI and UN Women.2016. Including Women and their Priorities in Agriculture

⁵⁹ OXFAM. 2014. Delivering Prosperity in Myanmar’s Dry zone: Lessons from Mandalay and Magwe on Realizing the Economic Potential of Small-scale Farmers.

⁶⁰ World bank, 2019. *Myanmar Rice and Pulses: Farm Production Economics and Value Chain Dynamics*. World Bank, DC



implementation, the GRM will be managed by the PMU. The GRM will build on experiences and lessons learned from other projects, including the ADSP currently under implementation by MOALI and the NCDDP as well as a recently completed knowledge product “Operationalizing Govtech: Enhancing Data Collection and Citizen Engagement Practices in the Portfolio with Mobile Phones” (P171728). Confirmation that the mechanisms are maintained functional during the implementation of the project will be included in project progress reports, stating if and how feedback received has been used and grievances addressed. If this has not been done, an explanation will be included in progress reports.

158. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB’s Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB’s independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank’s attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank’s corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

V. KEY RISKS

159. The overall project risk is rated **Substantial**. Some of the key risks are summarized as below.

160. **Political and governance (Substantial)**. Political factors around conflicts as well as national elections scheduled for November 2020 may lead to the politicization of development aid in the run up to elections that could significantly affect the achievement of the PDO. Ethnic tension remains high, as does heightened insecurity in the Chin, Mon, and Shan states, where the project is planned to be rolled out. There is also substantial governance risk in terms of a lack of transparency, the tendency for a top-down accountability, and a weak public expenditure system. The mitigation measures include policy outreach activities through continuous consultations and frequent communication with technical counterparts, political decision-makers, and other stakeholders—including in some of the conflict-affected areas—and the extensive use of the electronic media and knowledge exchange events. The project will develop a communication strategy to ensure that procurement information and decisions are published appropriately, and that maximum transparency is ensured in project implementation.

161. **Macroeconomic (Substantial)**. GDP growth slowed to 6.3 percent in 2018/19 from 6.8 percent in 2017/18 and, largely because of COVID-19, it is projected to decline to 2.0 to 3.0 percent in 2019/20. The moderation in 2018/19 reflects weaker growth in services and the impact of high inflation on private consumption that eroded real private income. The significant decline for the 2019/20 growth projections are largely due to the economy-wide slowdown due to the COVID-19 pandemic. The downside risks to growth outlook are significant because of global economic uncertainty and uncertainties around COVID-19. The financing provided by this project should help beneficiary farmers and cooperatives, and MOALI, which may be strapped for cash as a result of the economic fallout of COVID-19.

162. **Institutional capacity (Substantial)**. Key risks are related to the limited experience of MOALI to manage a project across multiple states and regions. To mitigate these risks, the project will provide capacity building activities with technical assistance to support MOALI as needed during project implementation. International and local consultants will



be engaged to provide services and capacity building in key areas, including project management, procurement, financial management, design, and implementation of some of the complicated laboratory activities. The PMU will be established with a capable director to serve as project coordinator and other staff who will be assigned to implement project activities at decentralized levels will be well trained or have prior experience implementing World Bank project activities.

163. **Fiduciary (Substantial).** The main risks identified are (a) inadequate documentation of policy and procedures; (b) manual transaction recording and reporting, which may lead to mistakes during the preparation of financial records and reports and delays in financial reporting; (c) limited staff experience with contracting and communicating with foreign suppliers, contractors, and consultants; (d) limited staff capacity to implement donor-financed projects; (e) in-kind payments may be made to the wrong beneficiaries in the wrong amount or quantity and may not be reported in a timely manner; (e) paper voucher-based input may reach the wrong beneficiaries with the wrong value and quantity and may not be reported in a timely manner, and (f) the project staff who are responsible for the e-voucher system may not have the required experience and expertise to manage the new procedure. As mitigation measures, STEP and FM trainings will be provided to the accounting, finance, and procurement divisions under the DOA and other participating MOALI departments and divisions to build and strengthen the fiduciary capacity in the PMU. This will also build sustainability during project implementation.

164. **Environmental and Social (High).** The E&S risk is rated High given the scope of project activities. Although small in scale and limited, it covers a large geographical area, including potentially post-conflict and conflict-affected areas. Challenges include limited capacity, country context, delays in the existing agricultural project, the DOA's lack of experience with World Bank safeguard measures, and a lack of national safeguard policies. The environmental assessment suggests that the proposed project activities are not likely to cause significant or irreversible environmental impacts. Potential major environmental impacts and risks are limited to (a) construction activities, (b) maintenance and operation of infrastructure and facilities, (c) agriculture and livelihood activities, and (d) procurement of some hazardous materials. For most activities, the risk of resettlement is expected to be low as some of these facilities already exist and where new facilities will be constructed, they are planned to take place on land already owned by the respective department. If any land acquisition is required for the irrigation system rehabilitation, it is expected to be minor. Irrigation schemes with legacy issues will be excluded from project activities.

165. As mitigation measures, a comprehensive ESMF has been prepared. These environment-related risks will be managed through a screening mechanism, adopting a negative list for procurement, such as banned hazardous materials, site management, ECoPs, good engineering designs, and good practices for civil construction, and development of guidelines for hazardous waste management that includes standardized safety measures. The proposed project intends to build the capacity of farmers to undertake sustainable farming practices that will minimize environmental degradation.

166. All the necessary safeguard frameworks underlying resettlement, gender, ethnic minorities, labor influx, and other identified social risks have been developed on which activity-specific ESMPs will be based. The World Bank-developed peace and inclusion filters will be applied at all stages of project implementation. Each specific ESMP will indicate, if needed, the necessary measures to mitigate social risks potentially arising from land acquisition. In the case of potential social risks in project areas with ethnic minorities, consultations and trainings will be provided to minority ethnic groups to ensure a comprehensive participatory process (in addition to the social assessment) to advise on the appropriate mitigation measures. As the participation of women in farming across the agro-ecological areas varies, gender-related social safeguard assessments will be undertaken to ensure the inclusion of female farmers considering the farming and cultural norms across the covered states and regions in the agro-ecological areas of the project. The social risks from a



labor influx resulting from the infrastructure civil works will be assessed and necessary mitigation measures will be put in place. In terms of capacity, E&S safeguard consultants (two international and two national) will be engaged to provide technical support and capacity building to MOALI's environmental safeguard focal persons.

167. **Stakeholders (Substantial).** Given the nation-wide nature of the project, its complexity and rigorous approach for the inclusion of VPGs (including in conflict-affected areas), and the potentially weak participation of the private sector, the stakeholder's risks are assessed as Substantial. To mitigate these risks continuous consultations with high-level government officials and parliamentarians as well as farmers and private sector stakeholders have been conducted during preparation and will continue to be conducted during early phase of implementation, and regular project status updates will be disseminated through events and progress reports. A careful, comprehensive, and continuous consultation will be held with the full range of stakeholders, including ethnic minority groups, ethnic service providers, and, where feasible and in-line with due diligence responsibilities, EAOs.

168. **Other risks (Substantial).** The COVID-19 outbreak may affect agriculture production through foregone exports and disruptions in imports of agricultural inputs, especially to and from China. Myanmar's economy is also undergoing a broad economic transition with implications for large price and exchange rate volatility, which may affect the agricultural sector and the PDO. The financing provided by this project will help beneficiary farmers, cooperatives, and vulnerable population groups, who may be adversely affected by the economic fallout of COVID-19. But COVID-19 may also pose risks to project implementation because, if lockdown continues, it may hinder MOALI from implementing some project activities. The project will provide continuous risk and alternative market assessments and advise MOALI accordingly. The project will also support technical assistance on project management, including clear plans for monitoring implementation progress and results.

**VI. RESULTS FRAMEWORK AND MONITORING****Results Framework****COUNTRY: Myanmar****National Food and Agriculture System Project****Project Development Objectives(s)**

The objective of the Project is to increase agricultural productivity and diversification and to enhance market access for Selected Value Chains in the Project Area, and respond to an Eligible Crisis or Emergency.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Productivity and diversification			
Increased yield of the selected value chain commodities (Percentage)		0.00	20.00
Increased area of non-paddy crops (Hectare(Ha))		0.00	120,000.00
Farmers reached with agricultural assets or services (CRI, Number)		0.00	560,000.00
Farmers reached with agricultural assets or services - smallholder farmers (Number)		0.00	450,000.00
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	220,000.00
Farmers reached with agricultural assets or services - vulnerable population groups (Number)		0.00	200,000.00
Market access			



Indicator Name	PBC	Baseline	End Target
Increased sales of targeted farmers participating in value chain clusters, disaggregated by gender (Percentage)	0.00		20.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Agricultural Productivity Enhancement and Diversification			
Research farms established and/or upgraded to regional research centers/farms (Number)	0.00		5.00
Number of farmers participating in training (Number)	0.00		20,000.00
Of which are female beneficiaries (Number)	0.00		10,000.00
Farmers with access to certified seeds in the project areas (Percentage)	0.00		50.00
Farmers with access to climate-resilient seed varieties of selected value chains (Number)	0.00		8,400.00
Of which are female beneficiaries (Number)	0.00		3,400.00
Farmers with appropriate fertilizer application (Percentage)	0.00		50.00
Farmers with improved access to digitally supported extension services and market information (Number)	0.00		20,000.00
Of which are female beneficiaries (Number)	0.00		10,000.00
Beneficiaries with increased access to project financed sugarcane reference lab (Number)	0.00		1,000.00
Area covered with irrigation (Hectare(Ha))	0.00		26,000.00
Number of labor days created (Days)	0.00		25,750.00



Indicator Name	PBC	Baseline	End Target
Value Chain Development			
Cold storage upgraded/built and operating (Number)	0.00		8.00
ISO accredited laboratories established and upgraded (Number)	0.00		4.00
Beneficiaries with access to project financed ISO labs (Number)	0.00		4,000.00
Tea production and processing plants established with project support (Number)	0.00		6.00
Percent of farmers with Myanmar GAP certification complying with ASEAN GAP standards (Percentage)	0.00		50.00
Farmers producing Geographical Indication (GI) crops (Number)	0.00		6,600.00
Number of cattle with improved quality breeds (Number)	0.00		86,000.00
Value chain clusters established with Project support (Number)	0.00		40.00
Public-private sector consultation platforms organized by the project (Number)	0.00		10.00
Project Management, Coordination and Monitoring & Evaluation			
Beneficiary satisfaction with assets and services provided by the project, disaggregated by gender (Percentage)	0.00		80.00
Grievances registered related to delivery of project benefits addressed (Percentage)	0.00		100.00
Project progress reports produced (Number)	0.00		10.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Increased yield of the selected value chain commodities	This indicator measures the percentage increase in the average yield of the project targeted value chain crops (fruits, cotton, and tea). This refers to the average yield increases for all project selected value chains and project areas compared to the baseline. Baseline, midterm, and end of project yield for all the project supported crops will be measured across all project areas.	Baseline, midterm and final review	Farm survey	Farm survey	PMU and M&E Agency
Increased area of non-paddy crops	This indicators measures the incremental acreage that is allocated for cultivation of non-paddy crops over the course of the project. This is a key measure for the project's diversification objective.	Baseline, midterm and final review	Farm survey	Farm survey	PMU and M&E agency
Farmers reached with agricultural assets or services	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World	Annual	MIS	Beneficiary Survey	PMU & M&E agency



	<p>Bank project support.</p> <p>"Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products.</p> <p>Assets include property, biological assets, and farm and processing equipment.</p> <p>Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops).</p> <p>Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment,</p>				
--	--	--	--	--	--



	irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.				
Farmers reached with agricultural assets or services - smallholder farmers	This indicator measures all project beneficiaries that are considered as small-scale farmers (smallholders) in the country. They are defined as farmers (both women and men) who own and operate less than 5 acres (2ha) of land. Some of these farmers can be at risk of exclusion and considered as VPGs.	Baseline, mid-term, endline	Project MIS	Beneficiary survey	PMU & M&E agency
Farmers reached with agricultural assets or services - Female					
Farmers reached with agricultural assets or services - vulnerable population groups	This indicator measures the project beneficiaries that are VPGs, which are defined as individuals who are from ethnic and religious minority groups, economically/social disadvantaged (including the landless and the extremely poor as per the national poverty	baseline, midterm, endline	Project MIS, and monitoring system	Beneficiary Survey	PMU & M&E agency



	assessment), and those farmers in conflict affected, remote, and geographically disadvantaged areas. This also includes returnee migrants because of COVID-19 and who are eligible for the CFW program.				
Increased sales of targeted farmers participating in value chain clusters, disaggregated by gender	This indicator measures the incremental sales volume (in percent) of farmers who participate in value chain clusters (VCC) supported by the project. Baseline, midterm, and end of project sales will be measured across all project districts where the VCC are established and operating.	Baseline, midterm and final review	Farmer survey	Survey	PMU & M&E agency

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Research farms established and/or upgraded to regional research centers/farms	This indicator measures the decentralization process of the Department of Research (DAR) under MOALI into regions to increase its farmer coverage. It measures the research	Midterm and Final review	Project MIS	Project monitoring and reporting	PMU



	farms that will be established and operate outside of Nay Pyi Taw where the headquarter is located.				
Number of farmers participating in training	This indicator measures the total number of farmers who receive training on farming practices, improving quality, and new technologies. These activities are primarily supported by the Department of Research (DAR) and the Horticulture Division in MOALI.	Annual	Project MIS	Beneficiary survey	PMU
Of which are female beneficiaries	This indicator measures the number of women farmers for whom the project creates enough incentive to participate in all farm training and capacity-building events. The project will have extensive outreach to women farmers and will make sure invitations are specifically sent to women farmers.	Annual	Project MIS	Beneficiary survey	PMU
Farmers with access to certified seeds in the project areas	This indicator measures the percentage increase of farmers with access to certified seeds in the	Baseline, midterm, and final review.	Farmer survey	Survey	PMU & M&E agency



	relevant project activity areas.				
Farmers with access to climate-resilient seed varieties of selected value chains	This indicator measures the total number of farmers with increased access to climate resilient seed varieties. These are mainly horticulture crops supported by the horticulture division.	Midterm and Final review	Farmer survey	Survey	PMU and M&E agency
Of which are female beneficiaries	This indicator measures the number of women farmers who will have access to climate resilient seeds because of the project's activities.	Midterm and Final review	Farmer survey		PMU and M&E agency
Farmers with appropriate fertilizer application	This indicator measures the percentage increase of farmers with appropriate utilization of fertilizer adaptable to soil condition, as it is agronomically recommended.	Annual	Farmer survey	Survey	PMU & M&E agency
Farmers with improved access to digitally supported extension services and market information	This indicator measures the number of farmers who receive extension services, market information, and other information with some sort of digital (ICT) tools, including digital apps, hotline calls, sms, or web-based platforms.	Annual	Beneficiary survey	Survey	PMU



Of which are female beneficiaries	<p>This indicator will empower women farmers by facilitating their access to improved extension services and market information. This will be pursued both by building the capacity of female extension workers, who can better target and communicate with women farmers. The project will also develop digital content on digital platform services that are oriented toward female-headed households and women farmers in order to reduce their mobility constraint. Given the evidence that women do not typically receive invitations for extension service meetings and other training, the project will ensure that "invitations" will be specifically sent to women. Moreover, the project will prioritize and apply a quota system for female-headed households and women farmers to benefit from this project activity.</p>	Annual	Beneficiary survey		PMU
-----------------------------------	---	--------	--------------------	--	-----



Beneficiaries with increased access to project financed sugarcane reference lab	It measures the total number of farmers, processors, and trades that can access the project financed national sugarcane reference labs and who receive guidance and advice on improving product quality and growth technologies.	Midterm and Final review	Project MIS	Monitoring and reporting	PMU
Area covered with irrigation	This refers to the upgrading, rehabilitation, and modernization of irrigated and drainage management and/or infrastructure in the areas with existing irrigation and drainage services.	Annual	Project Progress Reports		PMU, IWUMD
Number of labor days created	this measures the number of labor days created by the cash for work agricultural program.	Quarterly	Progress report		PMU, DOP
Cold storage upgraded/built and operating	This indicator measures the number of cold storage facilities that upgraded/built and operating. These facilities are primarily for the fruit value chain, implemented by the horticulture division.	Midterm and final review	Project MIS	Monitoring and reporting	PMU
ISO accredited laboratories established and upgraded	This indicator measures the number of ISO accredited laboratories established and	Midterm and final review	Project MIS	Monitoring and reporting	PMU



	upgraded with project support.				
Beneficiaries with access to project financed ISO labs	This indicator measures the total number of farmers, traders (in domestic and export markets), and importers with access to ISO labs supported with project finance.	Midterm and final review	Farmer survey	Survey	PMU & M&E agency
Tea production and processing plants established with project support	This indicator measures the total number of tea production and processing plants established with project support. These facilities will be used to train farmers and traders to enable them improve their tea quality for export markets.	Midterm and final review	Project MIS	Monitoring and reporting	PMU
Percent of farmers with Myanmar GAP certification complying with ASEAN GAP standards	There are less than 500 farmers with Myanmar GAP certification. This indicator measures the proportion of these farmers that will be supported by the project to satisfy the requirements for ASEAN and/or Global GAP standards.	Baseline, midterm, and final review	Farmer survey	Survey	PMU & M&E agency
Farmers producing Geographical Indication (GI) crops	This indicator measures the number of farmers who produce Geographical Indication (GI) Paw San rice	Midterm and Final review	Farmer Survey	Survey	PMU and M&E agency



	and Mango, which are nutritionally rich crops compared to the conventional crops.				
Number of cattle with improved quality breeds	This is a measure of the number of cattle that are of improved quality breeds (a mix of natural and foreign breeds), with a primary objective of improving productivity and quality.	Annual	Farmer survey	Survey	PMU & M&E agency
Value chain clusters established with Project support	This indicator measures the number of value chain clusters (farmer groups) supported by the project. The ultimate objective is to link this farmer groups (clusters) with downstream value chain actors.	Annual	Project MIS	Monitoring and reporting	PMU
Public-private sector consultation platforms organized by the project	This refers to the number of consultation platforms between private sector (farmers, farmer groups, and other value chain actors) and MOALI, Ministry of Commerce, and other stakeholders on a regular basis. The project will facilitate these platforms semi-annually every year during the project period.	Annual	Project MIS	Monitoring and reporting	PMU



Beneficiary satisfaction with assets and services provided by the project, disaggregated by gender	This indicator provides the average satisfaction/dissatisfaction received from clients from farmers on services provided by the project. This is one of the CE indicators.	Annual	GRM system		PMU
Grievances registered related to delivery of project benefits addressed	The indicator measures the proportion of grievances received by the Grievance Redress Mechanism system (GRM) set up by the project that are actually addressed within the standard time frame set up by the GRM system. This is one of the CE indicators.	Annual	GRM system		PMU
Project progress reports produced	This measures the annual and semi-annual project reports produced over the course of the project.	Annual	Project reports		PMU

ANNEX 1. Implementation Arrangements and Support Plan

1. MOALI is the project implementing agency. MOALI has experience in implementing donor-financed projects in the agriculture sector, including the ongoing World Bank project – ADSP, and other agricultural projects financed by ADB, IFAD, and JICA. The project will build on ADSP's experience on implementation and M&E. The final details of the institutional and implementation arrangements will be provided in the project PIM. The project implementation structure is shown in figure 1.1.

Union/National Level

2. The project will be governed at the union level in NPT by the NPSC. The main functions of the NPSC include providing policy and strategic guidance to project implementation and resolving any issues of a policy nature that might arise during project execution. It is envisaged that the NPSC will involve other relevant ministries including the MoC, which has a mandate for export promotion (Department of Trade) and MoE, which has a mandate to establish National Quality Infrastructure in Standardization, Accreditation and Metrology (National Standards and Quality Department). The NPSC will be chaired by the Deputy Minister of MOALI and Permanent Secretary of MOALI will be Co-chair, and its composition will be defined by the PIM. It will meet every six months. The PMU will be the NPSC's secretariat. The NPSC will be set up through a special order from the Minister of MOALI by not later than three months after the project's effectiveness.

3. Similar to the ADSP, the PWC will be formed to support effective project implementation and to overcome project constraints, review project work plans and project progress, resolve implementation bottlenecks, and provide guidance on any other matters as requested by the PMU. PWC will be chaired by the project director and the directors of the departments involved in the project will sit in every PWC meeting as PWC's members. The PWC will be established not later than three months after the effectiveness.

