Environmental and Social Management Framework

Mindanao Inclusive Agriculture Development Project (MIADP)

Republic of the Philippines
Department of Agriculture
Elliptical Road, Diliman, Quezon City, 1100

NOVEMBER 2021

https://www.da.gov.ph
miadp.da4ksprogram@gmail.com
+63 (2) 8928-8741 to 64 and +63 (2) 8273-2474

TABLE OF CONTENTS

List of Tables

List of Figures

Acronyms

AD	-	Ancestral Domain
ADAIF	-	Ancestral Domain Agricultural Implementation Framework
ADSDPP	-	Ancestral Domain Sustainable Development Plan
AIP	-	Annual Investment Program
BARMM	-	Bangsamoro Autonomous Region of Muslim Mindanao
BMB	-	Biodiversity Management Bureau
CADC	-	Certificate of Ancestral Domain Claims
CADT	-	Certificate of Ancestral Domain Title
CALT	-	Certificate of Ancestral Land Titles
CBFM	-	Community-Based Forest Management
CHP	-	Cultural Heritage Plan
CNC	-	Certificate of Non-Coverage
CPMET	-	Community-Based Planning, Monitoring and Evaluation Team
CRVA	-	Crops Resiliency Vulnerability Assessment
CSHP	-	Construction Safety and Health Plan
DA	-	Department of Agriculture
DENR	-	Department of Environment and Natural Resources
DOLE	-	Department of Labor and Employment
E-NIPAS	-	Expanded National Integrated Protected Areas System
ECA	-	Environmentally Critical Areas
ECC	-	Environmental Compliance Certificate
ECOPs	-	Environmental Codes of Practice
ECP	-	Environmental Critical Projects
EIS	-	Environmental Impact Statement
EMB	-	Environmental Management Bureau
ESA	-	Environmental and Social Assessment
ESF	-	Environmental and Social Framework of World Bank
ESMF	-	Environmental and Social Management Framework
ESMP	-	Environmental and Social Management Plan
ESS	-	Environmental and Social Standards
eVSA	-	Vulnerability and Suitability Analyses
FFSs	-	Farmer Field Schools
FLID	-	Farmer-led Irrigation Development
FMR	-	Farm-to-Market Road
FPIC	-	Free and prior informed consent
GAP	-	Good Agricultural Practices
GRDP	-	Gross regional domestic product
GRM	-	Grievance redress mechanism
ha	-	Hectare
IATF	-	Inter-Agency Task Force
ICC	-	Indigenous Cultural Communities
IEE	-	Initial Environmental Examination
IKSPs	-	Indigenous Knowledge Systems and Practices
IP	-	Indigenous Peoples
IPM	-	Integrated Pest Management
IPO	-	Indigenous Peoples Organization
IPPF	-	Indigenous Peoples Planning Framework
IPRA	-	Indigenous Peoples Rights Act
IPS	-	Indigenous Political Structure
km	-	Kilometer
LAF	-	Land Acquisition Framework
LDIP	-	Local Development Investment Program

LGU	-	Local government unit
LMP	-	Labor Management Procedure
LPMIU	-	Local Project Management and Implementing Unit
MIADP	-	Mindanao Inclusive Agriculture Development Project
MOA	-	Memorandum of Agreement
NCCA	-	National Commission for Culture and the Arts
NCIP	-	National Commission on Indigenous Peoples
NGO	-	Non-government organization
NPAB	-	National Project Advisory Board
NTF-ELCAC	-	National Task Force to End Local Communist Armed Conflict
PCIP	-	Provincial Commodity Investment Plan
PD	-	Presidential Decree
PDPFP	-	Provincial Development and Physical Framework Plans
PDR	-	Project Description Report
PDRRM	-	Philippine Disaster Risk Reduction and Management
PEISS	-	Philippine Environmental Impact Statement System
PMO	-	Project Management Office
PMP	-	Pest Management Plan
PPCP	-	Public-Private Community Partnership
PRDP	-	Philippine Rural Development Project
RA	-	Republic Act
RAS	-	Reticulation aquaculture system
RED	-	Regional Executive Directors
ROW	-	Right-of-way
RPAB	-	Regional Project Advisory Board
RPCSO	-	Regional Project Coordination and Support Office
SEA/SH	-	Sexual exploitation and abuse and sexual harassment
SEP	-	Stakeholder Engagement Plan
STD	-	Sexually transmitted diseases
WHO	-	World Health Organization

EXECUTIVE SUMMARY

The Mindanao Inclusive Agriculture Development Project (MIADP) is the response of the Department of Agriculture (DA) to the call of President Duterte to address the lingering poverty among the indigenous peoples (IPs) of Mindanao. The Project seeks to improve the economic situation of a select number of the indigenous communities and further develop the approach and capacity, especially of local government units (LGUs), to continue a program of support to address the low incomes due to weak marketing linkages and poor infrastructure in the geographically isolated Ancestral Domains (ADs).

Mindanao remains the poorest of the three island groups, especially the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), and across the upland areas where the majority of the IPs are located. Mindanao is home to about 25 percent of the Philippine population, but accounts for 39 percent of the country's poor. Eight of the ten poorest provinces in the country are located in Mindanao, with BARMM having a poverty incidence more than double the national average. The poverty incidence for women also remains alarmingly higher in Mindanao at 61.7 percent. Poverty is likewise glaring in conflict-affected areas and in ADs where some 68 percent of households, largely IPs, live below the poverty line.

The economic slowdown caused by coronavirus disease of 2019 (COVID-19) exacerbates the pervasive poverty in these areas. Communities, mostly living in remote, upland, and difficult-to-reach areas, are already vulnerable to the effects of weather on their subsistence production and to the influences of armed insurgents. Disruption in agricultural supply chains and declines in demand for food due to loss of jobs and livelihoods among affected population make IP communities that rely on agricultural production more vulnerable to falling further into poverty. The quarantine and logistical lockdowns entailed in pandemic control affected the flow of goods from farms to markets and hindered the mobility of people, especially among IP communities which already face severe logistical challenges.

The **development objective of the Project** is "To sustainably increase agricultural productivity, resiliency, and access to markets and services of organized farmer and fisherfolk groups in selected ancestral domains and for selected value chains in Mindanao." The Project will adopt successful approaches and strategies already institutionalized by DA, including (a) strengthened planning, resource programming, and implementation processes; and (b) integrated application of scientific and market-based data and instruments for long-term resiliency and economic profitability. At the same time, the Project will employ processes, approaches, and tools consistent with the principles embodied in the Indigenous Peoples Rights Act (IPRA).

Beneficiaries of the project include Indigenous Peoples Organizations (IPOs) and indigenous cultural communities and/or indigenous peoples (ICCs/IPs) in the eligible ancestral domains (ADs) as recognized by National Commission on Indigenous Peoples (NCIP). Target ICC/IPs must meet the eligibility criteria, namely: (i) an NCIP-approved Ancestral Domains Sustainable Development and Protection Plan (ADSDPP); (ii) a Certificate of Ancestral Domain Title (CADT); and (iii) at least one IPO legally recognized by NCIP, and duly registered with an accredited government institution, namely Cooperative Development Authority (CDA), Securities and Exchange Commission (SEC) or the Department of Labor and Employment (DOLE); and (iv) for ADs in Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), a Certificate of Native Title or an acceptable tenurial instrument shall be required in place of a CADT. The said tenurial instrument must be supported by a cadastral survey and a certification from BARMM regional government.

DA shall be the lead implementing agency of MIADP and shall establish linkages and partnership with concerned agencies, especially with the NCIP, BARMM, and the local government units (LGUs) through formal instruments. The DA shall also collaborate with other agencies, such as State Universities and Colleges (SUCs), research and academic institutions, and private sector groups to complement resources, align activities with local plans and initiatives, and strengthen participatory governance. Implementation and advisory units shall be established across levels of implementation – national, regional, and local – to ensure the effective and timely delivery of project targets.

Together with the National Commission on Indigenous Peoples (NCIP), DA will follow a participatory approach for the selection and funding of priority programs listed in the Ancestral Domain Sustainable Development and Protection Plans (ADSDPPs)[1]. Vertical and horizontal alignment of plans will be pursued to maximize the benefits for the target IPs. The project will also tap existing governance structures and mechanisms in the ICC/IP communities and integrate them into the project structures and processes to ensure the ICC/IP support and ownership of the project.

The Environmental and Social Management Framework (ESMF*).* This Environmental and Social Management Framework (ESMF) sets out the processes, procedures and other requirements to manage the environmental and social risks and impacts of the MIADP. The main objective of this framework is to provide guidance to project staff and management in the assessment and management of environmental and social impacts of the Project's activities particularly in the implementation of infrastructure and enterprise development facilities. This framework will ensure that a control system is established within the MIADP to ensure compliance with the World Bank's Environmental and Social Standards. The framework has been prepared since the project involves a series of subprojects and specific locations, detailed design, and relevant information about the subprojects are not yet known until implementation.

This ESMF describes the process that the project is committed to undertake beginning with an Environmental and Social Due Diligence/ screening for the application of the eligibility criteria and land suitability assessment for each proposal as part of a subproject's implementation readiness status. It also outlines process for a more specific and focused assessment and mitigation planning through SF instruments that are proportional to the risks and impacts and are applicable during the project implementation and operation.

The ESMF also serves as a framework for the undertaking of the following milestones: (i) selection of target ancestral domain and qualification of the IPOs; (ii) assessment of the proposed infrastructure investments and agri-enterprises; and (iii) implementation arrangements for the subprojects implementation in compliance with ESMP and other ESF instruments.

Eligible Project Activities. The project would finance a number of activities based on the following five components**.** Component 1: Ancestral Domain Planning and Social Preparation; Component 2: Resilient Ancestral Domain Agri-Fisheries Infrastructure; Component 3: Ancestral Domain Agri-Fisheries Production and Enterprise Development; Component 4: Project Management and Support, Monitoring and Evaluation; Component 5. Contingent Emergency Response (zero allocation)

[1] More specifically, ADSDPPs are comprehensive documents encompassing most aspects of indigenous community life, including cultural norms, community responsibilities, and enforcement practices as well as cross-sectoral development goals. Their purpose is to reflect the choice of the indigenous communities on the direction of their socio-economic and cultural development and ensure that development processes are conducted in a culturally appropriate manner, with due regard to their customs, traditions, values, beliefs, interests, and institutions.

Applicable ESS for the Project. Based on the assessment, it is found that ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8 and ESS 10 are applicable to the project.

Potential Environmental Impacts and Risks. Based on the possible subprojects and services of MIADP, the environmental risk is considered ***Substantial***. The project's potential environmental impacts are anticipated to be generated during the construction and operation of the small-scale civil works that include gravel-paved farm-to-market roads, trading posts, market stalls, storage areas and micro-processing facilities. The expected impacts which are site-specific, temporary and manageable may consist of noise, dust, water ponding due to poor drainage, erosion of uncompacted soil, uncollected construction debris and related solid wastes, overdose of fertilizers and pesticides that may lead to water, soil and air pollution, occupational health and safety for workers and community health and safety concerns, and COVID-19 health risks. The Borrower is currently preparing project documents that will inform the detailed design of the project such as feasibility studies, business plans, strategy papers, and the Environmental and Social Assessment (ESA) that will form part of the ESMF. The project is expected to generate positive impacts on the overall agricultural production, soil and water conservation due to the improved farming practices, value addition, organized agribusiness systems geared towards contributing to the upliftment of the socioeconomic conditions of the ICCs/IPs. The ESA will identify the project's impacts and risks and help formulate environmental and social impact mitigation and risk management measures (for site-specific to be applied during project plans during implementation). The ESA includes environmental, social, legal, and institutional assessments to identify potential risks and impacts of enhanced agricultural development in ADs spearheaded by the ICCs/IPs, especially on the still to be identified poor and vulnerable groups. The ESA will also better inform the development of mitigation measures and the grievance redress mechanism as the number of risks, including potential changes to the type of agricultural products and services to be developed or enhanced. Information, education and communication materials will be prepared to inform beneficiaries of such risks, and technical support services will be provided by DA, NCIP, DENR, NGOs and other development partners to enhance their livelihood and income. DA is consulting with relevant government agencies to explore options to support vulnerable households and manage these risks.

Potential Social Impacts and Risks. The project is anticipated to have positive outcomes in terms of social inclusion since it aims to enhance the agricultural productivity of indigenous groups which are among the most marginalized in the Philippines. It would also promote social cohesion by engaging and strengthening existing IP organizations, integrating indigenous agricultural practices, among others. However, the project is anticipated to encounter substantial social risk owing to the critical contextual issues that affect Mindanao and/or AD. These contextual risks include unresolved land claims, conflict and vulnerability to natural disaster. The project takes due cognizance of these risks and have designed to focus on ADs with secured tenurial instrument (CADT) and thus the communal ownership of the land is legally resolved and awarded to the concerned IP group. Additionally, the ADAIF is evidence that the IP groups has defined its development vision, priority strategies and programs/projects (including those for agriculture-forestry sector) as well as its governance structure/arrangement. The project will also consider the occurrence and intensity of conflict in selecting the target AD. There are also risks that might emerge from the project which includes possibility of elite capture or exclusion of some IP households, undue involvement of children, and unequal participation of women that could negatively impact on the social cohesion of the IP groups. The project intends to avoid these social risks through its social preparation which will be designed to be participatory, promote social accountability/transparency and allow for citizens' feedback. To further anticipate, mitigate and minimize risks that would arise during the implementation, the DA has adopted impact and risk management measures which are contained in the project's ESMF, Environmental and Social Commitment Plan (ESCP), Stakeholder Engagement Plan (SEP), and Labor Management

Procedures (LMP). The ESMF will also include Land Acquisition Framework and provide guidance on site-specific Community Health and Safety, IP Plan, and Cultural Heritage Plan. Public consultations were undertaken and will be continued during project implementation as guided by the ESCP, SEP and ESMF.

Institutional Arrangement for ESMF implementation. The arrangements for the implementation of the project will be guided by the institutional set up established under the PRDP. In particular, the current project will benefit by following the PRDP set up for Environmental and Social Standards screening process. This shall mirror the organizational structure of the PRDP Social and Environmental Safeguard with slight modification of the terms used at the regional and LGU-level to reflect MIADP's peculiarity and its desired purpose. Although the PRDP SES established a reliable and efficient system in implementing sub-project, it's set up does not include the implementation of MIADP at the same time. Therefore, the main responsibility for the day- to-day management of the project would be through a Mindanao-based Project Management Office (PMO) that will operate under the direct supervision of the Director of the 4Ks Project Office. The 4Ks Project Office shall facilitate the hiring of new personnel, staff, and consultants to form part of the PMO. The Environmental and Social Safeguard Specialists will be assigned at the PMO and at the RPCSO.

Linkage to the ESCP: The Environmental and Social Commitment Plan (ESCP) sets out material measures and actions, any specific documents or plans to be prepared during project implementation, as well as the timing for each of these on behalf of government or IA. The ESCP which will be part of legal agreement and will be signed by Implementing agency (IA). IA will require to comply with the provisions of any other E&S documents required under the ESF and referred to in the ESCP. The ESCP has been prepared considering the findings of the environmental and social assessment and based on the ESMF, the Bank's environmental and social due diligence and the results of engagement with stakeholders. It spells out the plans to be prepared with timeframe and responsibility. Adherence to the aforementioned ESMF processes and provisions will therefore be ensured through the ESCP.

Contingency Emergency Response Component (CERC). CERC financing mechanism is included in project components (as component 5) and is available to DA to access funds rapidly to respond to an eligible crisis or emergency (includes disasters and health emergencies). In case of emergency and if Government of Philippines through DA requests the World Bank to activate the CERC, the current ESMF prepared by BFAR will be updated within 90 days of activating the CERC, and before implementation of CERC activities, and will include a positive list of eligible activities / expenditures. In addition, the ESCP will be accordingly amended to include the provision as per the updated ESMF within 90 days of CERC activation. Project Operation Manual shall contain CERC Annex to ensure readiness for responding to CERC, if activated by DA.

Updating of ESMF. This ESMF will be maintained as an "up-to-date" or a "live document" enabling revision, when and where necessary. Unexpected situations and/or changes in the project or subcomponent design would therefore be assessed and appropriate mitigation and management measures will be incorporated by updating the Framework to meet the requirements of country's legislations and Bank ESF. Such revisions will also cover and update any changes/modifications introduced in the legal/regulatory regime of the country/ province. Also, based on the experience of application and implementation of this framework, the provisions and procedures would be updated, as appropriate in consultation

with the World Bank and the implementing agencies/departments. Finalized version of updated ESMF will be submitted to WB for its review and approval.

Information Disclosure. The strategies for information disclosure of various project information and documents, brochures. and consultation are provided in the SEP. The disclosure of information will allow stakeholders to know the benefits, risks and impacts of the project, with special attention to informing the most disadvantaged or vulnerable groups identified. For the dissemination of the information, various strategies will be used in each of the stages of the project and these strategies will be accessible, culturally appropriate, and inclusive. The documents and information will also be disseminated through other appropriate means like various project meetings, workshops etc. Details about the Grievance Redress Mechanism and contact details will also be disseminated. PMO shall update and maintain their website regularly and oversee the information disclosure/ dissemination activities of agencies involved. An exclusive link shall be made available for the MIADP project on the website. The ESMF will be made available in a timely manner, in an accessible place and a form and language(s) understandable to stakeholders. The Final ESMF incorporating comments from relevant stakeholders will be submitted to the World Bank. All the draft E&S instruments for the Project (ESMF including ESCP, SEP, LMP) were disclosed by DA on https:// xxxxxxx on XX.XX.2021 and on the World Bank external website on XX.XX.2021. The approved final E&S instruments are disclosed at the project sites at accessible locations and at the World Bank's external website on XX.XX.2021. A translated executive summary of the ESMF in vernacular language will also be made available.

1 INTRODUCTION

1. The Mindanao Inclusive Agriculture Development Project (MIADP) is a project of the Department of Agriculture (DA) that aims to sustainably increase agricultural productivity, resiliency and access to markets and services of organized farmer and fisherfolk groups in selected ancestral domains and for selected value chains in Mindanao.

2. This Environmental and Social Management Framework (ESMF) sets out the processes, procedures and other requirements to manage the environmental and social risks and impacts of the MIADP. The main objective of this framework is to provide guidance to project staff and management in the assessment and management of environmental and social impacts of the Project's activities particularly in the implementation of infrastructure and enterprise development facilities. This framework will ensure that a control system is established within the MIADP to ensure compliance with the World Bank's Environmental and Social Standards. The framework has been prepared since the project involves a series of subprojects and specific locations, detailed design, and relevant information about the subprojects are not yet known until implementation.

3. This ESMF describes the process that the project is committed to undertake beginning with an Environmental and Social Due Diligence/ screening for the application of the eligibility criteria and land suitability assessment for each proposal as part of a subproject's implementation readiness status. It also outlines process for a more specific and focused assessment and mitigation planning through SF instruments that are proportional to the risks and impacts and are applicable during the project implementation and operation.

4. The ESMF also serves as a framework for the undertaking of the following milestones: (i) selection of target ancestral domain and qualification of the IPOs; (ii) assessment of the proposed infrastructure investments and agri-enterprises; and (iii) implementation arrangements for the subproject's implementation in compliance with ESMP and other ESF instruments.

1.1 Scope of the ESMF

5. The ESMF contains the following:

a) Description of the proposed activities to be financed under the Project;
b) Requirements and procedures using the E & S criteria for screening and the environmental and social assessment of subprojects;
c) Negative/prohibited list of subprojects/activities that will not be supported by the Project based on screening of environmental and social risks and impacts;
d) Anticipated environmental and social risks and impacts of project components and activities;
e) Environmental Codes of Practice (ECOPs), Environmental and Social Management Plans (ESMPs), guidelines and other plans addressing risks and impacts as identified in the environmental and social assessment;
f) Compliance monitoring and reporting requirements; and
g) Description of institutional responsibilities for the preparation, implementation, and progress review of the ESMF.
h) Estimated budget for implementation of the ESMF and Environmental and Social Safeguard Staff

2 PROJECT DESCRIPTION

2.1 Project Development Objective

6. The project development objective is to sustainably increase agricultural productivity, resiliency, and access to markets and services of organized farmer and fisherfolk groups in selected ancestral domains and for selected value chains in Mindanao. The project will employ approaches consistent with the principles embodied in Republic Act (RA) 8371 (1997), entitled the Indigenous Peoples Rights Act (IPRA). It is designed to address the basic constraints that have led to the pervasive poverty, lack of employment and food insecurity for many ICCs/IPs in the ADs of Mindanao. Together with the National Commission on Indigenous Peoples (NCIP), DA will follow a participatory approach in the selection and funding of priority programs listed in the Ancestral Domain Sustainable Development and Protection Plans (ADSDPP).

2.2 Project Beneficiaries

7. Beneficiaries of the project include Indigenous Peoples Organizations (IPOs) and ICCs/IPs in the eligible ADs recognized by NCIP. NCIP recognized IPOs have constitution and by-laws; formal governing structures/systems, including recruitment of member, financial management and accountability reporting to its members. Target ICCs/IPs must meet the eligibility criteria, namely: (i) an NCIP-approved ADSDPP; (ii) a Certificate of Ancestral Domain Title (CADT); and (iii) at least one IPO legally recognized by NCIP, and duly registered with an accredited government institution, namely Cooperative Development Authority (CDA), Securities and Exchange Commission (SEC), or the Department of Labor and Employment (DOLE); and (iv) for those in BARMM, a Certificate of Native Title or an acceptable tenurial instrument together with a cadastral survey and a certification from BARMM. All of the activities will be documented and will be open for the public, as much as the existing national laws allow. Considering Section 7, Art. III of the 1987 Constitution which states that:

"The right of the people to information on matters of public concern shall be recognized. Access to official records, and to documents and papers pertaining to official acts, transactions, or decisions, as well as to government research data used as basis for policy development, shall be afforded the citizen, subject to such limitations as may be provided by law."

8. To ensure that that ICC/IP communities are willing and have the capacity to participate in the project, the following Implementation Readiness Criteria shall be applied: (i) the AD will not be in an area classified by the Government as an active conflict area or Protected and Forest Areas (PFAs); (ii) the responsible LGUs will provide a Resolution confirming their support for MIADP; and (iii) an Agri-Fisheries Implementation Framework (ADAIF)[2] will have been approved by the IPS and endorsed by NCIP and the DA.[3] All of these activities will be under the Component 1 of the Project.

2.3 Project Components

- **Component 1: Ancestral Domain Planning and Social Preparation**

9. This component will support ICCs/IPs in moving from subsistence farming to a more organized market-oriented production, based on sustainable management and protection of natural resources

[2] An ADAIF would be the instrument used for the IPS, DA and NCIP to enter into a mutually agreed planning and implementation document. Derived from the ADSDPPs of the participating ICCs/IPs, it will spell out the priority infrastructures and facilities that would be supported by the LGUs supporting these communities and the enterprises that would be pursued by the IPOs. Selected interventions would be programmed under Components 2 and 3, respectively.
[3] All ADAIFs formulated under the project will need to receive the no objection from the World Bank.

in the ADs, and with full consideration of the cultural context. Technical assistance will be provided through qualified Technical Service Providers (TSPs), with back-up support from the DA-Regional Field Offices (RFOs) and LGUs. Key activities will include: (i) pre-project consultation with stakeholders; (ii) preparation and implementation of a Communication Plan, including awareness raising events; (iii) organizational and capacity-building workshops, and market orientation training for IPs and their organizations; (iv) capacity building, especially for LGUs and service providers that support Components 1, 2, and 3; (v) conduct of the baseline study; (vi) identification and orientation for eligible TSPs; (vii) value chain analyses (VCAs) based on environmental suitability assessments; (viii) facilitation to form and register IPOs and develop alliances with cooperatives, businesses, and non-government organizations (NGOs) outside the ADs; and (ix) technical support such as research, capacity-building, and coordination activities with modules on climate-resilient agriculture (CRA) or climate-smart agriculture (CSA) to better understand climate risks and design appropriate adaptation and mitigation measures for stronger science-based and market-led inputs to the ADAIFs and Business Plans of IPO enterprises.

- **Component 2: Resilient Ancestral Domain Agri-Fisheries Infrastructure**

10. This component will increase the climate resiliency of producers in ADs through provision of essential infrastructure identified in the ADAIFs to strengthen food supply and value chains, including infrastructure that improves physical access to markets. Access infrastructure[4] within AD is between agricultural areas and sitios through small bridges, light 'tramline' (chain-pulley-hoist)[5] hauling systems for agricultural goods, access roads / farm-to-market roads and carriage lines. The key infrastructures include access roads (such as fully motorized single lane paved road), small-scale gravity irrigation systems, community water supply systems, and post-harvest infrastructure, provided only at sites where it has a clear public good element and where management arrangements are coordinated with the ICC/IP communities. To integrate climate change adaptation and mitigation features into the design and construction of this infrastructure, the project will adopt a framework for climate-resilient infrastructure mainstreaming that is aligned with the 2015 Department of Public Works and Highways (DPWH) Design Guidelines Criteria and Standards and the DA's Bureau of Agricultural and Fisheries Engineering (BAFE), both of which provide climate-proofed technical planning parameters for rural infrastructure. Component 2 will also support some facilitation by TSPs, although LGU engineering staff are expected to provide most of the technical design and implementation support for this component. (Please refer to Table 2 for details on typologies of projects.)

- **Component 3: Ancestral Domain Agri-Fisheries Production and Enterprise Development**

11. This component will support formal IPOs identified in the ADAIF to develop enterprises that increase their agricultural productivity (e.g., in the areas of production of upland rice and white corn, coffee), resiliency, and access to markets and services. It will support both the start-up and expansion of registered IPO enterprises to produce commodities and products based on Business Plans and market opportunities that are consistent with Indigenous Knowledge, Systems, and Practices (IKSPs).

[4] Infrastructure would for the most part be small scale civil works within the AD. In exceptional cases, this will also involve construction/rehabilitation of the main access road which would be designed to link with an existing sealed, market access road. Infrastructure design would be based on DPWH standards.

[5] The tramlines (popular local term) used for a cable line pulled by a pulley for transporting agri. products are strictly for cargo use only and no person shall ride the tram car. The tramline or ropeway operators are trained and observe the maximum weight capacity of each tram car. The tramlines will operate mechanically or manually. The design of the light 'tramlines' for carriage and conveyance purposes of the agricultural goods and commodities will follow an approved set of structural standards that optimize function, safety, affordability and environmental protection (Refer Annex E1).

The component will also integrate natural resource management and climate-smart agricultural practices into enterprise subprojects to ensure investment sustainability and build climate resiliency. Key investments will strengthen the IPOs across the value chain, from: (i) input supply activities (nurseries, hatcheries, small scale feed mills – such as for pig fattening, tilapia production etc.), (ii) mechanization, energy-efficient equipment, climate-smart practices, and climate resilient technologies such as greenhouses, hydroponics, and others; (iii) postharvest operations; (iv) aggregation/assembly facilities; and (v) processing (value-adding, processing buildings, and other investments). Component 3 will also include support for TSP facilitation to complement the technical support from DA-RFOs and LGU staff in such areas as: (i) training and support in financial literacy, accounting, procurement, and preparation and implementation of Business Plans; (ii) technical assistance to IPOs to strengthen their knowledge base and operational skills on climate-smart agricultural practices, post-harvest handling, storage, marketing, and processing; (iii) provision of timely weather-related information to support production, and field demonstrations for climate-smart agricultural and fisheries practices and technologies (crop diversification, integrated pest management, drip irrigation, construction of rain shelters, and so on); and (iv) facilitated access to finance, markets, and services, and the formation of public-private-community partnerships.

- **Component 4: Project Management and Support, Monitoring and Evaluation**

12. This component will provide support for the significant planning, coordination, implementation, and logistical costs entailed in ensuring appropriate levels of engagement with the IPS and IPOs. Key activities will include the mid-term and completion surveys; incremental staffing at the national, regional, and local levels to implement the project effectively; development of tools to strengthen science-based, climate resilient, and market-led approaches that underpin ADAIF formulation. The project would build upon the DA's existing management information system (MIS) and monitoring and evaluation (M&E) system developed under the Philippine Rural Development Project (PRDP), (including the Regional Operations and Maintenance Audit Team or ROMAT and other tools), as well as build upon/ utilize other cutting-edge MIS digital tools such as geo-tagging, on-line processing of documents, geo-spatial mapping, and geo-tagging.

- **Component 5. Contingent Emergency Response (zero allocation)**

13. In the event of an Eligible Crisis or Emergency, the project will contribute to providing immediate and effective response to said crisis or emergency. A zero-allocation component has been included to ensure funds can be deployed through the project depending on the specific needs that may arise.

2.4 Target Areas

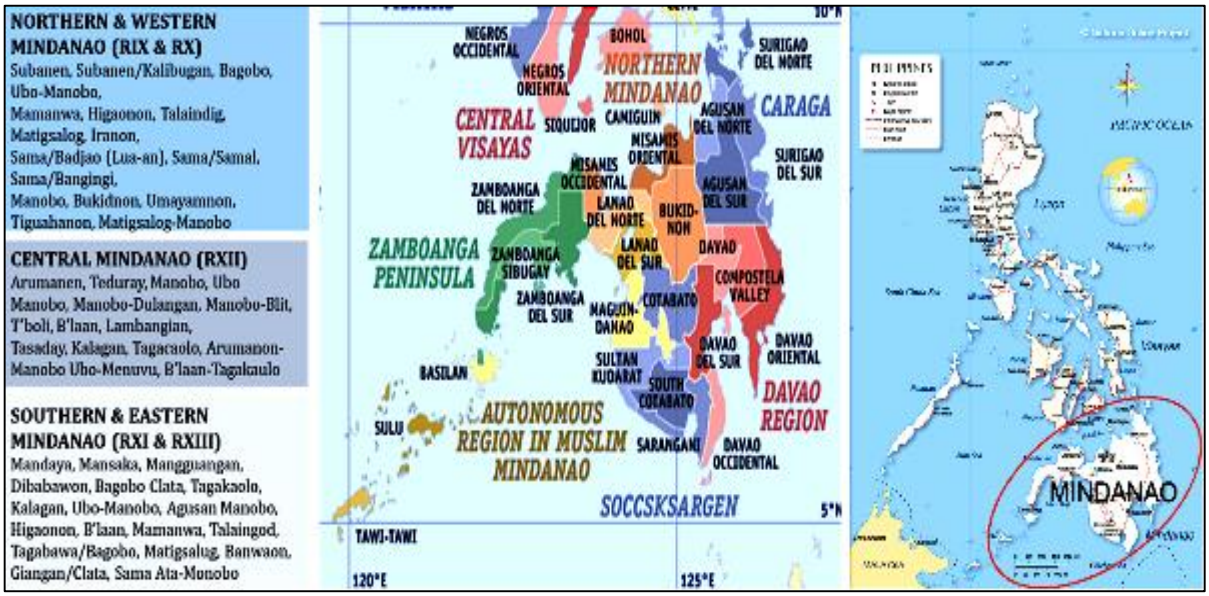
14. The project will cover around 26 ADs in Mindanao, including those located in the BARMM. Five provinces proposed to be covered below are considered the poorest provinces in the Philippines and are included in DA's Special Area for Agricultural Development (SAAD) program, which targets the 20 poorest provinces in the country. An indicative list of target Indigenous Cultural Communities (ICCs)/IPs is listed in Table 1 and shown in Figure 1.

Table 1: Initial List of Ancestral Domains

	IPs and their Locations (Barangays, Municipalities/Cities, and Provinces)
1.	The Badjaos of Barangays of Sangali and Victoria, Zamboanga City
2.	The Subanens of Barangays of Marangan, San Juan, Calumangi, Gumpingan, Dulian, Dilud, Sunop,Senote, La Fortuna, Guintananan, Salvador, Labangon, Tagun, Tamurayan, Canibungan, Danlugan, Macasing, Malagalad, Dulop, San Vicente, Datu Tutukan and Bagong Silang, Saad (portion) Bagong Valencia (portion), Municipality of Dumingag, Province of Zamboanga del Sur, Barangay Manguiles (portion), Municipality of Mahayag, Zamboanga del Sur; Barangay of Seriac (portion), Municipality of Siayan, Province of Zamboanga del Norte
3.	The Bukidnon-Tagakaolos of Sitio Kibuwa, Impalutao, Impasug-ong, Province of Bukidnon
4.	The Higa-onons of Brgys. Hindangon & Bal-ason, Gingoog City, Province of Misamis Oriental and portion of Brgy. San Luis, Municipality of Malitbog & portion of Guilang, Municipality of Manolo Fortich, Province of Bukidnon
5.	The B'laan-Tagacaolos of Barangays Lagumit, Little Baguio, Manuel Peralta, Datu Danwata, Demoloc, Pinalpalan, Kilalag, Macol, Kinangan and Pangaleon, all in Municipality of Malita, Province of Davao del Sur
6.	The Obo-Manuvus of Barangays Marilog and Baguio District, Davao City, Province of Davao del Sur
7.	The Manobo Dulangans of Barangays Bugso, Kuden, Tinalon, Nati, Kiadsam, Medtungok, Lagubang, Banali, Municipality of Senator Ninoy Aquino (Kulaman), Barangays of Datu Wasay and Sabanal, Municipality of Kalamansig, and Barangay Baluan, Municipality of Palimbang, all in the Province of Sultan Kudarat
8.	The Obo-Manuvus of Barangay Manobo-Tico, Magpet, Province of Cotabato
9.	The Manobos of Sta. Emilia, Del Monte, Sinobong, Binongan, La Fortuna, Limot, Caigangan, Bacay 2, Poblacion, Sta. Emilia, Del Monte, Sinobong, Binongan, La Fortuna, Limot, Caigangan, Bacay 2, Poblacion, Sampaguita, Candiis, Sisimon, Anitap, Sta. Cruz, Katipunan, Sawagan, Don Mateo and Masayan, Municipality of Veruela; Barangay Awao and Sayon, Municipality of Sta. Josefa, all in the province of Agusan del Sur and barangay Candiis, Anitap, Sta. Cruz, Katipunan and Sisimon, municipality of Laak and barangay Awao, municipality of Monkayo, all in the Province of Davao de Oro
10.	The Manobos of Municipality of Rosario, Province of Agusan del Sur
11.	The Manobos of Barangays Poblacion, Imelda, Consuelo, Bunawan Brook, Nueva Era, San Andres, Mambalili, San Marcos, Libertad, Municipality of Bunawan, Province of Agusan del Sur

Figure 1: MIADP Target Areas

Source: NCIP, 2020



2.5 MIADP Activities

15. The House of Hope (see Figure 2) serves as the integrating framework for the four components of the project. It sets how the activities under Component 1 serve as the entry point for engaging the ICCs/IPs and their respective IPS and IPOs into the process. The instruments to be developed from the extensive consultations and capacity building under Component 1, particularly the ADAIF and Business Plans, will inform the identification and prioritization of capital investments and entrepreneurial development support under Components 2 and 3, with Component 4 providing the needed implementation support and facilitation, as well as efforts towards ensuring sustainability and the institutionalization of project gains. Participatory processes and mechanism will be adopted across the different components. The activities are composed of seven (7) levels, which are discussed in Annex A.

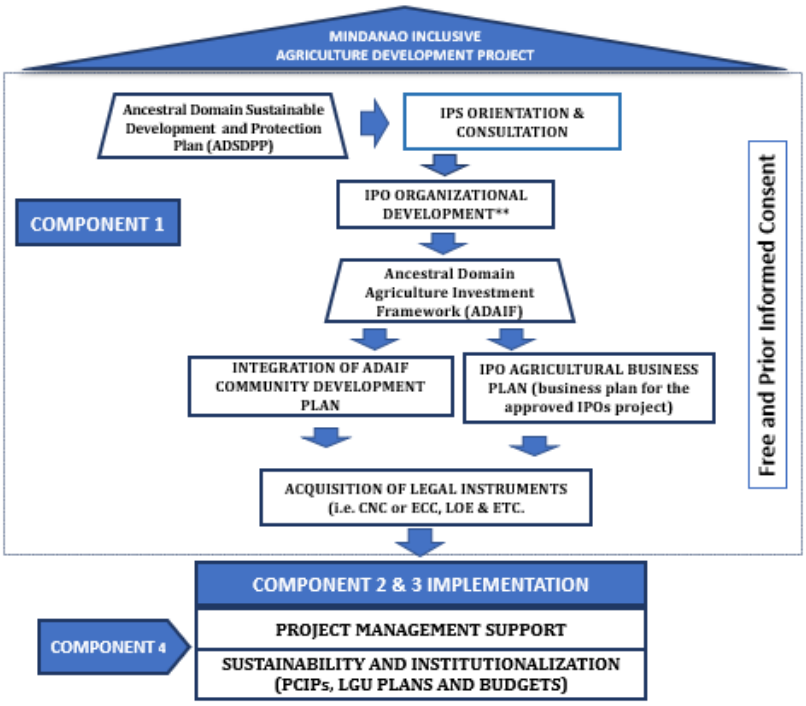


Figure 2: House of Hope – The Integrative Framework for MIADP

3 LEGAL AND POLICY FRAMEWORK

3.1 World Bank's Environmental and Social Standards

16. The World Bank ESF provides ten (10) Environmental and Social Standards (ESSs). The ten (10) ESSs are designed to help Governments manage project risks and impacts, and improve the environmental and social performance, consistent with good international practice and national and international obligations. The standards include objectives that define the environmental and social outcomes and include requirements that help Governments achieve ESS objectives through means appropriate to nature, scale, and risks of the project. [6]

[6] For the comprehensive discussion on the objectives and requirements of the 10 ESSs, refer to the WB's ESF. https://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf

17. Of these Environmental and Social Standards (ESS), there are nine (9) standards that are applicable in this Project, namely: Assessment and Management of Environmental and Social Risks and Impacts (ESS 1), Labor and Working Conditions (ESS 2), Resource Efficiency and Pollution Prevention and Management (ESS 3), Community Health and Safety (ESS 4), Land Acquisition, Restriction on Land Use and Involuntary Settlement (ESS 5), Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS 6), Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS 7), Cultural Heritage (ESS 8), and Stakeholder Engagement and Information Disclosure (ESS10).

3.2 Applicable National Laws of the Philippines

18. The Philippines has been a forerunner in passing policies and legislations related to environmental and natural resources management, community protection, including concerns on indigenous peoples. Through the years, the government has issued many laws and created institutions to manage, protect, and preserve the country's natural resources and protect the rights and safety of its citizens. The array of laws and regulations on environmental and social impact assessment, labor and working conditions, resource efficiency and pollution prevention, community health and safety, land acquisition, restrictions on land use, and involuntary resettlement, biodiversity conservation, indigenous peoples, cultural heritage, and stakeholder engagement are presented in Annex B.

19. Several laws are applicable on IPs for this project. Among them are the Indigenous Peoples' Rights Act (IPRA), the Philippine Environmental Impact Statement System (PEISS), and the National Cultural Heritage Act, among others. The principal law on environment and social impact assessment is Presidential Decree 1586 (PEISS) and its implementing rules and regulations (DENR Administrative Order 2003-30) which outlines the criteria and detailed list of environmentally critical areas (ECAs) and Environmentally Critical Projects (ECPs). The list of projects and type of environmental assessment needed are in EMB Memorandum Circular 2014-05.

20. The laws and regulations pertaining to resource management and pollution control are: (i) Clean Water Act (Republic Act 9275) on water quality management in all water bodies to abate and control pollution from land-based sources; (ii) DOH Administrative Order (AO) 2017-0010-Philippine National Standards for Drinking Water (PNSDW) and DOH AO 2014-0027- National Policy on Water Safety Plan (WSP) for all drinking water service providers); (iii) Water Code of the Philippines (PD 1067) on appropriation, utilization, exploitation, development, conservation, and protection of water resources; and (iv) Sanitation Code (PD 856) on guidelines, standards and required permits for water supply. There are also regulations and standards on managing solid waste (RA9003), hazardous wastes (RA6969), and air quality (RA8749). The use of chemical fertilizer and pesticide for agricultural application is regulated under the Fertilizer and Pesticide Law (PD1144), RA 6969 and the Chemical Control Orders (CCOs) and Priority Chemical List that regulate the importation, use and disposal of chemical substances and mixtures. Presidential Memorandum Order 126, series of 1993 on the Kasaganaan ng Sakahan at Kalikasan (Kasakalikasan) is the National Pest Management Program of DA, with the long-term goal of making integrated pest management the standard approach to crop husbandry and pest management in rice, corn, and vegetable production in the country.

21. The regulatory framework on biodiversity conservation is embodied in: (i) RA 7586 - The National Integrated Protected Area System (NIPAS) Act, as amended by e-NIPAS (1992); (ii) RA 9147 - Wildlife Resources Conservation and Protection Act (2001), (iii) PD 705 - Revised Forestry Code, and (iv) PD 1586. The DENR Administrative Order 2004-32 (Revised Guidelines on the Establishment and Management of Community-Based Program in Protected Areas) offers tenured migrant communities and IPs within protected areas and buffer zones, tenure over established community-based program

areas, provided these activities are consistent with the Protected Area Management Plan (PAMP). Local communities in protected areas who are involved in primary production are required to secure tenurial instrument such as approved forest land use plans or PAMP, community-based forest management agreement (CBFMA), and protected area community-based resource management agreement (PACBARMA).

22. Considering that MIADP is designed to support IPs and IPOs, hence, its design is in line with the parameters and requirements set in the IPRA. MIADP process includes the facilitation of participatory planning processes. Thus, the FPIC is not required at project level or for approval of the Project since the consent of the participating ADs is inherent in the participatory processes as provided for in NCIP Administrative Order No. 3. The IPRA is a landmark legislation that recognizes and respects the rights of the various indigenous cultural communities in the Philippines, including rights of control of their ancestral lands and right to self-determination. The law created the NCIP which is tasked to implement the IPRA. The NCIP and DA will enter into a Memorandum of Cooperation specifically for MIADP, which formalizes the NCIP's agreement to the overall design of the Project as well as it's a partner in implementation.

23. The National Cultural Heritage Act, officially designated as Republic Act No. 10066, is a Philippine law that created the Philippine Registry of Cultural Property (PRECUP). Indigenous peoples hold a rich diversity of living heritage, including practices, representations, expressions, knowledge and skills. The practice and transmission of this heritage contributes to the ongoing vitality, strength and wellbeing of communities. The act defines cultural property as all products of human creativity by which a people and a nation reveal their identity, including churches, mosques and other places of religious worship, schools and natural history specimens and sites, whether public or privately-owned, movable or immovable, and tangible or intangible.

24. For labor and working conditions, the Labor Code of the Philippines (PD 442), regulates employment relations and provides the labor and working standards. In addition, occupational safety and health and standards (RA 11058-Strengthening Compliance with Occupational and Health Standards and Providing Penalties for Violations Thereof) ensures safety and health at the workplace.

25. In terms of land acquisition and involuntary resettlement, the applicable laws and regulations are: (i) NCIP Administrative Order No. 3 Section 39 on Community-Solicited or Initiated Activities, (ii) RA 10752-Right-of-Way Act (2016); (iii) RA 8371- The Indigenous Peoples' Rights Act (1997); and (iv) RA 7160 - The Local Government Code (1991), their implementing rules and regulations.

3.3 Congruence of National Laws with WB ESF

26. The country's regulations correspond to the core principles of the WB ESF specific to the applicable ESSs of the project except for some variances in relation to the environmental and social impact assessment of small-scale types of infrastructure activities of the Project. Therefore, the Project will fully adopt the World Bank procedures and requirements in ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS7, ESS8, and ESS10.

27. Considering that some of the project activities may not be required to secure an Environmental Compliance Certificate (ECC) based on the PEISS, the project will apply the requirements of ESS1 on the conduct of an Environmental and Social Due Diligence (ESDD) and/or an EIS for each subproject through a screening process and environmental suitability assessments to identify environmental and social risks and impacts and to determine measures to minimize and prevent these.

28. Since the project will involve ancestral domains and IPs, in addition to ESS7, the procedures and requirements for IPRA (RA 8371). If there would be any cultural heritage (tangible and intangible), IP culture and traditions that would be impacted by the Project, the requirements of ESS8 will apply to complement the procedures and requirements of RA 10066.

29. The Project will also apply the existing labor and working condition laws, these include but not limited to, PD 442 (Labor Code of the Philippines), RA 7658 (An Act Prohibiting the Employment of Children Below Fifteen (15) Years of Age in Public and Private Undertaking, amending Section 12, Article VIII of Republic Act No. 7610) and RA 1054 (Occupational Health Act), which have been integrated into the Labor Management Procedures (LMP).

30. In terms of pesticide management concerns, the Project will apply ESS3 and the Integrated Pest Management (IPM) program instituted through Executive Order 126, series of 1993 and other programs related to sustainable agricultural farming technologies and practices. ESS3 applies also to the Project's civil works activities, crop production and agricultural enterprises activities to ensure proper management of impacts on water quality, air quality, and land contamination.

31. For biodiversity conservation and natural habitat concerns, the Project will apply ESS6 and relevant international treaties such as the Convention on Biodiversity which the Philippines has ratified, in addition to the requirements outlined in PD 705 and the Expanded National Integrated Protected Areas System (e-NIPAS) Act (RA 11038). ESS6 applies to this Project because there are ADs located in forests, protected areas, and national parks. While tenurial instruments have been issued to the IP communities, it is expected that the project interventions based on the ADAIF are aligned with the Protected Area Management Plan (PAMP), hence would require approval of the ADAIF by the Protected Area Management Board (PAMB). Project interventions should only be in multiple use zones allowed by the PAMB and that a Special Use in Protected Area (SAPA) is endorsed by the PAMB and then issued by DENR.

32. Although the project will target ADs which have been awarded CADT, the ESS5 shall be applied to the project because there may be small civil works that may cause minor, potential impacts related to (i) land clearing resulting to damage to trees and crops, (ii) damage to structures, (iii) potential ROW conflicts for the water supply distribution lines and agriculture facilities, and (iv) potential issues on IP rights particular to water source.

4 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

33. Proper land-use planning is essential for enhancing agricultural production and ecological conservation and for the protection of biodiversity. Inappropriate land management practices lead to a higher rate of soil erosion, a diminished crop production, a hindered productivity, and a deteriorated soil quality. Therefore, land management focusing on suitability forms part of the E & S screening mainly to ensure that the target production areas are well suited for crop production of a specific type. The knowledge of local land conditions has become increasingly recognized for its importance in sustainable land management. However, for rural communities, local knowledge is usually insufficient to understand the adequacy of suitable condition, management strategies, and land-use decisions. Thus, it is essential to be knowledgeable of the environmental and social characteristics of Mindanao which will serve as the baseline in the ESMF process. Project specific Environmental and social assessment was carried out during the project preparation and is described in the following sections.

34. Mindanao is the second largest island in the Philippines with a total land area of 9.75 million hectares. The island is subdivided into six regions: (i) Zamboanga Peninsula, (ii) Northern Mindanao,

(iii) Caraga Region, (iv) Davao Region, (v) SOCCSKSARGEN, and the (vi) Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). There are two defined growth corridors in the island, namely, Davao City and Cagayan de Oro City. Other regional centers are Zamboanga City, General Santos City, Butuan City, Cotabato City, Dipolog City, Jolo, Surigao City, Pagadian City, Koronadal City, and Tagum City.

4.1 Ancestral Domains and Indigenous Peoples in Mindanao

35. The Project would be implemented in Mindanao where there are some 135 ADs encompassing 102,000 ha of land and with a population of some 130,700. The distribution of ADs and IPs across Mindanao are summarized in Figure 2. Region 11 has the largest average land area per AD with 36,900 hectares while Region 9 has the lowest average with 10,900 hectares per AD. Region 11 also has the highest in terms of average population per AD with 55,836 while Region 10 has the least with 9,290 inhabitants per AD.

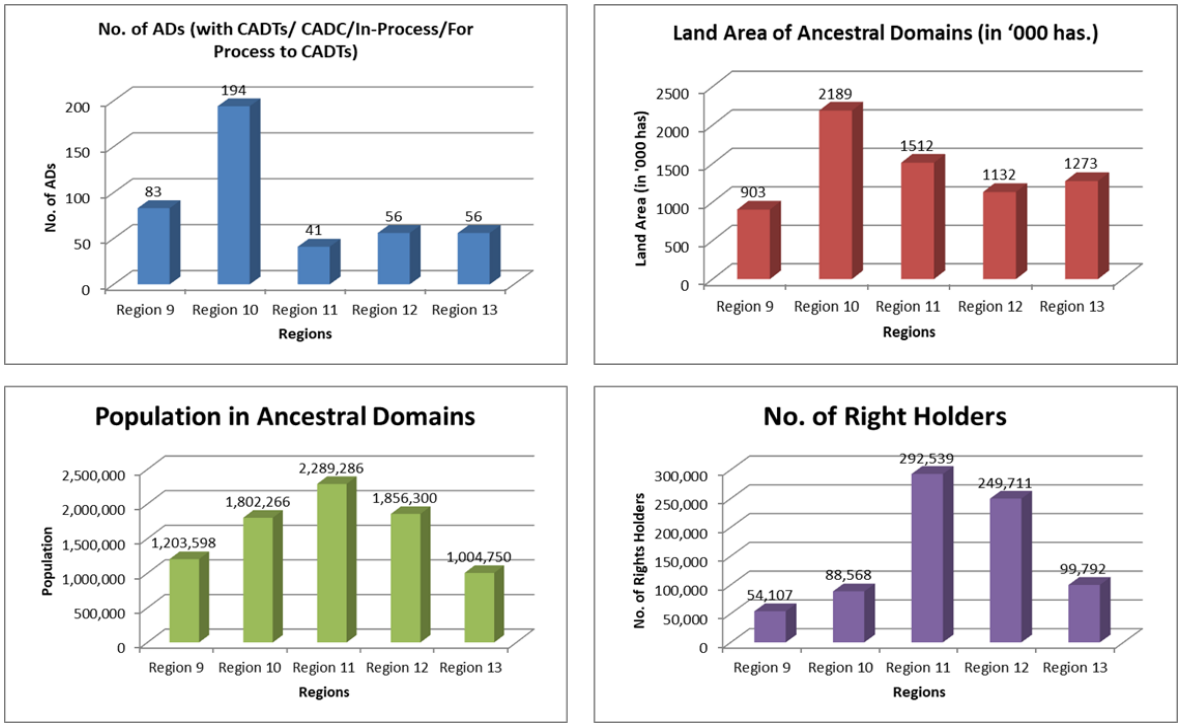
36. The IPs of Mindanao are collectively known as the Lumad[7], a term that was adopted by 15 Mindanao ethnic groups during an IP congress in Cotabato in 1986, to distinguish them from either Muslim (Bangsa Moro) or Christian Mindanaons. Using the 2015 Philippine Statistics Authority (PSA) population data and the NCIP data, Region XI has the highest proportion of IP population located in the ADs, relative to the total regional population.[8] The same region has the highest actual number of IP population living in ADs.

37. ADs (includes ancestral lands and waters) in Mindanao occupy 4,176,704 hectares, of which some 30 percent is considered agricultural land, but much of it is idle or under shifting cultivation for local consumption. For most IP communities, farming and fishing are the most predominant sources of income, with average household incomes on or below the poverty line for the Philippines. Despite various initiatives over the years by government programs, Non-Governmental Organizations (NGOs), religious groups, and some private sector interventions, IP communities remain among the poorest and most marginalized people of Philippine society, with prolonged neglect in the provision of basic social services (health, education, market access, agricultural support etc.). The reasons are a complexity of cultural, logistical, and administrative constraints, compounded by vested private interests in mining, logging, ranching, and agricultural production that seek to occupy or extract resources from the AD agricultural areas, including forests and mountainous areas that are rich in natural resources. For many ICCs/IPs there is a seemingly constant struggle to keep control over their ancestral lands and maintain their traditional ways of life, while still embracing many aspects of modern life. The continuous migration of non-IP settlers and overlapping land use in protected areas and forests within ADs for agricultural, commercial, residential and industrial use have caused increasing environmental and social challenges on the sustainability of the environment.

[7] *Lumad* is a Visayan term for “native of the land” or “indigenous”

[8] Sources: 2015 Philippine Statistics Authority (PSA) data and NCIP data

Figure 2: Distribution of AD and Indigenous People in ADs across the five Regions of Mindanao



Source: Feasibility Study, MIADP. 2020

4.2 Agriculture in Mindanao

38. Mindanao accounted for 35.1 percent of the total agricultural production in the country, broken down as follows: crops (41.9%), livestock (25.9%), poultry (22.3) and fisheries (33.1%). The Northern Mindanao region was the biggest contributor accounting for 11.2% of the total crop production in the country. The same region also produced 9.7% of the total agricultural output. The rest of the Mindanao regions, Davao Region (7.2%), SOCCSKSARGEN (7.1%), BARMM (4.9%) and Zamboanga Peninsula (4.2) ranked 5th, 6th, 10th, and 13th, respectively, in terms of share in total agricultural output in the country.

39. Agriculture and other agriculture-related industries show very strong potential to become major drivers of Mindanao's economy due to the presence of large tracts of fertile lands and the relatively low susceptibility of Mindanao to severe typhoons and associated flooding that frequently devastate agricultural production in Luzon and Visayas.

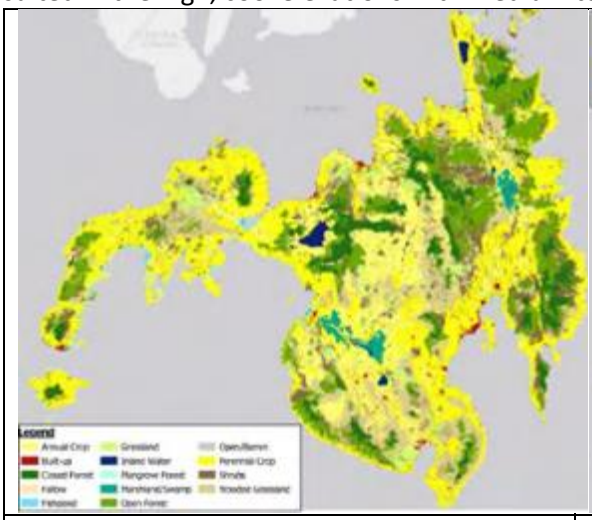
40. Major crops in Mindanao are pineapple (88.3%), banana (84.3%), coffee (83.4%), coconut (59.5%), corn (51.4%), mango (36.4%), rice (22.3%), and sugar cane (17.5%). In terms of livestock and poultry, Mindanao contribution to the country livestock production is: carabao (37%), goat (36.5%), cattle (35.2%), hog (26.8%), and chicken (19.4%). Marine fisheries contribution of the region account to 51.1% while aquaculture production was recorded as 44.5%. Value chain analysis (VCA) was prepared by MinDA for abaca, corn, cavendish banana, cassava, sardines, cacao, coffee, and vegetables.

41. At the Bangsamoro Autonomous Region of Muslim Mindanao (BARMM), the following are the common vegetables and other agricultural commodities (lowland, upland spices), major fruits (mango, banana, pineapple), with seasonal and local demand (durian, pili, cashew, etc.), industrial or plantation crops (coffee, cacao, rubber), and alternative staple food crops (banana and root crops).

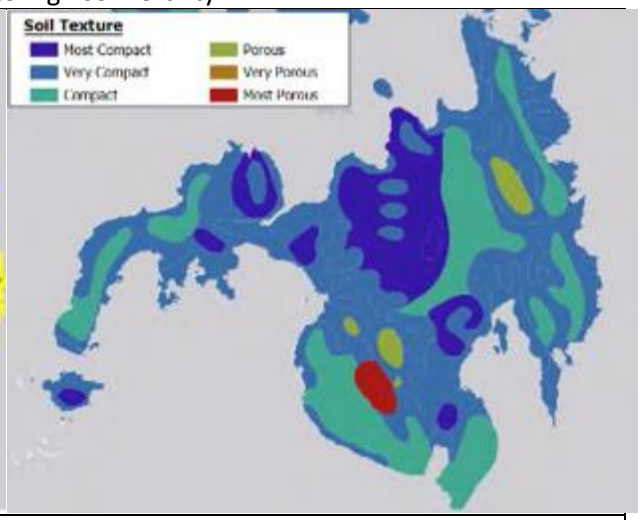
4.3 Land Suitability

42. DA has information on land resources and suitability classification in strategic production areas in Mindanao according to the type of agricultural land and the targeted crops. Land suitability maps are available to classify suitability classes according to: S1 (Highly suitable), S2 (moderately suitable), S3 (Marginally Suitable), and Not suitable. Land suitability assessments and classification refers to soil type, slope, climate, and type of crop. Bananas are best grown in areas with warm, humid climate with temperature ranging 22 to 31°C; slope of zero to one degree, and up to 300 meters above sea level elevation. It is for any type of soil but well-drained with pH of 5.5 to 7.0; forest loam, rocky sand, marl, laterite, volcanic ash, sandy clay, or heavy clay. Corn is best planted in areas with warm weather and long sun-filled days with temperature ranging from 29 to 32°C; up to 12% slope; and up to 1800m above sea level elevation. Corn likes rich soil with good drainage. Cacao is also best planted in warm weather with temperature ranging from 18 to 32°C; up to 15° degrees slope.

43. Bananas are best suited in Davao del Norte. Corn is good in Davao del Norte and Compostela Valley Province while cacao and coffee are best cultivated in Davao City, Davao del Norte, and Davao del Sur.[9] In Bukidnon, there is high soil fertility in soil at elevations 300 – 500 masl, medium fertility in 501 – 900 masl, and medium to high fertility in 901 – 1500 masl. Among the recommended crops in Bukidnon are rice, sugarcane, corn, coconut and cassava which were found to be suited in lower areas with high temperature and highly suitable in to low slope condition and high soil fertility. Pineapple, mango and banana are suited in these areas including those up to 900 masl due to their capability to survive in high elevations, with low temperatures and medium soil fertility. Tomato and potato are suited in the high, cool elevations with medium to high soil fertility.



2010 Land Cover of Mindanao (provided by NAMRIA)



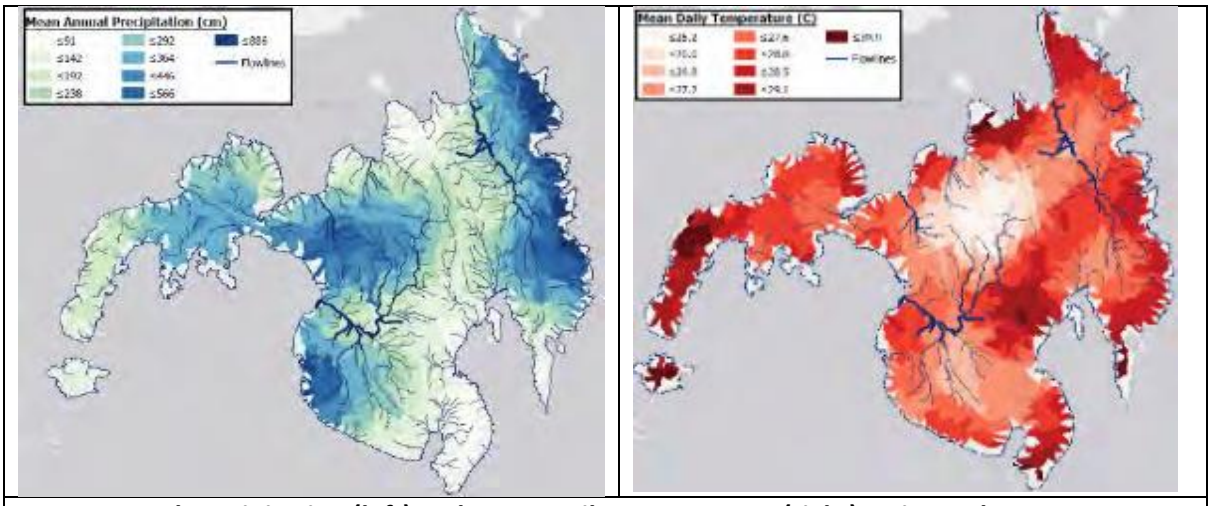
Hydrologic Soil Characterization for Mindanao (provided by NAMRIA)

4.4 Climate

44. Over the last few decades annual total rainfall over central and western Mindanao have declined and a significant drying trend is observed. However, in the northeastern and southwestern sections of Mindanao, rainfall has increased over that period. Extreme rainfall events increased in the latter part of the 20th century. Analysis of extreme precipitation indicators show tendencies toward a drier dry season (January-March) and wetter rainy seasons (July-September). This is further impacted by ENSO events, causing 30 to 40 percent reduction in yield for farmers. This has been particularly relevant because of the widespread lack of irrigation systems in Mindanao, which has the lowest level

[9] Land suitability assessment for cash crops using geospatial techniques. Jubilo, Depra, Alejandro.

of development in terms of water infrastructure within the Philippines and is even less common in ADs. The current rampant deforestation in Mindanao is an additional driver for lower soil quality and lower yields. Drought conditions worsen as a result of the soil's decreased water holding capacity, which has been significantly reduced by surface runoff and flash floods following heavy rainfall in deforested areas. ADs in Mindanao have mostly a rugged access by roads, as they are mostly unpaved and show very poor quality because of wear and tear from traffic, low maintenance and climate or geophysical hazards - especially heavy rainfalls.



Mean Annual Precipitation (left) and Mean Daily Temperature (right) Estimated
(source: Report on Assessment Of Water-Energy-Food Nexus Trade-offs For Mindanao by USAID, 2018)

4.5 Protected Areas in Mindanao

45. There are no subproject activities of MIADP that will be allowed within strict protection forests, core conservation zones, and protected areas. The latest official statistics issued by FMB in its Philippines Forest Statistics report (2020) shows that Mindanao has 39% forestlands, of which the total forest cover is 14.3%. The lands inside ADs are clustered into different land uses and the development areas for the subprojects are limited only to existing agricultural lands inside the boundaries of the AD. Among the six regions of Mindanao, Caraga region has the largest forestland which is about 71% of the regional land area, while BARMM has the highest percentage of alienable and disposable lands. There are 28 declared protected areas and natural parks in Mindanao based on the NIPAS Act and an additional six (6) protected areas established through other legal instruments.

46. **Ancestral Domains in Protected Areas and its attendant ecosystem services**. While not affected by the project, an example is Mount Malindang, the ancestral domain of the Subanen, the IPs of Misamis Occidental in Northern Mindanao who dwell near or along the riverbanks. They comprise around 75% of the occupants of Mount Malindang. The Mount Malindang Natural Park is an ecologically significant watershed because it supports 15 major watersheds. There are five distinct habitats, specifically grassland, dipterocarp forest, lower montane forest, upland wetland, and mossy and associated forests. The rich vegetation in the natural park includes many plant species including rattan and 10 dipterocarp hardwood species such as red lauan, white lauan, and tanguile.

47. The Mount Kitanglad Natural Park is another major watershed that provides water for irrigation, power generation and domestic use for Bukidnon as well as the province of Misamis Oriental. Mount Kitanglad is the catchment area of the Cagayan, Tagaloan, and Pulangi River system. The Tala-andig, Higa-onon and Bukidnon groups are the main IPs of Mount Kitanglad. These IPs regard the mountain range as their ancestral domain as their history, myth, and tradition revolve around it.

The IPs have nurtured the park's natural resources for generations. Various monuments, known as bangkasu, have been built around the park where offerings to the gods are made by the IPs. Some of these mountains include bangkasu hulalawang, the altar of the gods who keep honey, built in a hidden spring at the foot of Mount Apolang.

48. There are seven (7) IP groups at the Mount Apo Natural Park. These are the Manobos, Klatas, Bagobo, Ubos, Atas, K'langs, and the Tagacaolo. These IPs settle at the lower slopes of the mount which they consider as their ancestral domain and sacred ground, and burial ground of Apo Sandawa, their great forefather. The Mount Apo is home for rare and endemic species that includes almaciga, almon, igem, kalantas, Mindanao kalingag, and apo bubonan. It is also a critical natural habitat where the endangered Philippine eagle and Philippine cockatoo can be found.

4.6 Water Resources

49. The potential supply of water both surface and groundwater of Mindanao Island per region is shown in Table 1 demonstrating the uneven distribution of these resources that favor the Northern and Southern regions. Water resources differ also from province to province based on several factors like population density, rainfall patterns, watershed quality, and the rate of groundwater recharge (Senate Economic Planning Office 2011). Two of the five principal river basins in the Philippines are found in Mindanao—the Agusan and Pulangi River Basins. Eight of the 18 significant rivers covering an area greater than 1000 km^2 are in Mindanao (World Bank 2003) which makes up watersheds or river basins that further drains into the bays in the north, east, and south. ent

Table 1. Water resource potential by region in Mindanao Island in million cubic meters (MCM) (World Bank 2003)

Region	Surface water	Groundwater	Total
Southwestern Mindanao	12,100	1082	13,182
Northern Mindanao	29,000	2116	31,116
Southeastern Mindanao	11,300	2375	13,675
Southern Mindanao	18,700	1758	20,458

50. Mindanao houses two of the four major groundwater reservoirs in the Philippines, the Agusan Groundwater Reservoir (8500 ha) and Pulangi Groundwater Reservoir (estimated at 6000 ha). These groundwater resources lie beneath Mindanao's vast watersheds or recharging zones—the Agusan and Ligawasan Marshes (Tan et al. 2012) establishing Southeastern and Northern Mindanao as the highest potential groundwater resources (World Bank 2003). Using the 5.3% annual increase in total demand for groundwater resources (e.g., domestic, industrial, and commercial) throughout the Philippines also saw a decline in precipitation reducing recharge by an average 3.7% annually and a steady decline in the volume of groundwater at an average annual rate of 1.4% from 1988 to 1994 (Philippine Statistics Authority 2016, para 4). This continuing depletion of the country's groundwater resource stock also reflects the dire situation in Mindanao, if not worse, mainly due to the lack of institutional capacity to manage the water resources.

51. The study titled, Assessment of Water-Energy-Food Nexus Tradeoffs for Mindanao by USAID in 2018[10] provides an insight to the water balance scenario in Mindanao. The study was carried out in association with The National Water Resources Board (NWRB) and Mindanao Development Authority (MINDA). The study observes that the agriculture sector is the largest consumer of water in the Philippines. According to FAO, about 82 percent of water consumed in 2009 was for irrigation and aquaculture. The irrigation requirements are equal to the full water requirement estimates calculated from FAO minus rainfall each month. In the Baseline scenario, about 95 percent of the demand for irrigation water is supplied. Very few catchments are forced to reduce access to irrigation water due to shortages. These catchments are located southeast of Davao city. The study indicates that sugarcane and banana are the most-produced commodities in Mindanao, while rice cultivation consumes the largest amount of water. In order to protect and ensure effective use of water resources, National Water Resources Board has promulgated Water Code of Philippines[11] with implementing rules and regulations. As per the rules, the irrigation falls under third priority with domestic and municipal uses given the first and second priority. Water permit and registration from the National Water Resources Board (NWRB) will be required based on the amended implementing rules and regulations of the Water Code (PD1067) to ascertain the allowable abstraction rate. The permit specifically indicates the volume of water to be drawn from the source based on the proposed use and coverage area. This regulates the use of the water resource and water resources are not overused maintaining the water balance.

52. While the government recognizes that water in Mindanao is an essential natural resource for its people's wellbeing and the sustainable development of its local economy, natural water-related disasters and environmental degradation are persistent threats to most of the watersheds in Mindanao impacting water access and quality. Water supply and usage for a growing population and economy are highly threatened by scarcity of water for potable, irrigation, and industrial use due to limited infrastructure, facilities, and the remoteness of the water sources. Potential threats such as poor water resource management as well as pollution hotspots bring forth the various health and environmental impacts attributed to the water system accessibility, distribution, and quality. Strategies on the management of water resources and water quality are addressed by the numerous national laws, policies, standards, and guidelines however, capacity to enforce these laws at the national and local levels need strengthening. in addressing water quality control and management. Therefore, the legal framework for various agencies to carry out these policies on quality control, usage, and water management are pivotal to recommendations on revision of certain provisions that rely on embedding local community involvement to lessen the environmental impact that is causal to poor population health.

4.7 Social Conditions

53. The 2020 Census of Population and Housing indicated that about 48% of IPs are in Mindanao. The majority of the indigenous households in Mindanao rely on agri-based activities as their primary source of income. However, most of the ADs have inadequate access to basic socio-economic services and though a lot of them are accessible by land travel, they remain hard-to-reach areas that constrains the links to the market and/or results to substantial harvest losses. Thus, most ADs remain largely engaged in subsistence farming and shifting cultivation that seriously affect their nutritional status.

54. While there is dearth of data/information on the overall socio-economic conditions of IPs, various studies or Project-specific data indicated that their need for basic social services (health,

[10] https://www.globalwaters.org/sites/default/files/water-energy-food-assessment-mindanao-philippines.pdf

[11] https://nwrb.gov.ph/images/laws/pd1067_amended.pdf

education, market access, agricultural support, etc.) have long been neglected owing to a complex web of cultural, logistical, and administrative constraints. The 2020 Census showed that the age structure or distribution among IP groups deviates from the usual with the 5-9 years age group comprising the largest cohort or with half of the IPs below 19 years of age. Although literacy rate among IPs is about 70%, one out of five IPs had not completed any grade level. Most IP communities have access to basic services that are far behind the national average with the biggest disparities in terms of access to safe drinking water. Only 52 percent have access to electricity. One major reason for this disparity and/or mariginalization is isolation or remoteness of many IP communities. They are also prone to natural disaster caused by extreme weather conditions as well as to sporadic conflict with external armed groups. The remoteness of many IP communities heightens the pervasive gender gap stemming from high levels of poverty, low levels of education and literacy, and limited access to health facilities. Indigenous women typically access and control few resources, and their participation and representation in decision-making within the Tribal Council structure remains low.

55. The passage of the Indigenous Peoples Rights Act (Republic Act 8371 or IPRA Law) was expected to facilitate the development of IPs in the country. The ADSDPP articulates the aspirational visions of the IPs. It provided for recognition of the customary governance and other structures that manifest the preservation of social cohesion and protection among the members of the IPs. The ADSDPP also affirms the presence of IP organizations (IPOs) that are established in each AD. The IPOs have formal objectives and structures that are articulated in their respective Constitution and By-Laws and duly recognized by the NCIP. The IPRA also provides for the mandatory representation of IPs in various local government units. However, the ADSDPP remains largely unfunded, and the IPs continue to struggle in mobilizing sufficient budget from national agencies and LGUs to support the implementation of their respective ADSDPP given the enormity of addressing gaps in basic socio-economic activities.

5 POTENTIAL ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

56. Based on available baseline information and the types of project interventions that are proposed under MIADP, the following presents the general process for the E & S screening, including the land suitability assessment and the analysis of the environmental and social risks and impacts of the project activities. The site-specific Environment and Social Assessment will identify the potential risks and impacts that will be further evaluated during the IPs/IPO consultations and organization and in the planning of the IPO subprojects as part of the Component 1. Proportional mitigation measures - Environmental and Social Management Plans (ESMPs), Environmental Codes of Practice (ECOPs) and other ESF instruments, will be developed/adopted for subprojects, as necessary.

57. Activities and investments to be undertaken under the following are considered to have potential environmental and social impacts: (i) construction of small-scale agri-fisheries infrastructures such as farm-to-market roads, small-scale irrigation systems, community water supply systems, and post-harvest infrastructures; (ii) development of value chain enterprises such as nurseries, hatcheries, and small-scale feed mills, crop cultivation greenhouses, hydroponics, post-harvest facilities, warehouses, processing buildings; (iii) crop diversification and agricultural production enhancement; (iv) development of small-scale irrigation system; and (v) other related simple hauling and conveyance systems and small civil works for agricultural produce stockpiling and storage.

58. The typology of MIADP subprojects according to component is presented below:

Table 2: Typology of MIADP Subprojects

Component	Subproject Activities
Component 1: Ancestral Domain Planning and Social Preparation	Subproject activities mainly involve participatory planning, orientation and training of IPs, IPOs, LGUs and service providers, enterprise development and identification of subproject activities.
Component 2: Resilient Ancestral Domain Agri-Fisheries Infrastructure	The following infrastructure facilities are proposed, but not limited to: • Access infrastructure[12] within AD between agricultural areas and sitios through small bridges, light 'tramline' (chain-pulley-hoist) hauling systems for agricultural goods, access roads / farm-to-market roads and carriage lines. • Small -scale and/or communal irrigation systems such as pump and storage systems, shallow tube well, solar-power irrigation pump and rain harvesting tanks • Potable community water supply systems (Levels 1 and 2). Based on the Philippine Sanitation Code: (i) Level I water supply (point source) - protected well or a developed spring with an outlet but without a distribution system, generally adapted for rural areas where the houses are thinly scattered. A Level I facility normally serves an average of 15 households; and (ii) Level II water supply (communal faucet system or stand posts) – a water supply facility composed of a source, reservoir, a piped distribution network with adequate water treatment facility and communal faucets (i.e., one faucet serves 4 to 6 households). • Post-harvest infrastructure.
Component 3: Ancestral Domain Agri-Fisheries Production and Enterprises Development	Identified activities include value chain enterprises, facilities and equipment such as: • Input supply enterprises such as nurseries, hatcheries, small scale feed mills • Production support such as mechanization, equipment, climate-resilient technologies such as greenhouses, hydroponics, abattoir (purely gravity and double A facilities with no blast freezer), chicken dressing plant, banana vinegar (produced from banana rejects), reticulating aquaculture system (*tilapia* and *bangus*) and virgin coconut oil and coco husk processing. • Postharvest facilities such as dryers, sorters, and packing facilities • Aggregation/assembly facilities such as warehouses, trading posts, logistics, trucks, weighing scales, crates • Crop diversification and livestock management • Value-adding processing facilities, processing buildings such as consolidation and distribution center where commodities are packed and vacuum sealed to prolong lifespan of the product • Integrated pest management • Drip irrigation • Rain shelters and solar dryers

5.1 Positive Socio-Economic Impacts

59. The following are identified benefits of the Project:

[12] Infrastructure would for the most part be small scale civil works within the AD. In exceptional cases, this will also involve construction/rehabilitation of the main access road which would be designed to link with an existing sealed, market access road. Infrastructure design would be based on DPWH standards.

60. **Economic Benefits for IPs.** Overall, MIADP will deliver socio-economic benefits to IPs in the selected ADs financially and economically. There will be anticipated increase in livelihood opportunities for the IPs/IPOs because of higher yields and production of agricultural crops and livestock. The provision of farm-to-market roads and small irrigation systems, combined with support for small investments and capacity building and production and marketing training, are catalysts for the development of the selected ADs. The economic benefits are expected through support for the start-up and expansion of IPO enterprises that offer sustainable means for increasing incomes and employment opportunities for IPs. MIADP will build the enabling environment for IPs/IPOs in selected ADs to achieve higher and more sustainable incomes so that they become more resilient to economic shocks.

61. **Enhanced Agricultural Production.** The project is expected to generate positive impacts on the overall agricultural production, soil and water conservation and environmental protection due to the improved farming practices, value addition, organized agribusiness systems geared towards contributing to the upliftment of the socioeconomic conditions of the ICCs/IPs.

62. **Food Security.** The increased production of key foodstuff and agricultural-based products will enhance the food security, health and well-being of the ICCs/IPs and provide income through marketable prime commodities and reduced post-harvest losses.

63. **Improvement of Social Services for IPs.** The construction of rural roads and access tracks linking ICCs/IPs with the national road network will enable access to markets of agricultural produce. The access roads will also enhance delivery of social and educational services to the IPs because it will reduce travel time to health centers and schools and make the ADs more accessible to health professionals, social workers and the educational system. The installation of potable water supply systems will help improve sanitation and promote better health for the ICCs.

64. **Social Inclusion and Cohesion.** The Project is anticipated to have positive outcomes in terms of social inclusion since it aims to enhance the agricultural productivity of indigenous groups which are among the most marginalized in the Philippines. It would also promote social cohesion by engaging and strengthening existing IP organizations, integrating indigenous agricultural practices with state-of-the-art technologies and techniques, among others.