4. The PMU will be established within DOA, which is the focal department for the project, with appropriate mandate to implement the project, under the direction of the project director (figure 1.1). The PMU will hire a project director, a project manager, an FM specialist, a procurement specialist, and two safeguards specialists no later than three months after Effectiveness Date. The role of the project director is to ensure that the project implementation is aligned with the strategic plans of MOALI, coordinate the work between various departments, and ensure that the project receives proper attention of senior management to resolve urgent implementation issues. The day-to-day operation of the PMU will be managed by a project manager, who will be recruited through a competitive external recruitment process. The PMU staff would include both seconded MOALI staff and consultants: FM specialist, national procurement specialist, M&E specialist, environmental and social safeguards specialists, and technical support staff depending on the evolving needs. The PMU will be established not later than three months after the effectiveness.

5. The PMU will ensure that annual work plans and budget (AWPB) are prepared, budgeted, and implemented on time and that management of the project funds is in line with the provisions of the project's eligibility guidelines. The PMU will submit the AWPB by not later than two months before the beginning of each fiscal year of the Recipient during the implementation of the project. The PMU will be responsible for the project FM, procurement, and safeguards functions together with DOA Financial and Procurement Divisions who second their staff to the PMU. The PMU would be also responsible for the management of the Designated Accounts (DAs); disbursement of project funds and replenishment of bank accounts, submission of withdrawal applications; and consolidation of annual work plans, budget planning, and arrangement for project annual audit. The PMU would become the focal point for the project, where all the information relevant to the project and accounts are consolidated and held. It would ensure that the implementing bodies are adequately supported and that they adhere to the requirements of the project.

6. Implementation of the project activities will be carried out by six technical departments (DOA, DOP, DAR, LBVD, IWUMD, and CoopDept) through their central-, regional-, district-, and township-level structures. DOA will be the focal department for the overall project, DAR will lead Subcomponent 1.a on R&D. IWUMD will be responsible for the rehabilitation of distributary canal and water courses including cash for work activities in multiple irrigation areas under Subcomponent 1.d. LBVD will lead the livestock-related activities of Subcomponent 2.a & 2.b, while the CoopDept will be responsible for improving the quality and utilization of agricultural input subcomponent 1.b. The DOP will support the strengthening of policy coordination processes for the food supply chain. These respective departments are responsible for: (a) initiation of the procurement activities as per workplan and provision of technical specifications and terms of reference to the PMU and serve as members of the evaluation committee; (b) accounting for funds on their respective operating accounts and at district-level accounts and provision of financial information to the PMU for the compilation of the interim unaudited financial reports; and (c) preparation of the annual work plans of their respective subcomponents and activities and provision of information and indicators for the PMU for the consolidated project reporting.

District/Township (Subdistrict) Level Arrangement

7. The project will be governed at the township level by the township Agricultural Development Committee (ADC). The ADCs are township-level structural coordination bodies and have a broad-spectrum representation of township-level stakeholders. It covers representatives of all departments of MOALI Hluttaw (Parliament) members. The ADCs are chaired by the General Administration Office (GAO) under the Ministry of the Office of the Union Government and the DOA District/township Manager will lead in some districts/townships. The GAOs at the township-level are responsible for coordinating government actors functioning at the township level, including the union ministries' field offices such as DOA. The roles of township administrators include the promotion of social and economic development through management of township affairs, oversight of implementation for development projects, and so on. Members of Parliament also tend to monitor the project activities, whether the project provides benefits and sustainable development for the people at the project areas.

8. The main function of the ADC is to provide a platform for joint (MOALI-farmers-private sector) planning and monitoring of project activities in the project areas. It would have to ensure coordination of project activities between implementing departments, participate in the bottom-up formulation of the annual work plans, review implementation progress, and provide guidance to field staff. Under the project, it is envisaged to involve private sector representatives, associations (livestock, seed, and crops), agricultural centers, and agricultural universities in the meetings of the ADCs to enhance coordination and partnerships.

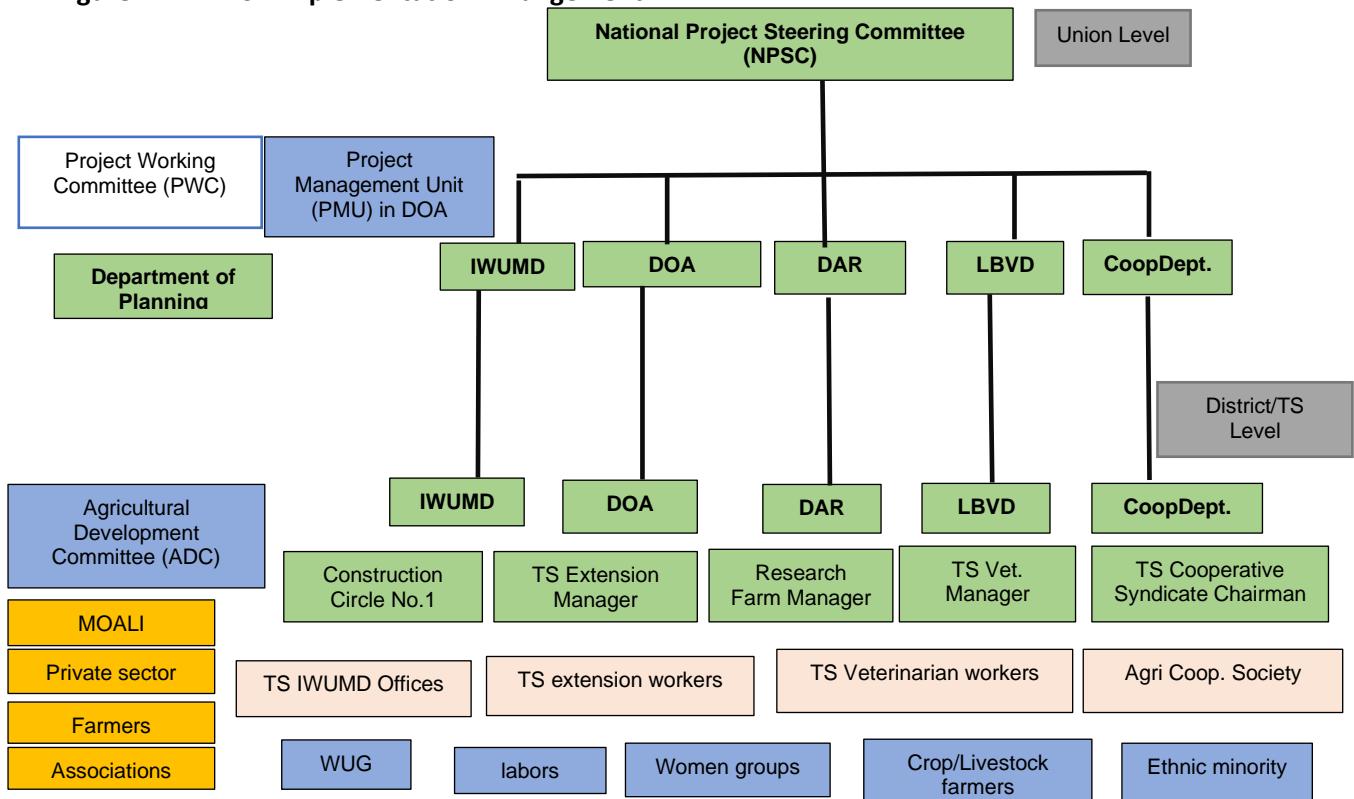
9. Implementation of the project activities at the district/township (subdistrict) level will be coordinated by PICs. The PIC is a subcommittee under the ADC, and it includes field-level staff of the implementing MOALI departments (DOA, DOP, DAR, LBVD, IWUMD and CoopDept), who follow the work plans developed by the respective departments for Components 1, 2 and 3. PIC staff in conflict-affected townships will also participate in conflict-sensitivity.

10. Extension workers (DOA), research farm officers (DAR), veterinarian officers (LBVD), township IWUMD officers, and township cooperative syndicate chairman are assigned as the district/township implementers. MOALI has more than 10,000 agriculture extension offices and community animal health workers at all townships across the country. They are recruited at the township level and are familiar with the local context. The proportion of women extension workers are more than 50 percent and they also make around 10 percent of the community animal health workers. They are based at the township level and locally recruited and are familiar with the local context and agriculture and livestock conditions and speak local languages. They will

reach out to farmers and producers with information, trainings, and demonstration to the small farmers including women and ethnic minority.

11. IWUMD will conduct minor maintenance and rehabilitation of the existing schemes by employing labor-intensive CfW under Subcomponent 1.d. The rehabilitation activities will be planned, designed and implemented by the regional maintenance branches of IWUMD in consultation with the local water users and in coordination with the local Township or in case of cross township irrigation and drainage systems, by the ADC and PIC. IWUMD will be responsible for the engagement of local communities and communal labors, using their own procedures as applicable in their Force-Account and based on agreed prices for defined pieces of work (which will be updated in the PIM). Where possible, the works will be implemented through Water User Groups where they are already established.

Figure 1.1. NFASP Implementation Arrangement



Monitoring and Evaluation (M&E)

12. The PMU will be responsible for coordinating all M&E activities and for ensuring that data and information from technical divisions (DOA, DOP, DAR, LBVD, IWUMD and CoopDept) as well as field offices will be produced and collected on time and are of good quality. The PMU will monitor progress against the agreed project outcome indicators in the RF. The project M&E system will focus on tracking and assessing project implementation progress, output, outcomes, and impacts across all three components. The PMU will be responsible for consolidating 'implementation progress report' on a biannual basis to the project director, who will submit the reports to PWC and the World Bank for review and for any corrective measures. To address M&E capacity limitations identified in the ongoing ADSP, the PMU will hire a qualified M&E national consultant (full time) to run M&E activities. The PMU's M&E expert will also conduct M&E training for the project staff. The PMU will also lead on monitoring the security situation in townships affected by conflict, with input from township staff, and ensuring the security of staff and communities as appropriate.

13. In addition to regular monitoring and reporting, periodic surveys will be carried out to assess the project impact and to track the progress of economic inclusion through disaggregated data. This will involve three surveys including (a) baseline survey during the first year of the project implementation, (b) midterm survey after the third year of the project, and (c) end-of-project survey at project closure. It is expected that the impact evaluation agency will work in cooperation with the World Bank particularly for the review of technical methods, for alignment to evaluation requirements, and to achieve the highest quality standards of the evaluation due to the technical complexity of this evaluation and because of its criticality as an input into the final evaluation of this project. Given the scarcity of capable M&E agencies available in the market, suitable quality-based procurement methods are recommended.

14. The MOALI, with a technical support from the World Bank, will carry out a Mid-Term Review (MTR), no later than three years after Effectiveness Date, and the preparation of the Implementation Completion and Results Report, upon completion of the project, to assess the status of the project as measured against the performance indicators. The MTR would include an assessment of (a) the overall progress in implementation of the project; (b) results of M&E activities and impact evaluation; (c) progress on procurement, disbursement, and FM; (d) progress on the implementation of the ESMF and other safeguards measures; I implementation arrangements; and (f) need for any project adjustments or reallocation of funds to improve performance.

15. The RF of the project has a few indicators that are disaggregated by gender and by VPGs. In addition to those indicators listed in the RF, the project's M&E system (and the periodic surveys) will monitor progress in job creation along the selected value chains, including on- and off-farm jobs, and especially for VPGs. These periodic surveys—including baseline, MTR, and end line—will establish the baseline of farmers belonging to VPGs at each township and will track disaggregated indicators to investigate specific economic inclusion challenges both through qualitative and quantitative data collection exercises.

16. Further, the project M&E will use data from the updated GRM system and inclusive consultation processes (local social assessment, outreach, consultations through the ADCs, use of short phone-based [call or text] the beneficiary engagement surveys) to monitor whether beneficiaries are benefiting from and satisfied with the project activities.

17. A few specialized studies will also be commissioned, as a part of the MTR, to explore and document aspects of the project which deviate from its average experience across townships, for example, on conflict-sensitive agricultural extension in contested areas or the effects of value-chain development of tea plantations on participation in conflict-linked activities. Such specialized studies may also include the project's impact on diet diversification, in partnership with the MCCH project, and also on job creation in the rural areas.

18. Further, an MIS will be developed by the PMU's to monitor project progress and to integrate the information coming from different sources and levels and technical departments. The project completion report is a mandatory documentation of the PMU's self-assessment on the project's relevance, effectiveness, impact, sustainability, efficiency, and learnings to inform the ICR.

Financial Management (FM)

19. **Staffing.** Staff have been assigned to work on FM matters as part of the PMU as well as for representatives from the implementing Departments and divisions. At the Union level, MOALI/NPSC has the organizing power and will coordinate with MOPFI/NPSC and other Ministries and making final decisions for the project. As agreed by the management of MOALI, DOA will be the focal point for the project's FM responsibilities. Therefore, there will be two different groups from DOA assigned separately for independence purpose: one group will work on disbursement and FM in the PMU Finance unit to support MOALI/NPSC. The other group will work on the FM of the activities that will be implemented by DOA alone. The officials assigned

for the first group will be responsible for all aspects of the FM including, but not limited to, budgeting, reporting to the MOALI/NPSC, making direct payments to consultants/suppliers, liaising with the external auditors. The second group and the other finance staff (at least two staff from each DAR and LBVD) will be responsible for day to day management including budgeting of their own components' activities, accounting, spending by the districts, townships and farms or R&D facilities and reporting to the project director. The Director of Budget and Accounts unit of DOA who is part of the PMU e will oversee and supervise all FM teams of the implementing Departments and Divisions. It is important to make sure that (a) the FM staff who are mapped in the PMU should not take any FM roles of the activities that their original departments implemented under the same project, as these two groups have their own separate responsibilities; (b) the focal DOA officers of the project should not have any influence on other staff members from other departments (DAR and LBVD). In the initial stage of the project implementation, the assigned Government staff will work on the project. However, depending on their existing workload, a local FM consultant will be hired at the PMU for a maximum of two years to support the project government staff and to transfer knowledge. At the District and Township level, under the management function of the ADC, PIC which involves field level staff of all implementing departments (DOA, DOP, DAR, LBVD, IWUMD and Coop Dept) will work together with private sector representatives, associations (livestock, seed, and crops), agricultural centers, and agricultural universities/training centers and transfer knowledge to their respective beneficiaries to meet their targets. Under the Subcomponent 1.b which will be implemented by CoopDept, it requires considerable emphasis on capacity building and system development. Therefore, the focal staff members will need to be assigned at field levels to actually work for the project. In the later stage of the e-voucher subsidy system operations, trainings in FM, contract management and IT will be provided by the consultants, mobile operators and IT companies to all relevant departmental staff and the key beneficiaries so that all the staff can be familiar with the e-voucher system to implement Coop Dept's activities.

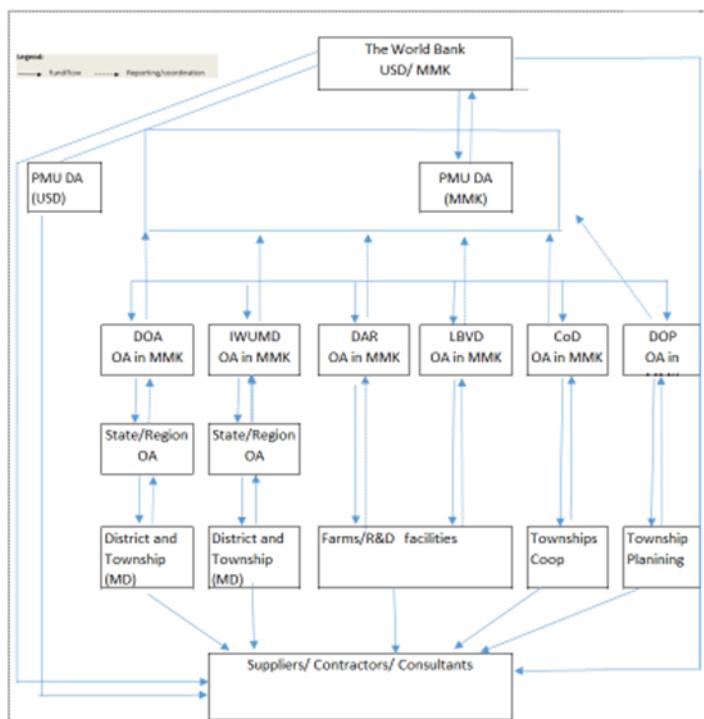
20. **Budgeting.** All implementing Department/Divisions will follow the GOM budgeting process. Annual work plans will be prepared by each Department separately in consultation with the PMU's technical team and the World Bank. The work plans preparation will be initiated by the staff of each implementing Department/Division of the township level after collecting on ground data/information from the field level staff and beneficiaries. So, the bottom-up formulation of the work plans and budgets will be introduced and submitted to their respective offices at the Union level. Then, their Union offices will review these plans and budgets and incorporate into the components' annual work plan and budget and submit to the PMU. The PMU will prepare the consolidated annual work plan and budget for the whole project that should also be detailed enough to allow an estimation of the activities' cost and the budget should reflect the cost by components and subcomponent and expenditure category. After that, PMU will submit this consolidated work plan and budget. The consolidated annual work plan and budget for the whole project will be prepared by the PMU and this should be done with sufficient detail to be submitted to the MOPFI/NPSC to obtain approvals and before or at the same time than submitting to the World Bank for request of no objection letters.

21. **Accounting policies and procedures.** Accounting policy of DOA, DAR and LBVD is based on the single-entry book-keeping and cash basis of accounting, with manual recording of receipts and expenditures by using Hta Sa and Oo Sa on hard copies. For the project, Excel will be used to record transactions (by project components and disbursement categories, and according to government COAs) until a bookkeeping application such as Government Accounting System will be operationalized. The detailed procedure will be outlined in the FM manual.

22. **Funds flow.** Two designated accounts (DAs), one in US Dollar (US\$) and another one in Myanmar Kyat (MMK), will be opened jointly with signatories from NPSC and DOA at the Myanmar Economic Bank (MEB) to receive IDA funds. PMU will manage both DAs with variable ceilings not to exceed six-month cash forecasts of the project. Funds in US\$ will be managed only by PMU, which means all US\$ payments will be made from the

designated account (DA) by PMU or used direct payment method upon requests received from the respective Departments including DOA. Funds in MMK will flow from the DA of PMU to the other operating accounts (that is, Other Accounts (Oas) of DOA, DAR, LBVD, DOP, IWUMD and Coops. Payments in MMK to all consultants, contractors and suppliers can also be done as direct payments from the WB upon requests from the PMU. From DOA and IWUMD, funds will further flow to other accounts of the 5 or more States and Regions and then also to the selected districts and townships (approximately 25 districts/townships) under DOA and IWUMD through the districts/ townships' MD accounts where project activities take place. For the activities under DAR and LBVD, payments to operating units (R&D facilities/farms) will be made using bank transfers or other electronic/mobile banking systems whereby related detailed transaction records can be obtained and recorded to prove that the transactions have been made and received by the intended recipients. The same payment process will be made for the project activities such as the improvement of research systems, quality and utilization of inputs and the development of value chains, which are likely to be implemented in some conflict-affected areas. From cooperatives, funds in MMK will flow from the other account (OA) of cooperatives and then to the respective Oas opened at the townships level. As the vouchers based smart input subsidy program will be a phase approach implementation that will allow lessons learned in early phases to be incorporated in the systems installed in later phases to ensure that a solid foundation of field level data is available. The establishment of Oas at State/Region/districts/townships will also be aligned with the planned activities under the program. The detailed procedures will be outlined in the project implementation manual. For the submission of SOEs, disbursement will be accounted for by Summary Sheets with records and submitted through the World Bank client connection system.

Figure 1.2 Funds Flow Diagram



23. Financial reporting. PMU under the MOALI will be responsible for overall FM and financial reporting. The PMU's Finance unit (the first group of DOA) has responsibility for coordination and consolidation of all financial reports submitted by three main agencies: DOA, DAR and LBVD. It will prepare interim unaudited financial reports on six monthly basis and furnish these reports to the MOALI/NPSC for endorsement and then to the World Bank within 60 days of the end of each semester. Interim unaudited financial reports will be prepared, which consists of the sources and uses of funds by project components and by costs categories, compared with their approved budget under the project. The variation between the estimated budget and

the actual expenditures will be reported and explained in detail in the biannual interim unaudited financial reports and will be linked to the physical progress of project implementation. Finance staff from each of DOA, DAR and LBVD will be responsible for the preparation of their own financial reports using the same project's Interim Financial Report template and to report to the project director. The electronic monthly budget execution (Hta Sa) reporting system will be used by the project later after the Ministry of Education has adapted that system successfully so that state/regions/townships offices can report to the union level in a timely and accurate fashion.