65. **Resource Efficiency, Waste Minimization and Cleaner Production.** The project activities will adopt resource efficient processes and systems, promote the reduction of water consumption, water reuse and recycling, waste minimization and the application of the cleaner production techniques that would reduce wastes to be disposed into the environment. Waste materials and by-products will be turned into usable materials such as fertilizers and feeds to support the environmental bio-integration and adhere to the environmental advocacy of tapping into the circular economy thru the production-waste minimization-treatment-composting facilities. Some of the techniques are:

- In abattoirs, the slaughtering operations will be carried out under sanitary conditions, with separation of dry and wet processing activities to minimize water consumption, wastes and compost organic wastes to drastically reduce residual wastes. The IPs/IPOs will be trained on good manufacturing and good housekeeping practices. A wastewater treatment facility will be provided where final effluent can be used to irrigate and fertilize using the composted sludge in nearby agricultural fields to encourage farmers to shift to organic fertilizers and reduce the cost of agro-chemicals and the. Wastewater containing methane may also be used to run bio-gas facilities.
- Banana vinegar processing will utilize banana rejects such as over ripe and excess banana production rather than disposing these as wastes.

- Recirculating aquaculture system for *tilapia* and *bangus* will be implemented in controlled environment to minimize water use and ensure sustainable fishery.
- The project will also promote operation of slaughterhouse and chicken dressing facilities using the gravity concept for waste and wastewater collection and composting to treat the wastes and reduce water and electricity consumption, utilize the organic wastes as compost and soil conditioner.

5.2 Potential Impacts of Subprojects and Mitigation Measures

66. Of the four MIADP components, Component 2 (Resilient Ancestral Domain Agri-Fisheries Infrastructure) and Component 3 (Ancestral Domain Agri-Fisheries Production and Enterprise Development) are the ones with on-the-ground subprojects most likely to bring about environmental and social impacts. The proposed physical investments are small-scale civil works which include gravel-paved access roads, buying stations, storage areas for fresh produce, trading posts, market stalls, earth-lined irrigation canals, and processing plants.

67. There are unintended negative outcomes that might occur during project implementation which could affect some IP households. While the project will not change any land classification, assign new land titles, or recommend new land use, there are potential risks and impacts that may affect contingent areas within the AD as well as the ecosystem services in protected areas that need to be conserved.

68. Potential impacts may occur during the implementation of the following activities: (i) introduction of new technologies and practices that may influence the culture, traditions, and practices of IPs; (ii) construction of new and upgrading of small-scale, simple infrastructure and green facilities; (iii) maintenance and operation of facilities; (iv) agriculture and livestock production; (v) procurement of equipment and materials; and (vi) provision of goods and services.

69. The potential social and environmental impacts resulting from activities under the construction activities are: (i) impacts on air and visual quality including aesthetics and odor, (ii) impacts on water quality, quantity and availability, (iii) noise and vibration, (iv) impacts from hazardous and non-hazardous waste, (v) soil contamination, (vi) impact on flora and fauna, (vii) labor influx, (viii) social conflict, (ix) sexual exploitation and abuse, sexual harassment and gender-based violence, (x) impacts on cultural resources, (xi) changes in land use, (xii) impacts on occupational health and safety, (xiii) impacts to vulnerable persons and groups, and (xiv) impacts on community health and safety.

70. The potential environmental and social impacts resulting from activities under maintenance and operation of facilities category are identified as: (i) impacts on water quality, access and availability (for water supply and irrigation), (ii) impacts from hazardous materials and other substances, (iii) impacts from hazardous and non-hazardous waste, (iv) impacts on worker health and safety, (v) impacts on community health and safety, and (vi) workplace risks such as labor, sexual exploitation and abuse, sexual harassment, and gender-based violence. Under the categories of agriculture and livestock, materials, and equipment procurement, site-specific, low-grade, and reversible, environmental, social, health and safety impacts are expected to occur. Specific adverse impacts that the Project is tasked to address in this ESMF are enumerated in the succeeding items.

71. **Uncontrolled scale of activities within AD.** There is the possibility that the project interventions would increase in the AD. While it is expected that the environmental impacts remain localized, short-term, and reversible, these activities may increase with the number, nature and size within the AD and should be properly defined and managed in the ADAIF. Therefore, there is a need

to involve other stakeholders and agencies such as NCIP, DA, DENR, LGUs, civil society groups (CSOs)/academe during the ADAIF consultation process to help the IPs/IPOs in ascertaining that the activities to be developed within the AD are in line with the approved ADSDPP, PAMP, land suitability criteria of DA, and aligned with the corresponding tenurial instruments and local government plans.

72. **Construction Impacts.** The project's potential environmental impacts are anticipated to be generated during the construction of the small-scale civil works and of enterprise facilities. Impacts are site-specific, temporary, and manageable. These may consist of noise, dust, water ponding due to poor drainage, erosion of uncompacted soil, borrow pits and ground cut and fill, resulting in uneven elevations, construction debris, solid wastes, hazardous substances, occupational health and safety for workers and community health and safety concerns, including COVID-19 health risks. There may also be instances where trees and other vegetation would need to be cleared to make way for the construction of access roads, irrigation systems, water supply systems and other infrastructures.

73. **Abstraction of Water for Domestic Use.** The potable water system under the project are community water supply systems that include Level 1 and 2 systems with communal source such as borewell and spring system serving an average of 4 – 6 households within a 25-meter distance. There may be risk that the water source is not properly located that will affect water quality and availability. A water balance of the existing and proposed water use and demand study shall be prepared including a water balance analysis and monitoring report.

74. **Use of Water for Irrigation and Crop Production Activities.** Agricultural lands and enterprise facilities demand higher volume of water. Water for irrigation will be sourced from natural water bodies, primarily springs, groundwater, and surface water while manufacturing facilities may source water from the local water district of the municipality where the AD is located. Irrigation may cause depletion of underground aquifers through over-drafting. Soil can be over-irrigated because of poor uniform distribution or management of water that may lead to waterlogging and flooding. Over-irrigation can lead to water loss, unnecessary increase in energy use for pumping, causes leaching of nitrogen and other micro-nutrients, and a waste of time. It can also cause increase in soil salinity due to rising water tables. If the soil is under irrigated, it would result to soil salinity which consequently cause build-up of salts on soil surface in areas with high evaporation, thereby, causing damage to soil and affecting soil fertility. By these, the MIADP, in coordination with the DENR, shall determine the water balance of the existing and proposed water supply and demand and maintain water balance in all its subproject activities in relation with all proposed water uses, especially irrigation. A water balance analysis and monitoring report shall be prepared, where the multiple schemes lead to significant source sustainability concerns or ground water is extracted significantly.

75. **Wastes and Pollution.** Liquid and solid wastes may be generated from both agricultural and enterprise activities such as animal wastes, husks, spoiled agricultural produce, packaging, and plastic wastes. Except for packaging and plastic wastes, most of the agricultural wastes are organic wastes that are biodegradable or can be used as fertilizers in agricultural lands. Improper disposal of non-biodegradable wastes particularly plastics may cause harm to the environment of the ADs. Recycling and proper segregation of waste shall also be part of the training of the beneficiaries.

76. There are enterprises such as abattoirs and piggeries that will involve the use of water in the pigpens as well as during raw meat production. These activities generate wastewater that may contain organic as well as inorganic contaminants that could cause water, air, and soil pollution. Untreated wastewater discharges may affect the water and soil quality of nearby households, farms, and waterways.

77. **Use of Agro-Chemicals.** The project is expected to encourage investments in diversified crop production, which may increase the use of a variety of fertilizers and pesticides. Pesticides are used in agricultural lands to get rid of insects and pests that act as parasites and carriers of vector-borne diseases while fertilizers are used to increase crop yield. However, agro-chemicals may contain harmful substances that could cause immediate damage as well as chronic effects. The agricultural activities should be mindful of the over-application or misuse of agro-chemical fertilizers and pesticides that may lead to water, soil, and air pollution. These chemicals also pose health hazards to farm workers due to over-exposure to harmful substances.

78. **Soil Erosion.** Soil erosion may also occur during land development during planting and harvesting of root crops which could cause topsoil loss and reduction in soil fertility. This is of particular concern since some of the ADs of the targeted IP beneficiaries are in the highlands or mountainous areas. The unchecked implementation of agricultural activities in sloping areas may also exacerbate soil erosion.

79. **Impacts on Biodiversity and Protected Areas.** The implementation of subprojects may cause disturbance of natural habitats or cause the introduction of invasive or non-native species that threaten the ecological balance. It is important for the ICCs/IPs to understand the close relationship between biodiversity, ecosystem services and livelihoods in the screening of the potential impacts of subproject activities. Healthy ecosystems ensure human well-being by providing food, materials (e.g., wood, crops, etc.) and clean water, as well as break down waste materials. There are many plants and organisms that are useful for medical research that contain substances that are used in traditional medicine.

80. While tenurial instruments have been issued to the IP communities, it is important that agricultural lands are clearly delineated to avoid overlaps with lands officially classified as Forests, Protected Areas, Nature Reserves or National Parks. There will be no re-classification, destruction, or conversion of critical natural habitats, nor the permanent removal or change in land use of natural habitats that would lead to the loss of indigenous or endemic wildlife (flora and fauna) and affect the local biodiversity in the project sites.

81. **Impacts on Cultural Heritage Sites, Local Traditions and Practices.** There may be subprojects that could stumble upon chance finds and if not mindful, could displace, disfigure, or render inaccessible any monument, physical structure, tangible, or intangible cultural properties of known traditional and cultural significance to the IPs such as sacred sites, burial grounds, or traditional practices.

82. **Spread of COVID-19 and other Communicable Diseases in the AD.** Workers who will be sourced outside the ADs may be possible carriers of communicable diseases such as COVID-19 virus that may cause health crisis within the AD.

83. **Diseases from Livestock.** Some enterprise activities of the project may include procurement of farm animals from other provinces to be used in poultry and other livestock farming activities. It may be possible that these animals are carriers of diseases such as African Swine Flu, foot and mouth disease, mad cow disease, and other emerging livestock-related diseases.

84. **Accessibility, Road Traffic and Safety Concerns.** The introduction of FMR, light 'tramlines' and small-scale bridges in the AD may lead to the clearing and cutting of vegetation and could lead to the decrease of forest cover and exposing steep slopes that could lead to soil erosion, flooding, and landslides. Likewise, the increase in the volume of vehicular traffic going to and from the AD could create road hazards that the IPs/ICCs are not familiar with. While improved access is important,

associated vehicular accidents may occur within the AD particularly in low-lighted, sloping, and blind spot areas. Careful road design and traffic signages need to be installed in strategic areas along the road and IPs will be forewarned to observe caution when walking or crossing these access roads, bridges, and light 'tramline' floating carriageways.

85. **'Tramline'-related Incidents.** Some ADs will have agricultural 'tramlines', a localized catch word to describe a simple chain-pulley-hoist to lift, pull and convey agricultural goods and materials through long distances, above the forest canopy or glide along steep slopes and high altitudes to cross treacherous water courses or dangerous cliffs or crevices. It is not used as a transport mode for people that will require the construction of heavy infrastructure but instead replaces the FMR, depending on the physical condition and the terrain of the land. There will be no cutting of trees or cut and fill activities to make way for the 'tramline' corridor. 'Tramline'-related accidents such as detached chains, pulleys, hoists, or similar parts that may occur if the users will not observe safety precautions or if the parts of the 'tramline' are substandard. In order to avoid accidents, the 'tramlines' which are primarily used for cargo only, will be made of high quality and heavy-duty, sturdy materials and the anchors will be securely attached on stable ground. 'Tramline' operators will be trained to observe the maximum weight capacity of each tram carrier. The implementer of the 'tramline' will also be required to follow the specification standards prescribed by the design avoid using substandard parts and follow safety procedures.

86. The occurrence of the above impacts will be further validated during the screening and site-specific environmental and social assessment of each subproject identified by the IPs/IPOs. The table below is a summary of the potential risks and impacts during implementation.

Table 3: Potential Risks and Impacts of Subproject Activities

Subproject Activities	Potential Impacts
Access Roads / Farm to Market Roads/ Light 'Tramlines'	• Noise, Air and Water Pollution during construction and use • Clearing of vegetation and widening of alignment/ passageway/ corridor • Cut and fill of steep slopes
Crop production	• Introduction of invasive species that could lead ecological imbalance • Over-application of fertilizers and pesticides causing water, soil and air pollution and hazardous wastes from empty bottles and containers of fertilizers and pesticides • Diversion of water to farms, reducing potable water supply • Soil erosion or water logging • Loss of soil fertility • Spoiled agricultural products due to lack of market demand generating organic wastes
Livestock production	• Wastes and Wastewater • Odor • Proliferation of flies, insects, and other pests • Disposal of dead animals which could cause sanitation and health issues in the community
Fisheries production	• Over-application of feeds and antibiotics that could contaminate water supply and waterways • Wastewater containing high levels of nitrates and suspended organic matter that can lead to eutrophication of receiving water body

Subproject Activities	Potential Impacts
	• Solid wastes from fish processing, (skin, viscera, fish heads, bones, scraps) • Occupational health and safety hazards to workers due to unsanitary practices in food handling
Agricultural micro enterprises e.g., food production/processing	• Wastes and wastewater from washing and cleaning operations • Solid wastes, plastics, and other packaging materials • Odor, flies, and vermin • Increase in road traffic and presence of outsiders
Potable Water supply	• Diversion or depletion of water resources (surface and groundwater) that could cause damage to natural resources, adverse impacts to aquatic life, fisheries, recreation areas, land subsidence due to loss in ground water • Degradation of quality of potable water sources; water quality is not compliant to the prescribed standards of the Philippine National Standards of Drinking Water (PNSDW) • Leakage in distribution pipes and taps • Health and safety issues on handling of chlorine during disinfection • Increased population density and agricultural activity due to new/improved water supply system
Irrigation	• Diversion or depletion of water resources (surface and groundwater) resulting to damage to natural resources, adverse impacts to aquatic life and fisheries, loss of recreation areas, land subsidence • Soil erosion or flooding • Water pollution due to application of agrochemicals in the irrigation service area • Creation of stagnant (standing) water which could increase vector-borne diseases • Siltation and accumulation of debris at the irrigation canal

87. **Impacts on Labor.** MIADP will involve regular and project-contracted staff at the Regional Project Coordination and Support Office (RPCSO), Local Project Management and Implementing Unit (LPMIU) and Project Management Office (PMO) based at the DA. It will also involve engaging or procurement of civil works contractors as well as mobilization of community labor for the development of infrastructure subprojects. The potential impacts are:

- Accidents and injuries due to lack of occupational health and safety measures
- Chances of employing children below 15 years of age
- Chances of abusing project workers who are forced by their employers/contractors to perform heavy physical task/activity that they are not fit to undertake.

88. The Project will ensure that the engagement workers will be compliant to the general policies and requirements for voluntary, non-hazardous work, non - engagement of child labor, non-discrimination and other provisions for workers' welfare and protection, promotion/observance of occupational health and safety measures (including protection from harmful materials such as pesticide and fertilizers), just compensation/benefits and other regulations prescribed by the Labor Code and consistent with ESS2. All activities mentioned here shall be aligned to the contents of the LMP. In addition, the Cumulative Impact Assessment (CIA), following IFC guidelines is not applicable considering the small and distributed nature of interventions and the moderate impacts they are likely to generate.

89. **Climate Change Risks and Impacts,** The Philippines has been screened for climate and disaster risk and found to be extremely vulnerable to the effects of climate change. There are particular vulnerabilities to extreme temperature, extreme precipitation and flooding, drought, sea level rise,

storm surges, strong winds, and landslides. The Global Climate Risk Index ranks the Philippines as the world's second most affected country by climate change related shocks. Projected increases in temperature by as much as 0.9°C to 1.9°C across the country increase the risk of extreme heat events as well as potential changes in suitable crops. Increasing temperatures bring uncertainty for the prediction of precipitation patterns. It is predicted that there may be more intense and unpredictable rainfall during the monsoon season; these changes are associated with a higher probability of catastrophic cyclones associated with increased risk of tidal inundation. This has been evident in the recent cyclones that hit the country during lockdown. Incidence of floods is also on the rise. Concurrently there is also a risk of drought at other times, particularly associated with El Nino years, as observed during the 1980s and 1990s. The sea level has risen by as much as 5.7-7.0 mm/year over the Philippine Sea, higher than global average rates. These rising levels are exacerbated by long-term land subsidence, as observed in Manila from 1955-2015, attributed to excessive groundwater withdrawal. Projected changes in sea level in the Philippines are slightly higher than global averages.

90. The project will support climate adaptation and mitigation measures that are expected to generate significant climate co-benefits (through Components 1-3. Communal irrigation systems (CISs) promote adaptation by ameliorating the risk of crop loss from recurrent drought in selected areas. The establishment of warehouses could be considered in assessing Adaptation Co-Benefits, while the use of solar dryers could be considered in assessing Mitigation Co-Benefits. Greenhouses are an investment with considerable potential to reduce production losses and enhance food quality through efficient use of water, pest and disease control, and protection from the elements, yielding adaptation and mitigation co-benefits. Investments in slope protection reduce erosion and siltation and improve water catchment and management for adaptation co-benefits. Potable water systems (PWS) provide clean drinking water and mitigate health risks, especially in times of drought or flooding, and can be considered to yield adaptation co-benefits through improved construction designs.

91. **Project scenarios and assumptions for GHG accounting.** The with-and without-project scenarios and packages of interventions developed for the economic and financial analysis (EFA) were used for the GHG accounting. The project will provide four intervention packages tailored to different AD contexts. All four packages will include investments in farm-to-market roads (FMR) and small-scale irrigation systems. In addition to those investments, each package will support a different set of enterprise investments, such as improved seed and fertilizer for upland rice and white corn production, the construction of tilapia ponds, the construction of piggeries, and investments to support modern coffee production. The without-project scenario corresponds to the current baseline situation.

92. The GHG analysis was carried out for every single intervention and then aggregated for each AD package. The assumptions for the individual interventions are as follows:

- *Construction of FMR.* It is assumed that there is currently no road and that the project will build a new 15-km single-lane paved road. Based on data from the ongoing Philippine Rural Development Project (PRDP), it is estimated that the new road will have an annual average daily traffic of 219 motorcycles, 16 light trucks, and 35 cars and vans. Under a road roughness equal to 6 (using the International Roughness Index) and using the HDM-4 road model, yearly traffic will result in the consumption of 2,333.2 liters of fuel per year and kilometer. The estimated fuel consumption for the operation of the 15-km paved road is 35 m^3/year. Total emissions are 5,500 tCO_2eq for the construction of the road and 1,653 tCO_2eq/year during its operation.
- *New gravity small-scale irrigation system.* Rice and corn will be irrigated through a gravity flow small-scale irrigation systems. Construction of the new irrigation system will generate an estimated 0.034 tCO_2eq/ha total emissions over the 20-year project lifetime.

- *Improved production of upland rice and white corn.* It is assumed that upland rice and white corn are currently produced in yearly rotation with one harvest per year, in a rainfed production system that uses traditional methods and inbred seed. Current yields are 1,200 kg/ha for upland rice and 1,300 kg/ha for white corn. Under current conditions, both corn and rice are cultivated with tillage, no manure and no pesticides are used, and the straw is burned after the harvest. Starting from 2024 in the with-project scenario, improved seed, improved agronomic practices, irrigation, and the use of fertilizers will increase yields to 3,000 kg/ha for upland rice and 3,100 kg/ha for white corn. Rice will be fertilized with 95 kg/ha of urea and 95 kg/ha of 15-15-15 complex fertilizer. Corn will receive applications of 40 kg/ha of urea and 50/kg ha of 15-15-15 complex fertilizer. In the with-project situation, the straw residue will be retained in the field. The total net carbon balance (compared to the without-project scenario) over the 20-year project lifetime is 30.66 tCO_2eq/ha for rice (emitted carbon) and –20.32 tCO_2eq/ha for corn (sequestered carbon). Emissions are noticeably high in upland rice due to the change from rainfed production to a longer flooded period (which significantly increases CH_4 emissions) and the high rates of nitrogenous fertilizer applied. Note however that the higher emissions in the with-project scenario also imply higher yields, and that the gross emission intensity per ton of product is actually reduced for both corn and rice (from 2.7 to –5.4 tCO_2eq/ha for 1 metric ton of white corn produced, and from 27.1 to 21.1 tCO_2eq/ha for 1 metric ton of upland rice produced).
- *Coffee production.* Coffee will be planted on 40 ha and a post-harvest facility will be constructed of local bamboo and wood for use as a coffee-drying facility and warehouse. No emissions are considered from the construction of the post-harvest facility because local wood is used. Over the life of the project, the GHG balance from the new agroforestry system comprises emissions of 1,077 tCO_2eq from the clearing of bush and the sequestration of 5,672 tCO_2eq from the growth of coffee plants.
- *Provision of resources for pig fattening.* A piggery (a 500 m^2 sheltered concrete platform) will be constructed for the fattening of 750 pigs per year, with 3 fattening cycles per year and a final weight of 85 kg per pig. The shelter will be built with local wood, so no emissions from construction are considered. Neither feeding nor manure management were considered for the GHG calculations. The total estimated emissions are 3,536 tCO_2eq over the project lifetime from the pig operation and an additional 328 tCO_2eq from the construction of the concrete platform.
- *Provision of resources for tilapia production.* For tilapia production, 32 new concrete ponds will be built, each covering 200 m^2. In full production, they will yield 62,080 kg of fish per year. Emissions from feeding are not considered for the GHG calculations due to a lack of data on emission factors. The total estimated emissions are 4,403 tCO_2eq from tilapia production over the project lifetime.

93. **Results for the intervention packages.** The project intervention packages emit carbon instead of sequestering carbon. This is a direct consequence of the project's efforts to increase productivity through agricultural intensification and the construction of new roads and facilities.

Projected Average Carbon Emissions by AD Package and AD (per year and over the project life)

AD Package	Interventions	Gross Fluxes GHG: Net Balance of CO_2eq (Positive = source / negative = sink)			
		Total per Year and per AD Package (tCO_2eq)	Total (tCO_2eq) per AD Package	Number of ADs for this Package	Total (tCO_2eq)
1	5,460 ha of new gravity irrigation with improved rice and corn 15 km of new paved road	2,871	57,430	5	**287,150**
2	4,460 ha of new gravity irrigation with improved rice and corn 15 km of new paved road Establishment of tilapia production	2,631	52,625	7	**368,375**
3	4,460 ha of new gravity irrigation with improved rice and corn 15 km of new paved road Establishment of coffee production and post-harvest facility	2,181	43,627	7	**305,389**
4	4,460 ha of new gravity irrigation with improved rice and corn 15 km of new paved road Establishment of pig fattening	2,604	52,086	7	**364,602**
	Total	**10,287**	**205,768**	**26**	**1,325,516**

94. **Carbon pricing.** Following World Bank guidance[13], two carbon prices are considered in the analysis as low and high estimates. The low and high estimates equal US$41 and US$82, respectively, in 2021, and thereafter the values increase at a rate of 2.25 percent per year. The annual shadow price of carbon (US$/$tCO_2$e) is then multiplied by the yearly GHG emissions (tCO_2e) to get the economic value for every year of the project.

95. Total GHG benefits. If the project invests in the four packages of interventions following the patterns and number of ADs as per EFA, the total net carbon balance will reach an estimated average of 66,276 tCO_2eq emissions per year of the project, corresponding to an estimated total of 1,325,516 tCO_2eq emitted over the project life. In economic terms, project will generate costs of US$67.7 million (low carbon price) or US$135.2 million (high carbon price) during the entire project life.

6 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

96. This section outlines the entire ESF process for MIADP. The MIADP consists of series of activities whereby the exact scope and location remains to be determined. This ESMF is prepared to ensure that the project activities to be financed under MIADP will not create adverse impacts on the local environment and local communities and that the residual and/or unavoidable impacts will be adequately mitigated in line with the WB ESF. The ESMF will guide the implementing agencies under MIADP to screen and address environmental and social impacts of the proposed activities thereby determining the appropriate environmental and social mitigation and management measures required.

97. Taking into account the requirements of WB ESF, Environmental, Health, and Safety (EHS) Guidelines, and the national legislations, the environmental and social assessment process for selected subprojects under MIADP would involve eight steps: (i) IP participation and social preparation; (ii) eligibility screening and land suitability assessment of a long list of proposed

[13] World Bank (2017), "Guidance note on shadow price of carbon in economic analysis." Washington, DC. Available at http://documents.worldbank.org/curated/en/621721519940107694/Guidance-note-on-shadow-price-of-carbon-in-economic-analysis.

subprojects submitted by the IPs; (iii) Environmental and Social Due Diligence/ Environmental and Social Assessment (ESA) of the short list of subprojects based on submitted and approved business plans; (iv) adopting a standard management plan and other relevant instruments; (v) approval of ESDD/ESA/ESMP/ECOP and other ESF instruments; (vi) preparation of work contracts with ESF provisions; (vii) contractor orientation on ESF instruments; and (viii) implementation and monitoring of all ESMPs and other instruments during subproject implementation.

98. Table 4 shows the key E &S activities and the lead or responsible units at various stages in the subproject implementation. All of these activities will be done through a participatory process of the IPO that will be facilitated by the DA MIADP PMO, through the RPCSOs. Respective guidelines will be developed to provide more detailed instructions for the IPOs in accomplishing the ESMP.

Table 4: Environmental and Social Safeguards Activities and Responsible Units

MIADP Process	Safeguards Activities	Reference	Responsible Persons
Ancestral Domain Planning and Social Preparation (Component 1)	Preparatory Activities on Indigenous Peoples Participation and Social Preparation • Trainings • Awareness raising • Workshops • ESF orientation	SEP[14] ESMF LMP ESMP/ECOP	Subproject proponent (IPO) with assistance from RPCSO and in coordination with NCIP
	Environmental and Social Screening • Screening from long list of identified subprojects • Land Suitability Assessment • Loss of productive crops/assets • Site validation • Environmental scanning • Consultation with IPs/IPO	Table 5: Negative/Prohibited List Annex C: Environmental and Social Screening Checklist	
ADAIF and Subproject Proposal Preparation/ Business Plan	Environmental and Social Assessment of subprojects (short-list of value chain and infrastructure investments) • Site validation • Mapping and geo-tagging • Identification hazard areas (flood, landslide/erosion), protection zones/ECAs, conflict areas, cultural heritage sites, biodiversity sites, landforms, water bodies • Consultations with IPs/IPOs • Consultations with other agencies and stakeholders such as NCIP, DENR, BSWM, MAO, LGUs, PAMB	ESMF Annex D: Sample Environmental Codes of Practice (ECOPs) Annex E: ESA Guidelines and ESMP Templates	Subproject IPO with assistance from RPCSO

[14] A separate stakeholder engagement plan (SEP) has been developed by MIADP.

MIADP Process	Safeguards Activities	Reference	Responsible Persons
	Preparation of Safeguard Plans	Annex D: ECOPs Annex E: ESMPs Annex G: Fertilizer and Pesticide Management Plan Biodiversity Management Plan (p. 36)	Subproject proponent with assistance from RPCSO ESS
	Approval of ESA and Safeguard Instruments • Review and appraise the ESMP as part of subproject proposal • Conduct quality review and recommend approval	Refer to Table 7 Annex D: ECOPs Annex E: ESMPs Annex F: CHP Annex G: Fertilizer and Pesticide Management Plan	RPCSO ESS PMO
Subproject Procurement	Preparation of work contracts incorporating the environmental and social safeguards provisions and ESMP	Work Contracts for Bank's NOL	PMO
	Contractor Orientations on the Environmental and Social Safeguards	Annex H: Guidelines in the formulation of Contractor's ESMP	RPCSO
Subproject Implementation	Safeguards Monitoring • Implement and monitor commitments in the ESMP and conduct compliance monitoring • Submission of regular E&S reports	Annex I: Compliance and Impact Monitoring Report	Contractors / IPO Monitored by: RPCSO Report submitted to: PMO and WB

6.1 Indigenous Peoples Participation and Social Preparation

99. Since the subprojects will be developed by IPs, the initial process will involve the social preparation and ancestral domain planning with the IPs. The active involvement of IPs would ensure that their needs, interests and concerns are considered not only in the regional and provincial plans but also in the design and final configuration of specific subprojects under Components 1 and 2. In addition, there is a need to avoid, mitigate and/or compensate any adverse effects on their communities caused by activities supported by the project. For these reasons, the project will ensure that IP participation and social preparation process follow meaningful consultation principles that is compliant with the IPRA (RA 8371) and the World Bank's ESS 7.

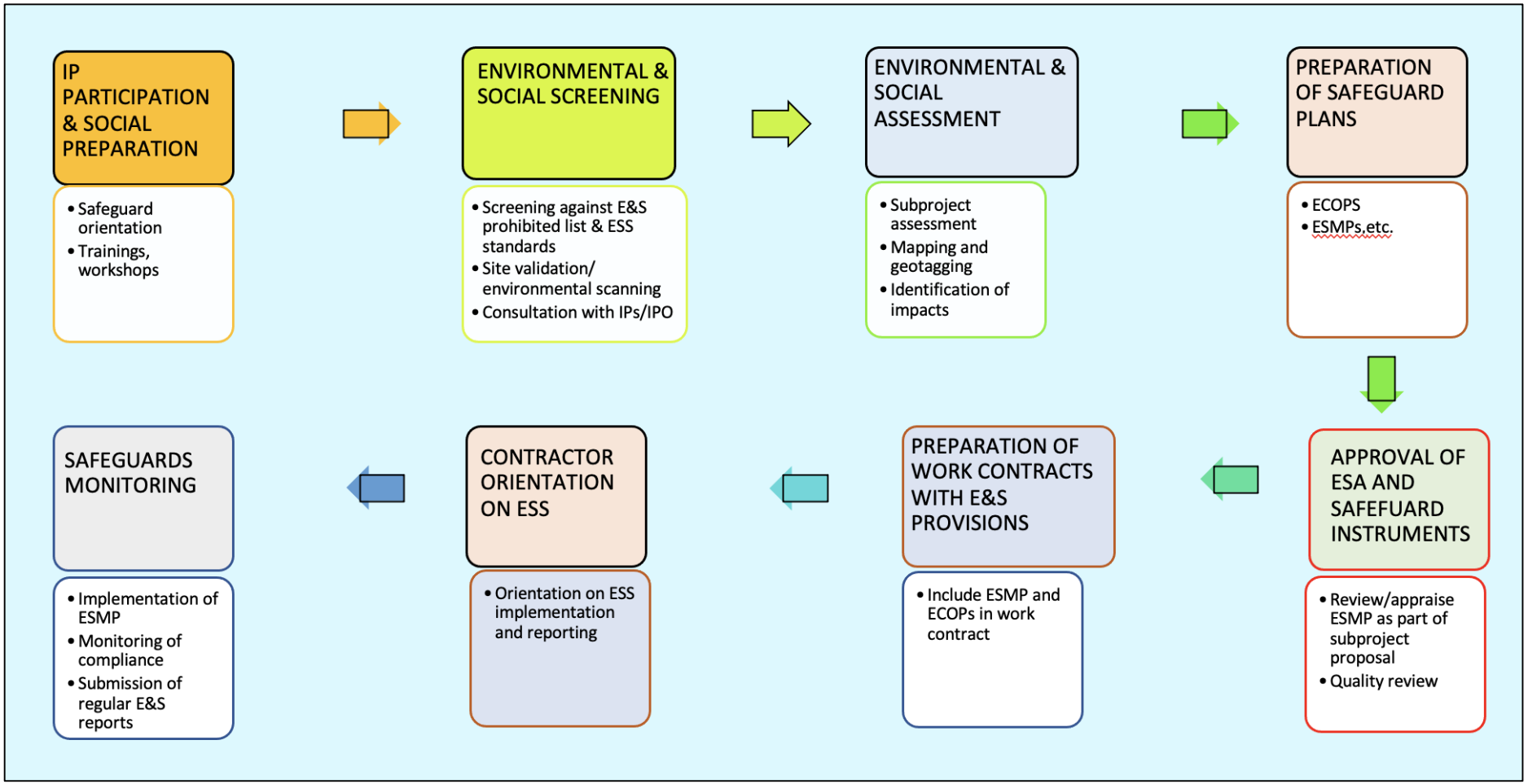


Figure 3: MIADP ESMF Process Flow

100. The IP/ICC are themselves the primary beneficiaries of the project, hence, the FPIC process is embodied in the entire MIADP design and implementation. Under the MIADP process, IP consultations and coordination with NCIP are essential elements in the design of the ADAIF of the IPOs/ICCs to ensure that the subprojects conform with the community's ADSDPP or shall become part thereof in the future.

101. In the ADAIF preparation and social preparation process, the following will be ensured:

a) IPs in the regions and provinces are able to meaningfully participate in the conduct of the ADAIF activities.
b) The selection, screening and preparation of subprojects will be undertaken with the involvement and participation of the IP communities in the target areas in partnership with the NCIP and the LGUs.
c) The NCIP-approved ADSDPP which is a consolidation of plans of ICCs/IPs within an ancestral domain for the sustainable management and development of their land and natural resources as well as the development of human and cultural resource based on their indigenous knowledge systems and practices will be the basis for identification and prioritization of agricultural investments.
d) The IP/ICC is aware of the extent of the plan, subprojects or activities and its socio-cultural/environmental impact to the community.
e) The subproject activities are for the delivery of basic services or for the establishment of social enterprise or enterprise development involving community interest affecting land and resource use that would provide employment or generate income to improve the living condition and economic development of the concerned IP/ICC.
f) There is stakeholder acceptance and ownership of MIADP through advocacy campaign and community organizing.
g) There is formation and capacitation of registered and self-reliant agri-fishery IPOs/cooperatives as well as infra management IPOs and women's IPOs.
h) Technical assistance is provided to enable the IPO to participate meaningfully in the planning process under the local level planning.

102. During the ancestral domain planning and social preparation process, the RPCSO should be able to receive the following as part of the subproject proposal from the IPO:

a) IP/ICC Ancestral Domain Sustainable Development and Protection Plan (ADSDPP) showing that the subproject is included in the IP/ICC development plan.
b) A Provincial Commodity Investment Plan (PCIP) showing that the subproject was proposed by the IP/ICC themselves during the planning which involve consultation with the IP/ICC.
c) IP community endorsement or resolution of support signed by members of the IP community or communities.
d) Endorsement signed by IP community leaders such as the tribal council chairman or the tribal chieftain with attestation of broad-based member support by the NCIP.
e) Documentation of consultations such as dated presentation materials, minutes of meetings, dated photographs of consultations.

6.2 Environmental and Social Screening

103. Based on the proposed ADAIF, the IPS/IPO will begin preparation of the business plans or proposals. During this stage, IPs/IPOs will participate in consultation meetings and workshops to know/learn more about the environmental and social safeguards and discuss their roles during project

implementation. Participatory planning and E&S screening will be undertaken to determine social and environmental issues of identified long list of subprojects in the PCIP.

104. The first stage screening will be done based on a long list of value chain products and possible infrastructure investments that the IPs have identified during IPs Orientation and Consultation of the ADAIF preparation. The eligibility of the activities will be evaluated against the negative / prohibited list in Table 5. Activities that form part of the prohibited list will be excluded from the long list of investments.

Table 5: MIADP Prohibited / Negative Activities on Environment and Social Safeguards

	Prohibited List
1.	Activities in ADs where there is high intensity or active conflicts.
2.	Construction of dams, dam reservoirs or irrigation schemes that depend on existing dams that will result to significant environmental and social risks or complex safety issues
3.	Activities that will involve introduction of foreign species including fish and aquatic plants and animals
4.	Activities that will involve hunting, collection and trade of wildlife
5.	Activities that will involve commercial logging or grazing operations in critical watershed, national parks, protected areas, forests and established experimental forests.
6.	Activities involving hunting or fishing of commercial nature in game refuge, bird sanctuaries, marine and seashore parks.
7.	Activities in watersheds that are sources of water for existing and potential irrigable areas and recharge areas of major aquifers.
8.	Activities that would involve significant conversion, re-classification, or degradation of critical natural habitats.
9.	Activities that would cause permanent removal or change in land use of natural habitats that would lead to the loss of indigenous or endemic wildlife (flora and fauna) and affect the local biodiversity.
10.	Purchase of and activities that involve use of prohibited fertilizers, pesticides, insecticides, and herbicides as well as cyanide and dynamite for fishing and blasting
11.	Purchase of chainsaw and explosives
12.	Digging of borrow pits and quarrying for aggregates and filling materials as well as cutting of trees for use as construction materials
13.	Operation of sawmills and lumberyard
14.	Salaried activities that employ children under 15 years of age
15.	Financing activities that unfairly exploit men or women of any age
16.	Activities that will involve harvesting of timber, mangroves or coral reefs
17.	Purchase of fishing boats and other related equipment unless directly related or needed in the enterprise
18.	Construction of enterprise facilities in forests or protected areas; and
19.	Use of funds for purchase or compensation of land.
20.	Prohibitions on activities requiring household relocation/house demolition as well as prohibition of damage/loss of crops, trees, and other access to productive asset for which no acceptable compensation has been agreed upon with IP-affected persons/household

105. The screening will refer to the environmental and social screening checklist developed in Annex C. This will be done through site validation, environmental scanning, and consultation with the IPs/IPOs. The project will not finance activities that have high risk or significant and complex environmental and social issues that will require re-categorization of the MIADP into “High Risk” project. Only subprojects which may generate some environmental and social impacts which can be addressed by applying mitigation measures will be included in the program.

106. The next step in the first stage screening is to conduct a Land Suitability Assessment. The FAO definition of an agricultural land can be grouped into the following:

- Arable land (also known as cropland): land producing crops requiring annual replanting or fallowland or pasture used for such crops within any five-year period
- Permanent cropland: land producing crops which do not require annual replanting
- Permanent pastures: natural or artificial grasslands and shrublands able to be used for grazing livestock

107. The following is a list of procedures on how to conduct a Land Suitability Assessment. The details of these procedures are found in Annex C2.

LAND SUITABILITY ASSESSMENT PROCEDURES

i. Describe agricultural types in sufficient detail for subsequent analysis.
ii. Select land qualities and land characteristics to be used in comparisons of agricultural-use requirements with land.
iii. Map the land units and determine their relevant land characteristics and qualities.
iv. Set limiting values to land-use requirements, to be used for determining class limits for land suitability. Take into account sustainability and the ratio of benefits to inputs.
v. Match the agricultural use with the land:
vi. Compare the agricultural use requirements with land qualities or characteristics to determine provisional land suitability classes.
vii. Consider modifications to agricultural-use types, in order that they become better suited to the land.
viii. Consider land improvements that could make the land better suited to the agricultural use.
ix. Map land suitability for each agricultural-use type.
x. Plan for additional data collection: additional surveys, research by outside agencies or within the land-use plan.
xi. Assess the water source for the land under consideration for the scheme/ subproject. Assess if the proposed scheme together with other schemes depending on the source can lead to long term sustainability of the source and/or result in overall adverse impacts. Scheme/ subproject shall be assessed for land suitability in case of 3 or more subprojects depending on the same source/ extensive drawl of ground water. Mitigation measures to ensure sustainability of water source/ impact on shallow water shall be included in the ESMP. Subproject/ schemes shall be excluded from the project incase implementation of suitable mitigation measures is technically and financially not feasible.

6.3 Site-specific Environmental and Social Assessment

108. The second stage screening will be undertaken during the ADAIF preparation process wherein each subproject is evaluated based on site sensitivity, impacts of the activities, and in terms of environmental and social management. At this stage, the IPOs have already shortlisted the value chain products and infrastructure investments from the first level screening and have developed a preliminary project description to understand the scope and location of the subproject activity.

109. All shortlisted subprojects will undergo environmental and social assessment as part of subproject preparation to further define the environmental and social conditions of the affected areas. Mapping and geo-tagging of subprojects will be undertaken while environmentally critical areas such as those subject to hazards, floods, landslide/erosion, protected zones/ECAs, conflict areas, cultural heritage, biodiversity and protected landforms, seascapes and waterbodies that may be affected by the subproject activities will be identified. Consultations will also be conducted at this stage with key stakeholders.

110. In reviewing the subprojects, the entire proposal package which includes the proposal/feasibility study and program of works along with the safeguard documents will be evaluated to determine if these are consistent and adequate. Joint validation will be conducted for subprojects by the LPMIU and RPCSO to check the information provided by the proponent. For any subproject, the evaluation will focus on the following issues based on the WB ESS:

1) ESS 1 – Assessment and Management of Environmental and Social Risks and Impacts

111. After the vetting process of Preliminary Socioeconomic Information (PSI), the IP groups have identified in the ADAIF its development vision, priority strategies and programs/projects for agriculture as well as its governance structure/ arrangement. Component 2 (Resilient Ancestral Domain Agri-Fisheries Infrastructure) and Component 3 (Ancestral Domain Agri-Fisheries Production and Enterprise Development) are the activities that would most likely bring about environmental and social impacts. The proposed physical investments involve civil works for access roads, buying stations, storage areas for fresh produce, trading posts, market stalls, earth-lined irrigation canals, and processing plants. There are also adverse impacts related to crop production and operation of the agricultural enterprises. During the IP orientation and consultation, the ICCs/IPs will be advised to prepare an environmental and social assessment (ESA) during the ADAIF preparation, and subproject planning to identify impacts and risks and help formulate during the identification of the sub-projects, the required site-specific environmental and social impact mitigation and management measures. This includes environmental, social, legal, and institutional assessments. The ESA will also better inform the development of mitigation measures and the grievance redress mechanism.

112. For ADs in protected areas, consultation with the DENR and the PAMB will be undertaken to present the proposed interventions and activities within the protected area. This will allow deliberation of the DENR and PAMB members on the applicability and appropriateness of the subproject activities with the PAMP.

113. In terms of suitability of identified crops, the ESA will utilize available information from DA on land and soil suitability to ascertain if the identified crops and agricultural produce is appropriate for the AD and if sustainable and environmentally sustainable production can be achieved. The objective of the land suitability assessment is to evaluate the present condition on the soil, surrounding environment, climate, slope and topography, water availability, drainage, erosion hazard, and other limitations for a particular crop and the allowable type of activity within the AD. The assessment will be informed by available data and maps from the DA, DENR, PAGASA, and local agricultural office.

114. The DA anticipates social risks owing to the critical contextual issues that affect Mindanao and/or ADs. These risks include unresolved land claims, conflict areas, and vulnerability to natural disaster. MIADP recognizes these risks and thus requires the design of mitigation measures in the evaluation of the subprojects identified in the ADAIF. The Project intends to avoid social risks through its social preparation which will be designed to be participatory, inclusive, render fair treatment to all IPs, promote social accountability/transparency, and allow for citizen's feedback in all categories, i.e., age, gender, etc. Information and education materials will be prepared to inform beneficiaries of risks and impacts and the technical support services to be provided by DA, NCIP, DENR, NGOs and development partners to enhance their livelihood and income. DA will continue to consult with relevant government agencies to explore options to support vulnerable households and manage these risks.

115. Separate ESF instruments have been prepared such as the templates for the Environmental and Social Management Plan (ESMP) for selected subprojects (See Annex). This ESMF also includes the guidelines on for the preparation of Fertilizer and Pesticide Management Plan, Biodiversity Management Plan (BMP) and Cultural Heritage Management Plan (CHMP).

116. In addition to the above, subprojects will be required to comply with the PEISS. The interventions that will fall within Category B in the PEISS will need an Environmental Compliance Certificate (ECC) while those under Category D will have to obtain a Certificate of Non-Coverage (CNC) from DENR. For Category B subprojects, an Initial Environmental Examination (IEE) which also contains the ESMP will be subject to review by the DENR prior to issuance of the ECC. The ECC/CNC will be required during Level 6 of the MIADP process (please see Annex A).

117. **Contingent Emergency Response Component:** The Project's ESMF provides environmental and social risk management for the Contingent Emergency Response Component (CERC, Component 5) should it be activated during project implementation. Contingent Emergency Response Component (CERC) is an ex-ante mechanism available to the Government to gain rapid access to financing to respond to an eligible crisis or emergency. This component will allow for rapid reallocation of uncommitted project funds towards urgent needs in the event of a disaster (geophysical, climate-related, or man-made), or public health emergency. Such events may include typhoons, floods, earthquakes, volcanic eruptions, droughts, and disease outbreaks. There is flexibility in establishing the level of evidence needed to activate this component including, but not limited to, issuances such as the declaration of a State of Calamity by the mandated national or subnational authority, or a State of Public Health Emergency. The agreed trigger would enable reallocation of uncommitted project funds to support immediate response and recovery needs from other project components.

118. Since activation of the CERC for emergency activities is unknown at this stage, the applicability of the risk management measures of the ESMF will be assessed before activation of the CERC. For eligible emergencies outside of the agriculture sector, e.g., earthquakes, typhoons etc., where the measures included in this ESMF do not fit the activities of the activated CERC, an ESMF for the CERC would be prepared with the situation-specific environmental and social risk assessment and management measures. This CERC ESMF will be prepared prior to CERC activation and will cover all activities financed by the CERC in line with the Emergency Action Plan prepared for the CERC. In all circumstances, the ESMF provisions will be reflected in the CERC Operations Manual that will be prepared to guide CERC implementation, including a description of the type of activities eligible for support in response to the emergency and their environmental and social risks and management measures as well as a negative list of activities categorically excluded from support under the activated CERC.

119. Disbursements would be made against a positive list of critical goods, civil works, and consulting services required to support the immediate response and recovery needs. The potential CERC-financed activities would: (i) be aligned with the main project activities, (ii) follow the project's implementation arrangements, and (iii) be based on DA's mandate under the various emergency response and contingency plans. Preparation of CERC manual and CERC commitments are included in ESCP.

2) ESS 2 – Labor and Working Conditions

120. The project will employ regular staff at the LPMIU, RPCSO, Technical Service Providers (TSPs) and project-contracted staff in the PMO. There will also be community workers who will be commissioned in the implementation of subproject activities such as for civil works, agricultural enterprises, and crop production. ESS2 recognizes the importance of employment creation and

income generation in the pursuit of poverty reduction and inclusive economic growth in the ADs. The project has identified impacts on labor and working conditions in the implementation of infrastructure subprojects as well as chances where employment would involve child labor or abuses to project workers.

121. The Project will ensure that engagement of workers will be compliant to the general policies and requirements for voluntary, non-harmful or non-hazardous work, just compensation/benefits as prescribed by the Labor Code, non- engagement of child labor, non-discrimination and other provisions for workers' welfare and protection, promotion/observance of occupational health and safety measures (including protection from harmful materials such as pesticide and fertilizers) consistent with ESS2. The project prepared an LMP that abides by the following principles:

- Equal work opportunities for all
- Security of tenure
- Workday and work hours and entitlements to overtime pay
- Weekly rest day
- Wage and wage-related benefits
- Timely payment of wages
- Employment of women in the workforce
- Prohibition against employment of children (<15 years of age)
- Safe working conditions
- Right to self-organization and collective bargaining
- Occupational health and safety standards including covid19 health protocol.

122. The LMP includes guidance on process for reporting/identifying and addressing worker's grievances, to ensure that the labor arrangements for the project is fair, equal and non-discriminatory and that appropriate occupational health and safety measures in the context of COVID-19 pandemic is in place.

3) ESS 3 – Resource Efficiency and Pollution Prevention and Management

123. MIADP recognizes that the scope of construction, food production, and processing activities may generate pollution to air, water, and land and consume resources that may threaten people, ecosystem services, and the environment. The MIADP shall promote sustainable use of natural resources i.e., energy, water, raw materials and integrate pesticide management. The project shall (i) avoid and minimize adverse impact on human health and environment by avoiding pollution; (ii) avoid and minimize emission that would lead to pollution (water, land, air/odor, noise); (iii) avoid and minimize generation of hazardous and non-hazardous wastes; and (iv) and minimize and manage impacts associated with pesticide use. The measures leading to ensuring resource efficiency are included in ECOPs and ESMP templates (Annex D & E)

124. **Agricultural Activities.** There are agricultural activities and enterprise facilities that may generate solid waste such as animal wastes, husks, spoiled agricultural produce, packaging, and plastic wastes. Except for plastic wastes and empty chemical containers of agro-chemicals, majority are biodegradable or can be used as fertilizers in agricultural lands. The project proponent should be able to develop the means to properly manage the biodegradable wastes and process these as composts and natural fertilizers in agricultural farms. In case of multiple facilities at one location, there should be a requirement of common effluent treatment facility.

125. In the event that enterprises such as slaughterhouses, chicken dressing facilities and other related enterprises will be planned, these activities are likely to produce wastewater. In such case, the wastewater generation rate and quality will be evaluated to determine the adequacy of proposed

wastewater treatment facility. The final effluent from these facilities should comply with the DENR Effluent Standards.

126. The project will ensure that the agricultural and enterprise facilities are provided with pollution prevention measures such as materials recovery facilities, wastewater treatment facilities, and other equipment that will control pollution. MIADP will introduce waste minimization and cleaner production technologies and practices that will reduce wastes and allow the reuse of by-products from agricultural production activities. Practical and proven approaches to waste minimization and pollution control will be promoted. Annex E-5 presents the template of the ESMP for agricultural enterprise facilities while Annex E-4 shows the template of the ESMP for crop production activities.

127. A Fertilizer and Pesticide Management Plan (FPMP) will be required for activities involving agricultural plantation and production. In order to prevent, reduce, or control potential contamination of soils and water resources caused by spills during the transfer, mixing, storage, and application of agrochemicals, these will be stored, handled, and applied in a manner consistent with the recommendations for hazardous materials management as presented in the WB EHS Guidelines and Good International Industry Practice (GIIP). The FPMP includes procedures for the selection, procurement, storage, handling, and ultimate destruction of all out-of-date pesticide stocks that should be prepared in accordance with the guidelines of the Food and Agriculture Organization (FAO) and FPA. The FPMP should be integrated into the ESMP.

128. The implementation of technologies and approaches in Good Agricultural Practice (GAP) guidelines will make products more sustainable for the IPOs. This will include natural resources management and protection interventions that enhance enterprise resource base. Climate-smart agricultural practices such as crop diversification, IPM, construction of rain shelters for crops and drip irrigation will be promoted. MIADP enterprise products should also utilize indigenous packaging materials if available. Single use plastics for packaging are highly discouraged.

129. Erosion and sedimentation are likely to be reduced in the long term as farmers are expected to switch to perennial crops which does not need frequent tillage and/or invest more on permanent soil conservation structures. Capacity building and adequate technological support will be provided as part of the GAP to apply slope protection and sustainable cultivation practices.

130. **Construction.** The civil works for roads and other structures may require construction materials that should only be sourced from licensed construction suppliers in LGU-approved quarry sites. Digging of borrow pits and quarrying for filling materials and aggregates are strictly prohibited. Adequate drainage canals and silt traps should be constructed along the project site to ensure that sediments and rocks from the construction sites do not mix up with the runoff which could cause water and soil pollution.

131. **Water Resources**

132. The following are the two types of water-related subprojects included in the project list. The subproject proposals for these water related subprojects will include a study on the water balance of the existing water supply (targeted water source), and demand (various users), storage and the current physical and environmental conditions of the water resource. In addition, vulnerability assessment if the activity functioning / implementation is vulnerable to climate variability will be carried out to inform the design and operational processes.

a. Potable Water. For potable water supply subprojects, the presence of septic tanks or garbage disposal sites within 50-meter radius should also be taken into consideration to

ensure that no contamination of the water supply will occur. In addition, the water source should pass the potability test. Based on the assessment of the environmental conditions in the subproject area, the sustainability of the water supply source in terms of quantity and quality will be assessed. Potential sources of contaminants in the surrounding area such as waste dump sites and nearby septic tanks, will be determined. Water permit and registration from the National Water Resources Board (NWRB) will be required based on the amended implementing rules and regulations of the Water Code (PD1067) to ascertain the allowable abstraction rate. The permit specifically indicates the volume of water to be drawn from the source based on the proposed use and coverage area. This regulates the use of the water resource and water resources are not overused maintaining the water balance. A template of the ESMP for small-scale/community water supply subprojects has been developed and is presented in Annex E-2.

b. Irrigation. Water for the irrigation system could be sourced from natural water bodies like springs, groundwater, and surface water. Unsustainable use of irrigation water may cause depletion of aquifers because of over-drafting. It could also lead to problems of salinity in soil and affect soil fertility. The source of irrigation water should be able to meet the quality standard for irrigation, i.e. minimum silt content and absence of water-borne diseases such as schistosomiasis, malaria, etc.; avoid damage/disturbance to ecologically significant habitats of flora and fauna; and intake point or diversion outside the core zone of protected areas or critical watersheds.

133. The ESMP for irrigation subprojects (Annex E-3) presents measures to address anticipated impacts on the water resource and water quality by considering current and future water demand due to the activities to be financed by the project. Climate smart Good Agricultural Practices will be put in place to address impacts on water and land resources. Further, water source for the land under consideration for the scheme/ subproject will be assessed. It will also focus on to assess if the proposed scheme together with other schemes depending on the source can lead to long term sustainability of the source and/or result in overall adverse impacts. Scheme/ subproject will be assessed for land suitability in case of 3 or more subprojects depending on the same source/ extensive drawl of ground water. Mitigation measures to ensure sustainability of water source/ impact on shallow water will be included in the ESMP. Subproject/ schemes will be excluded from the project in case implementation of suitable mitigation measures is technically and financially not feasible.

4) ESS 4 - Community Health and Safety

134. MIADP recognizes that project activities, equipment and infrastructure can increase community exposure to risks and impacts in terms of health, safety, and security of project-affected communities. Since the project will support small-scale civil works, the influx of large number of laborers is not expected. Instead, the mobilization of community labor will be the preferred modality with external laborers limited to skilled workers, including supervisor. Nevertheless, the project will require all project staff and workers to observe the covid19 health protocol for the safety of those directly involved in the project and the community where the sub-projects are located.

135. **Effect on Communities**. There are agricultural activities and construction of civil works such as FRMs, slaughterhouses, food production and processing that generate wastewater and solid wastes as well as create noise and odor that could cause adversely affect the surrounding communities.

136. **Conflict Areas.** Some of the targeted ADs have a history of the presence or influence of armed groups and insurgents. Since one of the eligible criteria in the selection of ADs is the peace and order situation, the security assessment of the Office of the Presidential Advisor on Peace Process or any

duly designated Government agency will be referred to. The Government has classified security risks in areas in terms of: (i) no significant threat, (ii) threatened and (iii) influenced. ADs that are classified as "no significant threat" are ADs with no historical presence of armed groups or insurgents. "Threatened" ADs are ADs with historical presence of armed groups or insurgents but they no longer exist. "Influenced" ADs have existing armed groups or insurgents within the ADs. Among the three (3) classifications, the MIADP shall only proceed with ADs located in areas classified as falling under "No Significant Threat" and "Threatened" category.

137. **Evacuation Plan in Case of Insurgency or Conflicts.** In the event that armed conflict or military operation will take place within the ADs, the project workers, TSPs, and subproject contractors will be evacuated following the local emergency protocols. The Memorandum of Agreement with the LGUs will include provisions for briefing of all Project workers/staff on the local protocol for notification, evacuation, rescue, and safety protocols of the LGUs. Each LGU has its mandated procedure and structure for security and safety in case of armed conflict, which is usually led by the Municipal/Barangay Peace and Order Committee and articulated in detail through the Peace and Order and Public Safety Plan (POPS). The LGU protocols provide the contact details and process for early warning; rescue/evacuation procedures or steps; and temporary shelter, if necessary. The ADs also have committees that handle armed disputes and will be asked to brief all Project workers on security and safety situation and protocols. The DA will also establish contact details and process for concerned LGUs and ADs to appropriate inform the RPCSO or PMO about the status of Project workers in any event of armed conflict.

138. **Road Safety and Access Facilities Safety Requirements.** The contractors should observe a code of conduct for workers which would address workers and community health and safety risks, including protocols for maintaining road safety in anticipation of increase road traffic due to delivery of supplies for the infrastructure as well as entry into ADs of project teams and other stakeholders.

139. The design of the FMRs include safety procedures and equipment such as reflectorized safety signs (stop signs, pedestrian warning, etc.) for night visibility. Safety barriers near cliff and sloping areas with reflectorized chevrons and road security mirrors shall also be installed. Speed limits particularly in FMRs in ADs will be imposed. Maximum weight limit for trucks must also be observed in order to prolong the quality of the FMRs. Other provisions of the Land Transportation Act (Republic Act No. 4136) will also be adopted in the Road Safety and Traffic Management guidelines found in Annex M. As part of the capacitation program of the ICCs/IPs, they will also be oriented about the road safety rules.

140. The design of the light 'tramlines' for carriage and conveyance purposes of the agricultural goods and commodities will follow an approved set of structural standards that optimize function, safety, affordability and environmental protection.

141. **Guidelines on Pandemic (COVID-19) Public Health Crisis.** The COVID-19 was declared by the World Health Organization (WHO) as a pandemic since the virus was able to inflict people in many countries around the world. The stakeholders of MIADP shall strictly comply with the prevailing IATF COVID19 prevention guidelines. These will include social distancing, limited mass gatherings with maximum number of attendees that follows social distancing, wearing of face masks, face shields or other PPEs and washing of hands and disinfecting of places of meeting. Also, given the impacts and challenges we are facing now because of this COVID-19 pandemic, the following guidelines are the protocols to be observed. A more detailed set of procedures from DOH and DPWH is attached as an annex to the LMP.

- Follow minimum covid19 health protocols and standards set by the DOH and DPWH.

- Use of blended mechanisms such as online or virtual meetings in the conduct of consultations.
- Accepting submission of electronic copies of documents.
- Use of virtual platforms.

142. **Sexual Exploitation and Abuse, Sexual Harassment, and Gender-Based Violence.** Protocols for early detection of gender-based violence and sexual exploitation and abuse and sexual harassment (SEA/SH) will be developed. Referral mechanism to address such will be defined, using existing indigenous community-based networks for protection of women and children against violence as prescribed by law, e.g., Republic Act (RA) No. 7610 (1991), RA 7658 (1993) and RA 9231 (2000). These laws prescribe the referral network to address the legal, psycho-social, medical, and other effects of SEA/SH, which involves trained staff and organized village committees for the protection of children and women.

5) ESS 5 – Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement

143. MIADP recognizes that project-related land acquisition and restrictions on land use can have adverse effects on communities and persons. The Project will not support any sub-project that will entail resettlement or relocation of an IP household and, instead, ensure that resettlement will be avoided in the design of a proposed investment sub-project. Sub-projects which will cause damage to any IP house, no matter that it may be minor, is included in the prohibited list.

144. Although the Project will target ADs with CADT and NCIP-approved ADSDPP, which define or designate spaces for public use (including gravel roads, common-use facilities such as schools, health stations, public market) and the Project will support only small civil works 15, this can still cause economic displacement such as damage to crops, trees, or any productive assets that some IPs use for livelihood. Moreover, the standards for rehabilitation/upgrading of infrastructures have been designed to ensure that the proposed sub-projects are resilient to climate change and/or other disaster events which can involve use of additional land. Thus, the Project adopts a Land Access Framework (LAF) in accordance with the standards or requirements set under ESS5.

145. The LAF, as presented in Annex N, provides the major principles in acquiring access to land for purposes of the MIADP activities; the screening or identification of potential economic displacements of IP-affected households; the general procedure for negotiated settlement in accordance with customary laws and practices; the compensation standards; and the documentation of the results of the negotiation.

6) ESS 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources

146. MIADP recognizes that protecting and conserving biodiversity and sustainable management of living natural resources are fundamental to sustainable development. The conservation and sustainable use of biodiversity for food and agriculture is a core aspect of MIADP. In undertaking ESA, special attention needs to be paid to agricultural, fisheries and forestry practices that could have an impact on biodiversity for food and agriculture as well as the ecosystem services this biodiversity provides – both on- and off-site. It is important for the ICCs/IPs to understand the close relationship between biodiversity, ecosystem services and livelihoods in the screening of the potential impacts of subproject activities. MIADP will ensure compliance to ESS6 standard and will determine whether subprojects would affect protected areas, forest lands, and environmentally sensitive areas.

[15] It is initially estimated that each IPO will be given a maximum allocation of US$400K for small infrastructure proposal. IN terms of roads, this allocation can only cover about 3-4 kilometers, based on current prices.

147. The impacts on biodiversity will be assessed. A Biodiversity Management Plan (BMP) shall be a requirement for all sub-projects located in or close to environmentally critical areas or whose activities will affect the overall biodiversity in the area. The BMP is developed to guide the ICCs/IPs on how to better manage biodiversity that is aligned with the regulations of the Government and WB ESS 6 and will supplement the ESMP.

148. Biodiversity management should focus on identifying, evaluating, conserving and if possible enhancing the relevant aspects of biodiversity. The plan shall:

- Apply the mitigation hierarchy
- Avoid or prevent biodiversity loss, especially the protection of endangered, threatened and rare species, with the objective of maintaining the diversity of species, habitats, ecosystems, and the integrity of ecosystem services
- Comply with regulatory requirements and the protected area management plan based on the information available from the DENR - Protected Area Superintendent Unit (PASU) of a protected area.
- Develop measures to remediate or rehabilitate local biodiversity losses.
- Develop defined objectives and measurable targets on biodiversity mitigation and enhancement measures, e.g., number of trees to be replanted, locations, etc.
- Identify and describe the biodiversity sensitivity at the project site, i.e., ecosystem services and/or species to be targeted by biodiversity management actions.
- Evaluate any changes to provision of ecosystem services such as air, water, soils and landscapes in the planning, management, utilization and monitoring mechanisms.
- Apply recognized, credible forest certification or the use of voluntary guidelines on planted forests in line with the requirements of the DENR.
- Evaluate incidence and impact of abiotic and biotic damaging agents to reduce environmental risks and maintain and improve planted forest health and productivity.
- Apply landscape approaches to ensure that upstream and downstream impacts are planned, managed, and monitored.

149. The key requirements of the BMP are:

- MIADP will not fund subprojects that will encroach into core zones of protected areas such as natural parks under E-NIPAS, except for those located in buffer zones or multiple use zones as identified and approved by the PAMB of the declared protected area and covered by a tenurial instrument.
- A subproject will be presented to the PAMB as part of the approval process in securing the PAMB Resolution and PAMB Clearance.
- A subproject in a declared protected area shall secure the Special Use in Protected Area (SAPA) from the DENR as required under the E-NIPAS Act.
- A Comprehensive Development and Management Plan (CDMP) and Rehabilitation Plan shall be developed containing the measures to be undertaken to avoid or mitigate biodiversity loss. The CDMP and Rehabilitation Plan shall be submitted to DENR as part of the SAPA.
- The PAMB Resolution, PAMB Clearance, and SAPA shall be presented together with the subproject proposal/business plan, ESMP and BMP.

150. The proposal should describe the project site (civil works and production area) in terms of land use, vegetation, wildlife, presence of water ecosystems, endangered and other important species. If the site is not inside a protected area, the nearest natural habitat or forest in reference to the site location should be identified and mitigation measures should be provided to avoid adverse impacts on the natural habitat. The subproject should present the affirmation from the PAMB and the DENR regarding the location of the site in a multiple use zone or buffer zone.

151. In the conduct of ESA, the LPMIU and RPCSO will do a comprehensive land and land use assessment. MIADP will employ a precautionary approach in order to ensure adequate protection of the project areas. Where subprojects can adversely affect habitats, MIADP will identify alternative sites and put in place appropriate conservation and mitigation measures to ensure that there will be no habitat loss and that ecosystem services are not curtailed or disrupted.

a) **Land Use Protection Guidelines.** The project will adopt specific policies pertaining to the types and location of infrastructure or development to guide the proper use of uplands, lowlands, and coastal areas. Participating IPOs are required to adopt the following land use and protection policies:

- Gently to moderately sloping grasslands (5-18% slope) may be put to intensive agricultural production that requires seasonal and periodic cultivation using sloping agricultural land technologies (SALT).
- Grassland areas with slope gradients of 18-30% if utilized for agricultural production should be utilized only for establishment of orchards.
- Grassland/open lands with slope gradients of 30-50% or more shall only be developed into intensive agro-forestry farm or utilized as community forest.
- All stream banks starting from 100 meters above sea level up to the highest tributary shall maintain a 50-meter and 20-meter vegetative riparian buffer for riverbanks and creek/stream bank protection, respectively.
- Areas utilized for aquaculture/fishpond shall maintain a 50-meter mangrove buffer between the fishpond and open sea for coastal protection.
- Existing mangrove forests shall no longer be subjected to alternative land use conversion but shall be maintained in support of fishery production and coastal protection projects.
- Establishment of pasture areas shall include planting of shade trees on 20-meter-wide strips on both sides of creeks/rivers.
- Mudflats on coastal areas covered shall be planted to mangrove species.
- Remaining forests within area of influence shall be protected from agricultural encroachments, illegal logging, and forest product harvesting and hunting; if forests are present within the influence area, the concerned IPOs and LGUs will implement a forest protection plan in conjunction with the subproject proposal.

b) **Training on Biodiversity Conservation and Agricultural Best Practices.** MIADP will train, empower and develop partner-beneficiaries' skills in making critical and informed decisions towards a more productive, profitable and sustainable crop production system. It employs an experiential learning approach through the Farmer Field Schools (FFS) to enable partner-beneficiaries to practice IPM. This will be further supported by the DA's Agriculture Training Institute (ATI) which provides training on sustainable farming technologies and practices including Farmer Field School and Farm Business School approaches.

The IPM training process involves farmers over the entire season of crop production for them to be more engaged and develop their capabilities to discover and hone their acquired scientific management skills. The MIADP will shift in agricultural extension exhibiting farming practices with reduced use of insecticides, increase insecticides non-users, and reduce frequency of insecticide application.

The Project will expand and institute DA's IPM standard approach to crop husbandry and pest management and adopt the existing guidelines in the formulation of Pest Management Plan. This is to ensure that farmers particularly those engaged in the production of agriculture and fishery-based commodities identified along the value chain are knowledgeable on proper land preparation, water and nutrient management and effective insect, pest or weeds control.

152. The essential elements of a Biodiversity Management Plan (BMP**)** are as follows: (i) Biodiversity identification; (ii) biodiversity mapping; (iii) preparation of the BMP; and (iv) communicating the BMP.

153. **Biodiversity Identification.** As part of the subproject proposal preparation, the site will be investigated with regards habitat types and species to establish a biodiversity baseline. This information will be referred from local knowledge of habitats, species behavior, ecosystem, and priority species and habitats. The ICC/IPO has primary knowledge of the ecosystem services and ecosystem services of habitats in the area. Any ecosystem services that may be affected by the project such as for water supply, water recharge, protection from flooding, cultural services (sacred sites, burial sites, and monuments), and medicinal species will be identified during the subproject preparation.

154. **Biodiversity Mapping with DENR-PASU.** The ICC/IPs should coordinate with the DENR-PASU to gather further information, maps and activities from the protected area management plan (PAMP) of the DENR-PASU and to ensure consistency of the subproject with the PAMP. Close coordination with the PASU will be implemented in the mapping of protection zones and the location of the subproject activities.

155. The ICC/IPs will participate in the PAMB meetings to present the project and hear any suggestions and comments of the PAMB about the biodiversity protection and conservation measures.

156. **Preparation of the BMP.** The ICC/IPs will assess the biodiversity values of the site and prepare the CDMP and Rehabilitation Plan. Basic information to consider in biodiversity screening and development of the BMP are:

(i) How important is biodiversity at the site, i.e., how much protection does the site require?
(ii) What is the status of biodiversity e.g., species/habitat richness, species endemism, rarity, size of habitat, population size, fragility, ecosystem service provision?
(iii) Are there any threatened species?
(iv) Are there any important ecosystems or threatened species?
(v) Are there specific management requirements of the site's habitat type?
(vi) How will the subproject activities affect biodiversity?
(vii) What are the biodiversity risks and opportunities?
(viii) What are the priority actions to address threats posed to biodiversity?
(ix) Will biodiversity management enhance ecosystem services?

157. The plan will define the biodiversity targets and related actions such as capacity building, maintenance of tree plantation, monitoring and reporting. The plan will also identify the needed resources.

158. Minimum biodiversity management measures include:

a) Minimizing or avoiding habitat damage and fragmentation
b) Minimizing or avoiding species mortality and stress
c) Avoiding and control of introduction of invasive exotic species
d) Revegetation using non-invasive alien species or native species with specified number of trees to be replanted every year
e) Active control of invasive alien species
f) Monitoring of tree planting and biodiversity.

159. **Communicate BMP to ICCs/IP Members**. The BMP will be prepared in consultation with members of the ICC/IPO to enable all parties to understand and familiarize themselves with the biodiversity conservation measures and activities. The following are examples of mitigation measures to be considered in the BMP.

Table 6: Examples of Biodiversity Impacts and Mitigation Measures

Impacts	Mitigation Measures
Loss of habitat due to clearing of vegetation and fauna habitats	Conduct progressive land clearing to allow wildlife to move to adjacent sites Clearing activities will be limited to identified areas based on the construction plan Revegetation activity will be conducted consistent with DENR Order 2012-02 Conduct enrichment planting in each second growth vegetation and disturbed areas nearby and adjacent to the project site Establish and maintain corridor or buffer zones within the project area for species refuge and food source Retain and enhance unaffected vegetation and habitat/ecosystem, which can serve as natural acoustic protection and habitat of displaced/disturbed wildlife species. Develop a conservation plan or adopt biodiversity offsets that may be established outside of the project area to compensate for the cleared vegetation.
Threat to abundance, frequency, and distribution of important species	Limit clearing activities to designated construction area as specified in the development plan Establish and maintain corridor or buffer zones within the project area for species' refuge and food source. Retain and enhance unaffected vegetation and habitat/ecosystem, which can serve as natural acoustic protection and habitat of displaced/disturbed wildlife species Develop a conservation plan or adopt biodiversity offsets Formulate and conduct regular monitoring activities Prohibit workers from hunting in accordance with the Philippine Wildlife Resources Conservation and Protection Act of 2001 (RA9147) Conduct information, education and communication programs on wildlife conservation and protection
Hindrance to wildlife access	Retain and enhance unaffected vegetation and habitat/ecosystem which can serve as natural acoustic protection and habitat of displaced/disturbed wildlife species.

Impacts	Mitigation Measures
	Limit clearing to designated area based on the development plan. Establish and maintain corridor or buffer zones within the project area for species' refuge and food source.
Runoff of sediments from construction activities may cause sedimentation of river	Set-up temporary silt traps/ponds to minimize soil runoff. Proper stockpiling of spoils away from canals and river. Maintain vegetation where applicable and practicable to prevent erosion. Conduct progressive ground preparation and clearing to minimize total area of land that will be disturbed at any one time, where practical. Restore disturbed areas immediately after construction
Domestic wastewater generated from the construction workers	Provide adequate temporary toilets. Strictly require workers to observe proper waste disposal and sanitation
Workers may be engaged in harvesting of resources in the protected area	Strictly prohibit workers from hunting, fishing, and illegally taking resources from the protected area in accordance with the prohibitions of the PAMB and the protected area management plan

7) ESS 7 – Indigenous Peoples

160. MIADP recognizes that IPs have identities and aspirations that are distinct from mainstream groups in national societies. In many instances, they are the most economically marginalized and vulnerable segments of the population. The project will be implemented in compliance with the approved ADSDPP and ADAIF which duly designates the agricultural land within the AD. The Project will promote the use of indigenous agricultural knowledge and will ensure preservation of cultural heritage.

161. MIADP falls under the category of Projects designed solely to benefit IPs. The ESS 7 stipulates that where projects are designed to provide benefits only to IPs, the Project must proactively engage with the relevant IPs to ensure their ownership and participation in project design, implementation, monitoring, and evaluation. The Project must consult with the IP communities as to the cultural appropriateness of proposed subprojects and will seek to identify and address any economic or social constraints (including those relating to gender) that may limit opportunities to benefit from, or participate in, the project.

162. The Project involves a participatory process that would seek consent from the IP communities at pre-entry stage to ensure acceptability of the Project as formalized through an IP council resolution. The implementation stage will also be a highly participatory process, involving the IP organizations in the identification, design and implementation of their proposed business plans and support infrastructure, the details of which will be described in the IP participation field guide on social preparation and community mobilization. Since the Project targets indigenous peoples, the design of the Project, the SEP, LAF and ESMF integrates the elements of an indigenous Peoples Policy Framework. The following principles will be ensured:

- **Indigenous People Participation.** MIADP will be implemented in the ancestral domains of the ICCs/IPs. Their active involvement would ensure that their needs, interests, and concerns are considered in the design of the project components. The Project will ensure (i) informed participation, consultation, and consent of IPS so that they will be able to receive culturally compatible social and economic benefits, and (ii) that the IP community will not be adversely affected by subproject implementation. Further, it will (i) ensure that IP community in target ADs will be able to provide input to local planning activities; (ii) facilitate the participation of IPOs in the choice of subprojects through informed decision-making; (iii) ensure that IPOs actively participate and lead in the design, development, and implementation of subprojects; and (iv) provide feedback on project implementation, including benefits and risks to IP community.

- **Broad-based participation of Indigenous Households.** The design of the project shall adopt all participatory process. It will look into the beneficiary organization whether they are really the ones traditionally occupying the areas where interventions/investments will be implemented and avoid elite capture.

- **Exclusion of members of the community.** The evaluation shall check potential exclusion of other members of the community or to the subproject benefits due to socio-economic class, ethnicity, and gender affiliations.

163. The MIADP complies with the Philippines IPRA (RA 8371) and the World Bank's ESS 7. Its main objectives are to ensure the effective and meaningful participation of the IP Communities to enable the incorporation of their interests, needs and concerns in the formulation of the ADAIF and in the design and implementation of specific subprojects within their ADs. MIADP holds the following main principles in engaging the IP communities in the whole project cycle to ensure inclusion and cultural appropriateness:

- **Cultural Sensitivity.** Cultural sensitivity begins with the understanding that there are differences among cultures. Furthermore, cultural sensitivity includes placing value on this diversity knowing that cultural differences as well as similarities exist, without assigning values (i.e., better or worse, right or wrong) to those cultural differences. Sensitivity, compassion and cultural safety are key components for all engagement with IP communities especially in consideration of the context of COVID-19 pandemic and amidst conflict areas in Mindanao.

- **Being Mindful and Respectful of IP Communities Pace of Decision Making.** Provide sufficient time for the IP communities to make decisions. If the IP community has indicated it is unable to respond/participate within the timelines set out, consider extending the timelines when requested, and potentially defer decisions where appropriate. Where significant concerns have been raised, or are anticipated to be raised, it may be necessary to wait until the Indigenous Peoples community is able to continue engaging in respect of those known concerns. The more serious the impact, and the more significant the decision is to Indigenous Peoples community, the more consideration should be given to allowing more time for consultation especially if as per assessment the concern would need the face-to-face consultation. Where there is some urgency associated with a proposed activity, DA/LGUs shall find ways to accommodate the capacity challenges in a considerate and sensitive approach.

- **Use of existing indigenous structures and mechanisms.** The Project shall use structures and mechanisms already existing in the IP community, such as but not limited to, their Indigenous Knowledge Systems and Practices (IKSPs) and Indigenous Political Structure (IPS).

- **Commitment and willingness to adapt.** The Project must be committed to working together with Indigenous Peoples communities to ensure they have needed support to prepare and respond to consultation activities. Both the Project and proponents must adapt their consultation and engagement practices to meet the current challenges while still ensuring that Indigenous peoples are meaningfully consulted. DA and the LGUs shall tailor interactions/consultations with Indigenous Peoples community according to their capacity to engage during this time. It is important to recognize that the situation is fluid and will change over time. DA and LGUs will need to continue to assess consultation activities with IP communities to ensure continuity of responsiveness to the current circumstances.