24. **Force Account (Cash for Work) Operations.** Under the Subcomponent 1.d, the Force Account method will be used to implement the civil work activities that will follow the same procedure with the work under the ADSP. In using Force Account, the project will finance cost of local material (sand, gravel, stone bolder, timber) and Non-local materials (fuel, cement, steel bar, welding rod, etc.) and transport cost to the site; costs of hired labor, operating own and hired machinery/equipment; and spare-parts of equipment used.

25. Unit costs of these inputs will be based on local material and local labor – local price approved by local government as published in the local price book/documents and sign off by head of the Local authority. (Detailed procedures are elaborated in PIM).

26. Annual Work Program and/or detailed program for each micro or pilot project, including quantity and unit prices applied, is subject to prior reviewed and no objection by the World Bank. To align with the national budget timing and in accordance with the project financing agreement, IWUMD should prepare and furnish the project annual work plan and budget to the World Bank for its approval not later than two months before the beginning of each fiscal year during the implementation of the project. Advances for implementation of forced account will be provided based on 6 month forecast of expenditure at the time together with the whole project's 6 month forecast preparation and this shall be prepared in such a way to distinguish expenditure or funds needed for each site, including information on quantity and unit prices applied.

27. Under any of the following circumstances, IWUMD in consultation with PMU shall request NOLs from the Bank:

- (a) quantities of construction and installation works that are involved cannot be defined in advance;
- (b) construction and installation works are small and scattered or in remote locations for which qualified construction firms are unlikely to bid at reasonable prices;
- (c) construction/installation works are required to be carried out without disrupting ongoing operations;
- (d) risks of unavoidable work interruption are better borne by the Borrower than by a contractor;
- (e) specialized non-consulting services such as aerial surveys and mapping, as a matter of Borrower's law or official regulations for consideration such as national security, can only be carried out by specialized branches of the government; or
- (f) urgent repairs to prevent further damages, requiring prompt attention, or works to be carried out in conflict-affected areas where private firms may not be interested.

28. **Audit.** The project annual financial statements will be prepared and submitted to the Office of the Auditor General (OAG) of Myanmar within three months after each fiscal year ends. The project financial statements will be audited by OAG in accordance with Terms of Reference (TORs) acceptable to the World Bank, and the English language translation of the project audited financial statements and the management letter will be submitted to the World Bank within nine months after the end of each fiscal year. The audited financial statements shall be made publicly available at the project website and the Bank's portal.

Procurement Management

29. There is no comprehensive written legal framework for public procurement in Myanmar. The existing rules include: (i) two instructions from the President's Office in 2011, one for change from "close tender" to "open tender" and another for decentralizing procurement to line ministries; (ii) a tender directives which was

issued by the President's Office in April 2013 for addressing some issues in processing open tender; and (iii) another directive issued by the President's Office in January 2014 for procurement of civil works. Within the departments of MOAI, there are no official regulations in writing on implementation of open tender.

30. The procurement capacity assessment identified the following major procurement risks which could arise during project implementation and suggested measures for mitigation of these risks:

- Lack of legal framework of public procurement. There is no national level comprehensive legislation on public procurement and no procedures in writing within MOAI. This may cause confusion during project implementation as to which procedures and rules the MOAI would need to follow. To address this risk, the detailed procedures for procurement and selection of consultants to be followed under the project will be elaborated in the PIM. All key officials to be involved in the processing and approval of procurement and payments under the project will be trained in the use of the PIM.
- Using the force account method for civil works. The price references of the local materials are determined by local government. IWUMD field offices will procure with local tendering process by following the tender directives and local tender guidelines if any. An International TA will be hired to validate the BOQs of the key items of the works. Force Account is an appropriate method under the given circumstances for simple and small size works to respond COVID-19
- The procurement experience of five implementing departments in general is very limited. This is the second project for MOALI to conduct procurement in accordance with the Bank procedures. The project will recruit international procurement consultant to assist PMU and provide the knowledge transfer and capacity building to the assigned procurement staff. Each implementing department will assign at least one full time officer to work with international procurement consultant. The Bank will provide procurement training to the implementing agency staffs to familiarize them with its procurement policy and procedures.
- Inadequate Technical Specifications and use of brand names. International procurement consultant will assist to prepare the technical specifications following international practice.
- Procurement through national open competitive bidding: Subject to availability of qualified and eligible bidders from the national market, some contracts may be procured through national procedures.
- The residual procurement risk under the project is rated as Substantial.

31. Procurement Regulations. Procurement for the project will be carried out in accordance with the World Bank Procurement Regulations for IPF Borrowers, dated July 1, 2016 and revised August 1, 2018. Major Procurement categories under the project

32. Civil works – small works for rehabilitation/ constructing new post-harvest storage and cold chain facilities. The list of works to be financed under the project will be finalized during the project implementation. However, it is known that except for the construction of regional research centers and laboratories, the works in general include small-scale upgrade and rehabilitation of existing buildings. Works are therefore of small value and relatively simple in nature. The market research shows that foreign contractors will not be interested in these works; and at the same time there are several local contractors that have sufficient capacity and experience to execute this type of works. To increase the attractiveness of the works under procurement, the interest of the contractors and consequently the level of competition, the works should be lumped into lots/contracts as much as possible.

33. *Civil works – cash for works program* will be implemented by IWUMD (irrigation department) with force account method. The reasons for following the force account method is as follow. The project irrigation sites, located in remote areas are mostly characterized by poor accessibility and considered as non-attractive by the private sector. IWUMD experience in previous international donors financed project shows a lack of interest of international contractors to participate in competitive procurement procedures. Besides international contractor's lack of interest, assuming that a competitive procedure will be organized, poor

accessibility to the sites will make the potential contractors incur more cost that will be transferred to client as site overheads. In most of the remote sites in Myanmar, access roads are either absent or in poor conditions. The situation in most cases calls for the construction of access roads and will lead to delay in project execution and cost overrun. The use of local private contractors is also very limited due to lack of their availability, capacity and experience. The assessment of local contractors' capacity carried out during May – July 2018 period proved that Myanmar private sector is not yet ready to participate in procurement procedures for complex irrigation works. Even the most qualified contractors have very limited experience in similar rehabilitation works. Except minor preparation works, it is estimated that the works will be implemented during the dry season. Similar experience shows that the cost and the risk of mobilization/demobilization of works interruption caused by the raining season, is much higher for private contractors than for IWUMD. Currently, IWUMD implements the irrigation and drainage rehabilitation works by using its own resources including labor, machinery etc. and buying materials such as cement, reinforcement steel bar, fuel, etc. (equivalent to the 'Force Account method' in the Bank's Procurement Guidelines). IWUMD has extensive experience in carried out similar rehabilitation works using international donors financed projects and governmental funds. Force Account method has proven to be efficient and successful for ADSP. In summary, the major factors in consideration of force accounts are as follows

- Lack of interest of international contractors in participation in competitive procedure for works located in remote areas
 - Lack of availability, capacity and experience of local contractors
 - Contractor Mobilization and demobilization expenses due to the interruption caused by the wet season will lead to overrun of initial cost estimation
 - IWUMD extensive experience in carried out similar rehabilitation works
 - IWUMD staffs have well experience in terms of technical and procurement management. The component/subcomponent would finance the improvement and rehabilitation of irrigation sites and drainage infrastructure.
 - The circumstances meet the requirement of para 6.55 of the Bank procurement regulations.
34. Force Account implementation. This activity will be the same arrangement of current ADSP project.
- a) Central IWUMD will hire a consulting firm to prepare a details design, BOQ, cost estimates and other technical requirements of each irrigation scheme
 - b) Central IWUMD will seek No objection from the Bank both technical and procurement perspective
 - c) After receiving no objection from the Bank, Central IWUMD department will sign the MOU with field office- irrigation sites for the construction of small works.
 - d) Central IWUMD unit will be consolidated and procured of three major inputs – cement, steel bar and diesel.
 - e) Field Office of respective irrigation sites will procure local materials at field office following the government tender directives. Both IWUMD central and field office will ensure the actual procurement process to be consistent with World Bank Procurement Regulations.
 - f) Central IWUMD will monitor the quality assurance and process to be followed by field offices.
 - g) The bank will conduct the post review of the procurement packages once a year to central and field offices

35. *Goods and equipment.* Goods and equipment to be procured under the project are not sophisticated equipment and of small value. It found that these are in general available and/or easy to procure either in the country's capital city or in the local provinces as many shops or suppliers' stock and are able to provide such goods/equipment. Equipment such as computers and printers are readily available and can be supplied by many local companies; and other equipment such as laboratory equipment, and agricultural machinery may

need to be imported based on technical specifications. To increase the interest from the potential suppliers, the goods/equipment will be combined into package as much as possible. Current market analysis has shown that importers often provide some after-sale service but service quality remains low with some delays in providing spare parts and lack of competent maintenance advice. Therefore, after-sale services should be paid attention and form part of the main evaluation criteria during the procurement process as well as ensure they are properly implemented during the contract implementation.

36. Individual consulting services- National Consultants. The pool of available national consultants remains small and is often not well-defined. No database of existing consultants is established in the agriculture sector to provide information and facilitate access to available consultants. Experiences of past projects show that it is sometimes challenging to fill some technical positions of consultants, especially for Monitoring and Evaluation and Safeguard consultants. For such positions where capacity of national consultants are very low, international consultants have been recruited and twined with local staff or consultants to encourage knowledge transfer.

37. Procurement Plan. During the project appraisal, the implementation agencies, have prepared the procurement plan for the first 18 months of project implementation and the plan has been discussed and agreed with the Bank. The summary of the procurement plan is as follows:

Table 1.1. The procurement packages, market analysis and market approach

No	Description	Estimated cost (Mil. US\$)	Market analysis	Market approach
WORKS				
1	Construction of Regional Research Centre (3)	11.4	MOALI envisages major work for construction of research center, training centers and plant breeding buildings. Experience in previous projects financed by International donors (ADB, JICA) and governmental funds, has shown that there is a strong presence of national/international civil contractors. List of such contractors is provided in Annex 1	Depending on the final estimated value from the Technical design, MOALI will use RFB with open International/National Approach.
2	Tropical Fruits Research Centre (1)	3.8		
3	Vegetables Research Centre (1)	3.8		
4	U-Shaped Three Storey R.C.C. Plant Breeding Building (genetics)	2.48		
5	U-Shaped Three Storey R.C.C. Plant Breeding Building (nutrition)	2.5		
6	Training center for tea (3)	1		
7	Small works for DAR research farms in State and Region + HQ	6.09	It is expected that the majority of works to be small value scattered among provinces. There are well established number of contractors in provinces.	RFQ will be used for most contracts.
8	Small works for construction & renovation of storage buildings, breeding units, processing plants, seed warehouse, ICT building, laboratories, etc	4.25		
9	Construction Bio Safety level 2 or 3 laboratory	0.79	This a new activity for Myanmar market and there is a limited pool of international firms with expertise in this field.	MOALI will use RFB with open International/Approach. There are no local contractors with experience in Construction Bio Safety level 2 or 3 laboratory
10	Labor intensive Cash for works program – Agriculture activity enhancement program – IWUMD	44.2	IWUMD is using the same approach under ADSP project and have technical and project management capacity to implement with force account approach	This will be labor intensive small works and IWUMD will use the force account approach

Total works	72.07		
--------------------	--------------	--	--

No	Description	Estimated cost (Mil. US\$)	Market analysis	Market approach
GOODS				
1	Machinery for Research facilities	1.4	MOALI has extensive experience in procurement of ag. machineries, vehicles, lab equipment and others under ADSP. There are numerous local and regional suppliers active on the Myanmar market List of such suppliers by category is suppliers in annex 1 in PPSD	Based on the estimated value for each package, RFQ with national approach and RFB with open International/National Approach.
2	Vehicle (minibus + motorcycle) for DAR and DOA – Cotton	1.22		
3	Laboratory Equipment – multiple packages	10.78		
4	information technology and office equipment – multiple packages	1.76		
5	Furniture – multiple packages	1.3		
6	Chemicals, testing machines, other equipment – multiple packages	5.5		
7	Printing of Vouchers (CoopDept)	0.06	Local market has enough supply	Limited, Request for quotation
8	Office information technology equipment and office facilities	0.02	Local market has enough supply	Limited, Request for quotation
Total Goods		22.04		
CONSULTANCY SERVICES				
Firms				
1	Detailed Design and works supervision for construction of new laboratories – 2 packages	0.6	Capacity of the local market for providing such complex engineering design services is limited. However, as experience in international financed projects shows, there are numerous international companies active on the local market. The list of consultants is presented in annex 1 in PPSD	Open International market approach
2	Detailed design and supervision for Regional Research Centers - multiple packages	1		
3	Baseline survey	0.5		
4	Technical Assistance firm for Paper Voucher Program (CoopDept)	0.3		
5	Technical Assistance for designing of electronic voucher program (CoopDept)	0.46		
6	Technical Assistance - Feasibility studies and Technical Design of Irrigation Schemes and Dam Safety	1.2		
Total firms		4.06		
Individual consultants				
1	Laboratory specialist	0.1		
2	Training experts - 3 positions	0.35		
3	PIU International Individual Consultants	0.75		
4	PIU National Individual Consultants	0.8		

5	WUR consultant and local consultant	0.68	Land use department	
Total Individual Consultants	2.68			
Total Consultancy Services	6.74			

38. MOALI shall update procurement plans throughout the duration of the project, at least annually or as required, to reflect actual project implementation needs and improvements in institutional capacity. The Bank will arrange the publication on its external website of the agreed initial procurement plan and all subsequent updates once it has provided a no objection.

39. Frequency of Procurement Support. The procurement capacity assessment indicated the need for bi-annually implementation support missions to assist project implementation during the first year of operation. The frequency of implementation support for procurement will be further defined depending on the progress and capacity of the implementing agencies. Procurement post reviews will be conducted at least annually by the Bank or by its consultants or auditors acceptable to the Bank. The sampling ratio for procurement post review will be at least 1 in 5 contracts.

Safeguard Arrangement

40. The PMU will be responsible for implementing and monitoring the environmental and social safeguard instruments (ESMF, ESMPs, RPF, and CPPF) through their dedicated environmental and social specialists (consultants) during project implementation. The PMU, staffed with social and environment safeguard specialists (consultants and focal points from technical departments), will be responsible to (a) ensuring that activities implemented by each department are in compliance with safeguards requirements and (b) reporting on environmental and social aspects. Each of the technical departments (DOA, DAR, and, Coop Dep, IWUMD, and LBVD) will assign environmental and social focal persons. The performance and compliance with environmental and social safeguard instruments will also be subject to regular supervision from the World Bank task team. MOALI PMU staff, contractors, supervision consultants, and local community representatives will receive training on the safeguard instruments to be applied to the project.

Implementation Support

41. The World Bank team will provide regular implementation support throughout the project period, with a focus on the initial implementation phase to ensure rapid start-up. It is envisaged that intensive implementation support will be needed in view of the low project implementation and fiduciary safeguards capacity of the implementing departments and divisions of MOALI. Implementation support also takes the form of technical assistance for skills building and organizational support.

42. The core World Bank team includes seasoned staff from the Myanmar country office, the Washington, DC office, and the Asia subregion. This reflects the importance of a mix of skills and proximity to the client, especially during the early phases of project implementation. The team also includes staff from IFC, given the nature of the project, which aims to leverage private sector financing.

43. Regular technical missions will be fielded on needed basis (in addition to the biannual implementation support missions to ensure smooth implementation). The World Bank team will also continue to liaise closely with other project teams in Myanmar who manage similar operations to ensure regular and continued lesson learning across the portfolio.

44. During implementation, the World Bank team will continue to explore partnerships with development partners and academic institutions to support project implementation through TA and grant. For example, the

Wageningen University is expected to provide technical assistance to mainstream inclusion and conflict-sensitive approach.

Implementation Support in the Conflict Affected areas

45. The preliminary list of project areas includes a few conflict-affected townships. While the proposed activities are related to the existing MOALI facilities in these townships and the project does not stand to contribute to such risk as it will not support any *new* physical presence of government staff (i.e. via extension services) or government acquisition of new land in contested spaces, project implementation will need consistent support for conflict-sensitive -“do no harm” approach.

46. During the 2nd phase (3-4 years), the World Bank will support building capacity within government counterparts – and specifically those involved in implementation at the township level – to understand and be able to undertake conflict analysis and to be more conflict sensitive in their day-to-day operations. This will take the form of conflict analysis and sensitivity training, primarily for agricultural extension workers, but also others involved in research, veterinary and value-chain development activities. Equipped with these tools, the township extension staff in conflict-affected townships will be prompted to conduct a conflict analysis exercise, with support from the Bank, as a first step in implementation, with the key outputs being: 1) a clear understanding of the conflict’s drivers and triggers; 2) a stakeholder mapping; and 3) a risk assessment and mitigation plan. Collectively, this will be referred to as the Township Conflict Analysis and Mitigation Plan. This exercise would be written into the PIM as an annex for special protocols for conflict-affected townships.

47. The World Bank will support an annual review of inclusion as a part of implementation missions. It will support the township-level ADC meeting, where the township manager, MOALI staff, and farmers groups participate, in the townships where exclusion and conflict-affectedness are key factors in operations. The meeting will discuss and share knowledge on conflict and exclusion-specific challenges, their experience responding to these, and to identify emerging best practices.

ANNEX 2. Inclusion and Peace Note

Project Name and P code:	National Food and Agriculture System Project (P164448)	Name of Task Leader:	Mio Takada Mekbib Haile
Estimated financing:	US\$ 200 million	Name of Staff/Consultant assisting with IPL:	Ms. Lwin Aung (Inclusion) Mr. Jeremy Tomlinson (Peace)
Key Project activities	Component 1: Agriculture Productivity Enhancement and Diversification; Component 2: Value Chain Development; Component 3: Project Management, Coordination and Monitoring & Evaluation.; Component 4: Contingent Emergency Response		
Geographic area(s) of intervention	The total project area will primarily focus on seven regions (Ayeyarwady, Bago, Mandalay, Magwe, Sagaing, Thanintharyi, and Yangon), five states (Chin, Kachin, Kayah, Mon, and Shan) and one Union Territory (NPT). The project will also support national reference laboratories that will serve farmers and agro-enterprises nationwide. The project will have flexibility to adjust the targeted areas, based on a phased approach, which will allow due diligence and based on emerging needs (annex 3).		

Inclusion

1. **Background.** Has the Project identified any specific groups that are particularly at risk of being excluded from the sector of intervention?

The project identified **smallholders (holding less than 5 acres of land)** as being at risk of being excluded from the agriculture sector intervention. They may be excluded due to a lack of awareness and resource-poorness to access the project provided services. Seventy six percent of farm households in Myanmar are smallholders, holding less than 5 acres of land. In terms of area, however, smallholders hold 27 percent of the net sown area throughout the country.⁶¹ Insecure land tenure, lack of access to seeds, water and pasture, and lack of access to training in low-cost sustainable agricultural practices and low market bargaining power are key constraints of the smallholder sector. Among the small holders, the following Vulnerable Population Groups (VPGs) are more likely to be excluded.

- a. **Ethnic minorities.** Ethnic minorities such as Shan, Danu, Pa-O, Palaung, Taungyo, Lahu, Akha, Kachin, Jinghpaw, Rawang, Kayah, and Chin may be excluded due to language barriers and living in remote villages. A forthcoming study by the World Bank highlights that “once controlling for geographic location, belonging to a minority group (e.g., Muslim, Shan), drastically increases one’s chance of being poor, being denied land ownership, or have more difficulty in accessing education or the labor market. (p.79).”⁶² These ethnic minorities often live in remote mountain areas. Farmers who live in remote villages within project areas, such as Hakha, Falam, Mindat, Pindaya, Pinlaung, and Namhsan, may also be at particular risk of being excluded from the project interventions due to the distance from the towns where project activities are implemented. An internal study by the World Bank highlights that “the most important factor that explains social exclusion, in its various forms and facets, is geographic location.”
- b. **Landless agricultural laborers.** Landless farmers may be excluded as most of the public agriculture services benefit landholding farmers, however small. According to the LIFT baseline survey of 2012, 72 percent of rural households in the Delta and Coastal regions are landless, while 43 percent and 26 percent of households in the Central Dry Zone and Hilly regions are landless households. Landless farmers are often

⁶¹ Social Inclusion and Gender. FAO, 2016.

⁶² Social inclusion in Myanmar. World Bank, 2020

born into poverty. A recent study finds that their socioeconomic attributes influence their level of social inclusion in agricultural extension activities.⁶³ The study found that most of them did not receive agricultural extension services.

- c. **Farmers in conflict-affected areas.** Farmers in areas which are either directly or indirectly conflict affected, and either under the mixed administration of the Government and EAOs or under EAO control, may be excluded due to difficulty in accessing government communication materials or due to lack of translation of materials to the local language. Smallholder farmers in EAO-controlled areas have similar cultivation as other farmers in the same townships, and yet they have less access to various agriculture services, and less knowledge on new varieties and technologies.
- d. **Women.** On average, women are less educated than men even though the contribution of women to agricultural and food production is significant. In addition, women's work in agriculture is often unacknowledged and unpaid. Women's work in family farms is largely perceived by both men and women as an extension of their (unpaid) housework, and this works does not confer them any agency, or power over business-related decisions.⁶⁴
- e. **Retuning migrants.** Many of the returning migrants have returned to rural areas and are now unemployed and are less likely to have farmlands to operate, as they have been away from the villages.

2. **Targeting.** How are individual beneficiaries or beneficiary groups selected for participation in the project? Does the Project include specific actions or design features that focus on inclusion of specifically identified excluded groups? If not, should it? Does the Project seek to strengthen or build systems with relevant agencies to address and/or measure social exclusion?

The project aims at including and specifically targeting smallholder farmers (owning less than 5 acres), including small-scale cattle keepers, with a strong focus on Vulnerable Population Groups (VPGs), women, and returnees from out-migration, who are more likely to be excluded from agriculture related interventions.

Around 560,000 smallholder farmers will be supported by the project. Of these, around 200,000 farmers are expected to belong to VPGs. Among all subcategories of beneficiaries (both small and medium scale farmers), around 220,000 smallholder farmers are expected to be women. The Department of Agriculture Land Management and Statistics (DOALMS) has records of farmers with their land ownership and such information can be accessed by the Township level extension offices of the Department of Agriculture. Therefore, this proposed project will identify smallholder farmers to be included in the project activities based on these records. More specifically, the project will support the following VPG beneficiaries:

Smallholder farmers of ethnic minorities:

- The project will ensure that ethnic minorities such as Shan, Danu, Pa-O, Palaung, Taungyo, Lahu, Akha, Kachin, Jinghpaw, Rawang, Kayah, and Chin) benefit through improved access to better quality extension services. Township level extension workers' (Subcomponent 1.c) capacity will be strengthened through trainings, and extension materials to address ethnic minority agriculture information needs will be developed. Extension messages will be translated into local languages of the minority groups where needed to facilitate their access to the information.
- Regional research farms in ethnic minority areas will be supported by the project (Subcomponent 1.a), including the Mohnyin Regional Research Farm in Kachin State, NaungMon, Kyaukme, Aung Ban, Taryaw,

⁶³ Social inclusion of landless farmers in extension services in delta state, Nigeria: Implications for agricultural development. Ofuoku, A. U. and Ekorhi-Robinson, O. I., 2018.

⁶⁴ World Bank, 2020. *Women's Agency in Mon and Kayin States*, Washington DC; World Bank (forthcoming)

and HtoonBo Regional Research Farms in Southern Shan State, and Kengtung Regional Research Farms in Eastern Shan State. Locally adapted improved crop varieties and climate smart agriculture technologies and practices will be tested and demonstrated in the regional research farms and subsequently disseminated to all farmers in the surrounding area, including to the ethnic minority groups. The strengthened extension services will also provide an important vehicle for these improved technologies and practices tested in the research stations to reach more farmers including the ethnic minorities.

- Landless agricultural laborers who are members of ethnic minorities will also have new job opportunities working in demonstration farms and seed multiplication programs at the regional research centers in addition to gaining new knowledge about CSA technologies.
- To help in identifying the ethnic minority groups who will participate in the project activities, the project will draw on socio-economic information on ethnic minorities in databases maintained by the village tract clerks appointed by the General Administration Department and elected village tract administrators.
- The digital and ICT-based extension services under subcomponent 1.c are expected to facilitate outreach to more farmers, including among ethnic minority groups and in more remote areas, via smart-phone based and other approaches (e.g. in the form of videos, radio).
- Component 2 supports opportunities to develop the tea value chain. A large share of tea farmers ethnic minorities, living in remote areas of Myanmar such as Pinlaung, where Palaung and Danu live
- Under Subcomponent 2.a, for VCC, targeting will ensure that poor and disadvantaged farmers as well as women benefit from the Project. This will be conducted through: (i) identification of townships with a high poverty rate; (ii) consultation process to identify the vulnerable groups; and (iii) drawing on women farmer leaders to ensure participation of women. Detailed processes will be described in PIM.

Smallholder Farmers in conflict affected areas:

- The preliminary list of MOALI facilities includes some townships that have areas that are directly or indirectly conflict-affected, either under the mixed administration of government and EAOs or under EAO control. Most of these facilities have existed in their current form for a number of years, and the main catchment areas of these facilities may include conflict affected areas. To facilitate their access to project benefits, the project will promote knowledge transfer from government research farms and tea research facilities within the target townships (and without any physical interventions/activities of the project in contested areas) (under Subcomponent 1.c).
- Specifically, the project proposes: 1) township clinics/ extension education camps to share information with the public that may fall outside of the governments reach; 2) training of trainers targeting ethnic service providers and/or community based organization representatives who are known to be trusted by the non-government stakeholders; (3) digital extension services which are translated into ethnic languages and which use visual content to the extent possible; (4) knowledge transfer via Farmer Channels and The Agri-Business News Journal and other farmer journals; (5) possible visits of extension workers (who will be trained on conflict sensitivity), but only with the consent of EAOs secured through their liaison offices or via existing informal coordination mechanisms.⁶⁵
- These activities will be demand-driven in that participants can opt in and out with ease.

The project will also support **landless agricultural laborers** through demonstration farms and extension services as well as cash for work programs under component 1, to enable them to gain knowledge on improved technologies and farming practices. Under component 2, animal health workers will be able to transfer knowledge

⁶⁵ For example, some extension workers have strong informal networks in contested areas and use these to coordinate their activities on a regular basis.

to landless labors on artificial insemination, animal husbandry, and animal health. In addition, the fertilizer recommendation program will also be able to also transfer their knowledge to the landless agricultural laborers.

The project will have a strong focus on **women**. The project aims to have women as at least 40 percent⁶⁶ of beneficiaries for all subcategories of beneficiaries (except for cow breeders, due to the nature of work). Information on female headed households and women farmers is accessible by the village tract level extension workers through village tract administrators/village tract clerks or DOALMS. Therefore, this proposed project will identify female head-households and women farmers to be included in the project activities in consultation with village tract administrators/village tract clerks or DOALMS. The project will aim to address the gender gap in access to services, technologies, information, markets, and, to a lesser extent, to credit. Under Subcomponent 1.a, female-headed households and women farmers will be encouraged to be involved in the research prioritization exercises to make research more gender sensitive. Agricultural extension services under Subcomponent 1.c will be developed to be gender-sensitive, and to be tailored to the needs of female-headed households and women farmers, particularly on improved technologies and varieties. The content of extension messages will be digitized and will be disseminated through digital platforms, which will reduce the mobility constraints of women. More than 50 percent of extension workers are currently women, and they will benefit from training and capacity building. Experience in other countries indicate that having women extension providers encourage women farmers to participate more in extension activities. Further, under Subcomponent 2.a, women lead farmers will be identified. These women lead farmers are expected to serve as facilitators between the MOALI's extension workers and women farmers participating value-chain clusters and are expected to play a key role in disseminating information on market and value-chain technologies. The project will not directly address the gender gap in land ownership but will indirectly support women farmers by increasing land productivity by enhancing access to improved technologies and practices as described above.

The project will also target returning migrant through the CFW program under Subcomponent 1.d. This will provide income generating opportunities and will help avoid potential food insecurity among the returnees.

3. **Consultations.** Have representatives of excluded groups been engaged in Project consultations? How widespread were consultations (both geographically, in number, and with different population groups)? What languages other than Myanmar were used?

Public consultation meetings took place in Yangon, Mandalay, NPT, and Sagaing in February 2020. All stakeholders involved in the agriculture sector, including representatives from the private sector, NGOs, CSOs, and CBOs, were invited. It was ensured that the following groups of people were included in the public consultation meetings: smallholders/farmers (owning less than 3–5 acres of land), medium-holder farmers (owning 5–10 acres of land), and large holder farmers (owning more than 10 acres); agricultural input suppliers; agricultural researchers from DAR; extension workers from DOA; agri-entrepreneurs; agro-industries; wholesalers, traders, exporters, and buyers participating through value chains; and staff members of departments, divisions, and units of MOALI participating in the project.

In addition, public consultations on conflict and inclusion issues took place in the first week of March 2020, to specifically discuss with conflict-affected communities and township government staff in Pinlaung township and a number of CSOs in Taunggyi in Shan State and Loikaw in Kayah State. Ethnic minorities, smallholders and women, were invited to the meetings. Additional consultations with key stakeholders will take place to cover other states and regions of NFASP during implementation.

⁶⁶ a good representation of women in agriculture related projects according to 'Gender in agriculture sourcebook'. 2008, the World Bank. For cattle meat value chain, while women participate as take career, men are main take career especially for artificial insemination activities as proposed under Component 2.a.

4. **Assessment and Mitigation of exclusion risks in Project design and implementation.** In what ways could implementation of Project activities exacerbate social exclusion? How are these risks mitigated? Could the way the Project Management Unit/Agency/other actors are perceived by Project beneficiaries hinder access to Project benefits by certain groups? How is this mitigated?

For ethnic minorities, language barriers are major constraints to local people's empowerment and participation in decision-making spaces and access to Project activities of the Union Government. Under the project, extension and communication material will be translated to local languages, including by using various media and digital tools (e.g. radio, mobile phones) to expand the reach of the extension services.

In the conflict-affected townships, the project will first conduct due diligence and will organize stakeholder consultations during the first phase of the project (Annex 3). Consultation and conflict analysis will mitigate the risks of potential exclusions.

5. **Assessment and Mitigation of exclusion risks in Project design and implementation (Gender).** Has the Project considered adaptations to promote gender equality and inclusion of women, especially for those who are unable to leave the home, or who are illiterate?

Smallholder farmers, especially female-headed households and women farmers, are often excluded from access to training and extension from government agencies.⁶⁷ This project will encourage women's participation in training and managing supply chains, for example vegetable marketing, by prior consultations among local government, agriculture extension workers, project responsible persons, civil society, and community representatives through a participatory process before the project starts, targeting to include at least 40 percent women's participation in project activities. Women's specific needs such as childcare support, among others, will be identified by the project to assist them to be able to participate in various activities of the project.

In terms of the MOALI team, about 50 percent of agricultural extension workers and researchers are women.

For those who are unable to leave their homes or who are illiterate, the project will invest in ICT for the extension education program. Visual aids/contents will be included in the ICT platform. Hence, ICT will facilitate women's access to various agricultural technologies and knowledge. In addition, visual aids such as charts, posters, slides, film, black and white board, maps, pictures, models, textbooks, slide projector, transparency, and print materials will also be included in the training support.

6. **Assessment and Mitigation of exclusion risks in Project design and implementation (Access).** Has the Project anticipated and mitigated potential resistance of Government officials to travel to certain types of villages or conflict affected areas given fears for personal security? What adaptations to Project design and implementation approaches are being considered to reach communities whose movement is restricted?

The extension workers can by and large access the villages across the project areas without issues.

In the conflict-affected townships, where there is a mix of Government and EAO controlled areas, adequate consultations would be made during the first 1-2 years of the project. Annex 3 details the mitigation of exclusion in conflict-affected areas during implementation.

7. **Assessment and mitigation of exclusion risks in Project implementation.** Has the Project considered the role that military-controlled ministries and security forces may play in influencing Project implementation on the ground?

In the past, the General Administrative Department (GAD) was under the supervision of the military-controlled Ministry of Home Affairs. Many of its officers are associated with the military and work closely with security forces,

⁶⁷ Social Inclusion and Gender. FAO, 2016.

the police, and judiciary in villages and wards up to the township and district levels. The GAD was transferred from the military-controlled Ministry of Home Affairs to the Ministry of the Union Government Office on December 28, 2018. Since then, the policies of GAD have been changed based on the country's political system and goal of democratic federalism.

The General Administration Offices at the township level are responsible for coordinating government actors functioning at the township level, including the union ministries' field offices such as DOA of MOALI. The roles of township administrators include the promotion of social and economic development through management of township affairs and oversight of implementation for development projects. Normally GADs do not influence the project implementation of government agencies such as MOALI on the ground.

Village tract clerks of GADs are local people and village tract extension workers normally invite/inform the clerks for the intended project activities at the project areas. Sometimes, village tract clerks of GADs even act as translators for the project activities.

On the other hand, members of parliament tend to monitor the project activities, whether the project provides benefits and sustainable development for the people at the project areas.

A few post- and conflict-affected townships are expected to be rolled out during the second phase of the project in accordance with MOALI's preliminary priority list. However, some activities such as remote communication and awareness creation campaigns on COVID-19, will be implemented in extended areas. In conflict-affected areas, a conflict sensitive approach will be adopted, and consultations will be organized with the full range of stakeholders, including ethnic minority groups, ethnic service providers and, where feasible and in-line with due diligence responsibilities, EAOs. Prior to consultation, a set of clear criteria of engagement will be developed in PIM.

8. **Monitoring and evaluation.** Does the results framework include indicators to adequately monitor social inclusion? Is technology being used to overcome challenges to monitoring inclusion? What other aspects of social inclusion are monitored by the Project through other mechanisms (surveys, studies, consultations, etc.)?

The RF of the project has several indicators that are disaggregated by gender and by VPGs, which are defined as the segment of population including smallholder farmers (own less than 5 acres of land), ethnic minorities, economically/socially disadvantaged people (like the landless), returnees, and farmers in conflict-affected areas and in the remote and geographically disadvantaged areas.

The periodic surveys—including baseline, MTR, and end line—will establish the baseline of these farmers belonging to VPGs at each township and will track disaggregated indicators to investigate specific economic inclusion challenges both through qualitative and quantitative data collection exercises.

Further, the project M&E will use data from the updated GRM system and inclusive consultation process (local social assessment, outreach, consultations through the ACCs, use of short phone-based [call or text] beneficiary engagement surveys) to monitor whether beneficiaries are benefiting from and satisfied with the project activities.

In addition, a few specialized studies may be commissioned, as a part of MTR, to explore and document aspects of the project which deviate from its average experience across townships, for example, on conflict-sensitive agricultural extension in contested areas or the effects of value-chain development of tea plantations on participation in conflict-linked activities.

Peace

9. **Consultations.** If the Project is implemented in conflict-affected areas, has the Task Team consulted widely with local CSOs on relevant conflict dynamics? With relevant EAOS?

Public consultations on conflict and inclusion took place in the first week of March 2020, to specifically discuss with conflict-affected communities and township government staff in Pinlaung township and a number of CSOs in Taunggyi in Shan State and Loikaw in Kayah State. Ethnic minorities, including smallholders and women, were invited to the meetings.

In the first phase of the project (years 1-2), consultations will be held with the full range of stakeholders, including ethnic minority groups, ethnic service providers and, where feasible and in-line with due diligence responsibilities, EAOs. Prior to consultation, a set of clear criteria of engagement will be developed.

Based upon the findings of the assessment and consultations, a final short list of townships will be agreed between MOALI and the World Bank and will be updated in the PIM.

10. **Assessment and mitigation of the risk for the Project to exacerbate tensions.** In what ways might Project implementation exacerbate conflict? How is this risk mitigated? What are the attitudes of the relevant EAOs toward government, service delivery, the potential project? Are relevant EAOs providing similar services in their areas of control or influence? How will these parallel delivery mechanisms be reconciled? How are different groups/stakeholders likely to perceive the project? Would differences in perception potentially lead to inter-group violence? What “bridging” mechanisms (to connect different social groups) are or might be contemplated to address possible tensions? Will the Project support IDP camps? If so, how will these services affect discussions around the permanency of camps?

In conflict-affected townships which are on the preliminary list, the project will support the upgrading of capabilities and facilities on existing government facilities and infrastructure—more specifically, communication campaigns and e-extension services, small scale research/demonstration farms, small scale horticulture value addition facilities, and fertilizer inspection laboratory. The primary unit of the catchment will be the vicinity of these facilities.

Most of these government facilities have existed in their current form for a number of years, with some being established as early as the 1990s (e.g. a Tea Research Farm in Pinlaung that the project team visited in early March 2020). They are therefore well established in the local area and not themselves the subject of contention or contest.

In some of the conflict-affected townships, there are pockets of contested and fully EAO-controlled areas (usually the more remote, rural communities). A key conflict risk is exacerbating the perception of government “expansion” into such areas. The project does not stand to contribute to this risk as it will not support any new physical presence of government staff (i.e. via extension services) or government acquisition of new land in contested spaces.

The project’s ambitions to improve research facilities, and therefore generate better knowledge, inputs and practices, runs a marginal risk of exacerbating some center-periphery tensions— i.e. between ethnic states/regions and Myanmar’s central regions. This would occur if the benefits of these facilities are unequally distributed, in practice preferencing Mandalay, Naypyidaw, Magwe, Bago, and Yangon regions. As such, the NFASP will explore the possibility of investing to help ensure the transfer benefits beyond these zones.

11. **Assessment and mitigation of the risk for the Project to fuel the conflict.** Does the Project allocate indirect benefits (employment opportunities, etc.) that could be captured or be a cause of local conflict? How is this mitigated? What direct or indirect effect might the Project have on (i) local authority/power, (ii) access to natural resources, (iii) illegal trade/activities that may create tensions?

As described above and in Annex 3, in conflict-affected townships which are on the preliminary list, the project will support upgrading of capabilities and facilities on existing government facilities and infrastructure. The primary unit of the catchment will be the vicinity of these facilities. Overall the risk of the Project triggering incidents of conflict is low. In some of these areas, the likely conflict triggers are the unscheduled movements of military forces into territory under opposition control and the construction of new roads, particularly those wider than six foot. The project will not be linked to any such activities. In medium and medium-high risk areas, armed violence is mostly driven by continuing contests over the control of territory, as well as over control of high-value drug and illegal trade corridors. In such cases, fighting flares according to seasonality (it is most intense during dry season and least intense during wet season, due to mobility issues), because of developments or stagnation in the national peace process, or because of local incidents of civilian abuse by one side against the civilians of another group. These factors are wholly outside of the control of the NFASP.

The risk of the Project making available resources and/or benefits that could be captured to fuel the conflict is also relatively low, but feasible and therefore worth discussing in more depth. The primary concern here is that improvement in agricultural inputs and practices could be unintentionally transferred to cultivation projects outside of the remit of the project, namely, opium, which is cultivated in southern Shan State, but also in northern and eastern Shan and north western Kayah State. However, this risk is largely mitigated by technical factors: the cultivation practices and seasonality does not easily align. (And the project's physical activities and main catchment areas are in the vicinity of these government facilities).

12. Assessment and mitigation of conflict-related risks to Project implementation. Do obstacles to including conflict-affected communities need to be addressed? (e.g., eligibility based on presence of government administrative staff, past results achieved or level of governance, recognized communities by township GAD, etc.). Are security provisions adequate to allow Bank implementation support to conflict affected areas?

In terms of eligibility of communities, the project's entry points are the existing MOALI facilities. And physical activities and main catchment areas are in the vicinity of these government facilities. However, the Project is concerned about ensuring the "inclusion" of farmers in such areas. To facilitate their access to project benefits, the NFASP proposes encouraging "knowledge transfer" from government research farms and tea research facilities within the target township (and without any physical interventions/activities of the project in contested areas).

Even should the Project consider unregistered villages to be eligible to receive knowledge transfer support, access considerations will ultimately define whether it is able to service these communities. On one end of the spectrum, government actors at the township and sub-township level exercise strong informal links with EAOs and other key stakeholders and can broker entry to communities outside of government control, albeit with some conditionality, relatively easily. On the other end of the spectrum, certain areas of the township may be excluded by active fighting or because of the presence of sensitive military encampments or positions (e.g. in Namhsan and Kyaukme). The Project will rely on field staff, particularly township-level extension workers, Agriculture Coordination Committees (ACCs), to assess these conditions and make judgement calls as to what is and is not possible given the current climate. With the Bank's technical support, township-level project staff will be trained on conflict sensitive approach,

As experienced by the NCDDP, however, the average experience of access in conflict-affected township has been that the Project encounters limited space at the outset, but this opens up naturally as communities and leaders in areas of non-government control observe and gain trust in the project. In line with this, it will be important for the field staff to maintain contact with such communities even if operations are not taking place there and checking in from time to time on these communities' feelings regarding participation. Public consultation process also indicated that there have been exchange of information and knowledge on pest, fertilizer, and inputs

between MOALI facilities and farmers under the EAO areas, based on mutual trust, and with permission from regional office.