- **Effective and Meaningful Participation of the IP Communities in the Formulation of the ADAIF.** The ADSDPP which is a consolidation of plans of the partner ICCs/IPs within an ancestral domain for the sustainable management and development of their land and natural resources as well as the development of human and cultural resource based on their indigenous knowledge systems and practices shall be the basis for identification and prioritization of agricultural investments that shall be contained in the ADAIF. Technical assistance, formation, and capacity-building activities for the partner IPOs in the regions and provinces shall be provided to strengthen the capacities of the communities to actively and meaningfully participate in the conduct of the ADAIF activities and all decision-making processes. The IPOs will need to have and will be under an Indigenous People Structure (IPS). The MIADP PMO, with the help of the respective RPCSO and LPMIU will be in charge in the monitoring of these project activities. The NCIP will be consulted regularly to maintain continuous communication with the ICCs/IPs.

- **Free, Prior and Informed Consent (FPIC) Process.** The subprojects to be funded under the MIADP are subprojects being solicited by the IP community themselves since these are already identified in their ADSDPPs and consequently in the ADAIF. Subprojects under this category will comply with the requirements of the IPRA as stipulated further in the NCIP Administrative Order No. 3 Series of 2012 (The Revised Guidelines on Free and Prior Informed Consent and Related Processes). Community-Solicited or Initiated Activities. Programs, projects, and activities solicited or initiated by the concerned ICCs/IPs themselves where the activity is strictly for the delivery of basic services to be undertaken within or affecting the ancestral domain, do not require compliance with the FBI/FPIC requirement as provided in said Guidelines[16], however, they shall be subjected to a validation process where the following shall be determined:

    - The ICC/IP voluntarily solicited or initiated the plan, subproject, or activity to be undertaken.
    - The plan, subproject or activity conforms with the community's ADSDPP;
    - The ICC/IP knows the extent of the plan, subproject or activity and its socio-cultural/environmental impacts to the community;
    - The concerned LGU and the ICC/IP community acknowledge their obligations; and
    - The subproject activity is for the delivery of basic services or for the establishment of social enterprise or enterprise development involving community interest that would provide employment or generate income to improve the living conditions or economic development of the concerned ICC/IP.

[16] Part VI-Other Processes, Section 39. Guidelines on Free and Prior Informed Consent and Related Processes. NCIP Administrative Order No. 3, series of 2012.

The Framework emphasizes that the participatory principle – which is the meaningful participation in decision-making process in the whole project cycle - shall be upheld at all times to ensure:

"Consensus of all members of the ICCs/IPs is determined in accordance with their respective customary laws and practices, free from any external influences and obtained after fully disclosing the intent and scope of an activity, in a language and process understandable to the community".

- **Protection and promotion of Indigenous Knowledge, Systems and Practices (IKSPs).** Indigenous Knowledge Systems and Practices (IKSPs) refer to systems, institutions, mechanisms, and technologies comprising a unique body of collective wisdom evolved through time that embody patterns of relationships between and among peoples and between peoples, their lands and resource environment, including social, political, cultural, economic and spiritual dimensions, consisting as well of adaptive mechanisms which have allowed indigenous peoples to survive and thrive within their given socio-cultural and biophysical conditions.

  IKSPs consist of a body of knowledge and traditional methods of land and natural resources utilization and management such as knowledge of the properties of flora and fauna, the seasons, soils, climate, land and water. It includes knowledge and practice of traditional medicine, science and health practices, vital medicinal plants, animals and minerals. It also includes knowledge and practices of traditional arts and crafts, ritual, family and community life relations.

  The Project shall ensure the protection and promotion of IKSPs through:
  - Meaningful participation of the IPs to incorporate IKSPs in the ADAIF formulation and the specific subprojects such as sustainable practices for the enterprises and culturally appropriate designs for the infrastructure subprojects.
  - Respect cultural processes such as rituals and belief systems that are part of their intangible culture.
  - MIADP shall ensure that involved/hired project personnel are culture sensitive, imbibe values that respect cultural differences and have high respect for indigenous knowledge, systems, and practices. They must have cultural knowledge which would mean familiarization with the cultural characteristics, history, values, belief systems, and behaviors of the members of the partner IP communities.
  - The Project may involve introducing new modern agricultural technologies. The Project recognizes that the IKSPs of the IP communities have played a vital role in sustainable development vis-à-vis the destructive modern technologies that have undermined indigenous knowledge. The Project shall ensure that the IKSPs shall be integrated to the MIADP's operations manual and capacity building activities to enrich the traditional agricultural techniques and practices of the IPs not compromising their identity and self-determination.

8) ESS 8 – Cultural Heritage

164. The subprojects shall not displace, disfigure, or render inaccessible any cultural heritage such as a monument or physical structure of known cultural significance to the IPs such as sacred areas or burial sites. MIADP shall protect tangible and intangible cultural heritages of the IPs/ICCs inside ADs.

Continuous consultation with indigenous people in regard to cultural heritage shall be implemented all throughout the project.

165. Intangible Cultural Heritage are defined as the practices and representation, expression, knowledge. This includes, but not limited to instruments, objects, artifacts, cultural spaces, and agricultural practices (e.g., rituals). The Tangible Cultural Heritage includes, but not limited to the movable/immovable objects, sites (burial grounds, sacred sites), structures, natural features, and landscapes.

166. The ESMF requires the following steps to be done by each subproject: (i) Screening and assessment to identify tangible and intangible cultural heritage; (ii) consultation with indigenous people to identify tangible and intangible cultural heritage; and (iii) develop operational procedures to avoid impact on tangible and intangible cultural heritage.

167. The Project will be implemented in ancestral domains which are likely to have cultural heritage (both tangible and intangible). Thus, the Project's ESMF includes guidelines for the development of site-specific Cultural Heritage Management Plan (CHMP) which would describe chance find procedures and processes to deal with tangible and intangible cultural heritage in the course of social preparation, ESA, and subproject implementation.

168. The intangible cultural heritage also includes indigenous agri-forestry technologies and practices, indigenous knowledge, and practices on use of land and other natural resources, and indigenous organizational arrangements that facilitate agricultural business. The Plan includes protocols for preserving the identified indigenous knowledge and practices by adapting them in the design and implementation of site-specific activities. During the Social Preparation stage of the Project, the Indigenous Knowledge Systems and Practices (IKSPs) of the IPs in agriculture will be identified. These IKSPs will be integrated in the implementation of production and enterprise development.

9) ESS 10 – Stakeholder Engagement and Information Disclosure

169. Stakeholder engagement is a process conducted through the project life-cycle to support the development of strong, constructive, and responsive relationships for the successful management of the project's environmental and social risks. A Stakeholder Engagement Plan (SEP) has been prepared to identify the primary stakeholders that includes the project affected stakeholders who will either benefit or be adversely affected (primarily indigenous communities in participating ADs) as well as key individuals/groups that are involved in various parts of the value chain or component activities of the project.

170. The SEP includes interested stakeholders who will have significant influence over the project and its key results or would be impacted by the Project or its outcome such as other government entities, both at national and local levels, regulatory bodies, oversight agencies (also both at national and local levels), and private and non-government organizations that are involved in similar projects around the target ADs. The SEP focuses on vulnerable groups within the indigenous communities (e.g., women, children, persons with disability, senior citizens) who may or may not participate in project activities and might be excluded from the benefits. For each stakeholder, the SEP analyses the corresponding influence over the project as well as the nature and extent of the Project's impact on them. Further, the appropriate method, agenda, and frequency for engaging the different stakeholders are designed to mitigate negative influence and/or harness their positive influence over the project or their specific participation/role in the project.

171. The SEP also includes the mechanism for citizen's feedback and/or grievance redress, using existing indigenous or customary dispute settlement mechanisms/practices as well as alternative modes or methodology for engaging stakeholders in view of the restrictions due to the pandemic.

172. The proposal should present a Grievance Redress Mechanism (GRM) of the subproject to outline the procedure on receiving feedbacks and handling complaints and grievances. The GRM also includes the organization and implementation structure, identifying a Grievance Point Person/Committee.

6.4 Environmental and Social Safeguards Instruments

173. Once the screening and ESA process confirms that a proposed subproject is eligible for inclusion in the program, the RPCSO will identify the required instruments to manage the impacts. Site-specific ESMP will be required specifically for projects involved in water supply, irrigation, access roads, agricultural production, and agriculture enterprises. Each subproject will have to conform to the technical guidelines and specifications prepared for each type of subproject (Annex E). As a result of site-specific screening and assessment, the safeguards instruments such as ESMP, pest management plan, physical cultural resources management plan, resettlement plan, and stakeholder engagement plan will be required. Any small-scale construction and rehabilitation activities should comply with the Environmental Codes of Practice (ECOPs).

174. The guidelines also include requirements of other World Bank ESSs that are relevant to the subprojects. Table 7 presents the safeguard instruments for each type of activity.

Table 7: Safeguard Approach and Instruments of MIADP Subprojects

Type of Subprojects		Safeguard Approach	Potential Safeguard Instruments
Construction	New	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP, BMP
	Upgrading, rehabilitation	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP, BMP
Maintenance and Operation of Facilities	Production and storage facilities	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP
Agriculture	Crop production	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP, BMP, LAF, FPMP
	Livestock	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP, BMP, LAF
	Fisheries	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP, BMP, LAF
	Enterprises	Site-specific safeguard screening and ESA	ECOP, ESMP, CHMP, BMP, LAF
Procurement	Equipment/Machinery	Site-specific safeguard screening	Negative list for procurement activities

175. The following describes the different safeguard instruments:

Table 8: Indicative ESF Instruments

Instrument	Description
Environment and Social Screening	The E & S Screening consists of the process to ensure that the subprojects follow the ESMF guidelines. The screening results in upfront exclusion of ineligible subprojects on account of ES screening checklist, inform the requirement of follow up ES assessments and management plans or adopting standard ECOPs/ ESMP.
Site-specific Environment and Social Assessment	A site-specific assessment will be conducted that will include baseline conditions of the target sites, identification and analysis of potential risks and impacts, and preparation of the ESMP or ECOP, whichever is needed.
Environmental Codes of Practice (ECoPs)	The ECOPs are basic technical guidelines that inform the IPO/IPs and contractors about practical mitigation actions and measures to be used during activity implementation to avoid, minimize, and mitigate negative environmental and social impacts using the mitigation hierarchy. The general ECOPs for construction activities are presented in Annex D (Table 1). In addition, the contractors will develop, implement, and maintain construction site-specific ESMPs in line with the ESMF and WBG EHS Guidelines. Annex D (Tables 2-3) presents the ECOPs that are specific to different types of activity activities such as agricultural farming activities and livestock production and agri-enterprises.
Guidelines on ESA and templates on Environmental and Social Management Plan (ESMP)	The ESMP is an instrument that presents the mitigation measures to address potential site-specific impacts. The ESA guidelines and ESMP templates of different MIADP activities are presented in Annex E: • E-1: Farm-to-Market Roads, Small bridges, and tramlines • E-2: Water Supply • E-3: Irrigation • E-4: Post-harvest facilities • E-5: Production and enterprise facilities The site specific ESMP include subplans on waste management, OHS management, construction site management, environmental monitoring plan, etc. The project will prepare a site specific ESMP (as per the guideline described in Annex E) for those activities identified during screening process (Annex C), and / or those activities with potential impacts that are more substantial and significant beyond what is included in the ECOPs. Annex H presents the guidelines in the preparation of the contractor's ESMP for which the contractor is responsible for and which incorporates the construction industry standards on occupational and community health and safety. The preparation of the contractor's ESMP will be discussed during bid conferences and pre-procurement to provide awareness to the contractor on their responsibilities during implementation. The siting criteria and operational guidelines of quarry borrow pits, and spoil/excess soil disposal sites and road safety and traffic management guidelines shall be required as attachments to the ESMP for reference of contractors.
Biodiversity Management Plan (BMP)	The BMP applies to subprojects located in or close to environmentally critical areas, protected areas or whose activities will affect the overall

Instrument	Description
	biodiversity in the area. The BMP will employ a precautionary approach in order to ensure adequate protection of these areas, minimize habitat loss, and maintain ecological services. The BMB includes measures on sustainable agriculture, pest management, land use protection, agricultural best practices, and training programs on biodiversity conservation.
Fertilizer and Pesticide Management Plan	This guideline aims to provide basic knowledge of pest management plan with adequate consideration for effectively addressing the safeguard issues in line with ESS 3 and 6. This guideline shall be applied by the activity which will likely to promote the use of agro-chemicals. Aside from this guideline a specific pest management plan for certain crops will be developed. The PMO will determine if it is necessary to prepare a comprehensive PMP applicable for all the identified crops and livestock activities or standalone PMP for each crop, as per necessary. If required, such PMPs should be prepared during 1st year of project implementation. In the preparation of PMPs, additional guidance is provided in Annex G.
Labor Management Procedure (LMP)	A separate LMP instrument has been prepared to ensure basic rights of workers are observed in the implementation of the project.
Cultural Heritage Management Plan (CHMP)	If activity screening finds that activity is located inside or adjacent to protected cultural heritage zones or area of PCR significance, a CHP will be prepared with the assistance of ES focal person from RPCSO. The CHP will include measures for avoiding or mitigating any adverse impacts on PCR, provisions for the management of chance finds and monitoring indicators and considers the country's overall policy framework and regulations regarding the PCR. In any activities, the Chance Find Procedures shall be followed when culturally valuable materials are uncovered during excavation.
Stakeholder Engagement Plan (SEP)	Meaningful consultations and participation will apply in all the cases to ensure benefits and mitigation measures are culturally appropriate.
Land Access Framework (LAF)	The LAF has been prepared as part of the ESMF for the Project to ensure that any access to land and the loss of income or assets due to the implementation of activities funded by the Project would be addressed in line with ESS7.
COVID-19 Prevention Guidelines	The COVID-19 prevention guidelines will strictly follow the requirements and restriction of the WHO and the IATF to prevent spread of COVID-19. For all civil works, the contractor shall include in the ESMP actions to raise awareness about COVID-19 and implement the covid19 health protocol measures to avoid transmission of the virus to project workers and communities. During the social preparation and consultation activities with the IPOs/IPs, MIADP shall follow the IATF requirements on face-to-face meetings, social distancing, and other health protocols.

176. The ESMP and other plans should be submitted as part of the subproject proposal package. The ESMP shall be a simple standalone matrix containing: issues or impacts of the subproject, brief assessments or qualifications of their significance given the site's environmental conditions, proposed mitigation measures, if there are any that are needed, and the means of implementation of the measures which could include the following:

- Engineering design specifications – measure to be incorporated in the engineering design
- Project of work – measures to be included in the project of work
- Contract – measures to be part of the construction contract
- O&M – measures that are part of the operation and maintenance of the subproject.

6.5 Approval of ESA and ESF Instruments

177. A No Objection Letter (NOL) will be issued on the proposed sub-projects based on the validation of submitted ES screening and ESA for each sub-project, as per the screening checklists provided in Annex C. Table 9 is a list of project activities and the responsible unit involved in the validation and approval. The procedure of validation and approval will be further refined in the Project Operations Manual.

Table 9: Responsibilities on Screening, ESA Validation and Approval

Subproject Activity	Screening	ESA	Validation of Screening and ESA	Issuance of No Objection Letter
Activities located in environmentally critical areas (ECAs)[17]	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
Cost of Investments				
• >Php10 Million	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
• ≤Php10 Million	IPO assisted by TSP	LPMIU	RPCSO	PMO
Farm-to-market road				
• new construction, <10km with critical slope	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
• new construction, >10km with no critical slopes but passing through a forest or protected area	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
• road rehabilitation/improvement	IPO assisted by TSP	LPMIU	RPCSO	PMO
• Bridges	IPO assisted by TSP	LPMIU	RPCSO	PMO
• Light 'tramlines'	IPO assisted by TSP	LPMIU	RPCSO	PMO
• Other related structures	IPO assisted by TSP	LPMIU	RPCSO	PMO
Irrigation systems	IPO assisted by TSP			
• >50 hectares service area	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
• ≤50 hectares service area	IPO assisted by TSP	LPMIU	RPCSO	PMO
Water Supply systems (Level I and II)	IPO assisted by TSP	LPMIU	RPCSO	PMO

[17] Area delineated as environmentally sensitive such (i) areas declared by law as national parks, watershed reserves, wildlife reserves, sanctuaries, (ii) areas set aside as aesthetic potential tourist spots, (iii) areas which constitute the habitat of any endangered or threatened species of Philippine wildlife, (iv) areas of unique historic, archaeological, or scientific interests, (v) areas frequently visited and/or hard-hit by natural calamities (geologic hazards, floods, typhoons, volcanic activity, etc.), (vi) areas with critical slopes, (vii) recharged areas of aquifers, (viii) water bodies characterized by one or any combination of the following conditions: tapped for domestic purposes; within the controlled and/or protected areas, which supports wildlife and fishery activities; (ix) mangrove areas; and (x) coral reefs.

Subproject Activity	Screening	ESA	Validation of Screening and ESA	Issuance of No Objection Letter
Crop production and plantations				
• Rubber tree and other monocrops	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
• Other crops	IPO assisted by TSP	LPMIU	RPCSO	PMO
Livestock production	IPO assisted by TSP	LPMIU	RPCSO	PMO
Fisheries production	IPO assisted by TSP	LPMIU	RPCSO	PMO
Agricultural enterprises • Medium-scale with wastewater	IPO assisted by TSP	LPMIU	RPCSO	PMO and World Bank
• Small-scale				PMO
Warehouses	IPO assisted by TSP	LPMIU	RPCSO	PMO
Compost/fertilizer making	IPO assisted by TSP	LPMIU	RPCSO	PMO

6.6 Preparation of work contracts with safeguard provisions

178. In reference to activities involving contracting for civil works, the bid documents will specify compliance to the ESMF. The work contracts shall require the contractor to prepare an ESMP following the template in the ESMF, to be approved by the PMO. For subprojects that require the Bank's NOL, the ESMP will be submitted to Bank, together with the other documents.

6.7 Contractor orientation of E&S safeguards

179. Once a winning bidder has been selected, the PMO/RPCSO will conduct contractor orientation on the environmental and social safeguard procedures of the subproject, including the monitoring and reporting requirements and require the contractor to submit an ESMP prior to construction.

6.8 Compliance Monitoring and Reporting

180. Compliance with the safeguard requirements and ESMP measures by the subproject proponent and any actual environmental and social issues associated with the subproject that may crop up during the course of subproject preparation, construction and operation will be regularly monitored by the PMO prior to and during construction.

181. The subproject proponent is required to submit Monthly, Quarterly and Annual Compliance and Impact Monitoring Report to the Regional Social Environmental Safeguards (RSES) Specialist of the RPCSO. The Regional Social Environmental Safeguards Specialist will then provide a consolidated report on Compliance and Impact Monitoring Report to the Regional Project Manager. The RSES Specialist will also forward the consolidated report to the Social and Environmental Safeguards Specialist of the PMO. The PMO SES Specialist will then harmonize and submit a Safeguards Performance M&E report to be integrated in the entire Monitoring and Evaluation Component of the MIADP.

182. The template Compliance and Impact Monitoring Report to be submitted to the RPCSO is in Annex i while the monthly monitoring report using the Safeguards Monitoring Checklist is in Annex J.

7 STAKEHOLDER ENGAGEMENT, CONSULTATION AND GRIEVANCE REDRESS MECHANISM

7.1 Stakeholder Engagement Plan

183. MIADP involves broad-based participation of national and sub-national stakeholders during preparation, implementation and monitoring of the Project and has prepared a separate Stakeholders' Engagement Plan (SEP). The SEP provides stakeholders with opportunities to contribute to the project design, express their views on the risks, impacts and mitigation measures of the Project Implementation. The SEP has been prepared to ensure that the project interventions are designed in a way that the IPs receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive.

184. The stakeholder engagement specifically aims to:

- Continually understand the needs and views of the affected population as inputs or basis for designing/enhancing the project design;
- Ensure effective and efficient partnership among the various implementation actors that include the local government, community leaders and other national government agencies;
- Receive feedback as well as grievances from all stakeholders during the project implementation;
- Define accountability mechanism on all aspects of the project design and implementation; and
- Draw general public support and/or mitigate misconception about the project.

185. The project will provide collaborative and participatory process with the ICC/IP communities and with the NCIP. The ADSDPP which describes the ICC/IP preserved culture, constraints and investment proposals, would be the starting point for preparation of the ADAIF. The SEP starts with an initial mapping of various stakeholders who will participate in or are directly affected by the project as well as other stakeholders who could influence or would be influenced or indirectly impacted by the MIADP. The SEP further sets out methodology and process for the engagement with stakeholders throughout project preparation and implementation as well as the corresponding indicative timeframe, core information requirement and measures to ensure broad and optimum participation. The SEP also provides the general features of the grievance redress mechanism (GRM) which describes the process and structures for filing of complaints and the corresponding resolution procedure.

8 INSTITUTIONAL ARRANGEMENTS ON ENVIRONMENT AND SOCIAL SAFEGUARDS

186. The arrangements for the implementation of the project will be guided by the institutional set up established under the PRDP. In particular, the current project will benefit by following the PRDP set up for Environmental and Social Standards screening process. This shall mirror the organizational structure of the PRDP Social and Environmental Safeguard with slight modification of the terms used at the regional and LGU-level to reflect MIADP's peculiarity and its desired purpose. Although the PRDP SES established a reliable and efficient system in implementing sub-project, it's set up does not include the implementation of MIADP at the same time. Therefore, the main responsibility for the day- to-day management of the project would be through a Mindanao-based Project Management Office (PMO) that will operate under the direct supervision of the Director of the 4Ks Project Office. The 4Ks Project Office shall facilitate the hiring of new personnel, staff, and consultants to form part of the PMO.

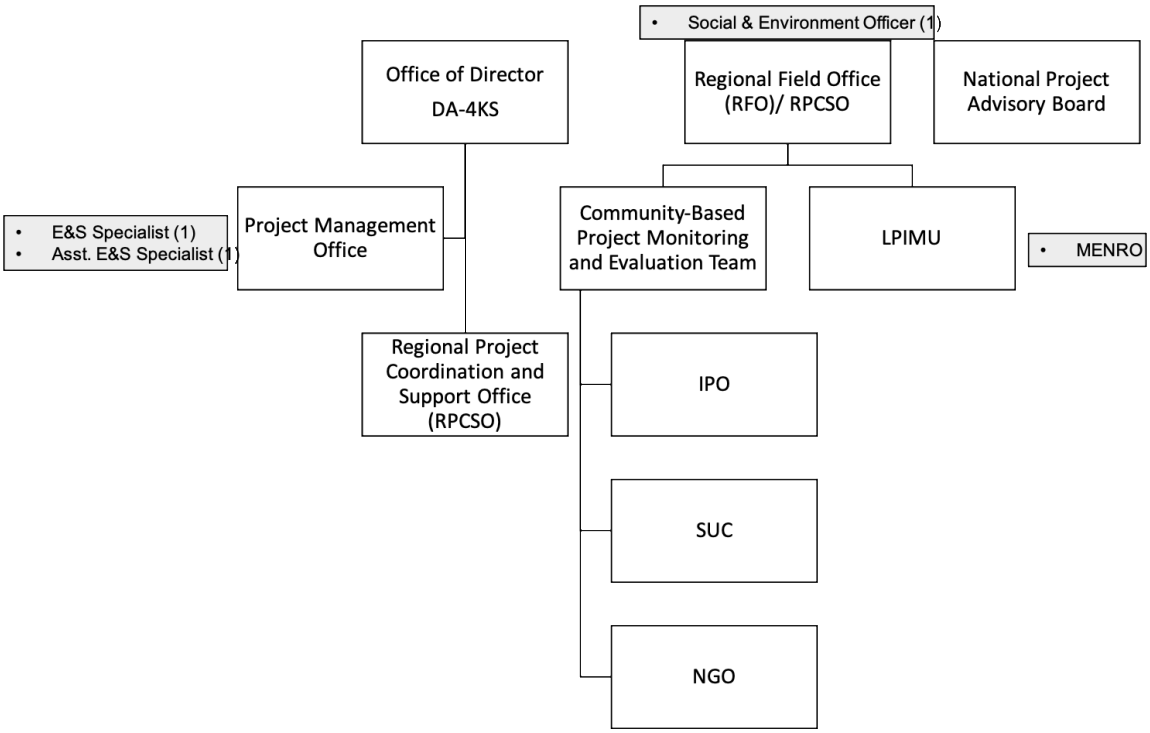


Figure 4: MIADP Institutional Structure

187. **Roles and Responsibilities Environment and Social Safeguards Specialists.** The Environmental and Social Safeguard Specialists will be assigned at the PMO and at the RPCSO. Their roles and responsibilities are as follows:

Table 10: Environmental and Social Safeguards Roles and Responsibilities

Unit	Roles and Responsibilities
A. Project Management Office	
• Planning and Social Preparation Specialist	• Lead the formulation of technical documents and processes for the implementation of AD Agri-Fishery Planning and Social Preparation
• Planning and Social Preparation Officer	• Provide technical support to the Planning and Social Preparation Specialist and the Component Head in the preparation and implementation; lead the coordination with respective regional counterparts on the implementation of the Project
• Planning and Social Preparation Assistant	• Provide technical and administrative support for the implementation of the Project
• Environmental Safeguards Specialist • Social Safeguards Specialist	• Provide technical support to the Component Head and the PM on the monitoring of Social and Environmental Safeguards; lead the implementation of Social and Environmental Protection activities at the national level; lead the coordination with regional counterparts in ensuring the harmonize implementation and monitoring of Social and Environment Safeguards compliance

Unit	Roles and Responsibilities
• Environment and Social Safeguards Assistant	• Provide technical and administrative support for the implementation of the Environment and Social Safeguards activities
B. Regional Project Coordination and Support Office (RPCSO)	
• Regional Planning & Social Preparation Officer	• Lead the preparation and implementation of Component 1 at the regional-level; provide assistance to RPM in harmonizing the implementation of all components; lead the coordination with national counterpart; ensure that Project implementation is in accordance with MIADP policies, guidelines, and other legal covenants; lead the coordination with local counterparts
• Planning Assistant	• Provide technical and administrative support to the Regional Planning and Social Preparation Officer in the conduct of planning activities and other activities of the Project
• Social Preparation Assistant	• Provide technical and administrative support to the Regional Planning and Social Preparation Officer in the conduct of social preparation and other activities.
• Regional Social Environmental Officer	• Provide technical support to the Component Head and the RPM on the monitoring of Social and Environmental Safeguards; lead the implementation of Social and Environmental Protection activities at the regional-level; lead the coordination with national and local counterparts in ensuring the harmonized implementation and monitoring of Social and Environment Safeguards compliance
C. Local Project Management and Implementing Unit (LPMIU)	
• Local Environmental Specialist • Local Social Specialist	• Lead the conduct of Social and Environmental activities in the area of responsibility (Province/Municipal/City level); ensure that implementation is in accordance with policy set forth by the National and/or Regional Office; comply with all technical and administrative processes established for the implementation of the project

8.1 Capacity Building

Internal Orientation and Capacity Development (Safeguards Team)

188. The MIADP internal orientation and capacity development will be participated by the newly created MIADP Safeguards team which will include the Environmental and Social Safeguards specialists from the National Project Management Office (NPMO) and Regional Project Coordination Support Office (RPCSO). The orientation will be facilitated by the DA-4Ks and will be held at the NPMO office. The DA-4Ks will prepare modules and training materials for Environmental and Social Safeguards and training which will be based on the MIADP Operations Manual and management of Grievance Redress Mechanism.

ICC/IP Orientation Seminar and Consultation (CPMET/LPMIU)

189. After the capacitation of the MIADP Safeguards team, they will conduct orientation and capacity development for the IPO, Civil Society Organization/Non-Government Organization (CSO/NGO) and the representatives of the LGU who will be part of the Local Project Management and Implementation Unit (LPMIU). The MIADP Safeguards Team will also use the same training materials and modules on Environmental and Social Safeguards and Project Operations Manual but it will be translated in the manner that is easy to understand for the IPOs.

Seminars, Trainings and Workshops

190. The MIADP Safeguards Team, IPO and LPMIU will undergo training and seminars about the ESMF and applicable national laws to enhance their knowledge in subproject validation and screening. The seminar aims to educate the participants about the legal instruments and documents required for validation and screening such as preparation of EIS, IEE and securing CNC or ECC prior to the implementation of the Project. The DENR and its attached bureaus such as the Biodiversity Management Bureau and Environmental Management Bureau will be the resource speakers for the seminar and training.

8.2 Budget for Environmental and Social Safeguard Staff

191. The cost of Social and Environmental Safeguards are embedded in the annual work and financial plan of MIADP. The budget includes the salaries of the safeguards officers, travel expenses, review and assessment, and monitoring and reporting. The table below shows the estimated budget.

Table11: ESTIMATED BUDGET FOR ENVIRONMENTAL AND SOCIAL SAFEGUARD STAFF

PARTRICULARS	2022 Cost	2023 Cost	2024 Cost	2025 Cost	2026Cost	2027Cost	Total Cost
Professional Service (COS)							
PMO							
Social Preparation Specialist	985,176	985,176	985,176	985,176	985,176	985,176	5,911,056
Agricultural Training & Extension Specialist	985,176	985,176	985,176	985,176	985,176	985,176	5,911,056
Social & Environment Safeguards Specialist	985,176	985,176	985,176	985,176	985,176	985,176	5,911,056
Subtotal	**2,955,528**	**2,955,528**	**2,955,528**	**2,955,528**	**2,955,528**	**2,955,528**	**17,733,168**
RPCSO							
Planning Assistant	2,062,974	2,062,974	2,062,974	2,062,974	-	-	8,251,896
Social Preparation Assistant	2,062,974	2,062,974	2,062,974	2,062,974	-	-	8,251,896
Regional Social Safeguartds Assistant	2,062,974	2,062,974	2,062,974	2,062,974	2,062,974	2,062,974	12,377,844
Regional Evironment Safeguards Assistant	2,062,974	2,062,974	2,062,974	2,062,974	2,062,974	2,062,974	12,377,844
Subtotal	**4,125,948**	**4,125,948**	**4,125,948**	**4,125,948**	**-**	**-**	**16,503,792**
TOTAL Professional Service	**7,081,476**	**7,081,476**	**7,081,476**	**7,081,476**	**2,955,528**	**2,955,528**	**34,236,960**
Incremental Staffing Cost (organic/designate)							
PMO							
Social Preparation Head	428,049	428,049	428,049	428,049	428,049	428,049	2,568,294
Social and Environmental Safeguards Head	260,226	260,226	260,226	260,226	260,226	260,226	1,561,356
Social Preparation Officer	260,226	260,226	260,226	260,226	260,226	260,226	1,561,356
Subtotal	**948,501**	**948,501**	**948,501**	**948,501**	**948,501**	**948,501**	**5,691,006**
RPCSO							
Regional Social Preparation Head	1,561,356	1,561,356	1,561,356	1,561,356	1,561,356	1,561,356	9,368,136
Field Operations Head	1,561,356	1,561,356	1,561,356	1,561,356	1,561,356	1,561,356	9,368,136
Ancestral Domain Focal Person (NCIP)	787,941	787,941	1,862,406	1,862,406	1,862,406	1,862,406	9,025,506
Subtotal	**3,910,653**	**3,910,653**	**4,985,118**	**4,985,118**	**4,985,118**	**4,985,118**	**27,761,778**
TOTAL Incremental Staffing Cost	**4,859,154**	**4,859,154**	**5,933,619**	**5,933,619**	**5,933,619**	**5,933,619**	**33,452,784**
GRAND TOTAL	**11,940,630**	**11,940,630**	**13,015,095**	**13,015,095**	**8,889,147**	**8,889,147**	**67,689,744**

9 ANNEXES

Annex A: MIADP Activities

Annex B: Relevant Philippine Laws and Regulations on Environment and Social Safeguards

Annex C: Environmental and Social Safeguard Screening
- Annex C- 1: Environmental and Social Safeguard Screening Checklist for Subprojects
- Annex C- 2: Land Suitability Assessment

Annex D: Sample Environmental Codes of Practice (ECOPs)
- General Construction Activities
- Agricultural Farming Activities
- Livestock Production/Agri-Enterprises

Annex E: Sample Environmental and Social Assessment (ESA) Guidelines and ESMP Templates
- Annex E-1: Access Roads / Farm-to-Market Roads, Small Bridges and Tramline
- Annex E-2: Potable Water Supply
- Annex E-3: Irrigation
- Annex E-4: Crop Production
- Annex E-5: Production and Enterprise Facilities

Annex F: Cultural Heritage Management Plan

Annex G: Fertilizer and Pesticide Management Plan

Annex H: Guidelines in the Formulation of Contractor's ESMP

Annex I: Compliance and Impact Monitoring Report

Annex J: Environmental and Social Safeguards Compliance Monitoring Checklist (For Contractor)

Annex K: Description of Declared Protected Areas in Mindanao

Annex L: Environmentally Critical Projects and Environmentally Critical Areas based on Philippine EIS System

Annex M: Road Safety and Traffic Management Guidelines

Annex N: Land Access Framework

Annex O: MIADP STAKEHOLDERS CONSULTATION

Annex P: MIADP STAKEHOLDERS CONSULATION PHOTOS

Annex A: MIADP Activities

- **Level 0 – Review of Ancestral Domain Sustainable Development and Protection Plan (ADSDPP)**

The Project orientation will be the first activity that will be participated by the Project Management Office (PMO), which will be the oversight office across the six (6) regions in Mindanao. The Regional Project Coordination and Support Offices (RPCSOs) which will be composed of qualified personnel and some officers from the DA-Regional Field Offices (RFOs) and the TSP which will be commissioned by the DA MIADP Management. This level includes the Planning, Administrative, Monitoring, Evaluation, Financial and Documentation support for the MIADP implementation throughout its years. Also, MIADP will conduct initial identification and data gathering with a survey of each possible IPs in Mindanao Region thru NCIP Regional Office. The project will establish an IPS/IPO Assessment, Criteria and Classification at this level.

- **Level 1 –IPs Orientation and Consultation**

The MIADP will conduct General Orientation, Consultation and Information Dissemination with IPOs and other concerned offices of Mindanao Region. The IPs Stakeholders consultation and Identification of its Value Chain product and possible infrastructure requirements. During the IPs orientation and consultation at level 1, the participatory process will be observed. Also, at this level, the requirements of the DENR for the subproject will be complied with such as securing of either an Environmental Compliance Certificate (ECC) or Certificate of Non-Coverage (CNC) as per the PEISS and the Protected Area Management Board (PAMB) Resolution/Clearance for areas located in buffer zones of protected areas in accordance with the e-NIPAS Act.

- **Level 2 –IPO Organization and Development**

The project will conduct IPO Identification (detailed current information) and Clustering (groupings) according to livelihood. The IPS/IPO will undergo orientation of the Project Development Cycle for IPO beneficiary. This is where the IPO organization structure is established before integration with ADAIF.

- **Level 3 –Ancestral Domain Agriculture Investment Framework (ADAIF)**

The MIADP will conduct orientation on the ADAIF with IPO beneficiary. There will also be IPOs project site validation and clustering as part of the ADAIF verification process. The IPO project should be complementary with the ADAIF framework.

- **Level 4 – Integration of ADAIF in the Community Development Plan**

There will be orientation on the identified MIADP IPO Projects with LGUs, NGOs and other concerned Government Agencies. MIADP Local Project Requirements; Information dissemination thru documentation of the project with the Provincial and Local government unit for planning development and approval (CNC or ECC (level 2). Provincial and Local government Unit dissemination of project as part of the permitting stage. Organization, Mobilization and Strengthening the IPOs to be ready with the Project Activities.

- **Level 5 –IPO Agricultural Business Plan (Introduction and a brief business plan for the approved IPOs project)**

The MIADP will create and design the business plan for the approve IPOs project; Establish, apply and orient the guidelines of the IP-CARE with the IPO as part of the business plan; and undertake study trip on to the IPO projects.

- **Level 6 – Acquiring of Legal Instrument for the IPO Beneficiary**

Level 6 involves NCIP validation. The Acquiring of CNC or ECC permit (DENR). Acquiring approved Local Government Unit (LGU), National Government Agencies (NGA), Non-Government Organization (NGO) and other legal documents. And lastly, the establishing of a working plan for assessment and revalidating the status of the approved and implemented IPO beneficiary.

Annex B: Relevant Philippine Laws and Regulations and Environment and Social Safeguards

The MIADP social and environment safeguard provisions are based on the Philippine laws, regulations and guidelines. These are briefly described below.

Law/Regulation	Description
A. Environmental Protection	
PD1586 – Philippine Environmental Impact Statement (EIS) System	The law and its regulations prescribe the screening process in identifying and managing environmental impacts of a project. Projects in environmentally critical areas (ECAs) such as declared national parks, watershed reserves, wildlife reserves, sanctuaries, mangrove areas, and coral reefs, and other areas which constitute as habitat of any endangered or threatened species are covered by the law. Projects located in these areas are required to undertaken an assessment of impacts on habitats and biodiversity and to develop measures as part of the impact management plan.
RA 11038 (2017) Expanded National Integrated Protected Areas System Act (E-NIPAS Act)	The E-NIPAS Act and its implementing rules and regulations encompasses ecologically rich and unique areas and biologically important public lands that are habitats of rare and threatened species of plants and animals, biogeographic zones and related ecosystems, whether terrestrial, wetland or marine, that shall be managed in accordance with the law. PAs have PA management plan (PAMP) that serve as the basic long-term framework plan for the management of the protected area and guide in the preparation of its annual operations plan and budget; and, must be harmonized with the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP), the respective Comprehensive Land Use Plans (CLUPs) of local governments and other local plans. The proponent of development projects and activities is required to secure an ECC. The occupation of the LGUs and communities within the protected area is respected, subject to the intended use for conservation and biodiversity of the PA.
RA 8550 – Philippines Fisheries Code	The responsibility to conserve, develop, protect, utilize and dispose of all fish and fishery/aquatic resources within municipal waters is vested upon the municipal or city governments. All waters outside municipal waters are within the jurisdiction of the DA. DA determines the number of licenses and permits to be issued is based on harvest control rules and reference points as determined by scientific studies or best available evidence. The introduction of foreign fin fish, mollusks, crustacean or aquatic plants without a sound ecological, biological and environmental justification is prohibited. DA may establish fish refuge and sanctuaries, for the cultivation of mangroves where no commercial fishing is allowed. No person shall undertake any development project without first securing an ECC.
RA 9147 - Wildlife Resources Conservation and Protection Act	The law pursues the Philippine commitment to international conventions on protection of wildlife and their habitats through promotion of ecological balance and biodiversity and the regulation of collection and trade of wildlife.
PD 1559 - Revised Forestry Code	The law established the restrictions on commercial logging or grazing operations in critical watershed, national parks, and established experimental forests. It also prohibits hunting or fishing and other activities of commercial nature in game refuge, bird sanctuaries, marine and seashore parks. Further, it requires the evaluation of numerous beneficial uses of timber, land, soil, water, wildlife, grass and recreation or aesthetic value of forest lands and grazing lands before allowing their utilization, exploitation, occupation or possession, subject to a license agreement, license, lease or permit. The code requires the replacement of trees to be cut by a proposed development.
RA 8435 – Agriculture and Fisheries Modernization Act	The law provides that all watersheds that are sources of water for existing and potential irrigable areas and recharge areas of major aquifers shall be preserved as such at all times. Also, the DA shall consider the following concerns in the

	identification of SAFDZs: the preservation of biodiversity, genetic materials and the environment; adequate and timely response against environmental threats to agriculture and fisheries; indigenous peoples; rural youth; women; handicapped persons; and senior citizens. The SAFDZs serve as centers where development in the agriculture and fisheries sectors are catalyzed in an environmentally and socio-culturally sound manner.
Executive Order 514 – National Biosafety Framework	This is a response to the country's commitment to the Cartagena Protocol on Biosafety. The framework relates to the biosafety policies, measures and guidelines concerning research, development, handling and use, transboundary movement, and release into the environment and management of regulated articles. DA Administrative Order No. 008, series of 2002, provides the guidelines on the contained use of genetically modified organisms. The DOST, DA, DENR, DOH, and DILG issued a Joint Department Circular in 2016 that prescribes the rules and regulations for the research and development handling and use, transboundary movement, release into the environment and management of genetically-modified plant and plant products derived from use of modern biotechnology.
PD 1144 – Fertilizer and Pesticide Law	The law prohibits sale and use of fertilizers and pesticides, registration and licensing. The Fertilizer and Pesticide Authority (FPA) restricts or bans use of pesticides found to be hazardous.
Republic Act 10174 – Climate Change Act	This provides the regulatory framework for the development of the National Framework Strategy on Climate Change (NSFCC) and the National Climate Change Action Plan (NCCAP). These documents serves as guidance to government in managing climate risk and vulnerability and in determining appropriate adaptation and mitigation measures for the country.
RA 10121 – Philippine Disaster Risk Reduction and Management (PDRRM) Act	The law incorporates internationally accepted principles of disaster risk management and the holistic, comprehensive, integrated, and proactive lessening of impacts on socioeconomic and environment from disasters including climate change.
B. Indigenous Peoples	
RA 8371 – Indigenous Peoples' Rights Act (IPRA)	The IPRA (1997) recognizes and protects the rights of ownership and possession of ICCs/IPs to their ancestral domains, which include the right to develop lands and natural resources. Access to biological and genetic resources and to indigenous knowledge is allowed only with a free and prior informed consent obtained in accordance with their customary laws. The law also grants the ICCs/IPs priority rights in the harvesting, extraction, development or exploitation of any natural resources within the ancestral domains. The law provides that ancestral domains or portions thereof, which are found to be necessary for critical watersheds, mangroves, wildlife sanctuaries, wilderness, protected areas, forest cover, or reforestation shall be maintained, managed and developed for such purposes by the ICCs/IPs with the full and effective assistance of government agencies.
C. Labor Management	
PD 442 (1974) – Labor Code of the Philippines	The law provides that all the rights and benefits granted to workers under it apply alike to all workers, whether agricultural or non-agricultural, except government employees. The law reiterates and provides details on the State's commitment to safeguard its workers, promote full employment, ensure equal work opportunities regardless of sex, race or creed and regulate the relations between workers and employers. It bestows rights and benefits to all workers, such as workers' rights to self-organization, collective bargaining and humane work conditions. It also ensures that both local and overseas labor are able to obtain optimal employment terms and conditions.
RA 11058 (2017) – Occupational Safety and Health Standards	The law states that all employers must fully comply with the Labor Code of the Philippines, local laws, and internationally-recognized occupational safety and health (OSH) standards, and punish those who do not. These standards aim to

	protect all workers from injury, illness, or death by providing safe and healthy work environments.
RA 9231 (2003) – Special Protection of Children Against Child Abuse, Exploitation and Discrimination Act	Children below 15 years old may be employed for the following: (i) the child works directly under his/her parents or guardian and the other employees are his/her family members as well; (ii) the employer must guarantee the protection, safety, health, normal development, and morals of the child; (iii) the employer must establish initiatives to safeguard against the exploitation and discrimination of the child, particularly in terms of system and level of remuneration, and length and arrangement of working hours; (iv) the employer shall devise and execute a program for the child's training and skills acquisition; (v) acquire a work permit from DOLE.
RA 9442 (amending RA7277) – Magna Carta for Disabled Persons	The law provides that no disable person shall be denied access to opportunities for suitable employment. A qualified disabled employee shall be subject to the same terms and conditions of employment and the same compensation, privileges, benefits, fringe benefits, incentives or allowances as a qualified able bodied person.
E. Community Health and Safety	
RA 7160 – Local Government Code	Section 16 mandates every LGU to promote the general welfare of the people, maintain peace and order, and preserve the comfort and convenience of inhabitants. The LGUs consider health and safety issues as part of approval and social acceptability of the project.
PD 856 – Sanitation Code	The Sanitation Code of the Philippines (PD 856) provides the guidelines and standards to ensure health and safety of the people. The code has standards for water supply, markets and abattoirs, sewage collection and disposal; excreta disposal and drainage, and refuse disposal.
Executive Order 112, series of 2020	Adopting the Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines – The guidelines present the requirements in the implementation of community quarantine based on the zoning concept, corresponding qualification, and the phased response or intervention to prevent spread of COVID-19 virus.
DA Administrative Order 12, series of 2020 – COVID19 Guidelines on Service Continuity and Precautionary Measures in the Workplace	The DA guidelines present the standards and protocols in the agri-fishery sector and for the employees of DA to protect COVID-19 transmission. It covers protocols for the unhampered movement of all food and production items and cargoes, agriculture and fishery inputs, food products, and agribusiness personnel.
F. Cultural Heritage	
RA 10066 – Philippine Cultural Heritage Act	The law aims to protect, preserve, conserve and promote the nation's cultural heritage, its property and histories, and the ethnicity of local communities.

World Bank E&S Standards and Counterpart Philippine Laws and their Applicability to MIADP

World Bank ESS	Relevant Philippine Laws and Regulations	Applicability to MIADP and Gap-Filling Measures
ESS1 - Assessment and Management of Environmental and Social Risks and Impacts	• PD 1586 (1987) – Philippine EIS System and DENR AO 2003-30 • RA 11038 - E-NIPAS Act • RA 9147 – Wildlife Resources Conservation and Protection Act	Considering the relatively small scale of civil works, there are project activities that may not be required to secure an Environmental Compliance Certificate (ECC) based on the PEISS. However, other national laws and regulations still apply such as the E-NIPAS Act, Forestry Code, etc.

World Bank ESS	Relevant Philippine Laws and Regulations	Applicability to MIADP and Gap-Filling Measures
	• PD 1559 – Revised Forestry Code • RA 8435 – Agriculture and Fisheries Modernization Act • RA 10121 – Philippine Disaster Risk Reduction and Management (PDRRM) Act • RA 10174 – Climate Change Act of 2009	An Environmental and Social Assessment (ESA) will be conducted for each subproject through a screening process and environmental suitability assessments under Component 1 to identify environmental and social risks and impacts and to determine measures to minimize and prevent these. Potential environmental impacts may occur during civil works for roads, bridges, and irrigation systems, maintenance and operation of facilities, and agriculture and livelihood activities. Potential social risks are related to potential land acquisition for roads and irrigation systems and potential exclusion or direct impacts to IPs, landless farmers, women-headed households, or other vulnerable groups. These issues will be evaluated in the ESA. The project will not finance activities which fall under the prohibited/negative list.
ESS2 - Labor and Working Conditions	• PD 442 – Labor Code of the Philippines • RA 11058 - Occupational Safety and Health Standards Act and DOLE DO 198-2018 • RA 9231 – Special Protection of Children Against Child Abuse, Exploitation and Discrimination Act • RA 9442 – Magna Carta for Disabled Persons	The Philippine labor laws and regulations contain the key elements of ESS2 that includes labor management procedures, terms and conditions of employment, rights of workers, occupational health and safety, non-discrimination and equal opportunity, prohibition on forced labor, and provisions on workers' organizations, grievance mechanism, and regulations for vulnerable workers, including child workers. However, the regulations do not recognize community workers as special cases and do not extend requirements to supplier workers. The regulations are not clear on measures to prevent harassment, other than sexual and gender-based offenses, exploitation in the workplace, and on provision of social benefits and applicability of grievance mechanisms to contract employees in the public sector. The Labor Management Procedure (LMP) has been prepared to fully align with the ESS2. Guidelines for civil works in the time of COVID-19 pandemic and contingency planning for an outbreak will also be implemented. The Project would involve engaging or procurement of civil works contractors as well as mobilization of community labor for the infrastructure. While the community workers, who will be mobilized for the project activities, including construction of infrastructure, business development and implementation, are also beneficiaries, the Project will ensure that their engagement will be compliant to the general policies and requirements for voluntary, non-harmful or non-hazardous work, just

World Bank ESS	Relevant Philippine Laws and Regulations	Applicability to MIADP and Gap-Filling Measures
		compensation/benefits as prescribed by the Labor Code.
ESS3 - Resource Efficiency and Pollution Prevention and Management	• RA 9275 – Philippine Water Air Act and DENR Administrative Order 2016-08 • RA 9003 – Ecological Waste Management Act and DENR AO 2001-34 • RA 6969 - Toxic Substances and Hazardous and Nuclear Wastes Control Act • PD 1144 – Fertilizer and Pesticide Law • PD 1586 (1987) – Philippine EIS System and DENR AO 2003-30 • RA 8749 – Philippine Clean Air Act and DENR AO 2000-81	ESS3 applies because the Project's civil works activities may generate construction-related impacts such as dust, soil runoff, noise, and waste/debris generation. The nature and scope of the civil works, food production and processing activities are expected to generate impacts that are small-scale, site-specific, temporary and manageable. Impacts are primarily related to clearing of vegetation/trees, dust emission from site works, water pollution from runoff or soil erosion from stockpiled construction materials and from land tilling, and generation of construction wastes. Agricultural activities use agro-chemicals that could cause contamination of land and water. The requirements of the RA8749, RA9275, RA9003, and RA6969 will be applied by the Project. The Environmental Codes of Practice (ECOP) and Environmental and Social Management Plan (ESMP) are developed to manage these anticipated environmental and social impacts of the Project. The ESMF will promote Integrated Pest Management (IPM) and Good Agricultural Practices (GAP) as standard practices. A screening mechanism has been included in the ESMF to determine if there are any sub projects or activities with significant pest management issues; if so, a separate Pest Management Plan (PMP) will be required to ensure that these materials are well managed and disposed of properly for those activities. Guidance for the PMP is included in the ESMF.
ESS4 - Community Health and Safety	• RA 7160 – Local Government Code • Presidential Decree 856 – Sanitation Code of the Philippines • Executive Order 112, series of 2020 – Omnibus Guidelines on Community Quarantine • DA Administrative Order 12, series of 2020 – COVID19 Guidelines on Service Continuity and Precautionary Measures in the Workplace	The ESS4 and pertinent public health laws will apply to the Project. There will be minor civil works that could cause disturbance to community in terms of dust, noise, soil runoff, and spread of communicable diseases, i.e. COVID19 and sexually transmitted diseases (STDs). The ECOP contains a Construction Safety and Health Plan to ensure safety of the community. Field activities of workers in the IP communities will follow the COVID-19 management procedures.
ESS5 - Land Acquisition, Restrictions on Land	• RA 10752 – Right-of-Way Act	ESS5 applies to the project. Although the project will target ADs which have been awarded CADT, there may be small civil works that may cause minor,

World Bank ESS	Relevant Philippine Laws and Regulations	Applicability to MIADP and Gap-Filling Measures
Use and Involuntary Resettlement	• RA 8371 (1997) - The Indigenous Peoples' Rights Act of 1997, • RA 7160 (1991) - The Local Government Code of 1991, • RA 7586 (1992) - The National Integrated Protected Area System (NIPAS) Act, as amended by e-NIPAS, as amended, • RA 9147 (2001) - Wildlife Resources Conservation and Protection Act, and • PD 1586 - Establishing an Environmental Impact Statement System Including other Environmental Management Related Measures and for other Purposes	potential impacts related to (i) land clearing resulting to damaged trees and crops, (ii) damage to structures, (iii) potential ROW conflicts for the water supply distribution lines and agriculture facilities, and (iv) potential issues on IP rights particular to water source. As a precautionary measure and considering that the exact scope and design of the project works remains to be determined, a Land Access Framework (LAF) has been prepared as part of the ESMF to screen for economic and physical displacement and if unavoidable, provide guidance for development of mitigation, compensation and livelihood restoration measures consistent with ESS5 and ESS7.
ESS6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources	• PD 1586 (1987) – Philippine EIS System and DENR AO 2003-30 • RA 11038 - E-NIPAS Act • RA 9147 – Wildlife Resources Conservation and Protection Act • PD 1559 – Revised Forestry Code • RA 8435 – Agriculture and Fisheries Modernization Act	ESS6 applies to this Project because there are ADs located in forests, protected areas and national parks. While tenurial instruments have been issued to the IP communities, it is expected that the project interventions based on the ADAIF are aligned with the Protected Area Management Plan (PAMP), hence would require approval of the ADAIF by the Protected Area Management Board (PAMB). Project interventions should only be in multiple use zones allowed by the PAMB and that a Special Use in Protected Area (SAPA) is endorsed by the PAMB and then issued by DENR. The ESMF provides a screening mechanism for proposed activities to exclude any activities that would involve significant conversion or degradation of forests and other natural habitats. The screening and scoping of subprojects includes assessment of important biodiversity features and ecosystem services that could be adversely affected by project activities. Mitigation measures on conservation of biodiversity and habitats and ecological functions will be included in the ESMP. A Biodiversity Management Plan is developed to address impacts on habitats and ecological functions (ecosystem services, cultural sites, e.g. sacred and burial sites).
ESS 7 - Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Communities	• RA 8371 – IPRA • PD 1586 - PEISS	ESS 7 applies to the Project since the Project's target beneficiaries are IPs in Mindanao. There may be risks that IPs do not have equal and culturally appropriate access to benefits and may not be adequately consulted in decision making. DA will ensure that consultations are undertaken with the IPs as part of

World Bank ESS	Relevant Philippine Laws and Regulations	Applicability to MIADP and Gap-Filling Measures
		social preparation and community mobilization. The elements of the ADAIF are referred from the ADSDPP which was endorsed by the NCIP. The NCIP will oversee IPRA implementation as one of the major partners of the Project.
ESS8 - Cultural Heritage	● RA 10066 (Philippine Cultural Heritage Act) ● RA 8381 – IPRA	RA 10066 and ESS8 are applicable to this Project to ensure that any chance finds or other physical cultural resources during earthmoving activities are conserved and protected. The IP practices and local culture may also be affected by the project interventions. The ESMF has included a chance find procedure which requires that should any areas of potential cultural importance or artifacts be identified, works should stop and the chance finds procedure based on the National Commission for Culture and the Arts (NCCA) guidelines is followed. A Cultural Heritage Plan is included in this ESMF to recognize and respect IP practices and culture.
ESS9 - Financial Intermediaries	-	ESS9 is not applicable to the Project. There are no Financial Intermediaries (FIs) or public and private financial services providers involved in the Project.
ESS10 - Stakeholder Engagement and Information Disclosure	● PD 1586 (1987) – Philippine EIS System ● DENR AO 2017-15 ● Local Government Code of 1991 ● RA 8371 (IPRA)	ESS10 applies to the Project since the design involves broad-based participation of national and sub-national stakeholders during preparation and throughout the implementation and monitoring of the Project. Enabling mechanisms are in place under the laws for development activities to consult stakeholders throughout the project life-cycle. Meaningful consultations and grievance redress are also observed across the development stages. The organizational capacity, roles and responsibilities, and authorities are clearly identified due to mandates of agencies and organizations as specified in the different laws and regulations. The Stakeholder Engagement Plan (SEP) is developed to identify the primary stakeholders that include the project affected stakeholders who will either benefit or be adversely affected (primarily indigenous communities in participating ADs) as well as key individuals/groups that are involved in various parts of the value chain or component/activities of the Project.

Annex C: MIADP Environmental and Social Screening Checklist

This E&S Screening Form should always accompany the subproject proposal package.

Name of Subproject	
Activity:	
Location:	

Screening Question	Yes/No	Remarks
A. Subproject Eligibility		
Is the subproject located in AD where there is high intensity or active conflicts?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve construction of dam?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve introduction of foreign fin fish, mollusks, crustacean or aquatic plants?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve collection and trade of wildlife?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve commercial logging or grazing operations in critical watershed, national parks and established experimental forests?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve hunting or fishing of commercial nature in game refuge, bird sanctuaries, marine and seashore parks?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve activities in watersheds that are sources of water for existing and potential irrigable areas and/or recharge areas of major aquifers?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve significant conversion, reclassification or degradation of critical natural habitats?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject cause permanent removal or change in land use of natural habitats that would lead to the loss of indigenous or endemic wildlife (flora and fauna) and affect the local biodiversity?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve the use of prohibited fertilizers, pesticides, insecticides, and herbicides?		If YES, subproject is not eligible for funding under MIADP. If NO, subproject needs to prepare a Pest Management Plan. Suggest subproject IPO to attend training on proper handling of pesticides and agrochemicals.
Will the subproject involve the purchase of chainsaw and explosives?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve the operation of sawmills?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve salaried activities that employ children under 15 years of age?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject finance activities that unfairly exploit men or women of any age?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve harvesting of mangrove or coral reefs?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve purchase of fishing boats and other related equipment unless directly related or needed in the enterprise?		If YES, subproject is not eligible for funding under MIADP.

Will the subproject involve construction of enterprise facilities in protected areas?		If YES, subproject is not eligible for funding under MIADP.
Will the subproject involve purchase or compensation of land?		If YES, subproject is not eligible for funding under MIADP.
B. Social Screening		
Will the subproject result to loss of crops, tress and other productive asset or restrict access to traditional economic resources?		If YES, determine types and volume of losses for each PAP, coordinate with IPs for negotiation with PAPs
Will the subproject involve child labor and forced labor?		If YES, subproject is not eligible under MIADP.
Will the subproject involve the demolition of IP community houses and cause existing livelihood disruptions?		If YES, subproject is not eligible under MIADP.
C. Environmental Screening		
Is the subproject site located close to the core zone of protected areas designated by government (national park, forest reserve, game refuge, protected landscape, etc.)		If YES, subproject is not eligible for funding under MIADP.
Will the subproject result in the production of large amount of liquid organic waste that requires treatment before disposal?		If YES, the subproject proposal shall include construction and operation of a wastewater treatment facility.
Will the subproject involve regular use and disposal of hazardous chemicals?		If YES, subproject should be subject to provisions of RA6969.
Will the subproject result in production of solid or liquid waste (e.g. water, medical, domestic or construction waste), or result in an increase in waste production, during construction or operation?		If YES, the ESMP should include measures for proper disposal of wastes and measures to minimize waste generation.
Is the proposed subproject site near a known archaeological site?		If YES, adopt a Cultural Heritage Management Plan and attach in the subproject proposal.
Is the sub project implementation/functioning likely to be impacted by climate variability?		If YES, conduct vulnerability assessment and include proportional mitigation measures in design and operation of the subproject
Is the land earmarked for the sub project dependent on water source that supports other sub projects or requires drawl of ground water extensively?		If YES, conduct land suitability assessment and include suitable mitigation measures in ESMP. Avoid sites for sub projects/ schemes where implementation of mitigation measures is technically and financially not feasible

Screening Result Summary
(To be filled up by the Screening Officer)

Check the box that applies:

☐ The subproject is not eligible for funding under the MIADP due to (*state reason briefly*): _____

☐ The subproject proposal currently does not qualify for MIADP funding but may be resubmitted for consideration after complying with the following requirements/actions (*check all that applies based on the above screening table*):

_____ IEE and ECC from DENR
_____ ESMP
_____ PAP and Entitlement Plan
_____ Cultural Heritage Conservation Plan
_____ Evidence of IPM-FFS conducted or KASAKALIKASAN coverage in the area
_____ Evidence of training on proper pesticide use, handling and storage
_____ Proposal/plan for wastewater treatment facility

(*Note that the specific issues/recommended measures identified in the above screening checklist shall also be addressed in the relevant safeguard instruments. During the review, the instruments will be checked against the above checklist.*)

Name and Signature of Screening Officer: _____

Date Completed: _____

oooooooo

SAFEGUARD CLEARANCE (To be filled out after the review of the subproject proposal package)

☐ This subproject is deemed ineligible because of the following reasons (State valid reasons such as erroneous screening): _____
_____
_____

☐ This subproject is not yet cleared of safeguard requirements pending compliance of the following: (*Write down pending requirements and sign with initials of the reviewing officer*):
_____
_____
_____

☐ This subproject is given conditional clearance and may proceed to implementation subject to the compliance of the following requirements on or before the deadlines specified. (*Write down requirements and their agreed deadlines. Note that this option should only be resorted to when the pending requirements are already underway and will not have implications on the implementation of the subproject):*

Requirement	Deadline
_____	_____
_____	_____
_____	_____
_____	_____

☐ This subproject is cleared of safeguards requirements and may proceed with implementation.

Recommended for Clearance by: _____

RPCSO Safeguard Specialist

Cleared by: _____

Annex C-2 LAND SUITABILITY ASSESSMENT

LAND SUITABILITY ASSESSMENT PROCEDURES

Responsibility: planning team

• Describe land-use types in sufficient detail for subsequent analysis.

• Select land qualities and land characteristics to be used in comparisons of land-use requirements with land.

• Map the land units and determine their relevant land characteristics and qualities.

• Set limiting values to land-use requirements, to be used for determining class limits for land suitability. Take into account sustainability and the ratio of benefits to inputs.

• Match land use with land:

- compare land-use requirements with land qualities or characteristics to determine provisional land suitability classes;

- consider modifications to land-use types, in order that they become better suited to the land;

- consider land improvements that could make the land better suited to the land use.

• Map land suitability for each land-use type.

• Plan for additional data collection: additional surveys, research by outside agencies or within the land-use plan.

•Assess the water source for the land under consideration for the scheme/ subproject. Assess if the proposed scheme together with other schemes depending on the source can lead to long term sustainability of the source and/or result in overall adverse impacts. Scheme/ subproject shall be assessed for land suitability in case of 3 or more subprojects depending on the same source/ extensive drawl of ground water. Mitigation measures to ensure sustainability of water source/ impact on shallow water shall be included in the ESMP. Subproject/ schemes shall be excluded from the project incase implementation of suitable mitigation measures is technically and financially not feasible.

The following guidance on assessment is furnished to support the planning team:

Land evaluation, the first step in *the Land Suitability Assessment* answers the following questions:

- For any specified kind of land use, which areas of land are best suited?
- For any given area of land, for which kind of use is it best suited?

A systematic way of doing this is set out in *A framework for land evaluation* (FAO, 1976) and detailed procedures are given in guidelines on evaluation for rain-fed agriculture, irrigated agriculture, forestry and extensive grazing (see Land evaluation, p.81). In simplified form, the procedure is:

- describe promising *land-use types*;

• for each land-use type, determine the *requirements*, e.g. for water, nutrients, avoidance of erosion;

• conduct the surveys necessary to map *land units* and to describe their physical properties, e.g. climate, slope, soils;

• compare the requirements of the land-use types with the properties of the land units to arrive at a *land suitability classification*.

Land cannot be graded from "best" to "worst" irrespective of the kind of use and management practiced because each kind of use has special requirements. For example:

• Rice has high water requirements and most varieties grow best in standing water; no other cereal crop will tolerate waterlogging during its period of active growth.

• Tea, sugar cane and oil-palm need efficient transport to processing plants; most crops grown for subsistence do not.

• For mechanical operations, stones and rock outcrops are limiting; with oxen or hand implements, cultivation can work round these obstacles.

Description of land-use types

A land-use type is a kind of land use described in terms of its products and management practices (Table 3). For reconnaissance surveys at the national level, highly generalized descriptions may be sufficient, e.g. "sweet potato production", "conservation forestry". At the district and local levels, it is necessary to specify the use in more detail. For example, will the sorghum production be mechanized or based on animal traction? Will fertilizer be used? Will the conservation forests be managed by the government forestry service or by local communities?

Such descriptions serve two purposes. First, they are the basis for determining the requirements of a use. Second, the management specifications can be used as a basis for extension services and for planning necessary inputs.

The land-use types will be based on the promising improvements. They may be modifications of existing uses, such as incorporating fodder trees or soil conservation measures, or something new to the area, such as the introduction of a new cash crop.

Selection of land qualities and land characteristics

Land-use requirements are described by the land qualities needed for sustained production. A *land quality* is a complex attribute of land that has a direct effect on land use. Examples are the availability of water and nutrients, rooting conditions and erosion hazard (Table 4). Most land qualities are determined by the interaction of several *land characteristics*, measurable attributes of the land. For example, the quality "availability of water" is determined by the balance between water demand and water supply. The demand is the potential evaporation from the surface of the crop and the soil; the supply is determined by rainfall, infiltration, storage of water in the soil and the ability of the crop to extract the stored water.

In the case of "availability of water", it is practicable to calculate reliable quantitative values for the land quality. The water demand of a leafy perennial crop, such as sugar cane or rubber, is much greater than that of a crop with a short growing period, for example beans. A soil water storage capacity of 200 mm might be enough in a humid area but not enough where seasonal droughts

occur. For major crops, quantitative models have been developed to estimate crop yields under a range of quality values.

TABLE 3
Description of a land-use type

TITLE	**Rice cultivation by smallholders**
PRODUCTION Marketing arrangements, yields	Grain for subsistence, surplus sold in local market. Straw fed to draught animals. Average yield, 2.6 t/ha. When water is not limited, wet-season yield may be 4 t/ha and dry-season yield may be 5 t/ha
MANAGEMENT UNITS Size, configuration, ownership	Family-owned plots from 0.2 to 2 ha, usually associated with as many as 4 ha of upland which may be up to 2 or 3 km distant
CULTIVATION PRACTICES AND INPUTS Labour, skill, power, varieties, seeds, agrochemicals	**Labour requirements** from 200 person-days/ha without mechanization to 150 person-days/ha where buffaloes or tractors are used Terraced fields need extra labour to maintain bunds and waterways
	Power requirements. Power for ploughing, harrowing and threshing may be provided by two-wheeled tractors. Alternatively, buffaloes may be used for land preparation or all work may be manual. Tractors may reduce tillage time by 60% and total time between crops by 30%
	Land preparation seeks to control weeds, create a good physical medium for rooting and reduce water seepage loss. This is achieved by ploughing or hoeing twice, followed by harrowing under flooded conditions
	Recommended varieties. Varieties are selected locally to suit specific sites and according to the season. The growing period must be long enough to span the flood period and to allow cultivation and harvesting under favourable conditions.
	Planting rates are 20 to 40 kg/ha, seedlings are spaced from 20x20 to 25x25 cm depending on tillering capacity and length of stalks
	Fertilizer. To replace nutrients removed by a crop of 4 t/ha requires 60 kg N. 30 kg P_2O_5
	Weed control by maintaining adequate water depth and hand weeding until the crop canopy is closed
	Pests and diseases. Chemicals used to control rice blast and stem borers. Good husbandry and resistant varieties control other fungal diseases

CROPPING CHARACTERISTICS	Rice is grown as a monoculture, one or two crops per year. Fallow land is grazed by draught buffaloes and other domestic livestock
WATER	Most crops are rain fed, with water stored in level, bunded fields. Irrigation, from tanks or by stream diversion, enables a second crop to be grown in the dry season

In any particular subproject, only a limited number of land qualities need be selected for use in evaluation. Criteria for selection are:

• The quality must have a substantial effect either on performance or on the costs of production. Some qualities affect most kinds of land use, for example "availability of water"; others are more specific, for example "conditions of ripening" is a quality that affects grain crops but not rubber.

• Critical values of the quality must occur in the planning area. If a quality is adequate everywhere, there is no need to include it. For example, most tropical crops are sensitive to frost but, in most parts of the lowland tropics, the land quality "frost hazard" need not be considered.

TABLE 1
Land qualities for rain-fed farming

Land qualities	**Land characteristics that measure the quality**
Availability of energy	Sunshine hours in growing season, temperature regime
Availability of water	Evaporative demand set against rainfall, soil water storage and rooting conditions
Conditions for ripening	Period of successive dry days with specified sunshine and temperature
Climatic hazards	Frequency of damaging frost, hail or winds during growing period
Sufficiency of oxygen in the root zone	Soil drainage class, depth to water-table
Sufficiency of nutrients	Soil nutrient levels, pH, organic matter content
Erosion hazard	Rainfall and wind erosivity set against soil cover, slope angle and length and soil permeability
Toxicity	Levels of soluble Al and Fe; pH

Having selected relevant land qualities, it is necessary to decide which land characteristics are to be used for measuring them. For example, the quality "erosion hazard" requires information on rainfall intensity, slope angle and soil properties.

A compromise must be reached between characteristics that most closely define the land quality and those that are less precise but on which information is more readily available. Out of necessity, the choice is limited to those characteristics for which information is already available or can be gathered quickly. If there is no information on a critical land quality, surveys must be carried out or research initiated.

Land evaluations are sometimes conducted directly in terms of land characteristics, e.g. by using rainfall instead of availability of water, slope angle instead of erosion hazard. There is, in fact, a hidden use of land qualities in this way of doing things, since plants do not actually require rainfall but do require water (which might alternatively be obtained from a high water-table in a dry area, for example). In practice, evaluations carried out carefully using either qualities or characteristics give quite similar results.

Mapping of land units and their characteristics

In Step 3, land units were identified as a basis for the diagnosis of problems. It may now be necessary to map these units in more detail, e.g. by dividing land systems into land facets or complex soil mapping units into soil series. The criterion for choice of land units is that they are expected to respond to management in a relatively similar way at the scale of the study.

Whether it is now necessary as part of the land-use plan to conduct original surveys depends on the requirements of the plan and the detail and reliability of the information available. Soil surveys, agro climatic studies, forest inventories and pasture resource inventories are major sources. For land-use planning at the national level, reconnaissance surveys at scales of about 1:250000 may be adequate; district-level planning will need at least semi-detailed surveys at a scale of about 1:50000.

Natural resource surveys take a substantial amount of time and will delay the planning procedure. However, past experience has shown that to proceed with land development projects without adequate resource data can lead to disasters, both for production and conservation. In practice, resource surveys and studies of land-use types can proceed at the same time, with frequent interchanges of information.

TABLE 2
Structure of the FAO land suitability classification

S	SUITABLE	The land can support the land use indefinitely and benefits justify inputs
S1	Highly suitable	Land without significant limitations. Include the best 20-30% of suitable land as S1. This land is not perfect but is the best that can be hoped for
S2	Moderately suitable	Land that is clearly suitable but which has limitations that either reduce productivity or increase the inputs needed to sustain productivity compared with those needed on S1 land
S3	Marginally suitable	Land with limitations so severe that benefits are reduced and/or the inputs needed to sustain production are increased so that this cost is only marginally justified
N	NOT SUITABLE	Land that cannot support the land use on a sustained basis, or land on which benefits do not justify necessary inputs

N1	Currently not suitable	Land with limitations to sustained use that cannot be overcome at a currently acceptable cost
N2	Permanently not suitable	Land with limitations to sustained use that cannot be overcome
Examples of classes in the third category		
S2e	Land assessed as S2 on account of limitation of erosion hazard	
S2w	Land assessed as S2 on account of inadequate availability of water	
N2e	Land assessed as N2 on account of limitation of erosion hazard	

Note: There is no standard system for letter designations of limitations; first-letter reminders should be used where possible.

Setting limiting values for land-use requirements

Limiting values are the values of a land quality or land characteristic that determine the class limits of land suitability for a certain use. The standard FAO land suitability classification is shown in Table 5.

The first and most important decision is to separate land that is suitable from that which is not. Important criteria for deciding on the suitability of land for a specific use are sustainability and ratio of benefits to costs.

• *The land should be able to support the land use on a sustained basis*. This means that the use must not progressively degrade the land. Many changes of land use cause an initial loss of land resources: for example, when forest is cleared for tea plantations or for arable farming, there is always a loss of forest habitat and wildlife as well as of soil and accumulated plant nutrients.

From then on, a good level of productivity must be maintained by the new system of management. For example, if soil erosion is not controlled, the new land-use type cannot be sustained. According to the land-use type, the upper limit of the land quality "erosion hazard" might be set in terms of slope, as follows:

- plantation tea, high level of management: 20
- smallholder tea, average level of management: 15
- rain-fed arable crops with simple soil conservation practices: 8

• *The use should yield benefits that justify the inputs*. The user has to make a reasonable living from the land. Local experience will usually be the best guide. Alternatively, a financial analysis can be undertaken.

It is then possible to distinguish up to three classes of suitability, although this is not always necessary. Land classed as highly suitable is the best land for the specified use; moderately suitable land is clearly fit for the use but has limitations; while marginally suitable land falls near to (but above) the limit for suitability. Land that is not suitable may be subdivided into permanently not suitable, where there are limitations to sustained use that are clearly

impractical to overcome; and currently not suitable, where such limitations could be overcome but not at a currently acceptable cost.

TABLE 3

Example of land requirements for a specified land-use type (bunded rice)

Land qualities	Land characteristics	Limiting values for land characteristics			
		S1	**S2**	**S3**	**N**
Sufficiency of energy	Mean annual temperature, *(°C)* or	>24	21-24	18-21	<18
	Elevation *(m)**	0-600	600-1200	1200-1800	>1800
Sufficiency of water	75% probability rainfall *(mm)*	>1300	900-1300	500-900	<500
	Soil drainage class	Poorly drained	Imperfectly drained	Moderately well drained	Excessively drained
	Soil texture	C, ZC, ZCL, L	SC, SCL, ZL, Z	SL	S, LS
	Soil depth *(cm)*	>80	60-80	40-60	<40
Sufficiency of nutrients	pH of flooded soil	6-7	5 6	4.5-5	<4.5
			7-8	8-8.5	>8.5
Salinity hazard	EC_e *(mS cm^{-1})*	<3	3-5	5-7	>7
Ease of water control	Slope angle *(degrees)*	<1	1 -2	2-6	>6
Ease of cultivation	Stones and rock outcrops *(%)*	Nil	1-5	5-10	>10

* Elevation is used to assess sufficiency of energy where temperature data are not available; these values apply to Sri Lanka.
Source: Dent and Ridgway (1986).

The construction of a table of limiting values for each land suitability class (see Table 6) is a central operation in land evaluation. To do this, information is needed on the performance of a land-use type over a range of sites, taken either from trials or the experience of land users.

The land requirements for several individual crops can be combined to assess the needs of a land-use type that includes several crops grown together or in rotation.

Matching land use with land

The first stage in matching is to compare the requirements of each land-use type with the land qualities of each land unit. The simplest procedure is to:

- check measured values of each land quality or characteristic against the class limits;
- allocate each land unit to its land suitability class according to the most severe limitation (Fig. 8).

For cases in which at least one limitation is enough to render the land unsuitable for the use, the method of taking the most severe limitation is valid. For example, for maize cultivation it is of no use having level land and sufficient rainfall if the soils are highly saline. For less severe values of limitations, alternative methods of combining ratings for individual qualities can be used.

Matching, however, can become a wider process than the simple comparison of requirements with qualities. Wherever this initial comparison shows certain land units to be unsuitable for a given use, the specification of the land-use type can be examined to see if, by modifying it, the suitability of those land units can be raised.

Land suitability classification

The comparison of requirements of land-use types with properties of land units is brought together in a land suitability classification. Suitability is indicated separately for each land-use type, showing whether the land is suitable or not suitable, including - where appropriate - degrees of suitability (Table 5). The major reasons for lowering the classifications, i.e. the land limitations, should be indicated (because of erosion hazard in one area or a high water-table in another, for instance). In large or complex surveys involving many mapping units land evaluation can be assisted by the use of geographic information systems. A major facility is that, if the land suitability data are entered into such system, when a change is made to one or more limiting values, new maps of land suitability can be rapidly produced.

The outputs are:

- land suitability maps, showing the suitability of each land unit for each land-use type
- descriptions of these land-use types.

The descriptions of land-use types are given in a degree of detail appropriate to the level of planning. At the national level, only outline descriptions of major kinds of land use may be needed. At district and local levels, land-use type descriptions should specify the management, inputs (e.g. seeds, fertilizer, fuel) and estimated production (see Table 3). Such information will later be needed to make provision for the supply of inputs and for storage, distribution and marketing

Annex D: Sample Environmental Codes of Practice (ECOP)

These sample Environmental Codes of Practice aims to manage and mitigate potential adverse environmental impacts of all project activities and interventions. The sample ECOPs contain specific and detailed measures that would mitigate potential impacts of each type of eligible activity and may be subject to further improvement. The ECOPs contain general guidelines applicable for any construction activities (Table 1), ECOP for the agricultural farming activities (Table 2), and ECOP for livestock/agro-enterprises production (Table 3).