Finally, as the project will not increase physical presence in the conflict affected townships, apart from MOALI's existing facilities, security issues will not be a major constraint for project implementation. Nevertheless, security measures will be put in place to ensure that field staff are properly equipped to work in conflict-affected settings. Some of these skills will be delivered to them in the conflict analysis and sensitivity training. A basic mine risk education component would be included in the syllabus of the extension workers training (Subcomponent 1.c), as it would enable extension workers to better identify immediate risks related to mines and unexploded ordinance (UXO), as well as share this knowledge with communities.

The PMU in MOALI will be responsible for monitoring any changes in situation in the security situation in the conflict-affected townships, in coordination with township ACCs, and for taking actions to protect their staff and communities as required. World Bank support will support to conduct rapid conflict assessments with any significant change of situation and in support of designing a contingency plan.

13. **Supporting peace.** Is the Project expected to support peace (for example, related to the national peace process, in terms of trust building, delivery of development assistance, etc)?

The NFASP is geared toward improving Myanmar's agriculture and food systems. As such, it does not expect to provide any direct, tangible support to the consolidation of peace in fragile contexts, the national peace process or even trust building. Its contribution in this space is more subtle, but also important: it supports the development of these sectors in a manner that is explicitly conflict-sensitive and inclusive. In other words, the project does not shy from engaging in stable, conflict-affected spaces but includes special provisions that ensures it can operate effectively there.

Knowledge transfer will help farmers in the conflict-affected townships to increase crop diversification, which will improve the resilience of conflict-affected households and communities to shocks. Increasing agricultural productivity and improving market access will improve economic wellbeing and enable communities to more freely participate and invest in the socio-economic recovery and development of their areas.

Finally, the NFASP's intention to create jobs and engage SMEs supports the Myanmar governments desire to cultivate a sense of local ownership in the grander development planning and processes of the country. As such, the NFASP clearly falls in line with the MDSP's (2018-2030) Pillar 1: Peace and Stability, Goal 1: Peace, National Reconciliation. Strategy 1.2 under this pillar focuses on "Promoting equitable and conflict-sensitive socio-economic development throughout all States and Regions" (MDSP, p. 10-12).

14. **Monitoring and Evaluation.** What is the team's plan to continuously monitor the impact of conflict on Project implementation? What is the team's plan to monitor the project's impact on peace? Will technology be applied to ease monitoring constraints?

Annual review on conflict and inclusion and specialized studies. Building upon the experience of the National Community Driven Development Project (NCDDP, P132500), the Bank will support organizing annual review meetings at the Township-level ADCs, with Township managers, MOALI staff, and farmers groups will monitor exclusion and conflict-affectedness of project operations. This would see township staff and Union level colleagues convene to discuss and share knowledge on conflict and exclusion-specific challenges, their experience responding to these and to identify emerging best practice. In addition, a few specialized studies may be commissioned, as a part of MTR, to explore and document aspects of the Project which deviate from its average experience across townships, for example, on conflict-sensitive agricultural extension in contested areas or the effects of value-chain development of tea plantations on participation in conflict-linked activities.

Annex 3. Targeting and consultation strategy in the conflict-affected townships

Phased Approach to Ensure Due Diligence, Consultation and Learning

1. The project will start with the implementation of the priority project activities that are designed as a response to the COVID-19 pandemic (that is, COVID-19 relief activities in figure 3.1 below). These include the agricultural input support (Subcomponent 1.b), communication campaign for creating awareness on COVID-19 (subcomponent 1.a), and some of the cash for work program that can generate immediate outcomes (subcomponent 1.d). The CFW program will prioritize activities that will involve minor labor-intensive maintenance work, such as canal cleaning. The project will begin with the preparation of the safeguard instruments for the proposed CFW activities. Clear conditions are already set out in Annex 6. For immediate activities, as described in the Components section, it is unlikely that any physical activities will be undertaken in the conflict-affected areas, except for digital extension messages on COVID-19 awareness, which will be disseminated through existing platforms. All these activities are designed to be inclusive as they will target returning migrants, smallholder farmers who own less than 5 acres of land, women farmers, and ethnic minority households.

2. For the project activities that are designed as COVID-19 recovery activities to build agriculture sector back better, the Project's strategy for staying engaged in conflict-affected spaces while also prioritizing inclusion is to adopt a **phased approach** that allows for sufficient due diligence to be conducted before implementation begins.

- In the NFASP's 1st phase (1st and 2nd years), it will focus on the Yangon, NPT, and Mandalay regions (70 percent of targeted townships), which are economic and agriculture production centers and have higher potential for success.
- In the 2nd phase (3rd and 5th years), the project will start to be rolled out to other states and regions. These will likely include a limited number of conflict-affected areas that have: 1) existing MOALI facilities to be upgraded for improved services; 2) high levels of agricultural concentration; and 3) stable situation where risks are deemed low.

3. Specifically, conflict-affected townships will be selected for inclusion in NFASP via the following process:

- a. MOALI identifies a list of priority facilities that it wishes to upgrade and/or improve upon. A preliminary list of facilities includes a few conflict-affected townships
- b. World Bank and MOALI teams will assess the conflict dynamics in these townships and evaluate any possible linkages between these and the proposed interventions.
- c. As part of this process, consultations will be held with the full range of stakeholders, including ethnic minority groups, ethnic service providers and, where feasible and in-line with due diligence responsibilities, EAOs. Prior to consultation, a set of clear criteria of engagement will be built.
- d. Based upon the findings of the assessment and consultations, a final short list will be recommended to MOALI for review and approval.

4. Critically, the staggering of implementation in conflict-affected townships allows for additional learning on operating in politically complicated/contested contexts to be folded into the NFASP as it is generated by the PPCP, IAQE and potentially other operations working in conflict-affected areas.

Intended Scope of Proposed Activities in Conflict-affected Townships

5. In conflict-affected townships which are in the preliminary list, the project will support the upgrading of capabilities and facilities on existing government facilities and infrastructure—more specifically, small scale

research/demonstration farms, small scale horticulture value addition facilities, and fertilizer inspection laboratory. The primary unit of the catchment will be the vicinity of these facilities.

6. Most of these government facilities have existed in their current form for a number of years, with some being established as early as the 1990s (e.g. a Tea Research Farm in Pinlaung that the project team visited in early March). They are therefore well established in the local area and not themselves the subject of contention or contest.

7. In the conflict-affected townships, there are pockets of contested and fully EAO-controlled areas (usually the more remote, rural communities). A key conflict risk is exacerbating the perception of government “expansion” into such areas. The project does not stand to contribute to this risk as it will not support any new physical presence of government staff (i.e. via extension services) or government acquisition of new land in contested spaces.

8. Nonetheless, the project is concerned about ensuring the “inclusion” of farmers in such areas. To facilitate their access to project benefits, the NFASP proposes encouraging “knowledge transfer” from government research farms and tea research facilities within the target township (and without any physical interventions/activities of the project in contested areas). Specifically, the project proposes (under Component 1):

- a. Township clinics and extension education camps (held in existing government facilities, e.g. DAR research farms) to share information with a public that may fall outside of the governments reach;
- b. Training of trainers (also held in existing government facilitates) targeting ethnic service providers and community-based organization representatives that are known to be trusted by the non-government stakeholders;
- c. Digital extension services which are translated into ethnic languages and use visual content to the extent possible;
- d. Knowledge transfer via Farmer Channels and The Agri-Business News Journal and other farmer journals.

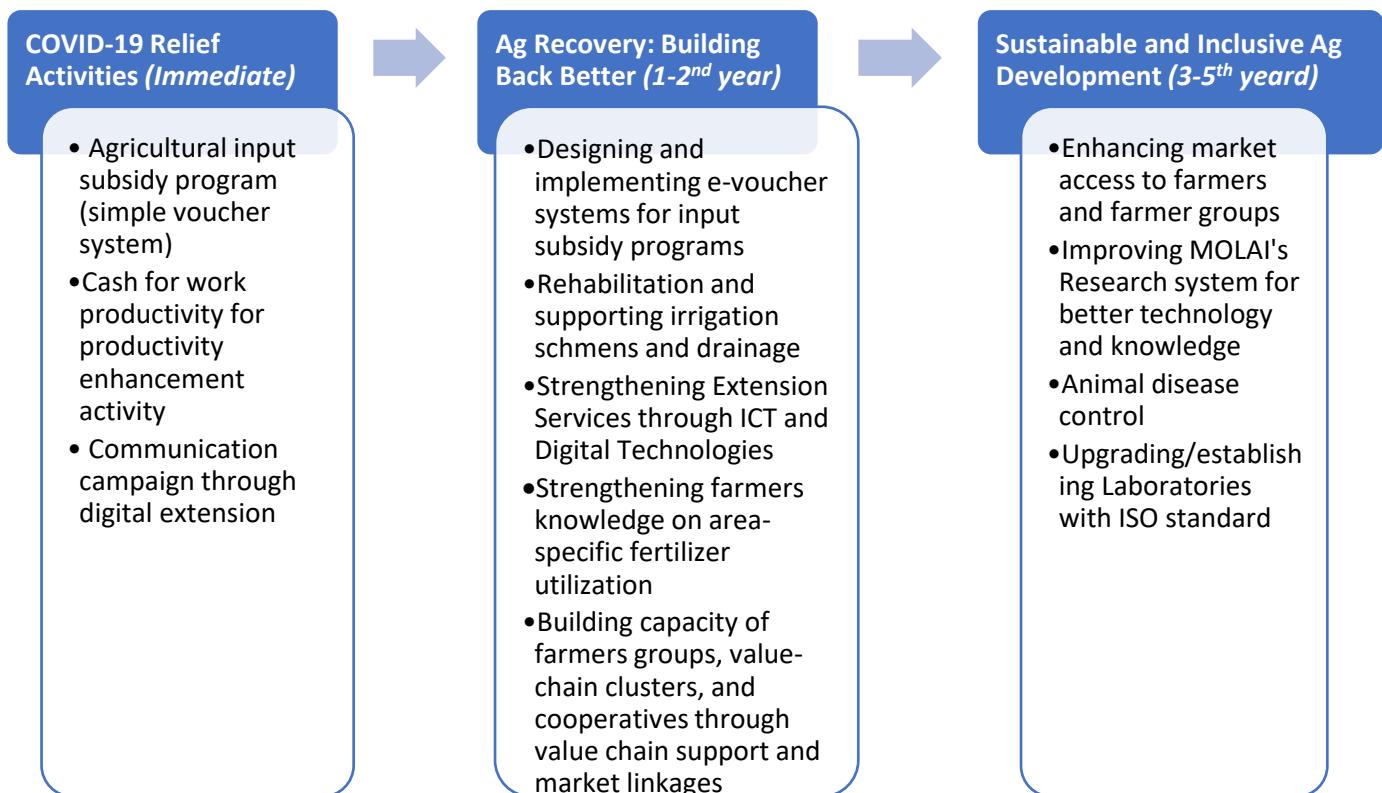
9. These activities will be demand-driven in that participants can opt in and out with ease and at their own choosing. Such mechanisms will allow the transfer of benefits without threatening the status quo between government and EAOs on the ground.

Implementation approach

10. During the initial roll-out of the 2nd phase, the World Bank will support building capacity within government counterparts – and specifically those involved in implementation at the township level – to understand and be able to practice the skill of conflict analysis and to be more conflict sensitive in their day-to-day operations. This will take the form a conflict analysis and sensitivity training, primarily for agricultural extension workers but also others involved in research, veterinary and value-chain development activities. Equipped with these tools, the township extension staff in conflict-affected townships will be prompted to conduct a conflict analysis exercise, with support from the Bank, as a first step in implementation, with the key outputs being: 1) a clear understanding of the conflict’s drivers and triggers; 2) a stakeholder mapping; and 3) a risk assessment and mitigation plan. The details of this exercise would be outlined in the PIM as an annex for special protocols for conflict-affected townships.

11. Further, the World Bank will support an annual review of inclusion as a part of implementation missions. The Bank will support the township-level ADC meeting, where the township manager, MOALI staff, and farmers groups participate, in the townships where exclusion and conflict-affectedness are key factors in operations. The meeting will discuss and share knowledge on conflict and exclusion-specific challenges, their experience responding to these, and to identify emerging best practice.

Figure 3.1. Phasing NFASP activities



Annex 4. Economic and Financial Analyses

Introduction

1. An EFA of the project was undertaken to assess the economic soundness of the project and the likely impact of interventions on the project's direct and indirect beneficiaries. The analysis is based on the expected quantifiable benefits at the level of the primary beneficiaries associated with the value chains supported (cotton, tea, temperate fruits, and cattle), considering project costs and outreach assumptions. It should be emphasized that numerous potential project benefits have not been included in the analysis, as some benefits cannot be easily quantified in monetary terms, particularly institutional and environmental benefits as well as the impact on other associated value-chain actors that are not directly supported by the project. A sensitivity analysis has been conducted to assess the impact of changes in the main parameters affecting the economic outcome of the project because of the risks that have been identified, such as cost increases and project delays. The findings of the analysis are summarized in the following paragraphs.

Expected Development Impact and Project Benefits

2. **Project area and beneficiaries.** The project's area of influence is where interventions to increase agricultural productivity and diversification are distributed across four macro agro-ecological areas (Hills and Mountains, Delta, Dry, and Coastal areas). This will be achieved through addressing the undersupply of key public agricultural goods and services in Myanmar needed to improve farm management practices. In the medium and long term, the proposed project interventions will provide the ground for supporting agricultural competitiveness. In the short term and during project implementation, it is expected that the project will directly and indirectly benefit smallholder farmers, through extension service activities, including the provision of seeds and training. Other key project beneficiaries include extension workers, agricultural researchers, and MOALI departments and units participating in the project. An indeterminate number of additional rural and urban households, agribusinesses, and other actors in the value chains supported by the project will also directly or indirectly benefit from the project interventions in the medium and long term.

3. Given the nature of the project in supporting the medium- and long-term agricultural research capacity and extension services in Myanmar, the project assumes that those investments in the agricultural research capacity will extend to at least the agricultural production under the project intervention areas, and eventually to the whole country. Additionally, the COVID-19 response will rehabilitate the existing irrigation schemes in the selected regions and states (50,000 acres). Thus, the EFA assesses the impact on project areas, assuming an expansion of the cultivated areas of the selected value chains (cotton, tea, temperate fruits, and cattle). Table 4.1 lists the expected project benefits and table 4.2 describes the assumptions on changes in crop productivity, adoption rate by farmers, and cropland rate of increase in selected value chains.

4. **Project benefits.** The project's main benefits will come from Components 1 and 2 supporting value-chain productivity and competitiveness. Component 1 will enhance the national agricultural research system and technology and improve the delivery of extension services and inputs, which will increase agricultural yields and reduce the impacts from climate change (for example, slow onset climate events such as droughts). It will also expand irrigated land area, reducing the vulnerability to climate variability and change. These interventions are expected to increase crop and livestock productivity through increased adoption of improved and more sustainable farming technologies and climate-resilient crops; better access to improved inputs (that is, fertilizer quality); and extension services. Component 2 will increase value-chain competitiveness through improved export market access, and increased farmer links to downstream buyers. This will result from improved access to ISO certification and value chains linking farmers to buyers.

5. Components 1 and 2 will result in additional benefits such as reduced farm prices and inflationary pressures, increased employment (for hired and family labor), and increased tax revenues. The CFW program will also provide an economic incentive under the decreased economic activity due to COVID- 19. The increased income and employment would result in increased demand for goods and services in the project areas, which is expected to generate additional income and employment effects and further increase government tax revenues. The increased agricultural output will increase national production and thereby contribute to growth in overall GDP and national food security. In addition, foreign exchange earnings are expected from increases in exports.

6. The main social and environmental project benefits are (a) reduced vulnerability and increased resilience to climate change, resulting from climate-resilient crop varieties; (b) environment-friendly agronomic practices resulting in reduced localized pollution; and (c) reduced GHG emissions from meat cattle production, resulting from more efficient production. Table 4.1 summarizes the potential benefits from the project.

7. The quantifiable benefits (table 4.1) include (a) increased productivity of crops (cotton, tea, temperate fruits, and crops) and livestock and (b) reduced GHG emission from meat cattle production. Non-quantifiable benefits not included in the economic analysis included increased diet diversification for beneficiaries on enhanced nutrition and increased security for farmers through better quality standards and certification. Other expected benefits that have not been quantified are the reduced vulnerability and increased resilience to climate change and the reduced water and soil pollution from environmentally friendly agronomic practices.

8. Finally, it is worth noting that currently, crop diversification has not been modeled in the EFA. That is, the expansion of cropland area under the selected crops has not been included. As discussed, this is a complex issue, because in 1989–2014, cropland expansion in Myanmar came from reduction of areas under forests and shrubland. That is, new cropland will not necessarily come from land under other crops such as rice, and there is a strong possibility that it may come, at least a share of it, from land under forest and shrubs. That will have positive and negative implications for GHG emissions and the shadow price of carbon analysis of the EFA. MOALI presently does not have enough information to estimate the potential land use changes that may happen.

Rationale for Public Interventions

9. Agriculture is a unique sector delivering, alongside commercial products, societal public goods such as food security. Given the public goods nature of agricultural research and related project investments and the limited involvement of the private sector in some of the targeted value chains due to market constraints, the public sector provision is the appropriate vehicle to fix market failure. For example, the support for the development of drought-resistant varieties or extension services, given the market scale and provision of these services in Myanmar, is considered high risk and not profitable for private sector investment. Unlike developed countries, private sector participation for the development of locally adapted varieties or supply of extension services is limited or almost nonexistent in Myanmar. Thus, the Government needs to step in to provide agricultural research and extension services as a public good. The COVID-19 response activities will support farmers in the provision of economic relief through cash for work program and provision of agricultural inputs.

Rationale for World Bank Involvement

10. The rationale to engage the World Bank and its staff in this project is its technical input and international experience in developing similar projects in other countries. At the same time, local expertise in

Myanmar is either not available or has limited technical capacity. The involvement of World Bank support has benefited the project design and interventions, accounting for issues that may have been overlooked or not accounted for. For example, the involvement of the private sector, included upon the World Bank's advice with the support of IFC, may lead to an increase in the project's development impact beyond the original design with the GoM's own resources.

Table 4.1. Potential Benefits from Project Interventions and their Quantification

Component	Expected Benefits	Quantified in EFA (Yes/No)
1. Agricultural Productivity Enhancement and Diversification	<ul style="list-style-type: none"> Increased productivity and profitability resulting from improved crops varieties and sustainable agronomic and management practices for cotton, tea, and temperate fruit crops (apple, orange, peach, pear, kiwi, strawberry, damson, and so on)^a Improved adoption of agricultural technologies from improved agricultural extension services Increased agricultural productivity from reduced fake fertilizer distribution and efficient fertilizer use from fertilizer recommendation services Increased productivity and profitability from meat cattle production resulting from artificial insemination program Reduced GHG emissions from more efficient cattle production Lower farmgate prices because of lower costs Reduced crop losses resulting from climate-resilient crop varieties Reduced climate vulnerability to droughts through irrigation use Reduced negative environmental impacts on water and soil from crop production (that is, pesticide use in cotton production) 	Yes
1.a Strengthening Agricultural Research and Development System		
1.b Improving the Quality and Utilization of Agricultural Inputs		
1.c Strengthening Agriculture Extension Services through Digital Technologies		Yes ^b
1.d Improving Irrigation and Drainage Infrastructure		
2. Value Chain Development	<ul style="list-style-type: none"> Improved export market access through better access to ISO certification and facilitation of quality control systems Increased food security and nutrition from improved crop nutrition from biotechnology Higher tea value addition because of higher tea productivity and quality (price) from improved access to training and technologies 	Yes ^c No Yes
2.a Supporting Value Addition and Market Access		
2.b International Standard Certification and Animal Disease Control		

Source: Own elaboration based on discussions with MOALI.

Note: a. It is assumed that the change in crop productivity captures improved practices, including the use of higher-quality inputs.

b. The assumption of increased crop productivity for each crop may capture the implied productivity reduction from the negative impacts of climate change. More detailed estimations would require crop models that incorporate climate change projections and the likely impacts on the selected crops.

c. The EFA accounts for price increases for the targeted crops. The price increase may come from improved quality, improved access to markets with higher prices, and other factors.