Table 1: ECOP for General Construction Activities

ECOP for General Construction Activities	
Impacts (Possibility)	**Mitigation Measures (Prevention)**
Soil erosion/runoff	- Schedule construction activities during dry season as much as possible. - Contour and minimize length and steepness of slopes if any. - Use mulch, grasses or compacted soil to stabilize exposed areas. - Cover with topsoil and re-vegetate (plant grass, fast-growing plants/trees) construction areas quickly once work is completed.
Air quality and dust generation	- Minimize dust from exposed work sites by applying water on the ground and roadways regularly during dry season. - Avoid burn site clearance debris (trees, undergrowth) or construction waste materials. - Keep stockpile of aggregate/sand materials covered to avoid suspension or dispersal of fine soil particles during windy days or disturbance from stray animals. - Reduce the operation hours of generators /machines /equipment /vehicles as much as possible. - Regular maintenance of generators/machines/equipment/vehicles. - Control vehicle speed when driving through community areas is unavoidable so that dust dispersion from vehicle transport is minimized.
Water quality	- Activities should not affect the availability of water for drinking and hygienic purposes. - No soiled materials, solid wastes, toxic or hazardous materials should be poured or thrown into water bodies for dilution or disposal. - Provision of toilets with a temporary septic tank at construction site. - The flow of natural waters should not be obstructed or diverted to another direction, which may lead to drying up of riverbeds or flooding of settlements. - Separate as best as possible concrete works in waterways and keep concrete mixing separate from drainage leading to waterways.

ECOP for General Construction Activities	
Impacts (Possibility)	**Mitigation Measures (Prevention)**
Noise	- Plan activities in consultation with people living in the immediate vicinity so that noisiest activities are undertaken during periods that will result in least disturbance. - Use noise-control methods such as fences, barriers, etc. - Minimize project transportation through community areas where possible. - Maintain a buffer zone (such as open spaces, row of trees or vegetated areas) between the project site and residential areas to lessen the impact of noise to the living quarters. - Avoid doing construction works at night-time.
Construction debris/wastes	- Collect, store and transport construction waste to appropriately designated/ controlled dump sites. - On-site storage of wastes prior to final disposal (including earth dug for foundations) should be at least 50 meters from rivers, streams, lakes and wetlands. - After each construction site is decommissioned, all debris and waste shall be cleared.
Hazardous materials and wastes (oils, grease, oily rags, empty chemical containers)	- Segregate hazardous construction waste from non-hazardous waste. - Use secured area for refueling and transfer of other toxic fluids distant from settlement area (and at least 50 meters from drainage structures and from important water bodies); ideally on a hard/non-porous surface. - Store fuels, oils and chemicals safely in areas with impermeable ground with roods and surrounding banks. - Train workers on correct transfer and handling of fuels and other substances - Require the use of gloves, boots, aprons, eyewear and other protective equipment for protection in handling highly hazardous materials. - Collect and properly dispose of small amount of maintenance materials such as oily rags, oil filters, used oil, etc. Never dispose spent oils on the ground and in water courses as it can contaminate soil and groundwater (including drinking water aquifer).
Community Safety and Health	- Rope off construction area and secure materials stockpiles/ storage areas from the public and display warning signs including at unsafe locations. - Do not allow children to play in and around construction areas. - If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours, if needed. - Control driving speed of vehicles particularly when passing through community or nearby school, health center or other sensitive areas.

ECOP for General Construction Activities	
Impacts (Possibility)	**Mitigation Measures (Prevention)**
	- Fill in all earth borrow-pits once construction is completed to avoid standing water, water-borne diseases and possible drowning. - Avoid occurring labor influx around construction sites. - Avoid working at night. - Recommend hiring construction labor from nearby communities. - Inform communities on the gender-based violence policy (GBV). - Make sure that the community is aware of GRM and can access it.
Worker Code of Conduct	- Provide training to workers on code of conduct. - Ensure all workers have read and agreed to the code of conduct and have signed it.
Cultural Heritage	- No disturbance of cultural or historic sites. - If any archaeological site, historical site, remains or objects are found during excavation or construction, chance find procedures shall proceed immediately.

Table 2: ECOP for Agricultural Farming Activities

ECOP for Agricultural Farming Activities	
Impacts	**Mitigation Measures**
Impact on habitats	- Avoid introduction of invasive or non-native species
Unsustainable practices affecting environment, natural habitats	- Use sustainable agricultural practices, approaches and techniques such as agroforestry, crop rotation, Integrated Pest Management (IPM)
Soil erosion and reduction in soil fertility	- Reduce top soil losses from erosion by implementing soil erosion control measures such as cover crops and mulches, establishing leguminous ground cover and apply plant residues, grass barriers - Plant grass in strips along the contour lines
Excessive use of water	- Implement water conservation and efficient use of water
Excessive use of agrochemicals that contributes to soil and water toxicity	- Implement pest management, reduce misuse of agrochemicals - Recycle and reuse agricultural waste through composting

Table 3: ECOP for Livestock Production/Agri-Enterprises

ECOP for Livestock Production	
Impacts	**Mitigation Measures**
Impacts on soil and resources	- Promote efficient storage, handling and use of feed by maintaining records of feed purchases and livestock feed use. - Use covered or protected feeders to prevent feed from exposure to rain and wind. - Consider mixing of waste feed with other recyclable materials destined for use as fertilizer, or else consider incineration or land disposal options. - Grind feed to increase utilization efficiency by the animals, allowing the use of less feed and thereby reducing the amount of manure generated (as well as increasing the production efficiency).

ECOP for Livestock Production	
Impacts	**Mitigation Measures**
	- Conduct manure spread only as part of well-planned strategy that considers potential risks to health and the environmental due to the presence of chemical and biological agents as well as nutrient balance in an agricultural setting. Ensure that manure is applied to agricultural land only during periods that are appropriate for its use as plant nutrient (generally just before the start of the growing season). - Regular cleaning of livestock sheds and feeding pens. - Use mechanical controls (e.g. traps, barriers, light, and sound) to kill, relocate, or repel pests. - Consider covering manure piles with geotextiles (which allow water to enter the pile and maintain composting activity) to reduce fly populations. - Promote conditions for natural predators to control pests. - Protect natural enemies of pests by providing a favorable habitat (e.g. bushes for nesting sites and other native vegetation) that can house pest predators.
Air quality	- Increase the carbon to nitrogen ratio in feeds to reduce methane and nitrous oxide production. - Control the temperature, humidity, and other environmental factors of manure storage to reduce methane and nitrous oxide emissions. This may involve use of closed storage tanks or maintaining the integrity of the crust on open manure storage ponds / lagoons. - Regularly collect and store manure for composting and later application to fields to reduce noxious odors and to limit spread of pathogens. - Improve the productivity and efficiency of livestock production (thus lowering the methane emissions per unit of livestock) through improvements in nutrition and genetics. -
Water quality	- Fence off water bodies from grazing animals. - Ensure production and manure storage facilities are constructed to prevent urine and manure contamination of surface water and groundwater (e.g. use concrete floors, collect liquid effluent from pens, and use roof gutters on buildings to collect and divert clean storm water). - Keep waste as dry as possible by scraping wastes instead of, or in addition, to flushing with water to remove waste. - Locate manure stacks and urine away from household area, water bodies, floodplains, wellhead fields, or other sensitive habitats.
Water resources	- Reduce the amount of water used during cleaning (e.g. by using high-pressure, low-flow nozzles)

ECOP for Livestock Production	
Impacts	**Mitigation Measures**
Community health and safety	- Reduce mortalities through proper animal care and disease prevention. - Any sick or injured animals should be treated or cared for to alleviate pain and distress as soon as practically possible, including being isolated or humanely destroyed if necessary. - Animals should be confirmed dead before disposal, and any still alive should be euthanized immediately. Dead animals should be removed promptly and disposed of appropriately. - Identify and contain sick animals and develop containment and cully procedures for adequate removal and disposal of dead animals in accordance with the guidance from LBVD.

Annex E: Sample Environmental and Social Assessment Guidelines and ESMP Templates

- **Annex E-1: Access Roads, Small Bridges and Tramline**
- **Annex E-2: Water Supply**
- **Annex E-3: Irrigation**
- **Annex E-4: Post-Harvest Facilities**
- **Annex E-5: Production and Enterprise Facilities**

Annex E-1: Environmental and Social Assessment Guidelines and ESMP Template for Access Roads, Small Bridges and Tramline[18]

This template is designed to rapidly identify and assess the environmental issues and associated mitigation/management measures in access roads, small bridges and tramline funded under MIADP. This template consolidates all safeguards aspect of access roads subprojects as found in various project documents.

The Access Roads and Small Bridges may consist of new/rehabilitated/upgraded access to value chains through market-oriented all-season roads/tracks/pathways that are linked to an existing sealed, market access road. These may be traffic roads which 50 vehicles average daily traffic or development roads which falls below the average daily traffic and are seasonal in usage (i.e. during harvest period). Of the total physical target of 108 kms for access, about 20 percent are considered traffic while the rest (80 percent) are development (non-traffic roads). This is mainly because ancestral domains are protected areas and cannot be opened to more traffic as it would disturb the habitats and biodiversity of the area. AR and bridges are paved tire tracks, walkways, access roads, and wheel paths that are about either made of asphalt/concrete or gravel-paved. Infrastructure designs would be based on DPWH standards. The bridges may be made of steel or concrete. The AR in ADs shall be designed to integrate road safety features such as reflectorized road signs, safety barriers, and other reflectors. The tramline are strictly for cargo use only and no person shall ride the tram car. The tramline or ropeway operators shall be trained and shall observe the maximum weight capacity of each tram car. The tramlines will operate mechanically or manually. The implementer of the tramline shall follow the specification standards prescribed by the Project to avoid substandard parts.

Name of Road/Bridge/Tramline:	
Location:	
Implementing IPO/LGU	
Estimated Number of Beneficiaries:	
New or Rehabilitation:	
Estimated Total Cost:	

A. Site and Design Consideration

(Do not proceed with the subproject preparation including this ESMP unless all items below (1,2 and 3) are confirmed true.)

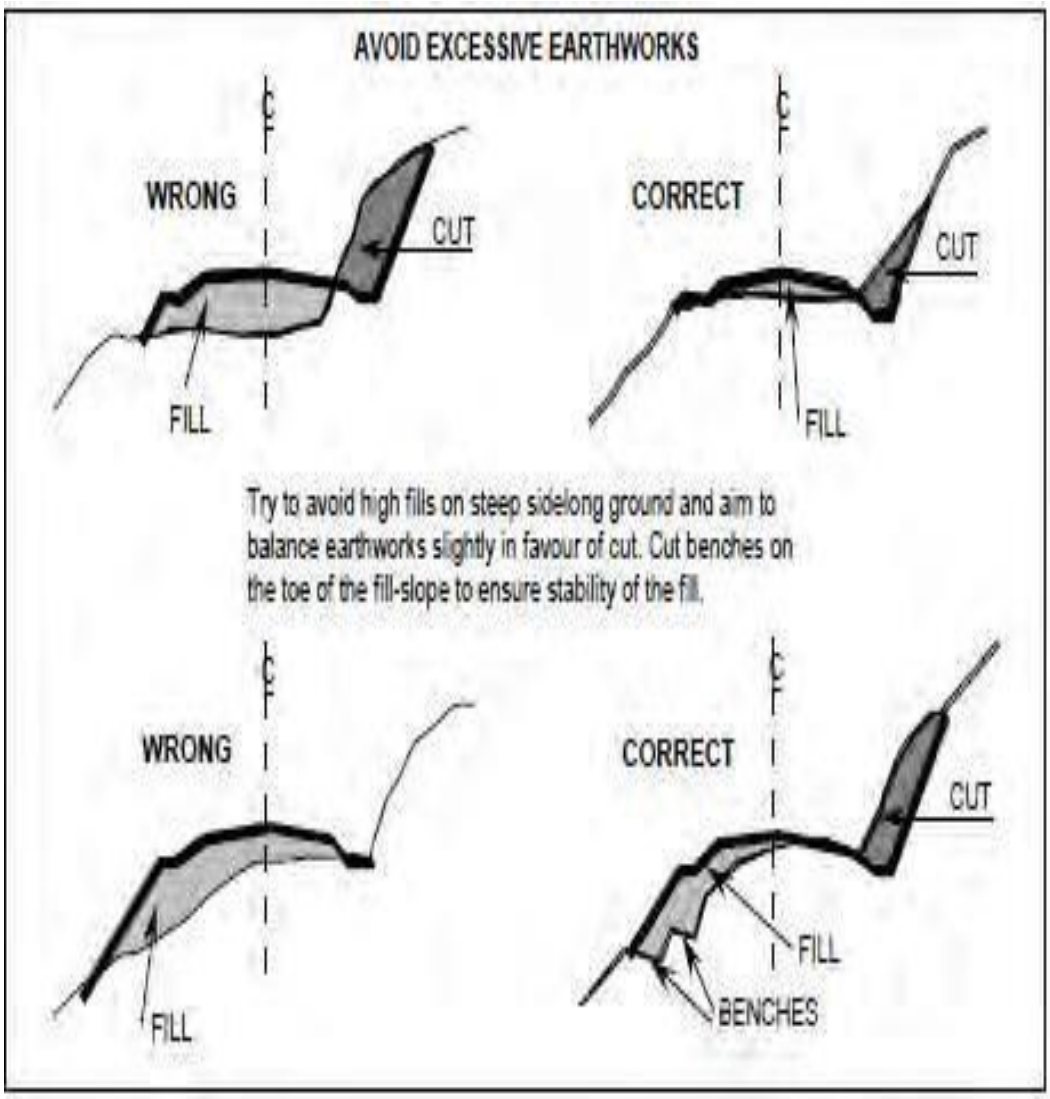
1. The Road does not encroach into or traverse any declared protected area of natural habitat (*c.f. Loan Agreement: MIADP will not fund subprojects located inside a declared Protected Area*);
2. The subproject will not displace, disfigure or render inoperable/inaccessible any monument or physical structure of known cultural and historical significance.
3. The subproject will not require land conversion.

B. Environmental Issues and Mitigation Measures

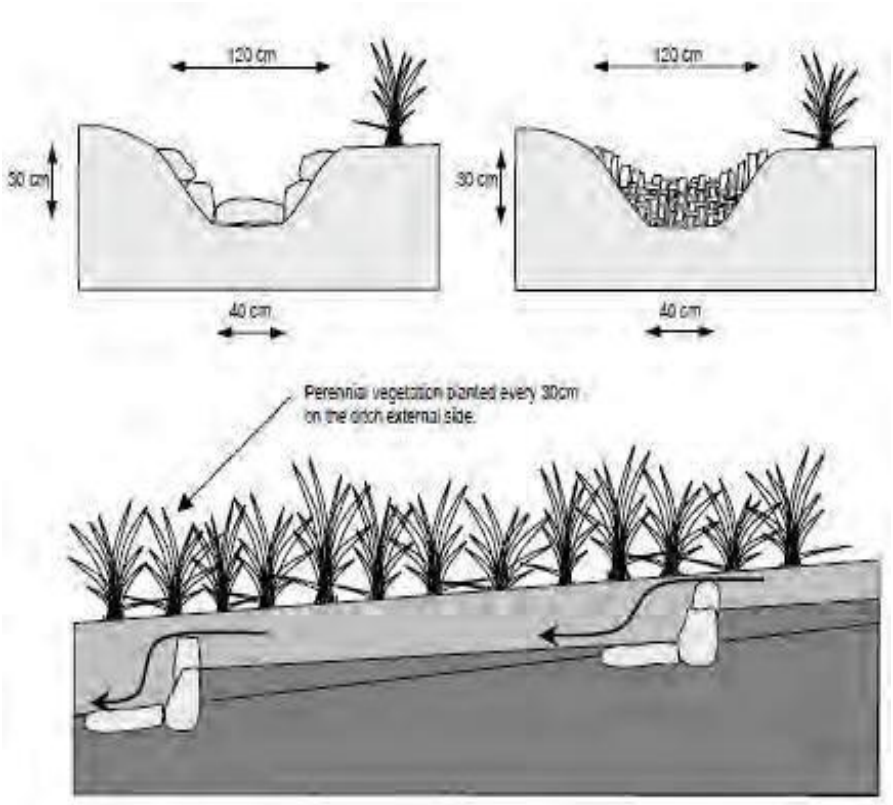
Mitigation measures to avoid adverse impacts of construction of AR and small bridges include:

1. **Minimize earthworks.** If the alignment lies on steep sidelong (steep slope) ground, the centerline has to be carefully located to minimize earthworks. However, it should be located in favor of cut material, rather than fill, to reduce the risk of the fill material sliding down the slope.

[18] Chain-hoist-pulley

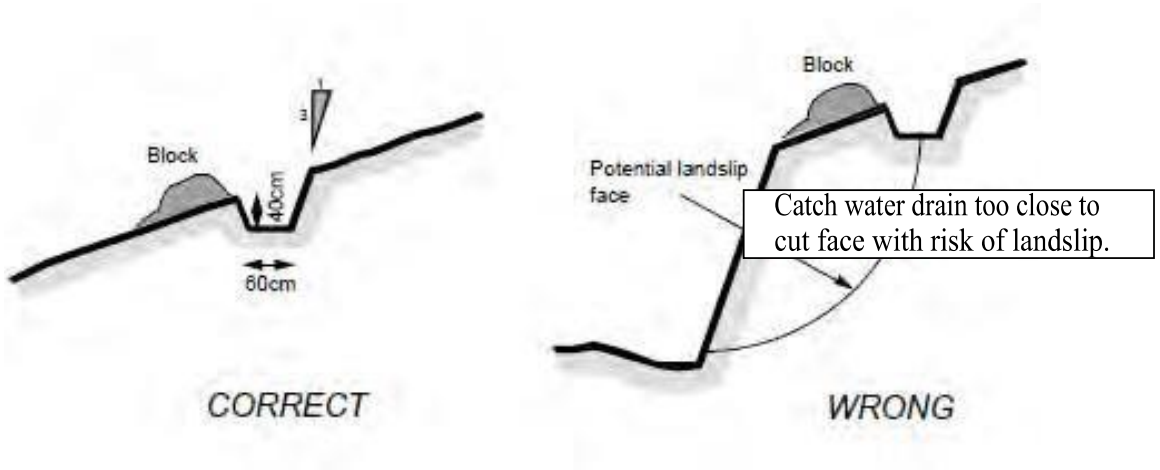


2. **Pay particular attention to drainage.** The removal of surface water is crucial for the success of rural roads, since at this traffic level the weather causes more damage than does the traffic. This means that a good camber of 1.5% for PCCP and 3% for gravel shoulder, adequate side drains, and carefully designed cross drainage structures are required. Where side ditches are provided, they must be equipped with scour checks if the gradient exceeds 4% and mitre drains (or turnouts) every 20 meters to protect against erosion. A typical scour check is shown in the following figure:

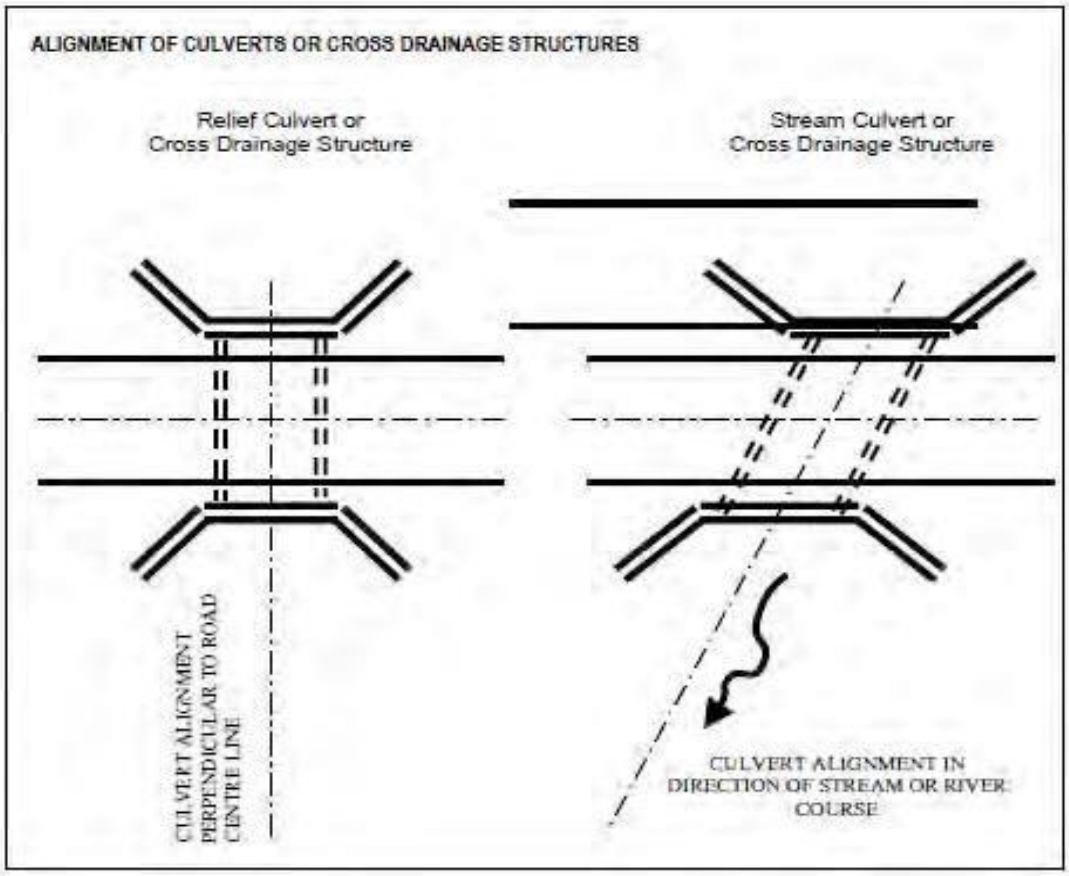


Scour checks are to be installed every 5m (slope >8%); 8m (8% >6%); 15m (<6%)

Catch water drains are usually required in hilly or mountainous terrain where there is a lot of surface water. This needs to be collected and safely led away before it reaches the excavated slope on the hillside.

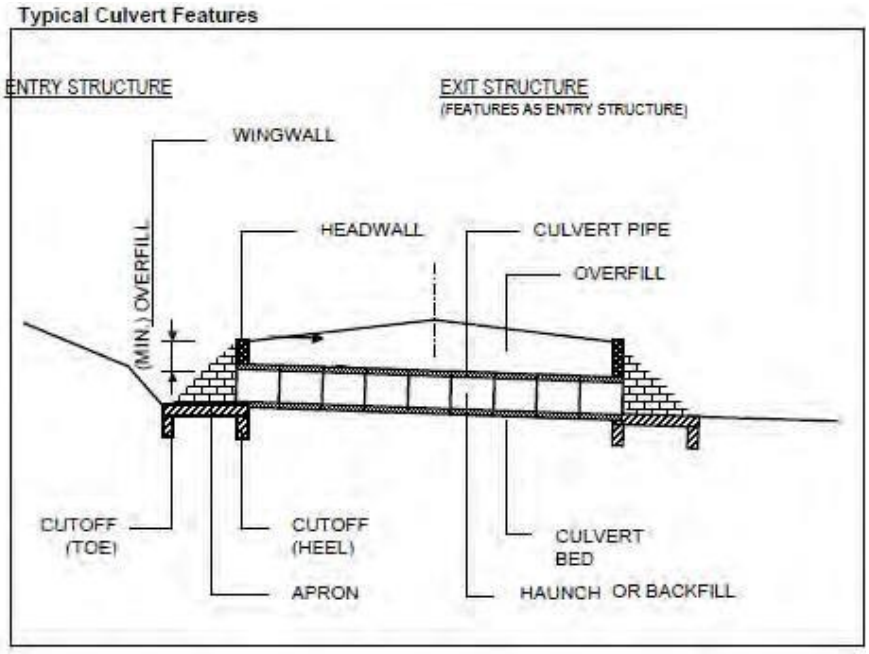


Relief culverts or cross drainage structures are placed perpendicular to the (horizontal) road alignment. Stream culverts must be set out in the direction causing the lowest possible disruption to the natural flow of the watercourse.



Important Notes Working With Culverts:

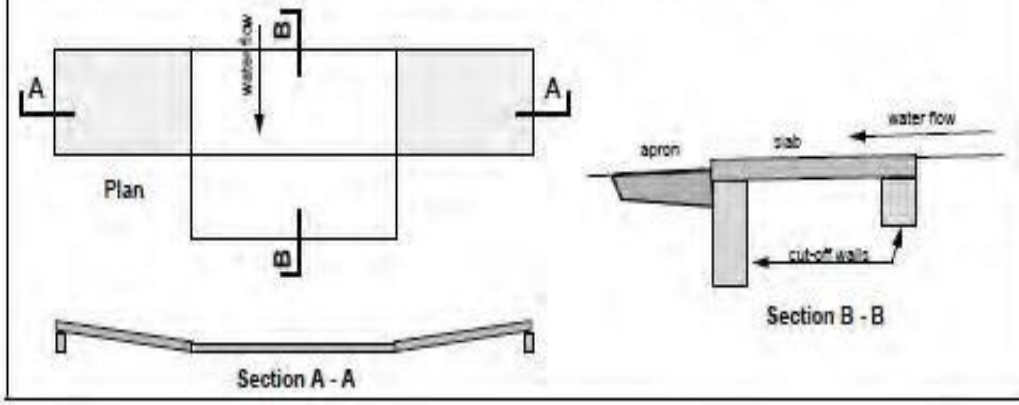
- Particular attention must be given to location and levels of culverts to prevent erosion, siltation and long outfalls.
- In general culvert outfall drains should not exceed 20m length.
- Some locations require the road alignment to be raised to accommodate the culvert. The maximum ramp gradient should be 5%.
- Culvert rings should be well seated on a shaped bed (check with template and boning rods), or concrete bedded.
- Overfill must be at least 0.60 m over the top of the culvert.
- Provision of haunching or full concrete surround is required if overfill is less than 2/3 barrel diameter
- Provision of cement stabilised bedding, haunching or full concrete surround is required in poor in situsoil.
- Dry stone headwalls may be adequate for intermittent flows.
- Masonry, concrete or brick aprons are always required.
- Masonry/concrete/brick headwalls and outlet apron cut-offs are required for permanent water courses or high flows.
- All aprons should have cut – off walls, toe and heel, on both inlet and outlet slides.



Drifts or spillways are very common structures especially in areas where rivers are seasonal. In case where a constant flow of water has to be accommodated, vented drifts are built. Short – span bridges can be built as box culverts or stone-arch culverts. Some principal features are provided in the following diagrams:

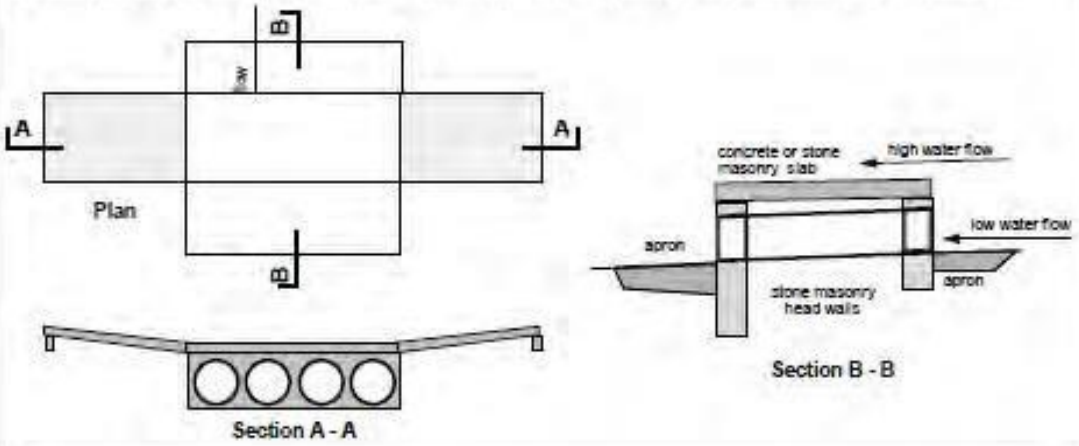
Drift

Drifts are built where there is only little or no water flowing in a river during most of the times. During rainy season when floods are high, the water overtops the drift. Drifts can be built using locally available stones (masonry, gabions) or concrete where no stones are available or the quality must be high.



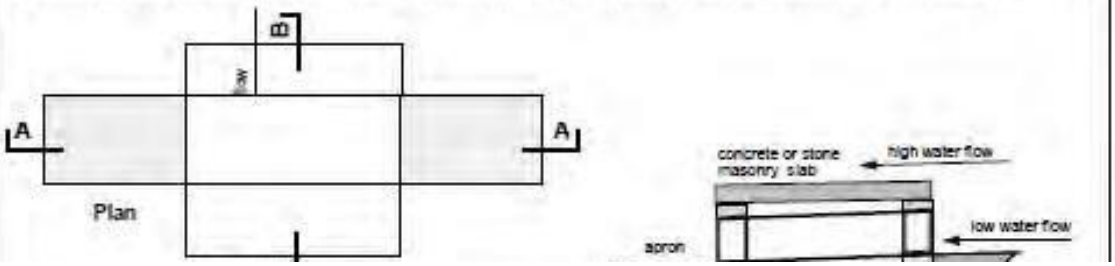
Vented Drift

The culvert pipes accommodate the normal water flow. During high floods the water is allowed to overtop the structure. In most cases the slab is made of concrete or masonry. The head walls are masonry while the culverts can be of concrete or steel (Armco). Also mini arches made of masonry are possible.



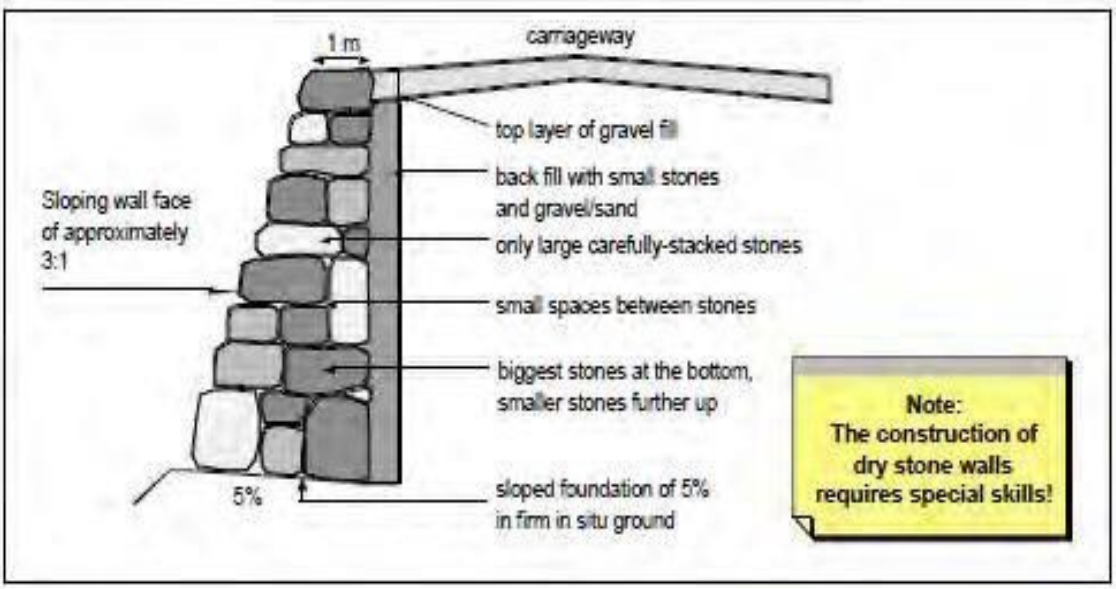
Vented Drift

The culvert pipes accommodate the normal water flow. During high floods the water is allowed to overtop the structure. In most cases the slab is made of concrete or masonry. The head walls are masonry while the culverts can be of concrete or steel (Armco). Also mini arches made of masonry are possible.

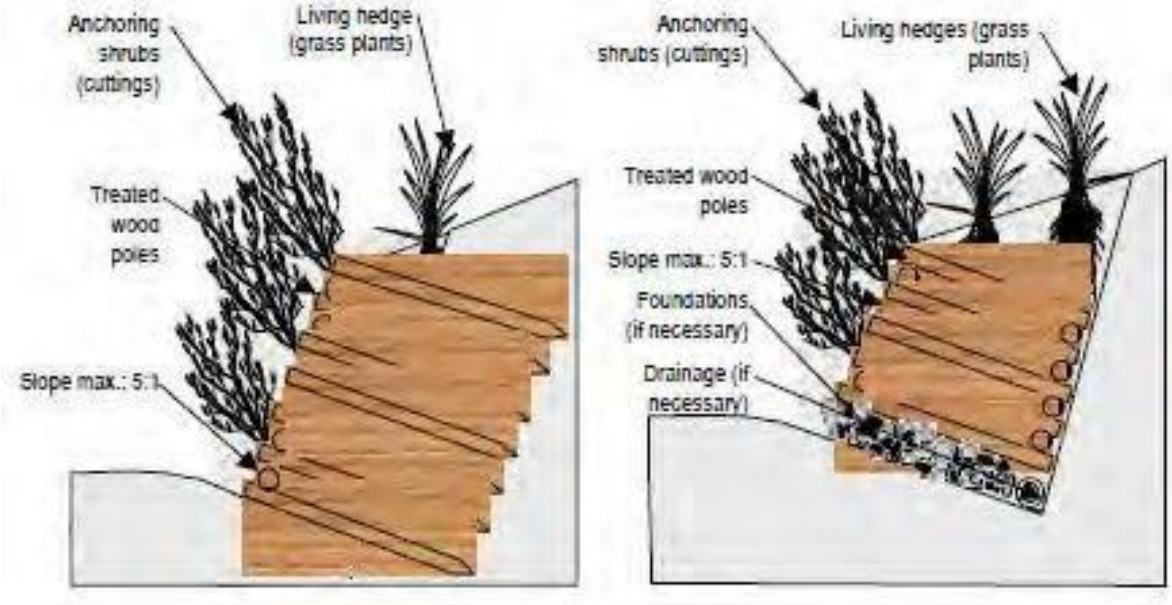


4. **Common structures for sloped areas and raised roads.** Special attention must be paid to slope stability. Existing alignments are usually fairly stable, and problem areas are obvious. However, new alignments can precipitate slip failure on uphill cut-faces, and create severe erosion problems downstream of drainage outlets. Considerable care must be taken with stabilization measures.

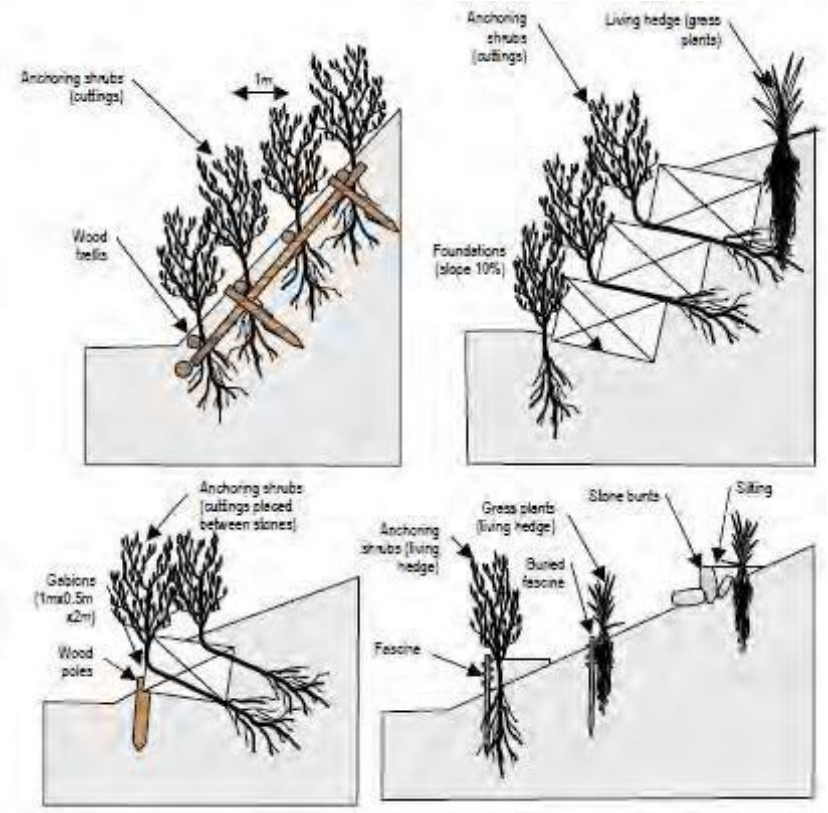
Retaining walls are required on both the valley and mountain side depending on the stability of the material, especially where vegetation cannot stabilize the slopes. Retaining walls should be constructed using dry masonry for heights up to 4 meters and gabion walls for heights above 4 meters or where there is increased earth pressure. Cement-bound masonry should only be used where absolutely necessary. A typical design of dry masonry wall is shown below:



Bio-engineering approaches, utilizing appropriate plants (e.g.vetiver grass) to solve structural and environmental problems, have proven very cost-effective in many areas. These sustainable methods are both labor-intensive and replicable for rural areas. An example of a bio-engineered retaining wall is shown below:



Another example of a bio-engineered slope protection approach is shown below:


Anchoring shrubs (cuttings)
1m
Wood trellis
Anchoring shrubs (cuttings)
Living hedge (grass plants)
Foundations (slope 10%)
Anchoring shrubs (cuttings placed between stones)
Gabions (1mx0.5m x2m)
Wood poles
Anchoring shrubs (living hedge)
Grass plants (living hedge)
Stone bunds
Silting
Buried fascine
Fascine

Instructions in completing the EMP for Access Roads/FMR, Small Bridges and Tramlines:

- The following are issues frequently associated with Access Roads / Farm to Market Roads and Small Bridges. Issues include alleged/perceived impacts, potential impacts, health and safety and environmental risks. Entries in the "Assessment" column should describe or provide qualifications regarding the significance of the issues. Issues that are deemed critical or significant should have a corresponding entry in the "Mitigation" column.
- Instrument of Implementation should indicate how and where the measures will be implemented in the Subproject.
- Please feel free to add, delete or modify any of the items in the template. You may re-state/edit the columns on issues/assessment/mitigation measure as deemed applicable to the specific conditions of the subproject.
- In preparing the ESMP below refer to the Environmental and Social Assessment Section of the FS for specific safeguards issues and assessments.