Economic and Financial Analysis

11. **Economic costs and assumptions made.** The project costs have been converted to economic costs, which exclude taxes and duties and price contingencies, using the COSTAB software and applying an SCF of 0.90. As of May 2020, the project costs are US\$200 million. The analysis was carried out for a 20-year period (2020–2040), which is the estimated project life including the six-year project implementation period. The economic analysis was undertaken in 2019 constant prices and a discount rate (that is, opportunity cost of capital) of 13 percent was assumed in accordance with the World Bank project guidelines for Myanmar. For

all commodities and inputs, an SCF of 0.90 has been applied and taxes have been removed for the project financial analysis. Market prices in Myanmar kyat at the time of appraisal (December 2019) were applied. Myanmar kyat (MMK) was used as the unit of account and the official exchange rate of MMK 1,400 to US\$1 (May 2020) was applied when converting to U.S. dollars.

12. **Economic benefits.** In the estimation of the economic benefits, economic gross margins per hectare were derived from illustrative crop and enterprise budget models by valuing the physical input and output quantities in terms of their respective economic prices. These models are considered representative of the production systems supported under Components 1 and 2. The following models were used in the EFA: cotton, tea, tea processing, cattle, and tree crops. The tea production and tea processing represented a value-chain approach which include the following elements: (a) value-chain infrastructure development, (b) establishment of market links, and (c) training and capacity development on improvements in the agro-enterprise enabling environment. Annual budgets have been prepared for crop production while multi-periodic cost-benefit analyses have been carried out for tea plantations and meat cattle investments. For the Cash for Work program, which would expand improve area under irrigation in 50,000 acres in the selected regions/states, it was assumed that the majority of the cropland would be under rice production.

13. All the technical assumptions within the models have been elaborated jointly with the team members and the government counterparts on the basis of field surveys, national statistics, and international and national expert consultation. Data for the EFA were collected from individual meetings with the Horticulture Department, Seed Division and extension services, Coffee Department, LBVD, and DAR. Data on value-chain analysis for tea processing and tea production were discussed during the meeting with the Horticulture Department.

14. For each model, two scenarios have been prepared: (a) the future without project scenario corresponding to the evolution of crop performances in the absence of the project and (b) the future with project scenario where expected benefits from project interventions are quantified. The economic gross margins per hectare (enterprise) were subsequently multiplied by the crop areas (number of enterprises) to determine the net benefits in the two scenarios. The differences between the net benefits in future with project and future without project situations were then calculated to determine the economic impact of the changes in crop production and related processing promoted by the project. The expected changes in crop and livestock productivity are shown in table 4.2.

Table 4.2. Changes in Productivity, Estimated Adoption Rates by Farmers, and Estimated Project Area

Product	Change in Productivity (percent)	Adoption Rate by Farmers (percent)			Area 2017–2018 (acres)	Average Annual Growth in Area (percent) (2021–2030)
		2021–2025	2025–2030	2030–2040		
Rice	7–10	30	40	70	50,000	2.0
Sugarcane	15–20	20	25	30	140,252	2.0
Cotton	7–10	30	40	70	529,625	2.0
Tea	10–25	28	45	75	205,714	1.0
Apple	10–20	20	40	60	688	1.0
Kiwi	10–14	20	40	50	50 ^a	0.5
Peaches	10–22	20	30	50	50 ^a	0.5
Pears	10–30	25	40	60	1,874	1.0
Orange	10–30	35	40	70	31,996	1.5
Damson	10–20	20	40	70	2,462	1.5
Strawberries	10–17	25	40	70	428	1.5
Cattle	12.5–25	n.a.	n.a.	n.a.	n.a.	n.a.

Note: ^a Current area for kiwi and peaches is zero. However, for the economic analysis, the project assumes 50 acres as an initial value to project future production area for these two crops.

15. Shadow price of carbon analysis using the EX-ACT tool was performed (see annex 4 for further details). During project consultations, it was assumed that the main benefit from Components 1 and 2 on primary production would come from changes in productivity through improved crop and livestock genetics. Strengthened extension services (Subcomponent 1.c) and improved quality and use of agricultural inputs such as fertilizers (Subcomponent 1.b), are assumed to improve adoption of agronomic practices and nutrient management for all crops and livestock in the project area (see Table 4.2). Irrigation (Subcomponent 1.d) will improve water management in the Bago region for rice production in 50,000 acres. The artificial insemination and breeding program for livestock would reduce time to market of meat cattle from 36 months to 33 months (9 percent reduction). Based on the estimated production of semen straws under the artificial insemination program (141,680 straws in four years) and a 60 percent farrowing rate, it was estimated that around 21,162 new calves would be born each year, equivalent to a herd replacement rate of 2.6 percent per year for the herd in the project area (6,234,253 animals in 2019). Those values were used in the EX-ACT tool to estimate the reduced emissions from improved cattle breeding.

16. Additionally, the project included the construction of research facilities, cold storage facilities, processing facilities (agricultural buildings [concrete] in EX-ACT) in an estimated 31,000 m². The construction of these new infrastructures will increase the project's carbon footprint. At project design, energy efficiency and/or renewable energy use in such buildings were not considered.

17. The EFA uses a low and high estimate of the carbon price starting at US\$40 and US\$80, respectively, in 2020 and increasing to US\$50 and US\$100 by 2030. According to the calculations in EX-ACT, the project showed a total reduction during the project lifetime of 6.5 million tons of CO₂ equivalent, which means that the project will have a positive carbon sequestration balance. The vast majority of those emissions' reduction comes from the improved management in annual crops (cotton) and reduced emissions from rice with improved practices. The overall carbon benefit is estimated to range between US\$105 million in the low shadow price of carbon scenario to US\$209 million in the high shadow price of carbon scenario.

18. **Economic viability and sensitivity analysis.** The economic analysis is based on the illustrative crop and enterprise models which are considered representative of the production systems supported under Components 1 and 2. The internal rate of return (IRR) of the overall project is 22.8 percent (including also costs of Component 3). The NPV, discounted at 13 percent is US\$296 million (MMK 415 billion). The benefit-cost ratio, estimated as the NPV of benefits (US\$ 417 million) divided by the NPV of project costs (US\$ 121 million), is 3.45. Inclusion of the economic benefits from emissions reduction and its valuation increases the project IRR to 26.9 percent in the low carbon price scenario (NPV US\$621 million) and 31.5 percent in the high carbon price scenario (NPV US\$751 million). Given these results, the project has a strong economic justification.

19. **Financial analysis.** The financial analysis uses the same crop and enterprise models, with all commodities and inputs valued using an SCF of 0.90, taxes removed, and family labor quantified but not valued. The results of the financial analysis produced an FIRR of 23.1 percent, indicating that the investment is financially viable.

20. **Sensitivity analysis.** A sensitivity analysis results showed that with 20 percent increase in project cost and with one-year delay in project implementation, the project was relatively insensitive to the changes (table 4.3). The sensitivity analysis with reducing the project cost and delay in implementation of the project showed that the FIRR is still robust.

Table 4.3. Results of Sensitivity Tests of Selected Factors on the Project, IRR

Sensitivity Factor	Tested Change	IRR (percent)
Project cost increase	+20 percent	21.7
Project delay	1 year	21.5

Indirect Project Impacts on Sectoral Production, Trade, and Employment

21. To estimate the impacts of the improved agricultural productivity, two simplified scenarios were used in a general equilibrium model for Myanmar. These two scenarios assumed that the project will have a 1 percent and 5 percent impact on agricultural productivity, as long-term impacts of the project interventions. These scenarios allow to estimate the impacts of changes in productivity in agricultural sectors on the overall economy, the impacts on domestic production, exports, imports, and changes in the welfare of the overall population of Myanmar. In this case we do not account for the impacts of COVID-19 in the economy.

22. The results from these two scenarios are that the project will have a positive impact on the overall economic activity in Myanmar, with changes in GDP between 0.5 percent and 2.5 percent (table 4.4). Due to the increased productivity, exports will increase between 4 percent and 20 percent, while agricultural imports will decrease between 1 percent and 6 percent. These results show the increased domestic production and self-sufficiency of the agricultural sector while reducing agricultural/farmgate prices between 1.9 percent and 8.6 percent. Agricultural employment will also increase between 0.4 percent and 1.8 percent. These positive changes in agricultural production and employment will overall have a positive impact on the welfare of the population, equivalent to US\$250 million under the change of 1 percent productivity and up to US\$1,138 million under the 5 percent agricultural productivity change.

Table 4.4. Results of Changes in Agricultural Productivity in Myanmar

Economic Variable	Change in Agricultural Productivity	
	1 percent	5 percent
GDP	0.5	2.5
Agricultural exports	3.9	20.2
Agricultural imports	-1.3	-5.8
Agricultural market prices	-1.9	-8.6
Agricultural employment	0.4	1.8
Welfare (US\$, millions)	250	1,138
Welfare (percentage of GDP)	0.4	2.0

Source: Own calculations based on results from the Global Trade Analysis Project (GTAP) model.

ANNEX 5. Climate Co-benefits and GHG Accounting

Part A: Climate Co-Benefits

1. The project presents several opportunities to generate climate co-benefits both for adaptation and mitigation. Table 5.1 provides project activities that will have direct and/or indirect climate co-benefits. Part B of this annex provides a detailed analysis of the GHG impact of measurable project interventions.

Table 5.1. Component-wise Potential Adaptation and Mitigation Climate Benefits

Component/Subcomponent	Adaptation Co-benefits	Mitigation Co-benefits
Component 1: Agriculture Productivity Enhancement and Diversification		
<i>Subcomponent 1.a: Strengthening Agricultural Research and Development System</i>		
Support research facilities to develop, test, and demonstrate new technologies, such as soil testing, farm leveling, and manuring, to develop climate-resilient, improved, and marketable varieties of certain crops and seeds, to collect and preserve germplasm (local variety crops) and introduce new cultivars. Further, it will support these facilities to provide more effective knowledge and advisory support for adoption of CSA technologies and for crop diversification through demonstration and farmers participatory research on regional research farms.	<ul style="list-style-type: none"> Soil will improve the precision and amount of fertilizer, improving soil management, and reducing climate vulnerability of crop production. Farm leveling will improve crop production management, reducing climate vulnerability of crop production. Development of climate-resilient, improved, and marketable varieties of certain crops and seeds will improve climate resilience. Collecting germplasm (local variety crops) and introducing new cultivars will increase climate resilience. Provision of more effective knowledge and advisory support for adoption of CSA technologies and for crop diversification through demonstration and farmers participatory research on regional research farms will improve climate resilience. 	<ul style="list-style-type: none"> Soil testing will improve the precision and amount of fertilizer used. In some cases, it may reduce fertilizer use, reducing GHG emissions. Farm leveling will improve resource use, such as water and fuel, potentially reducing GHG emissions. Manuring will improve manure management, reducing GHG emissions. Provision of more effective knowledge and advisory support for adoption of CSA technologies and for crop diversification through demonstration and farmers participatory research on regional research farms will improve crop and resource management to reduce, in some cases, GHG emissions.
<i>Subcomponent 1.b: Improving the Quality and Utilization of Agricultural Inputs</i>		
<ul style="list-style-type: none"> Ensure and enhance the provision of key agriculture inputs such as certified seed varieties and fertilizers, in collaboration with the private sector where opportunities exist. Strengthen fertilizer inspection and analysis system, by establishing a new Land Use Laboratory at the border area with China (Muse District) to analyze fertilizers, soil, plants, and irrigation water and to control quality of fertilizers in local markets. Support Fertilizer Recommendation System, which will replace the current blanket system with AEZs, soil- and crop-specific fertilization recommendations. 	<ul style="list-style-type: none"> Provision of certified seed varieties and fertilizers will improve crop productivity and reduce climate vulnerability Investment on a centralized seed center to process, treat, store, and test seed and construction of a climate-controlled seed bank, will improve farmers' long-term adaptation capacities to climate shocks through improved climate-adapted seed varieties 	<ul style="list-style-type: none"> Provision of certified seed varieties and fertilizers will improve crop management, reducing the use of inputs, as certified seeds will improve crop management, and in some cases, reducing other inputs use and GHG emissions. Use of certified fertilizer, strengthened fertilizer inspection, and analysis system and a Fertilizer Recommendation system may reduce the use of fertilizer volume (as farmers will apply fertilizer that meets standards), reducing GHG emissions.
<i>Subcomponent 1.c Strengthening Agriculture Extension Services through Digital Technologies</i>		

Component/Subcomponent	Adaptation Co-benefits	Mitigation Co-benefits
Strengthening capacity of extension and communication services and build awareness and knowledge of farmers to improve on-farm management, GAPs, cotton and sericulture technologies, post-harvest technologies, improved high productivity, and climate-smart production techniques as well as access to market information	Improved infrastructure and climate smart production techniques will increase the climate resilience of the agricultural sector in Myanmar.	Improved on-farm management, GAP and climate-smart production techniques may reduce GHG emissions.
<i>Subcomponent 1.d Improving Irrigation and Drainage infrastructure</i>		
Investment on construction of irrigation work, rehabilitation of existing irrigation and drainage works storage facilities and other agricultural activities to create jobs for affected households due to COVID-19. These activities will be undertaken by cash for work program.	<ul style="list-style-type: none"> Rehabilitation of exiting irrigation will reduce the climate vulnerability to increased and more frequent episodes of drought, as well as reduce water losses in the irrigation canals, thus reducing exploitation of groundwater. Higher value but lower water consuming crops and new water saving irrigation technologies will also reduce water consumption and Drainage and flood protection works will reduce flood risks and crop and infrastructure losses from those risks. 	<ul style="list-style-type: none"> Reduce fuel use for water pumping from improved irrigation and reduced groundwater use; Reduce methane emissions as improved practices in rice production such as water conservation (reducing flooding in rice paddies)
Component 2: Value Chain Development		
<i>Subcomponent 2.a: Supporting Value Addition and Market Access</i>		
<ul style="list-style-type: none"> Support investments in value-chain and market infrastructure that will enhance quality and value addition of selected crop and livestock value chains. The subcomponent will finance construction/upgrading of existing infrastructures and facilities, including cold storage and processing facilities. Capacity building and awareness raising on post-harvest technologies, cold storage management, cattle breeding, and other technologies and knowledge relevant to value additions. 	<ul style="list-style-type: none"> Improved infrastructure, including cold storage and processing facilities, will increase the climate resilience of the targeted value chains. Capacity building and awareness raising on post-harvest technologies, cold storage management, cattle breeding, and other technologies will increase the climate resilience of the targeted beneficiaries. 	<ul style="list-style-type: none"> Promote climate smart value chains through the assessment of major climate risks and their impacts on the selected value chains and the development of associated climate smart adaptation strategies. These investments will enhance competitiveness and value addition by, for instance, by extending the shelf life of the selected fruit products. Improved efficiency in value chain processes (e.g. energy efficient processing facilities and cold storage) may lead to reduced GHG emissions in some cases and increased GHG in other project activities.
<i>Subcomponent 2.b: International Standard Certification and Animal Disease Control</i>		
<ul style="list-style-type: none"> Support investments in laboratories infrastructure, equipment, and human capacity needed to ensure international standard certification and increase competitiveness of selected value chains in the export market and for import substitution. 	Increased competitiveness of targeted value chains and reduction of imports will improve the climate resilience of the agricultural sector.	

Component/Subcomponent	Adaptation Co-benefits	Mitigation Co-benefits
Generate market access through the formation, development, and operation of VCC of farmers and linking them with downstream entrepreneurs and market buyers.	Linking farmers to entrepreneurs and market buyers will increase their climate resilience as they will have improved market access, thus reducing their vulnerability to climate change	Value chains will produce increased efficiency with aggregation of producers, thus reducing the use of resources (e.g. transportation) and reducing GHG emissions from energy use.

Part B: GHG Emission Estimation

2. The project's EFA has undertaken GHG estimating analysis to estimate the impact of project investments in strengthening research; improving quality and utilization of agricultural inputs; and strengthening extension services through digital technologies, infrastructure development, value chaining, and market linkages through public-private partnership platforms. The GHG analysis is based on quantifiable estimates based on project activities. In coordination with the EFA (annex 4), the GHG estimation accounts for two sources of change in emissions: (a) changes in livestock productivity and practices and (b) construction of project infrastructure, namely research buildings, cold storage facilities, and laboratories.

3. Current estimations have not considered land use changes that may reduce (for example, replacement of cropland under rice) or increase GHG emissions (for example, replacement of forest and shrubland with new cropland). Expansion of cropland area under the selected value chains needs to estimate how much will come from other land use (that is, forest and shrubland) and how much from other crops, such as rice. Historically, most of the new cropland area in 1989–2014 in Myanmar has come from forest and shrubland.

4. The project area has a tropical moist climate. The dominant soil type is HAC (high-activity clay) soils. The project implementation phase is 6 years of actual implementation and the capitalization phase is assumed to be 14 years, resulting in a 20-year implementation period which is common in the use of EX-ACT and aligned with the project period for the EFA. During project consultations, it was assumed that the main benefit from Components 1 and 2 on primary production would come from changes in productivity through improved crop and livestock genetics. Strengthened extension services (Subcomponent 1.c) and improved quality and use of agricultural inputs such as fertilizers (Subcomponent 1.b), are assumed to improve adoption of agronomic practices and nutrient management for all crops and livestock in the project area (see Table 5.2). Improved irrigation (Subcomponent 1.d) will improve water management in the Bago region for rice production in 50,000 acres. The artificial insemination and breeding program for livestock would reduce time to market of meat cattle from 36 months to 33 months (9 percent reduction). Based on the estimated production of semen straws under the artificial insemination program (141,680 straws in four years) and a 60 percent farrowing rate, it was estimated that around 21,162 new calves would be born each year, equivalent to a herd replacement rate of 2.6 percent per year for the herd in the project area (6,234,253 animals in 2019). Those values were used in the EX-ACT tool to estimate the reduced emissions from improved breeding.

5. Additionally, the project included the construction of research, cold storage, and processing facilities (agricultural buildings [concrete] in EX-ACT) in an estimated 31,000 m². The construction of these new infrastructures will increase the project's carbon footprint. At project design, not energy efficiency and/or renewable energy use in such buildings was considered.

6. **Results.** The project leads to estimated annual climate change mitigation benefits of 322,927 tCO₂e when compared to a business-as-usual baseline scenario (table 5.2). After 20 years, a time frame commonly used for project GHG accounting in agriculture, GHG mitigation benefits amounting to a reduction of 6.5 million tCO₂e will be generated. This is equivalent to annually reduced GHG emissions per hectare of 17.5 tCO₂e.

Table 5.2. Annual and Total GHG Emissions with and without Project and Balance (tCO₂e)

Project activities	Over the Economic Project Lifetime (tCO ₂ e)			Annual Average (tCO ₂ e/year)		
	GHG Emissions of 'Without Project' Scenario (1)	Gross Emissions of 'With Project' Scenario (2)	Net GHG Emissions (2 – 1)	GHG emissions of 'Without Project' Scenario (3)	Gross Emissions of 'With Project' Scenario (4)	Net GHG Emissions (4 – 3)
Annual crops	0	-5,812,283	-5,812,283	0	-290,614	-290,614
Perennial crops	-3,692,071	-3,692,071	0	-184,604	-184,604	0
Rice	1,209,501	646,690	-562,811	60,475	32,335	-28,141
Livestock	184,294,085	184,190,310	-103,774	9,214,704	9,209,516	-5,189
Inputs (buildings)	0	20,336	20,336	0	1,017	1,017
Total	181,811,515	175,352,983	-6,458,532	9,090,576	8,767,649	-322,927

Source: Estimates generated using the EX-ACT tool version 8.5.2.

ANNEX 6. Safeguards

1. The proposed project triggers eight World Bank safeguards policies: (a) Environmental Assessment (OP/BP 4.01), (b) Natural Habitats (OP/BP 4.04), (c) Pest Management (OP 4.09), (d) Physical Cultural Resources (OP/BP 4.11), (e) Indigenous Peoples (OP/BP 4.10), (f) Involuntary Resettlement (OP/BP 4.12), Safety of Dams (OP/BP 4.37), and Projects on International Waterways (OP/BP 7.50). The project is a Category B project under the World Bank's environmental and social screening guidelines as the activities are not likely to cause significant or irreversible environmental impacts. Although the Safety of Dams (OP/BP 4.37) is triggered, the project category is remained as B primarily due to the rehabilitation nature of the proposed irrigation works and limited scale of works, which will take place mainly within the footprint of existing irrigated systems on established agriculture lands.

2. As part of the project preparation, an ESMF has been prepared. The ESMF includes environmental and social assessment and identifies the overall management plan with appropriate measures for ensuring that the project benefits are realized, and risks are mitigated in line with the World Bank Safeguard Operational Policies. The environmental assessment suggests that the project is expected to deliver a number of environmental benefits, such as improved soil and water management practices considering the agro-ecological context of the project intervention area. The project will also contribute to an integrated pest and disease management through the adoption of sustainable practices by supplying biological controls and the use of natural enemies to manage population of pest organisms.

3. For the expanded scope as a response to the COVID-19 pandemic, the Environmental and Social Action Plan (ESAP) has been prepared and attached to the ESMF as addendum. The project will revise the ESMF, conduct additional required assessments, consultations and prepare the necessary instruments within the agreed timeline mentioned in the ESAP.

4. **Environmental Assessment (OP/BP 4.01).** Major potential environmental impacts are limited to the following categories: (a) construction of new and upgrading of infrastructure/facilities; (b) maintenance and operation of facilities (such as cold storage and processing facilities); (c) agriculture and livelihood activities; (d) procurement of equipment, materials, chemicals, and others; and (e) provision of services. Table 6.1 summarizes the potential environmental impacts and its instruments for mitigation in each type of activities.

Table 6.1. Potential Likely Impacts and Measures for Different Type of Activities

Type of Activities	Potential Impacts	Environmental and Social Instruments and Other Tools for Impact Mitigation
1. Rehabilitation of Distributary Canal and water courses, and strengthening of embankment for protection of flood and sea water intrusion	Stage 1 of the rehabilitation works (non-reservoir irrigation schemes) involve minor repairs and maintenance such as canal cleaning, re-sectioning, improvement of access road, minor repairs. Potential impacts and risks are related to minor repair activities including OHS and community health and safety. There is also a potential risk that the sludge from the cleaned-up canals could be contaminated especially with the washed agrochemicals residues. The project will have proper sludge handling and management procedures under ECoP to mange the cleaned-up sludge and to prevent harmful exposure to the workers and community.	<ul style="list-style-type: none"> For Stage 1 rehabilitation works, the project will develop/draft an Environmental Code of Practice (ECoP) for minor construction works on existing irrigation schemes. The ECoP is to be annexed into the current ESMF. For Stage 2 rehabilitation works, (i) the project will adopt recommendations from all relevant dam safety reports/plans under ADSP (ii) for all dams relevant for the project implementation, existence and effectiveness of emergency preparedness and response plans will be reviewed before commencement of the works, and (iii) update the ESMF accommodating potential impacts and risks from this additional activity.,

	<p>Stage 2 rehabilitation works involve schemes from the existing Bank's project (ADSP) which dam safety studies already conducted and available. Potential environmental impacts and risks are limited to the construction-related activities: noise, dust, waste disposal, management of storm water and community and workers health and safety. These impacts can be readily managed through standard mitigation measures, Code of Conducts for OHS, good engineering designs and good practices for civil construction and transport-related impacts. Transport impacts along haul routes associated with heavy vehicles are noise, dust, road safety, road surface condition. These can be managed through the establishment of traffic management plan.</p> <p>Stage 3 will involve schemes connected to existing dam without previous/existing dam safety assessments. Dam Safety (OP4.37) is triggered as the performance of the Bank financed project (or in this case, rehabilitation of existing schemes) is dependent on an existing dam. In this case, a due diligence will be needed.</p> <p>There is the potential risk for land acquisition for a range of activities, including but not limited to: (i) establishment of construction camp; (ii) temporary construction roads; (iii) improvement of access roads requiring widening of such roads/ bridge approaches; (iv) requirement for widening of irrigation channels; (v) need for borrow pits for construction materials; (vi) spoil disposal area's to dispose of the materials removed when repairing the existing channel and (vii) encroachment. Each of these potential issues/activities will potentially require land acquisition, either temporarily or permanently. The activities risk directly impacting Ethnic groups as well as their exclusion from participation in Water User Groups.</p>	<ul style="list-style-type: none"> For Stage 3 rehabilitation works, (1) Dam safety assessment will be performed in line with O 4.37. In this case, MOALI is to arrange for an independent dam specialist to: inspect/evaluate safety status and its performance history, review/evaluate the O&M procedures, and provide a written report of findings and recommendations for any remedial or safety-related measures; (2) Based on the results from this assessment, the project will develop safeguards instruments: for those dams with low and medium risks: ESMP/IEE will be prepared, or (b) high risk: ESIA will be prepared, consulted, and disclosed. The project will also develop the Emergency Preparedness and Response Plan for each connecting dam and scheme; (3) MOALI to adopt recommendations from all relevant dam safety reports/plans. The ESMF has a RPF and CPPF annexed to it . These will be updated to reflect the risk of land acquisition and direct impacts to ethnic Groups. Activity screening during implementation preparation will determine if an (A)RAP or CPP is required.
2. Construction (new and upgrading)	Noise, dust, waste disposal, hazardous substance and materials, management of stormwater, and health and safety of workers and nearby community	<ul style="list-style-type: none"> ESMF to screen activities ensuring that relevant safeguards policies are adequately addressed

		<ul style="list-style-type: none"> • Site-specific ESMP to manage mitigation measures • Environment, Health, and Safety guidelines for reference as a generic environmental management plan, particularly for construction-related activities • ECoP • Good engineering designs and good practices for civil construction • Development of guidelines for hazardous waste management, which includes standardized safety measures • Code of conduct for workers
3. Maintenance and operation of facilities	Hygiene, reliable and adequate water and power supply, health, and safety	<ul style="list-style-type: none"> • ECoP • Guidelines for biosafety protocol; storage for chemical materials; and environmental, health, and safety
4. Agriculture and livelihood activities	related to the use and handling of chemical materials including pesticides and fertilizers, community health, eutrophication of surface water resources from surface runoff and leaching of nutrients, air emissions (ammonia and odors) from livestock activities, solid wastes generated by livestock activities (waste feeds, animal wastes, etc.)	<ul style="list-style-type: none"> • The ESMF to screen activities ensuring that relevant safeguards policies are adequately addressed • Site-specific ESMP to manage mitigation measures • ECoP • GAP • CPP
5. Procurement of equipment, materials, chemicals, and others	Health and safety of workers and nearby community	<ul style="list-style-type: none"> • Negative list for banned hazardous materials • Training for staff on the use and handling of hazardous materials
6. Provision of services	Ethnic people, gender	<ul style="list-style-type: none"> • CPPF

5. Activities that are related to maintenance and operation of facilities may potentially have impacts on water quality as well as health and safety of workers/staff and nearby communities. Mitigation measures include the implementation of (a) environmental and social instruments such as ECoP, ESMP, occupational health and safety, and (b) guidelines for biosafety protocol as well as storage for chemical materials at laboratories. The environmental and social instruments will ensure—among others—wastewater generated from laboratories to public drain is adequately treated and disposed, all hazardous materials will be stored and transported to prevent spills, waste management for non-hazardous materials, installation of required safety facilities, and use of appropriate personal protective equipment in the laboratories.

6. The project's ESMF includes potential impacts and risks related to the operation of existing laboratories. The laboratories will be screened and classified as follows: (a) high-risk, (b) medium-risk, and (c) low-risk laboratories. High-risk laboratories will be rolled out at the later stage of project implementation. This will allow the PMU to apply/execute measures in reducing the associated risks to a safer level to be eligible for funding. The ESMF has included pre-identified 'high-risk' laboratories and measures considered for risk reduction and management, which may include (a) developing standardized guidelines and standards on hazardous solid and liquid waste material management, (b) developing health and safety management system for all laboratory facilities under this project, and (c) ensuring that the developed guidelines and standards are implemented properly. Investments related to safeguards measures will be supported by the project.

7. **Natural Habitats (OP/BP 4.04).** The policy prescribes 'Natural Habitats' as areas where (a) the ecosystems' biological communities are formed largely by native plant and animal species and (b) human

activity has not essentially modified the area's primary ecological functions. The ESMF provides screening mechanisms for subproject activities to exclude any activities that would involve significant conversion or degradation of natural habitats.

8. **Pest Management (OP 4.09).** The project will also contribute to integrated pest and disease management through the adoption of sustainable practices by supplying biological controls, such as the use of natural enemies to manage population of pest organisms. The policy is triggered as a precaution because pesticide use is a necessity in agricultural activities in the region. The ESMF will promote integrated pest management as a standard practice. A screening mechanism will be included in the ESMF to determine if there are any activities with significant pest management issues; if so, a separate pest management plan will be required to ensure that these materials are well managed for those activities. The project will promote integrated pest and disease management, including through the adoption of sustainable pest and disease management practices by supplying biological controls and the use of natural enemies to manage population of pest organisms. The ESMF will provide more detailed information on the application of this method.

9. **Safety of Dams OP/BP 4.37.** Although the project will not finance construction of new dams, the irrigation systems will involve schemes connected to existing dam. The OP is triggered as the performance of the Bank financed project (or in this case, rehabilitation of existing schemes) is dependent on an existing dam. The Project will arrange for an independent dam specialist to: (1) inspect/evaluate safety status and its performance history, (2) review/evaluate the operations and maintenance (O&M) procedures, and (3) provide a written report of findings and recommendations for any remedial or safety-related measures. Dam safety assessment will be performed in line with OP 4.37. Based on the results from this assessment, the project will develop safeguards instruments and Emergency Preparedness and Response Plan for each connecting dam and scheme. The project will explicitly exclude the irrigation schemes which involve dams with high risk that will require significant and complex improvements and present significant risks to the environment and population and that are require reclassification of the project as a category A project.

10. **Projects on International Waterways OP/BP 7.50.** The policy is triggered since the proposed activities of rehabilitation and improvements of existing irrigation and drainage systems are nation wide. Given the rehabilitation nature of the irrigation related activities that would not exceed or alter the purpose of the original schemes, the proposed project falls within the exception to the riparians notification requirement. Request for the exception to this notification requirement has been prepared and approved by the RVP on May 30, 2020. Concerning pollution prevention due to the proposed laboratories which may pose substantial high risks of pollution due to lack of capacity for hazardous waste management, the ESMF provides screening mechanism to exclude high risk laboratories that would result pollution of any international waters.

11. **Physical Cultural Resources (OP/BP 4.11).** The policy is triggered to ensure that any 'chance finds' or other physical cultural resources during excavation or other earth-moving activities are adequately protected. The project's ESMF consists of a chance find procedure which requires that should any areas of potential cultural importance or artefacts be identified, works should stop and government-related agencies such as Department of Archaeology and National Museum under Ministry of Religious Affairs and Culture be contacted. No work should continue until approval has been sought from these agencies.

12. **Involuntary Resettlement (OP/BP 4.12).** is triggered on the basis that the irrigation system rehabilitation could require land acquisition for any of its components, such as spoil areas, worker camps etc. The other components will primarily support the upgrading of capabilities and facilities on existing government facilities and infrastructure- research/demonstration farms. The footprint will be small scale. Although project activities will take place within the physical footprint of the existing government facilities, it is possible that additional small strips of land may be required to enlarge the footprint of the facilities to accommodate new buildings or that farmers/ cattle ranchers are using the land within these government compounds and require to enforce access restrictions. Any land acquisition will not be funded through World Bank financing. Considering that the exact scope and design of the project works remains to be determined,

an RP) has been prepared and disclosed as a stand-alone section of the ESMF report. The RPF will not allow for voluntary land donations, since the landowners are not direct project beneficiaries. The draft RPF was disclosed in January 2020 as part of the draft ESMF and consultation meetings were completed by March 2020. Feedback received from the consultations have been incorporated in the project design and RPF. The ESMF provides screening mechanism to exclude any activities that has land legacy issues. The RPF will be updated as part of the update of the ESMF, to reflect the changed project activities and scope.

13. Indigenous Peoples (OP/BP 4.10). Myanmar is one of the most ethnically diverse countries in Asia, and the will fund activities in areas where ethnic minorities are present. Both under Components 1 and Component 2, there may be risks that ethnic minorities do not have equal and culturally appropriate access to benefits and may not be adequately consulted in decision making. Under the additional COVID19 activity on Irrigation schemes, there is the potential risk of direct impact through land acquisition. Ethnic minorities will be deliberately targeted and included as project beneficiaries (as part of the Vulnerable Population Groups (VPGs), to ensure that they will be beneficiaries as anybody else from improved seeds/breeds and other project benefits. To ensure that they are meaningfully consulted, and appropriately compensated if impacted directly, OP 4.10 has been triggered. Considering that the exact scope and design of the projects work remains to be determined, MOALI prepared, a draft CPPF⁶⁸ and included as a stand-alone section of the project's ESMF. For activities where ethnic minorities are present, MOALI will conduct a social assessment and ensure that free, prior and informed consultations are held to reach broad community support and prepare Community Participation Plans (CPPs) as required under the CPPF. The draft CPPF was disclosed in January 2020 as part of the ESMF and consultation meetings were completed by in the first week of March February 2020. These consultation meetings included consultations in the conflict affected townships in Shan and Kayah states with CSOs, ethnic group organizations and farmers groups. Feedback received from the consultations have been incorporated in the project design and CPPF. Further consultations will be conducted during project implementation in accordance with the phased approach. During the initial years of implementation, if ethnic minorities are found to be present, a Community Participation Plan⁶⁹ (CPP) will be prepared. The CPPF will be updated as part of the update of the ESMF, to reflect the changed project activities and scope.

14. The project includes mitigation measures to ensure that the local communities affected by the project are properly notified of the timing and scope of the planned works and disturbances are minimized. Such minimization of disturbances may include limiting working hours to daylight, special precautions when the work is carried out near children's institutions, or traffic management such as, if required, the establishment of alternative temporary traffic routes.

15. Environmental and Social Management Plans. Considering the limited capacity of the MOALI in developing safeguards instruments, it is envisaged that during the first year of implementation, the PMU will screen and assess the activities and facilities to ensure they comply with Category B project requirements. Those activities that are identified as having substantial risk will be rolled out at a later stage of project implementation. The PMU will use the first one or two years of project implementation to develop detailed ESMPs to be approved by the World Bank and to execute appropriate measures in reducing the associated risks, before being eligible to be funded through the NFASP. Investments related to safeguard measures will be financed by the project.

16. During project preparation, MOALI developed an ESMP of the facility for promotion of artificial insemination service and upgrading of natural breeding for the development of cattle production. The ESMP highlights that the activities to be conducted under this subproject are not expected to have significant environmental and social impacts. Potential main impacts are related to the manure from cattle farms, site preparation for cattle housings, and occupational health and safety. Mitigation measures will include (a) installing proper ventilation inside the facilities (barn, laboratory, and plant); (b) changing feeding practices;

⁶⁸ Equivalent of an Indigenous Peoples Planning Framework under OP 4.10.

⁶⁹ Equivalent of an Indigenous Peoples Plan under OP 4.10.

(c) managing manure to reduce CH₄ and N₂O emissions; (d) covering manure storage facilities; (e) avoiding manure or fertilizer application while soil is saturated with water; (f) providing a safe distance of the cattle housing buildings at least 30 m away from well or water intake; (g) ensuring proper disposal of wastewater generated from AI laboratory; and (h) providing adequate personal protective equipment for workers at the facilities (cattle breeding, cattle housing, AI laboratory, and LN₂ production).

17. **Institutional capacities to implement safeguards instruments.** The project's implementing agency is MOALI through the establishment of a PMU. In collaboration with the participating departments (IWUMD, DOA, DAR, and LBVD), a PWC will also be established. MOALI's knowledge of specific World Bank policies is not extensive. However, MOALI has demonstrated its capacity to effectively implement elaborated social safeguards arrangements in the context of the ADSP.

18. To ensure resources are available to support the implementation of the project's safeguards instruments, the following arrangement will be applied:

- A total of six environmental and social focal officers will be in place: one environmental officer and one social officer representing DOA, one environmental officer and one social officer representing IWUMD, one environmental and social officer representing DAR, and one environmental and social officer representing LBVD.
- The PMU's safeguards consultant team will consist of six consultants—two international consultants for each environment and social (full time basic in the first two years of project implementation and intermittent for the rest of the project implementation period) and two national environmental consultants and two national social consultant (full time basic throughout the project implementation period)—and will support the environmental and social focal officers.
- At the subproject level, there will be focal persons for each participating division. The Environmental and Social Safeguards Unit of each participating department will be responsible for (a) ensuring that activities implemented by each department are in compliance with safeguards requirements and (b) reporting on environmental and social aspects.

19. The implementing stakeholders (MOALI PMU staff, contractors, supervision consultants, and local community representatives, and etc.) will receive training on the environmental and social safeguard instruments but at various intensities, to facilitate and accommodate needs in meeting their roles and responsibilities. Capacity building should be viewed as more than training. It is human resource development and includes the process of equipping individuals with understanding skills and access to information, knowledge, and training that enable them to perform effectively. Therefore, as part of the overall capacity-building efforts, the project will include awareness raising activities in addition to technical training. The ESMF has included a comprehensive plan for awareness raising activities and technical training. Budget provision for this capacity building effort is also included in the overall project's funding, outlined in the ESMF.

Annex 7. Environmental and Social Action Plan (ESAP)

I. Background

1. Following the approval of the Environmental and Social Management Framework (ESMF) and the decision meeting, the Project has expanded its scope to respond to the COVID-19 pandemic and will support the recovery of the agriculture sector through the additional activities outlined in Table 7.1. In view of the urgency to mitigate the adverse impacts of the COVID 19 pandemic, the project is now being prepared under paragraph 12 of Investment Project Financing - Situations of Urgent Need of Assistance or Capacity Constraints. In accordance to the Bank Procedure for such a situation (OPS5.03-PROC.189), a time bound Environmental and Social Action Plan (ESAP) is required to be prepared. This Annex forms this ESAP.

II. Project description and revised project activities

2. The objective of the NAFSP project is to increase agricultural productivity and diversification and to enhance market access for selected value chains in the project area and respond to eligible crisis or emergency.

3. The project comprises four components:

- 1) Agriculture Productivity Enhancement and Diversification; with subcomponents:
 - a. Strengthening Agricultural Research and Development System
 - b. Improving the Quality and Utilization of Agricultural Inputs
 - c. Strengthening Agriculture Extension Services through Digital Technologies
 - d. Improving irrigation and drainage infrastructure
- 2) Value Chain Development; with subcomponents:
 - a. Supporting Value Addition and Market Access
 - b. International Standard Certification and Animal Disease Control
- 3) Project Management, Coordination, and Monitoring & Evaluation, and
- 4) Contingent Emergency Response Component.

4. These additional activities are not captured in the Environmental and Social Safeguards documentation already prepared and have not been consulted on and disclosed by the Client. Therefore, this ESAP is prepared, outlining the additional measures the Client will take. These measures are summarized in Table 7.2. Consultations on the revised safeguard instruments will be carried out prior to carrying out the additional project activities.

Table 7.1. Summary of additional activities

Components	Additional Activities	Locations
Component 1a	None	
Component 1b	<p>The project will make direct payment to the agriculture input suppliers for the farmers who purchase inputs through paper-vouchers to be targeted to farmers in accordance with targeting criteria.</p> <p>Development of e-voucher mechanisms Key activities include; i) digital data base development based on beneficiary survey and farmer registration, ii) digital platform building, iii) sensitization for both farmers and input suppliers/dealers, and iv) program maintenance and capacity building for the maintenance. This is a small consultancy activity to develop a mechanism. No subsidy is expected to flow from IDA, and this will be managed by MOALI.</p> <p>Strengthen capacity of seed production through seed cooperatives: Strengthen seed cooperatives to upgrade their production system to produce certified seeds.</p>	Shan state and Ayeyarwaddy
		Naypyitaw (NPT) and 13 states/regions, excluding Chin state (due to weak cooperative network).

Components	Additional Activities	Locations
	<p>Strengthen private sector platform particularly with Ag input suppliers: Strengthen communication campaign to minimize disruption of the food supply chain, Strengthen private sector platform for Ag input suppliers. This is to support MOALI to organize meetings with Agri-input suppliers and communicate with local township officers. Due to lock down, many agri suppliers have not been able to move around due to uncertain communication on movement restrictions and quarantine requirements. This will involve meeting and communication costs under DOA of MOALI</p>	Across the country through communication (no physical investment)
Component 1c	Expanding the digital extension messages to include Covid 19 awareness Provision of mobile labs (lab apparatus, audio visualities for dissemination of knowledge in efficient use of agriculture inputs and improved production technologies). Mobile labs will provide on-site analytical services combined with interpretation and recommendations for efficient use of fertilizers and agrochemicals. (US\$ 12.3 million)	NPT and 13 regions/states except for Rakhine
Component 1d	<p>Cash for Work (CFW) for the maintenance and repair of irrigation and drainage canals, their appurtenant structures and embankments, and other labor-intensive canal cleaning work. The selection of the irrigation schemes will be based on criteria including: technical, social, economic and financial, and environment. The rehabilitation works will be done in the following phases:</p> <ol style="list-style-type: none"> Starts with those which do not source water from a dam (i.e. non-reservoir irrigation schemes): minor rehabilitation and maintenance such as canal cleaning, re-sectioning, improvement of access road, minor repairs, Those from ADSP schemes which dam safety studies are completed, then Schemes connected to dam. An independent dam safety assessment will be conducted prior to the groundwork. consultancies and institution building 	<p>Maintenance and rehabilitation of the existing irrigation and drainage schemes: Mandalay, Sagaing, Magway, and Bago and Ayeyarwaddy regions</p> <p>Minor repair and maintenance from existing schemes: Kachin State, Kayah State, and Mon State and NPT region.</p>
Component 2a	Establishment of cold storage in MOALI facilities. (US\$ 4 million)	Yangon, Bago and Ayeyarwaddy
	Strengthening Cooperatives for market linkage- contract farming (US \$ 5 million)	NPT and 13 regions/states except for Rakhine
Component 2b	Initiate Disease Control Zone establishment by vaccination and diagnosis. Key activities: (i) purchase laboratory reagents (Test Kits) for testing important animal diseases including foot-and mouth-disease (FMD); (ii) design and implement an FMD control program that include measures such as vaccinations and ongoing surveillance eventually leading to the establishment of disease-free zones. The project will strengthen animal quarantine services and centers to ensure that animal movement (from outside and within the country) are safe and meet health standards. It will also strengthen laboratory capacities in disease diagnosis and building awareness to extension and veterinary workers on one health approach. The project will also support awareness creation campaigns at community level on food safety and animal health should be strengthened. (US\$ 4 million)	44 Townships Yangon, Mandalay, Sagaing, NPT, Bago, and Magwe
Component 3:	Project Management Unit, Support to MOALI in M&E and coordination (additional US \$ 5.85 million)	
Component 4: CERC	None	

III. Environmental and Social Action Plan (ESAP)

Table 2. NFASP - Environmental and Social Action Plan (ESAP) for additional activities which were not covered in the original ESMF

Additional Activities	Potential Risks and Impacts	Action Description	Safeguard Instruments/Tools ⁷⁰	Required Completion Date	Financing Agreement reference
Component 1b Improving the Quality and Utilization of Agricultural Inputs: Agricultural inputs subsidy support through voucher scheme	Environment: None Social: There is the risk of exclusion of vulnerable households and those accessing the subsidy late if there is a cap on the funding	Clear targeting of eligibility criteria and appropriate dissemination of voucher system to the target audiences. Ensuring the program is sufficiently funded to provide the subsidy to all eligible people in the target audience.	1. Revised CPPF annexed to the ESMF, and 2. Preparation of a CPP	Prior to work commencement	1.2 (a)
Design of e-voucher scheme	Environment: None Social: There is the risk of exclusion of vulnerable households	Clear targeting of eligibility criteria and appropriate dissemination of voucher system to the target audiences.	1. Revised CPPF annexed to the ESMF, and 2. Preparation of a CPP	Prior to work commencement	1.2(a)
Strengthen seed cooperatives	Environment: None Social: There is the risk of exclusion of vulnerable households as well as potential labor and OHS issues.	Communication and communication materials be prepared and conducted using appropriate materials and in appropriate languages. Screening for potential labor and OHS issues and preparation of Labor Management Plan (LMP).	1. Revised CPPF annexed to the ESMF, and 2. Preparation of a CPP 3. Revised ESMF 4. Preparation of an LMP	Prior to work commencement	1.2(d)(i)
Component 1c Strengthening Agriculture Extension Services through Digital Technologies including COVID-19 awareness	Environment: None Social: There is the risk of exclusion of vulnerable farmer, especially those who are illiterate and those speaking	Communication and communication materials need to be prepared and conducted using appropriate materials and in	1. Revised CPPF annexed to the ESMF, and	Prior to work commencement	1.3 (a)

⁷⁰ Consultations on the revised safeguard instruments will be carried out prior to carrying out the additional project activities, see table 3 on timing

Additional Activities	Potential Risks and Impacts	Action Description	Safeguard Instruments/Tools ⁷⁰	Required Completion Date	Financing Agreement reference
message in the digital extension service as already in the original activity	ethnic languages only	appropriate languages.	2. Preparation of a CPP		
Provision of mobile facilities and ICT Technology for Extension Services and Material Support to Disseminate Knowledge and Technique specialized on Agrochemicals and Seeds.	Environment: None Social: There is the risk of exclusion of vulnerable farmer, especially those who are illiterate and those speaking ethnic languages only		1. Revised CPPF annexed to the ESMF, and 2. Preparation of a CPP	Prior to work commencement	1.3 (c)
Component 1d Improving Irrigation and Drainage Infrastructure: Irrigation rehabilitation through Labor-intensive work Stage 1 of the rehabilitation works (non-reservoir irrigation schemes)	Environment: Stage 1 may involve minor repairs and maintenance such as canal cleaning, re-sectioning, improvement of access road, minor repairs. Potential impacts and risks are related to minor repair activities including OHS and community health and safety.	The project will develop/draft an Environmental Code of Practice (ECoP) for minor construction works on existing non-reservoir irrigation schemes. The ECoP is to be annexed into the current ESMF.	ECoP	Prior to work commencement	1.4 (a)
Stage 2 rehabilitation works involve schemes from the existing Bank's project (ADSP) which dam safety studies already conducted and available.	Potential environmental impacts and risks are limited to the construction-related activities: noise, dust, waste disposal, management of storm water and community and workers health and safety. These impacts can be readily managed through standard mitigation measures, Code of Conducts for OHS, good engineering designs and good practices for civil construction and transport-related impacts. Transport impacts along haul routes associated with heavy vehicles are noise, dust, road safety, road	(1) In connection with remedial/rehabilitation works, MOALI to adopt recommendations from all relevant dam safety reports/plans under ADSP. (2) For all dams relevant for the project implementation, existence and effectiveness of emergency preparedness and response plans will be reviewed before commencement of the works.	(1) Revised ESMF (2) Emergency Preparedness and Response Plan (if needed)	Prior to work commencement	1.4 (a)

Additional Activities	Potential Risks and Impacts	Action Description	Safeguard Instruments/Tools ⁷⁰	Required Completion Date	Financing Agreement reference
	surface condition. These can be managed through the establishment of traffic management plan.	(3). MOALI to update the ESMF accommodating potential impacts and risks from this additional activity			
Stage 3 will involve schemes connected to existing dam without existing dam safety assessments.	Environment Dam Safety (OP/BP 4.37) is triggered as the performance of the Bank financed project (or in this case, rehabilitation of existing schemes) is dependent on an existing dam. In this case, a due diligence will be needed.	(1) Dam safety assessment will be performed in line with O 4.37. In this case, MOALI is to arrange for an independent dam specialist to: inspect/evaluate safety status and its performance history, review/evaluate the O&M procedures, and provide a written report of findings and recommendations for any remedial or safety-related measures. (2) Based on the results from this assessment, the project will develop safeguards instruments: for those dams with low and medium risks: ESMP/IEE will be prepared, or (b) high risk: ESIA will be prepared, consulted, and disclosed. The project will also develop the Emergency Preparedness and Response Plan for each connecting dam and scheme. (3) MOALI to adopt recommendations from all	1. Independent Dam Safety Assessment 2. Revised ESMF 3. ESIA or ESMP (or GoM's IEE) 1. 4. Emergency Preparedness and Response Plan	Prior to work commencement	1.4 (a)

Additional Activities	Potential Risks and Impacts	Action Description	Safeguard Instruments/Tools ⁷⁰	Required Completion Date	Financing Agreement reference
		relevant dam safety reports/plans.			
	Social: There is the potential risk for land acquisition for a range of activities, including but not limited to: (i) legacy issues for past land acquisition; (ii) temporary construction roads; (iii) improvement of access roads requiring widening of such roads/ bridge approaches; (iv) requirement for widening of irrigation channels; (v) need for borrow pits for construction materials; (vi) spoil disposal area's of the materials removed when repairing the existing channel; (vii) encroachment; and (viii) establishment of construction camp. Each of these potential issues/activities will potentially require land acquisition, either temporarily or permanently. Activities risk directly impacting Ethnic groups as well as their exclusion from participation in WUGs	The project will update the RPF and CPPF annexed to the ESMP and screen each site for potential impacts related to land acquisition and presence of ethnic groups. Prior to works commencing, RAP and CPP will be prepared accordingly.	2. Revised RPF annexed to the ESMF, and 3. Preparation of (A)RAPs are required 4. Revised CPPF annexed to the ESMF, and 5. Preparation of a CPP 6. Based on level of impacts, preparation of a Social Assessment when required	Prior to work commencement	
Component 2a Supporting Value Addition and Market Access: Supporting Cooperatives for contract farming (market linkage)	Environment: None			Prior to work commencement	2.1(c)(i)
Establishment of cold storage in MOALI facilities for livestock	Environment: Establishment of cold storage in	None	None	None	2.1 (a) (iii) (F)

Additional Activities	Potential Risks and Impacts	Action Description	Safeguard Instruments/Tools ⁷⁰	Required Completion Date	Financing Agreement reference
	MOALI-LBVD facilities is an existing activity with broader scope in regard to number of location. Potential environmental issues have been identified and covered in the current (approved) ESMF. No additional action is required for this scaling up activity.				
	Social: In addition to the potential social issues already identified and covered in the current (approved) ESMF, such as the risk of exclusion, there are potential risk of elite capture of private capital co-financing for the operation of storage facilities. Clear criteria and transparency are required.	ESMF will be updated to reflect the requirement for clear criteria for such co-financing during operations and transparency on the joint business plans, which will need to be made publicly available.	Revised ESMF	Prior to work commencement	
Component 2b International Standard Certification and Animal Disease Control: Initiate Disease Control Zone establishment by vaccination and diagnosis.	Environment: Potential environmental impacts and risks on this activity have been partly covered in the current ESMF and applying the World Bank Group EHS Guidelines on "Mammalian Livestock Production" which includes measures on disease-prevention procedures as well as OHS. Potential impacts and risks on collection, submission, storage of diagnostic specimen as well as waste disposal method for used/expired vaccine vials need to be included in the ESMF. Resources can be adopted from the World Organization for Animal Health	MOALI to revise ESMF and include the following: - Collection, submission and storage of diagnostic specimen - Waste disposal method for used and expired vaccine vials	Revised ESMF	Prior to work commencement	2.2 (b)

Additional Activities	Potential Risks and Impacts	Action Description	Safeguard Instruments/Tools ⁷⁰	Required Completion Date	Financing Agreement reference
	(Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, 2019).				
	Social: There is the risk of exclusion of vulnerable farmer, especially those who are illiterate and those speaking ethnic languages only	Communication and communication materials need to be prepared and conducted using appropriate materials and in appropriate languages	1. Revised CPPF annexed to the ESMF, and 2. Preparation of a CPP		

<p>Component 3</p> <p>Project management, Coordination, and Monitoring & Evaluation:</p> <ul style="list-style-type: none"> - Project Management Unit - Support to MOALI in M&E and coordination 	<p>Sufficient and qualified environmental and social consultants should be engaged to support the planning, preparation and implementation of safeguards documentation as well as implementing the GRM and monitoring and reporting on the progress of social safeguard implementation.</p>	<p>Adjust project design to correspond to the increased workload</p>	<p>Expanded number of environmental and social safeguards consultants and dam safety specialist added to the project management team</p>	<p>Initially at least 2 ES consultants, when PMU is established</p> <p>The project should hire a total of 6 ES consultants (including part-time) out of which 2 are international who will come on part time.</p> <p>The project should engage an independent dam specialist to: (1) inspect/evaluate safety status and its performance history, (2) review/evaluate the O&M procedures, and (3) provide a written report of findings and recommendations for any remedial or safety-related measures and (4) develop emergency preparedness and response plans as required.</p>
---	---	--	--	--

**IV. Timeline**

5. Project implementation will follow a bifurcated approach. Those activities fully covered under the existing ESMF, will start activity screening and preparation of applicable Environmental and Social safeguards instruments, such as ESMP, CPP, EcoPs and proceed to implementation after the approval of such instruments by the World Bank.

6. At the same time, the ESMF (including relevant annexes) will be updated to include the COVID-19 response components and the associated risks and impacts summarized in Table 2. The revised instruments will be re-disclosed and consulted. The mode of consultation will be adjusted given potential mobility and public gatherings restrictions due to COVID-19. Following the consultation, the updated ESMF will be send to the World Bank for approval. Following the approval of the updated ESMF, the screening of activities will commence and preparation of applicable Environmental and Social safeguards instruments, such as ESMP, CPP, ARAP ECoPs and proceed to implementation after the approval of such instruments by the World Bank. A timeline is presented in Table 7.3 below.

Table 7.3. Timeline for preparation of safeguards instruments

Activity	Action required	Timing
Activities that are fully covered under the existing ESMF	Activity screening and preparation of applicable Environmental and Social safeguards instruments, such as ESMP, CPP, ECoPs.	Upon Project Effectiveness
	Approval by the World Bank of prepared instruments.	Following preparation of documents by the Client
	Activity implementation.	Following approval by World Bank of prepared documents
Activities which are not fully covered under the existing ESMF	Preparation of Updated ESMF including relevant annexes.	Prior to work commencement
	Conduct public consultation in a representative way on the Updated ESMF and incorporate feedback in the update. The mode of consultation will be adjusted given potential mobility and public gatherings restrictions due to COVID 19.	Following the preparation of the Updated ESMF, but prior to work commencement
	Request approval of the updated ESMF from the World Bank and disclose the final ESMF after approval has been obtained.	Following the preparation of the Updated ESMF and public consultation, but prior to work commencement
	Activity screening and preparation of applicable Environmental and Social safeguards instruments, such as ESMP, CPP, ECoPs.	Following approval by the World Bank of the updated ESMF, but prior to work commencement
	Approval by the World Bank of prepared instruments.	Following preparation of documents by the Client, but prior to work commencement
	Activity implementation.	Following approval by World Bank of prepared documents

**Annex 8. Subcomponent 1.d: 4 Improving Irrigation and Drainage Infrastructure**

1. Under this subcomponent the project aims to mitigate the impacts of the COVID-19 pandemic on agricultural production and rural unemployment by investing in special maintenance and rehabilitation of existing irrigation, drainage and flood protection works serving some 50,000 acres, mainly using labor-intensive CFW approaches. The project will also support the establishment and strengthening of Water User Groups (WUG) and the improvement of farmer owned water management infrastructure which is needed to create cropping flexibility for farmers and more equitable and efficient water distribution. Higher value but lower water consuming crops and new water saving irrigation technologies will be introduced. This is expected to contribute to agricultural productivity growth among the farmer beneficiaries and allow for the restoration of cropped area resulting from the better functioning irrigation systems and reduced system leakages. The sub-component also contributes to food security by ensuring water availability for farmers.

2. The preliminary list includes the existing irrigation and drainage schemes in Mandalay, Sagaing, Magway, Bago and Ayeyarwady regions for special maintenance and rehabilitation. In addition, CFW for minor repair work, such as canal cleaning, and special maintenance will be conducted in Kachin, Kayah, and Mon States and the NPT region. More specifically, the list includes: (i) development and improvement of water courses, local drainage and minor canals in existing small-scale irrigation systems in the Salween/Thalwin river basin in the states of Kachin, Chin, Mon, Kayah, and Shan (13,000 ha); (ii) rehabilitation and improvement of irrigation and drainage systems in the Ayeyarwady river basin in the Mandalay, Sagaing, Magway, Shan, Yangon, Bago and Ayeyarwady states/regions. (40,000 ha) (iii) Provision and Strengthening of embankments for flood protection and salt intrusion in the Ayeyarwady Region (10,000 ha).

3. The final selection of irrigation schemes is based on the criteria presented below Table 8.1. The preliminary list needs to be confirmed during the project implementation in accordance with ESMF. The project will first prioritize these schemes that do not source water from dam, that is, non-reservoir irrigation schemes. During the early phase of implementation, the project will conduct assessment for proposed rehabilitation schemes and whether they are triggering dam safety. The preparation and incorporation of safeguard requirements should be completed prior to the filed implementation before the completion of the required safeguards instruments (as defined in Annex 6), which shall be satisfactory to the World Bank, and the integration of measures/clauses in the documents governing activity implementation in accordance with such safeguard documents. The project will seek for exception of riparian notification under OP/BP 7.50 (international waterways) for the irrigation rehabilitation work. New irrigation activities that would trigger the notification requirement under OP/BP 7.50 will be excluded, and this will be specified in PIM.

Table 8.1. Key Selection Criteria for the target irrigation and drainage schemes.

	Selection Criteria
Technical	<ul style="list-style-type: none">• Existing run-of-the river irrigation systems, pump systems or sluice gate systems in need of rehabilitation or special maintenance;• Full recent dam safety assessment report satisfactory to the Bank in case of reservoir sourced irrigation systems• Individual systems or autonomous part of larger system• Command Area between 1000 and 10,000 hectares;• Systems will not necessitate the change of the project to risk category A.
Social	<ul style="list-style-type: none">• The selected sites are affected by return of migrants due to COVID-19• Local population is willing to participate in the CFW program.• The selected sites do not have major land disputes that are considered beyond



	<ul style="list-style-type: none">the scope of the project's ability to address
Economic and Financial	<ul style="list-style-type: none">• Farmers must be able to participate in the investment choice decisions• Potential for significant increment in productivity or cropping intensity• Areas where there are readily accessible markets/distribution channels/roads
Environmental	<ul style="list-style-type: none">• Meets both Myanmar and the Bank environmental requirements/standards• The watersheds of all the tributaries in the selected regions are fully located in Myanmar and will not be affected by nor affect the quantity or quality of water available to the riparian countries nor will they be affected by changes in the water use of the riparian countries.• Systems will not trigger the requirement for notification of riparian countries under BP 7.50 and the exception memo obtained

4. Irrigation and Water Utilization Management Department (IWUMD) has experiences in conducting labor intensive CFW by employing communal workers in the local villages. The project will develop specific targeting criteria so that most affected people will be able to participate in the CFW program, such as returning migrants, households who lost remittances, and other types of VPGs. WUGs will serve as an intermediary in selection and engagement of the targeted beneficiaries for CFW. These criteria and selection process, as well as wage scale will be defined, in coordination with other CFW projects within MOALI and will be included in the PIM.

5. *Institutional Development Support.* WUGs in the selected systems will be mobilized and strengthened to serve as an intermediary in selection and engagement of the CFW target groups, which are households and workers who are unemployed due to COVID-19 impacts. WUG are responsible for the development and management of irrigation and drainage infrastructure downstream the outlet and includes water courses and distribution and drainage channels. They are the first and foremost representative of the direct beneficiaries (farmers), but they also provide a direct connection to the village authorities identifying the target beneficiaries of CFW activities. Not only in the water course, but also in the other CFW activities in the irrigation and drainage systems.

6. The establishment and capacity building of existing water users into WUGs are expected to be carried out according to following steps. The project will strengthen participatory water management by: (i) establishing WUGs (of 20-30 members each, covering 2-3 water courses along a minor/distributary canals) in accordance with the evolving legal framework; (ii) strengthening WUGs through capacity building in governance and technical aspects; (iii) supporting WUGs to establish a cost recovery mechanism to be utilized for their operation and maintenance purposes as well as emergency repairs in their systems; (iv) empowering WUGs to participate in the decision making in the ACCs on the cropping plans, timing and quantity of water delivery from IWUMD, and to air any grievances and establishing communication channels with ACCs and ID; and (v) registering WUGs in accordance with the evolving legal framework.

7. In order to support the WUGs, the project will use third-party service providers contracted by the PMU. These services could be provided by national or international NGO with a proven experience in community mobilization, participatory land use planning and free, prior, and informed consent approaches to lead the participatory process for irrigation development at selected sites. IWUMD will be supported by Technical Assistance for the development of Safeguard instruments, Technical assessments, Feasibility studies, detailed designs and WUG strengthening. The CFW activities will be planned, designed and implemented by the regional maintenance branches of IWUMD in consultation with the local water users and in coordination with the local Township or in case of cross township irrigation and drainage systems, by the District ADC and PIC.



Annex 9. Map of the Project Areas