Issue *(Potential Impact)*	**Assessment** *(Please choose applicable items and delete those that are irrelevant)*	**Mitigation Measure** *(Please choose applicable items and delete those that are irrelevant)*	**Schedule of the Mitigation Measures/ Instrument of Implementation / Responsible Unit** *(Please fill-up this column accordingly)*
Delays in the construction if electric posts will not be removed immediately within the road	☐ Road will affect ____ number of electric posts that needs to be relocated during implementation ☐ The road will not affect any electric posts.	☐ LGU to coordinate with concerned electric company on the relocation of affected electric posts during implementation ☐ Secure LGU and Electric Cooperative Agreement on Relocation of Electric Post with agreed timeline to avoid delays in the construction and to ensure safety if electric posts pose hazards to the community. ☐ LGU to allocate budget for Agreement on Relocation of Electric Post if cost for transfer is to be charged against LGU funds ☐ LGU and Electric company to ensure implementation of the Agreement on Relocation of Electric Post on (agreed timeline)	Prior to implementation / LGU and Electric Cooperative Agreement on Relocation of Electric Post IPO/LGU
Community and occupational safety hazards if electric posts	☐ Road will affect __number of electric posts that needs to be relocated during implementation	☐ In case delay is not avoided and location of electric posts will pose hazards, Contractor will avoid	During implementation/ Revision of implementation schedule or installation of safety signage and devices

will not be removed immediately within the road	☐ Location of the electric posts will pose hazards during construction if not immediately transferred ☐ The road will not affect any electric posts.	works in the surrounding area until such time the electric posts have been relocated/ transferred. ☐ Contractor should install safety and warning signage or devices surround the electric post as administrative control until such time electric posts have been relocated/ transferred.	Contractor
Potential loss of crops, trees and other productive assets used for livelihood	☐ Road will entail damages to crops/trees or limit access to productive asset which are source of livelihood	☐ IPO to coordinate with IPS to negotiate with PAPs to agree on fair compensation	IPO/IPS/BLGU (It should be noted though that all losses or damages to crops/productive assets should have been resolved and validated by NCIP as requirement for approval of SP. However, additional or unanticipated losses may be identified during implementation or construction)
Potential damage to existing road due to hauling of quarry materials	☐ Hauling of quarry materials to and from will cause damage to existing roads ☐ Hauling of quarry materials to and from will not cause damage to existing roads	☐ Regular maintenance and repair of existing road by the contractor ☐ No measures required	During implementation/ Contract / Contractor
Temporary increase in sedimentation during construction	☐ Topography of the road alignment necessitate massive earthmoving and cutting of clayey or loose topsoil ☐ Cut materials will consist mainly of hard rocks and are unlikely to generate significant sediments ☐ The road will traverse a mountainous area necessitating deep cuts on mountainsides, particularly between station __ and __, etc. (Check DED for deep cuts)	☐ Earthmoving/ cutting of slopes to be done during dry months ☐ Proper disposal and compaction of soils ☐ Install temporary canals or runoff waterways directed to temporary stilling ponds ☐ No measures required	During implementation DED/POW; Contract Contractor
Landslide and/or soil surface erosion resulting in sedimentation of waterways	☐ The exposed slopes will likely consist of highly erodible loose materials. ☐ The cut slopes will be hard materials that would resist erosion ☐ The road passes through a relatively benign terrain, cuts will be minimal ☐ The rehabilitation work does not involve additional road cuts	☐ Include slope protection works at the following stations: _____ (Specify the type/s of slope protection to be applied at each section- Consult with the Municipal Engineer. ☐ Bioengineering with geomap and cover crop	During implementation DED/POW; Contract Contractor

		☐ Fast growing shrub ☐ Riprap ☐ Gabions ☐ Terracing ☐ Concrete protection wall ☐ Others_____	
Potential contamination of surface and groundwater with oil/grease	☐ Waste oil, grease, diesel and gasoline from equipment could contaminate surface water ☐ There will be no or insignificant amount of waste oil/grease	☐ Proper handling and disposal of waste oil, grease, diesel and gasoline ☐ Proper disposal of oil and gasoline containers and drums	During implementation/ Contract. Contractor
Potential contamination with human waste	☐ Construction workers would be temporarily housed in a base camp ☐ Workers would be mostly locals and are expected to go home to their respective houses after work	☐ Set up adequate latrine/toilet facility at the base camp	During implementation / Contract / Contractor
Potential dust/mud nuisance during construction	☐ Roads could become powdery during dry days and muddy during rainy days of the construction period ☐ Access road and/or the construction/rehabilitation works passes through a populated area ☐ Access road and/or construction rehabilitation does not pass through any populated area	☐ Undertake water sprinkling during dry days ☐ Undertake filling of potholes during rainy days ☐ Set up speed limits for vehicles, especially near residential areas ☐ No measures needed	During implementation/ Contract/ Contractor
Inadequate drainage resulting in flooding or ponding	☐ The road will block runoff, resulting in flooding on one side of the road during rainy days. ☐ Drainage issues unlikely	☐ Installation of cross drains at the following stations: _____ _____ _____	During implementation / Detailed Engineering Design (DED) / Contractor
Presence of dangerous road sections due to road topography and elevation	☐ Poor horizontal and vertical road alignment ☐ High road embankments pose hazard to road users	☐ Provision of Guard Rails/concrete railings at the following stations: _____ _____ _____ ☐ Planting of hedgerows at the following stations: _____ _____ _____ ☐ Provision of pavement markings to critical curves ☐ Installation of road signs at the following stations: _____ _____ _____ ☐ Set speed limit	During project implementation / Project of Works (POW) / Contractor

Possible discovery of artifacts, fossils, bones, or other objects of interests during construction of the road	☐ Discovery of artifacts bones and other objects of interest within 10 meter radius ☐ Discovery of artifacts, bones and other objects of interest outside 10 meter radius	☐ Suspension of the activities and immediately report to the LGU and RPCSO SE Focal Person	During implementation / Contract; Archaeological and Paleontological Chance Finds Procedure of MIADP Contractor / LGU
Local employment	☐ Construction will provide local employment opportunities	☐ Hiring priority shall be given to qualified locals ☐ No measures required	During implementation / Contract / Contractor
Grievance during construction	☐ Unclear policy on project implementation; there is no acceptable grievance redress mechanism in place. ☐ The project has already established an acceptable policy on addressing grievances ☐ Access to the Grievance Redress Mechanism (GRM posters and Grievance Form Drop Boxes) is available in strategic locations at all levels of project implementation: Project Site Barangay Hall/s Municipal Hall/s Provincial Hall	☐ Establish an acceptable policy on project implementation and grievance redress mechanism ☐ Assign a Grievance Point Person (GPP) ☐ Monitor grievance resolution status and prepare report	During implementation / Operation and Management Plan (O&M)/ IPO and LGU Grievance Point Person/Grievance Officer
Potential acceleration of denudation of the upland/hilly areas due to intensification of crop production	☐ The proposed road will connect to the market an upland/hilly area where farmers are currently practicing erosive farming techniques. The road could help accelerate the denudation of the upland/hillsides rendering them unproductive in a few years. ☐ The road connects only lowland farms to the market	☐ DA to coordinate with LGU for the introduction of sustainable upland farming systems in the area ☐ No measure required	After project completion / O&M Plan; Capacity Building Plan / LGU
Potential increased in encroachment of human activities into the nearby public forest	☐ The proposed road will improve human access to the nearby public forest, resulting in increased slash and burn cultivation, illegal logging and poaching. ☐ The proposed road does not improve access to a public forest	☐ Coordinate with DENR on enforcement of forestry laws ☐ Educate workers about restrictions in harvesting forest products ☐ No measure required	After project completion / O&M Plan; Capacity Building Plan / LGU
Potential increase use of pesticides due to intensification of cash crop production in the area	☐ There is an ongoing IPM Project of DA in the service area ☐ Farmers in the service area have not been trained on IPM	☐ DA to continue to support IPM Project ☐ DA to intensify IPM Project in the area thru: _____ _____ _____ ☐ LGU to Coordinate with DA on IPM training	During and after project completion O&M Plan; Capacity Building Plan / LGU

Occupational and health and safety	☐ Workers and local residents will be exposed increased health and safety risk due to construction traffic, heavy equipment operations, deep excavations, obstructions of trails and footpaths, contacts with workers from other areas, and other hazards at construction sites.	☐ Contactor to comply with the safety measures and good housekeeping as per submitted and approved DOLE Occupational Safety and Health Plan	Prior to start of project implementation, Approved DOLE-OSH Plan /Contractor
Labor influx impact	*Assessment should be based on the projected maximum number of non- resident workers to be hired by the subproject given the need and local availability; the cultural vulnerability of host population; crime rates; gender imbalance; current epidemics, cultural differences, exposure of the population to modern ways; etc.*		
Community health and safety	☐ Projected influx >100 and host community is remote and there is risk of spread of HIV/AIDs or other STD ☐ Projected influx >100 and the host community is near the city or population centers and there is no incremental risk to the spread of HIV/AIDS or STD ☐ Project influx <100	☐ LGU/Contractor to undertake health screening of workers ☐ LGU/Contractor to undertake IEC on HIV/AIDS and STD ☐ None required	Contractors contract
	☐ Presence of endemic diseases in the area (Malaria, Schistosomiasis, etc.)	☐ IEC on _____ to workers	Contractors contract
Potential increased in criminality	☐ Projected influx >100 ☐ Projected influx <100	☐ Crime screening of workers ☐ None required	Contractors contract
Potential cultural conflict between host community and migrant workers	☐ Projected influx >100 and host population is IP or community is homogeneous and highly traditional or has different religion or remote and relatively unexposed to modern ways	☐ Contractor to undertake IEC on local culture for their workers and undertake Community Relations Project	Contractors contract
	☐ Projected influx <100 and host community is IP, has different religion than the migrant or highly traditional/remote and relatively unexposed to modern ways, host and migrant population belong to different ethnicity	☐ Contractor to undertake a Community Relations Project	contract

Prepared by: _____

	☐ Projected influx >100 and host community is near city or exposed to modern ways	☐ None required	
	☐ Projected influx <100 and host population and migrant belong to the same ethnicity	☐ None required	
Possible spread of COVID-19 virus adversely affecting Community, Occupational Safety and Health	☐ Neglect of community and workers' rights and welfare during the operations amidst COVID-19 pandemic due to lack of management commitment on its prevention and control ☐ Non-compliance to the DOH minimum health standards and other governmental issuances particularly from IATF, DOH, DPWH, DTI, and DOLE due to lack of capacity, knowledge and resources ☐ Suspension of works due to challenges by COVID-19 pandemic	The Contractor shall duly comply to all the requirements needed prior to deployment and continuation of the operations/ activities during the COVID-19 Public Health Crisis, as set forth in MIADP Guidelines on COSH, a harmonized guide of all national and local issuances relevant to COVID-19	During implementation / Enhancement of Enterprise Operations Manual and installation of relevant COVID-19 prevention and control measures as stipulated in PRDP Supplemental Guidelines on COSH and other relevant issuances/ Proponent Group/Enterprise management, LGU and Barangay
Site Selection, Operation and Abandonment of Batching Plant, Quarry Site, Borrow Pit and Excess Excavation/Waste Dumping Site			

Adopted by:

_____

Noted by the local community:

_____

Barangay Chairman

Annex E-2: Environmental and Social Assessment Guidelines and ESMP Template for Potable Water Supply Projects

[Note: This template is designed to rapidly identify and assess the environmental issues and associated mitigation/management measures in Potable Water Sub-projects funded under MIADP. This template consolidates all safeguards aspect of Potable Water Supply Sub-projects as found in various project documents.]

The Potable Water System (PWS) are community water supply systems that include Level 1 and 2 systems with communal water source (e.g. borewell, spring system) serving an average of 4 – 6 households within a 25-meter distance. Level 2 potable water supply refers to piped water with a communal water point.

Name of Subproject:	
Location:	
Level I or Level II:	
New or Rehabilitation:	
Implementing LGU:	
Number of households:	
Estimated total subproject cost:	

A. Site and Design Consideration

[*Do not proceed with the Subproject preparation including this ESMP unless all items below are confirmed true.*]

1. The subproject involves either: (a) provision of Level I water system; (b) construction of Level II water system; or (c) rehabilitation of existing Level II water system.

2. The water source is not inside a declared protected area of natural habitat (*c.f. Loan Agreement: MIADP will not fund subprojects located inside a declared Protected Area*);

3. Conduct Water Balance for existing water uses and proposed new raw water extraction

4. Conduct vulnerability assessment if the activity functioning / implementation is vulnerable to climate variability

5. The water source is at least 25 meters away from any septic tan*k or any raw wastewater discharges (c.f. Code of Sanitation of the Philippines);*

6. *Either of the fo*llowing is true:

   - There is no prior evidence/s (anecdotal or otherwise) indicating non-potability of the water (such as high coliform, salinity, elevated iron or manganese, etc.) at the proposed water source; or,

   - Or, if there is/are such evidence/s, appropriate preliminary potability test/s conducted on the water has/have disproved it/them; or,

   - Or, if there is evidence that has not been disproved by potability test, said water quality problem can be adequately addressed by the appropriate and acceptable design/technology which will be part of the proposed potable water supply system; and,

7. The subproject will not displace, disfigure or render inoperable/inaccessible any monument or physical structure of known cultural and historical significance.

The following are some basic technical guidelines in planning and implementing rural water supply systems.

1. Decide on the level of service to be provided–how, where, and in what quantities water will be delivered to users. System design options are:

a) Single Point systems (Level1), which usually consist of dug wells or small - diameter drilled wells from which water is drawn using a hand- pump.
b) Stand pipes or Communal Faucets (Level II): piped distribution systems which feed a limited number of public or communal taps, each of which serves all households, and other users, in the vicinity.
c) Household Connection (Level III): piped systems which deliver water to taps in individual household compounds or homes.

Definition and Features of Water Supply Systems

Particulars	Level I	Level II
1. Definition	Point source facility Generally. Suitable for areas where houses are sparsely distributed.	Communal faucet system More appropriate in areas where houses are clustered.
2. Water Source	Drilled/drive shallow well. Drilled/driven deep well Dug well Spring Rain collector	Drilled shallow/deep well Spring Infiltration gallery
3. Water Treatment	Generally none Disinfection of wells is conducted periodically by local health authorities.	Generally none.
4. Distribution	None	Piped systems provided with reservoir(s)
5. Delivery of water	At point (within 250-meter radius)	Communal faucet (within 25-meter radius)
6. Service level	15HH/point source 1HH/private well	4 to 6 HH/communal faucet
7. Consumption	At least 20 lcpd	At least 60 lcpd

2. Explore three potential categories of sources of water:

a) Groundwater – occurs under most of the world's land surface, but but there are great variations in the depths at which it is found, its mineral quality, the quantities present and the rates of infiltration (thus yield potential) and the nature of the ground above it (thus accessibility). In hilly areas it emerges from the ground in places as natural springs, otherwise wells have to be constructed and pumps or other lift mechanisms installed.

Factors to Consider for Siting Wells:

Location:

- Locate the well at the highest point on the property.
- Avoid positioning down slope from potential sources of contamination including surface water flows and flooding conditions.
- Locate the well in a site easily accessible for maintenance.
- Define a sanitary protective area around the wellhead that is kept in its natural state.

Potential Contamination:

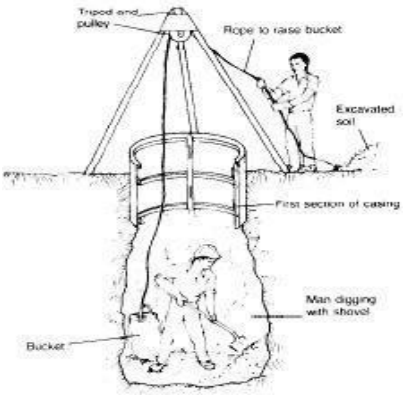
- Yield and quality of water supply will depend on soil type (which determines filtering capacity and transmissivity).
- Coarse gravel, limestone, and disintegrated rock can allow contaminants to travel quickly with little opportunity for natural purification.
- The minimum distances from potential sources of contamination should be considered for sites with sand-like filtering capabilities:
    - 150 ft (45.7 m) from a preparation area or storage area of spray materials, commercial fertilizers, or chemicals that may cause contamination of the soil or groundwater.
    - 100 ft. (30.5 m) from a below-grade manure storage area.
    - 75 ft. (22.9m) from cesspools, leaching pits, and dry wells.
    - 50 ft. (15.2 m) from buried sewer, septic tank, subsurface disposal field, grave animal or poultry yard or building privy, or other contaminants that may drain into the soil.
    - The distance between a septic tank leach field and a down-gradient well should be greater than 100 ft. (305.5 m) if the soil is coarser than the fine sand the groundwater flow rate is greater than 0.03 ft/day (0.01 m/day).

Source: Driscoll, Groundwater and Wells, second edition

The following are methods of developing sources of groundwater:

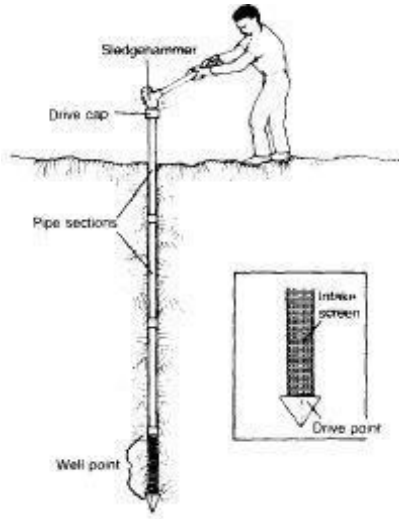
a) Hand-dug Well

Dug wells are excavated by hand shovel to below the water-table until Incoming water exceeded the digger's bailing rate. The well was lined with stones, brick, tile or other material to prevent collapse, and was covered with a cap of wood, stone, or concrete. Modern large - diameter dug wells are dug or bored by power equipment and typically are lined with concrete tile. Because of the type of construction large-diameter bored wells can go deeper beneath the water-table than can hand-dug wells.



b) Drive Well

Driven-point (sand point) wells are constructed by driving assembled lengths of pipe into the ground with percussion equipment or by hand. These pipes are normally 2 inches or less in diameter and less than 50 feet deep. Usually a screened well point is attached to the bottom of the casing before driving. Driven wells are relatively simple and economical to construct. This type of well poses a moderate to high risk and is easily contaminated from nearby surface sources.



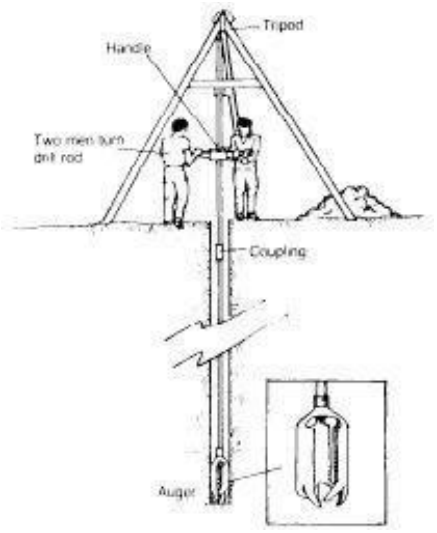
c). Jetted Well

This method of well drilling involves the use of a high velocity stream or jet of fluid to cut a hole in the ground and transport the loosened material up and out of the hole. The equipment used maybe the same equipment that is used for rotary drilling minus the bit. Protective casing should be installed to at least 25 feet and the well should be grouted to a minimum depthof10feet to protect the well against contamination from the surface.

Jetted wells can only be installed in unconsolidated formations and are best suited for bore holes 4 inches in diameter.

d) Bored Well

An earth auger rotated, by hand or power, bores the hole and carries the earth to the surface. Casing is usually steel, concrete or plastic pipe. Borehole diameter ranges from 50 to 200 mm. Bored wells can be up to 15meters deep.



e) Drilled or Cable Tool Well

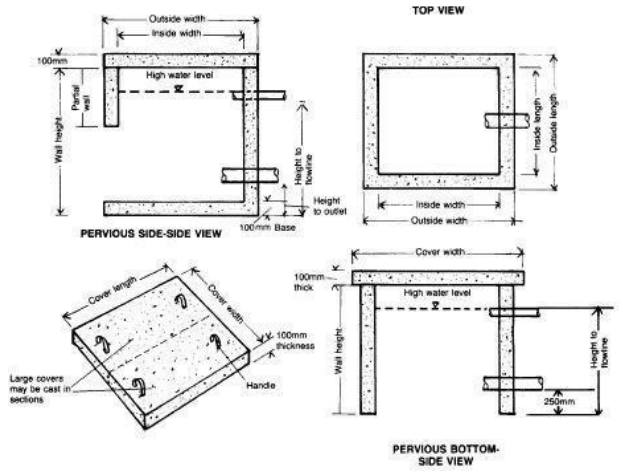
Most modern wells are drilled, which requires a fairly complicated and expensive drill rig. Drill rigs are often mounted on big trucks. They use rotary drill bits that chew away at the rock, percussion bits that smash the rock, or, if the ground is soft, large auger bits. Drilled wells can be drilled more than 1,000 feet deep. Often a pump is placed at the bottom to push water up to the surface.

Comparison of Types of Wells

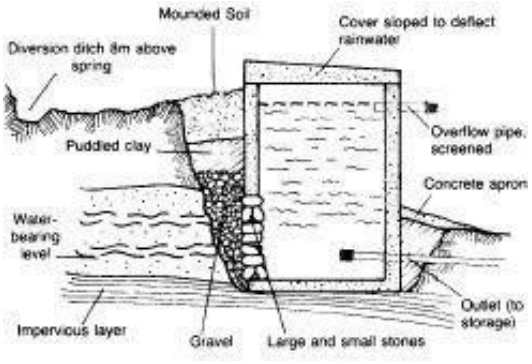
Factor	Well Type				
	Hand-Dug	**Driven**	**Jetted**	**Bored**	**Cable Tool**
Method of sinking shaft	Soil excavated by pick and shovel and lifted out by rope and bucket	Well point and steel pipe driven into ground	Jet of water and rotating action of bit force pipe into ground.	Auger is rotated and fills with soil, lifted out of hole and emptied.	Bit rotated and dropped to pulverize soil and rock; debris is mixed with water.
Average diameter	1.0-1.3m	30-50mm	40mm	50-200mm	50-100mm
Maximum practical depth	10m	8m	60m	15m	75m
Principal tools and equipment	Pick, shovel, rope and bucket, steel form for concrete, hoist for lowering casing	Sludge, drive pipe, or drive weight, raised platform	Boring pipe, raised platform or tripod, pump and hoses, jetting bits	Augers, drill line, raised platform	Motorized vehicle, tripod, pulleys, ropes, heavy drill bits, suction pump

Casing materials	Cement, sand, gravel, and water (for concrete)	Steel pipe	Steel pipe	Steel or concrete pipe	Steel pipe
intake	Porous concrete sections, or gravel-lined bottom	Specially-made well point	Well screen	Well screen or perforated pipe	Well screen
Skill of workers	minimal	minimal	moderate	moderate	Experienced
Outside water needed for construction	no	no	yes	no	Yes

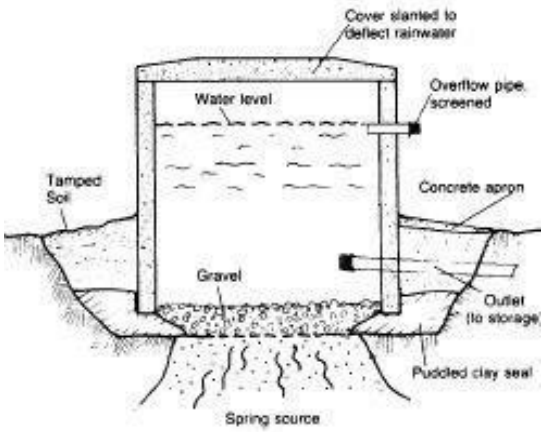
Construction of Structures for Spring Development:



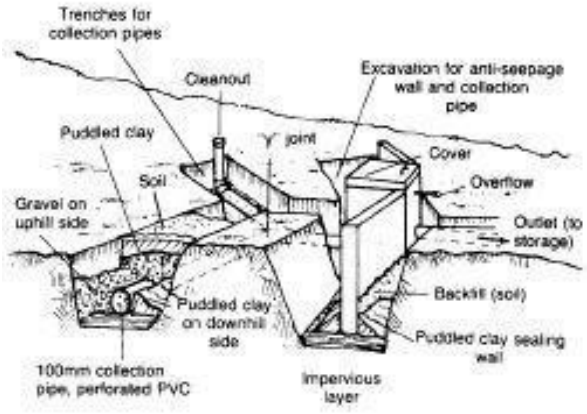
Typical Spring Box Design



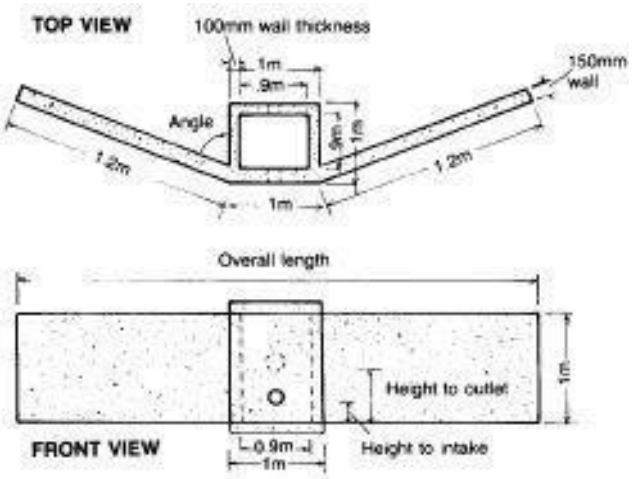
Spring Box with Open Side



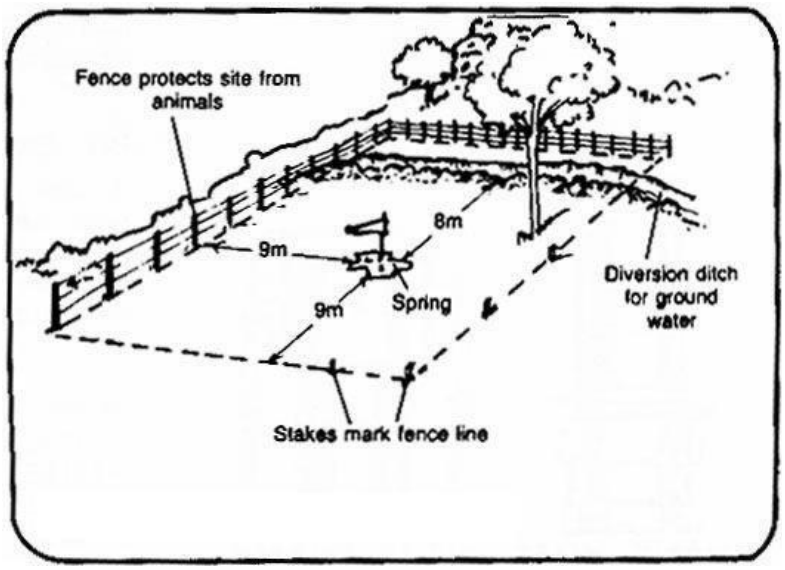
Spring Box with Open Bottom



Seep Collection System



Anti-Seepage Wall and Collection Box

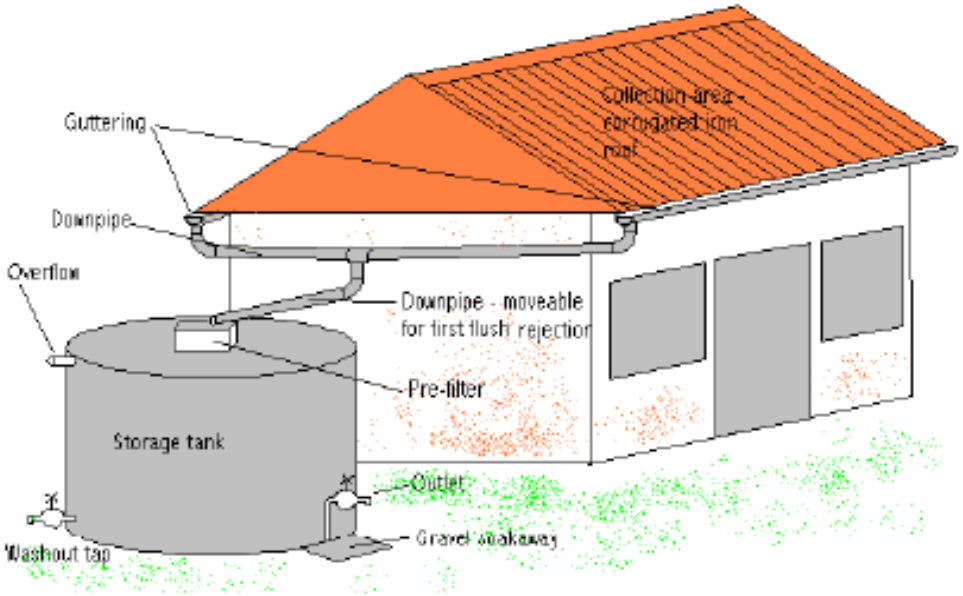


Preparation of spring box to protect it from animals

Watershed protection should be incorporated in the planning for O&M of developed spring water sources.

Rate of discharge and quality of spring water must be assessed during planning and design

Rain Water Collection – from roofs or larger catchment areas, can be utilized as a source of drinking water, particularly where there are no other safe water sources available (for example in areas where ground water is polluted or too deep to economically tap).



Typical domestic rain water harvesting system, showing the main components of the system.

Types of cisterns or rain water collecting tanks

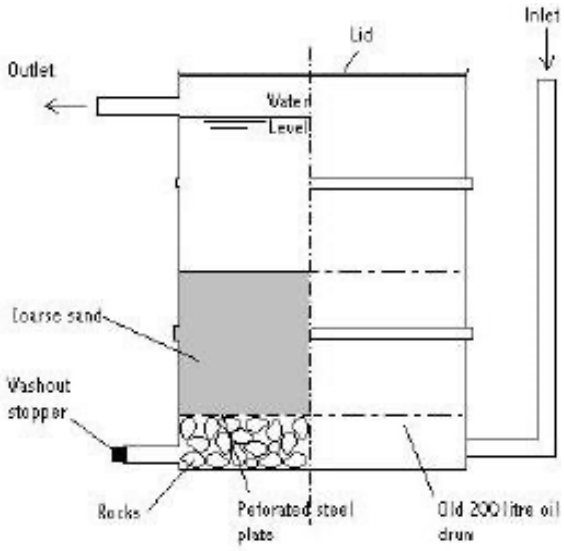
Material	Feature	Caution
Plastics		
Garbage cans (20 – 50 gallon)	Commercially available, inexpensive	Use only new cans

Fiber glass	Commercially available Alterable and moveable	Degradable, requires exterior coating
Polyethylene/polypropylene	Commercially available Alterable and moveable	Degradable, requires exterior coating
Metals		
Steel drums (55 gallon)	Commercially available Alterable and moveable	Verify prior use for toxics, corrodes, and rusts, small capacity
Galvanized steel tanks	Commercial available Alterable and moveable	Possible corrosion and rust
Concrete and Masonry		
Ferro cement	Durable, immoveable	Potential to crack and fall
Stone, concrete block	Durable, immoveable	Difficult to maintain
Monolithic/Poured in place	Durable, immoveable	Potential to crack

Common rain water treatment techniques

Treatment Techniques

Method	Location	Result
Screening		
Strainers and Leaf Screens	Gutters and Leaders	Prevent leaves and other debris from entering tank
Settling		
Sedimentation	Within Tank	Settles particulate matter
Filtering		
In Line/ Multi Cartridge	After pump	Steve sediment
Activated Charcoal	At tap	Removes chlorine
Reverse Osmosis	At tap	Removes contaminants
Mixed media	Separate tank	Traps particulate matter
Slow sand	Separate tank	Traps particulate matter
Disinfecting		
Boiling/Distilling	Before use	Kills microorganisms
Chemical treatments:		
Chlorine or iodine	Within tank or at pump (liquid, tablet, or granule)	Kills microorganisms
Ultraviolet lights	Ultraviolet light systems should be located after the activated carbon filter before trap	Kills microorganisms
Ozonation	Before tap	Kills microorganisms

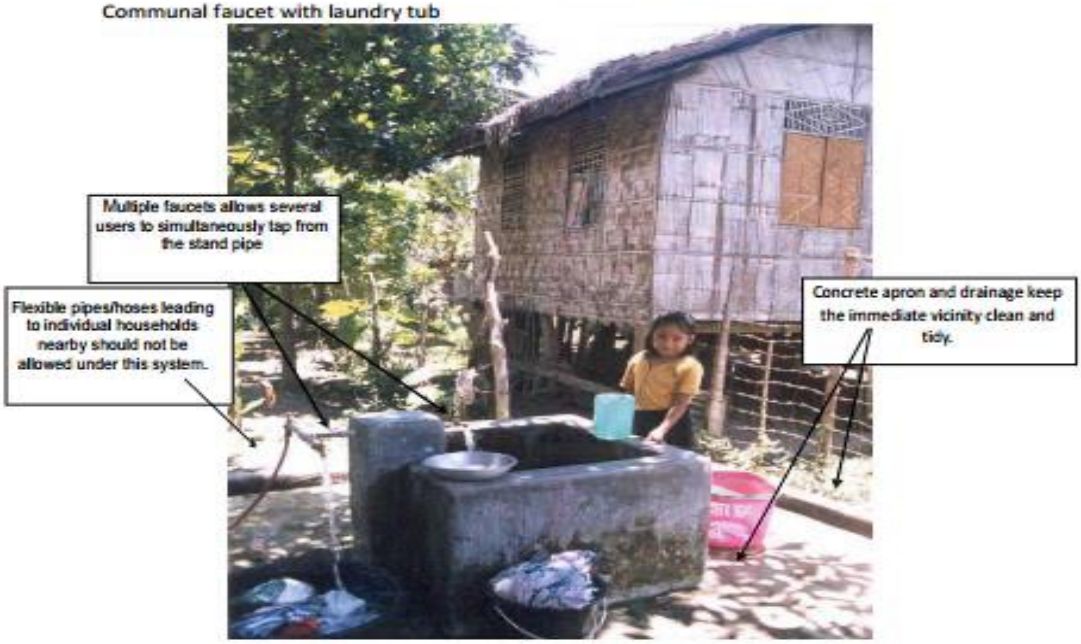


Simple up flows and filter for post treatment of stored water

Surface Water – in streams, lakes and ponds is readily available in many populated areas, but it is almost always polluted, often grossly so it should only be used after some for more filtration if there are no other safe sources of water available.

Communal faucet with laundry tub

Communal faucet with laundry tub



Ferro-cement water tank for rainwater collection

The following potential environmental impacts of water supply projects and their causes will be evaluated:

Problems	Possible Impacts	Possible Causes
1. Depletion of fresh water resources (surface and groundwater)	Damage to natural resource Damage to aquatic life Loss of economic productivity Loss of recreation areas Land subsidence Increased cost of water supplies in the future or in down-gradient locations	Overestimation of water supplies Underestimation of water demand Over-pumping of water resources lack of information on resource yields Waste and leakage of potable water Poor water pricing policies and practices, leading to excessive use, waste, and leakage
2. Degradation of the quality of potable water sources (surface and groundwater)	Concentration of pollution in surface water sources Salt water intrusion Health issues due to poor water quality Increased water treatment costs in the future or in down-gradient locations	Depletion of surface and groundwater resources Reduced stream flows Runoff/drainage from improper solid and liquid waste or excreta disposal
3. Creation of stagnant (standing) water	Increase in vector-borne diseases Contamination of standing water with fecal matter, solid waste, etc. leading to health problems Soil erosion/sedimentation	Drainage systems lacking or poorly designed Leakage from pipes/wastage from taps Lack of user/operator concern for stagnant water
4. Degradation of terrestrial, aquatic, and coastal habitats	Alteration of ecosystem structure and function and loss of biodiversity Loss of economic opportunity Loss of natural beauty Loss of recreational values Soil erosion/sedimentation	Improper siting of facilities (within wetlands or other sensitive habitats, etc.) Poor construction practice Leakage/wastage from pipes and taps Increased population density/agricultural activity because of new water systems
5. Supply of contaminated water	Arsenic poisoning Mercury poisoning Water-related and water-borne diseases	Failure to test water quality before developing the water resource Lack of water quality monitoring Inadequate protection of wells and water supply points Biological nitrite/nitrate and/or pesticide contamination

Source: Adapted from Alan Wyatt, Willian Hogrews and Eugene Brantly (1992). Environmental Guidelines for PVOs and NGOs; Potable Water Sanitation Projects. Water and Sanitation for Health Project. USAID

5. Adhere to the following minimum quality standards in water for human health:

- Arsenic <0.01 mg/l
- Total coliforms – not detectable in any 100ml sample
- Lead <0.01 mg/l
- Copper <2 mg/l
- Nitrate (NO3) <50 mg/l
- Nitrite (NO2) <0.2 mg/l for long term exposure
- Fluoride <1.5 mg/l

B. Environmental and Social Management Plan (ESMP) for Water Supply Projects

- The following are issues frequently associated with Farm to Market Roads. Issues include alleged/perceived impacts, potential impacts, health and safety and environmental risks. Entries in the "Assessment" column should describe or provide qualifications regarding the significance of the issues. Issues that are deemed critical or significant should have a corresponding entry in the "Mitigation" column.

- Instrument of Implementation should indicate how and where the measures will be implemented in the Subproject.

- Please feel free to add, delete or modify any of the items in the template. You may re-state/edit the columns on issues/assessment/mitigation measure as deemed applicable to the specific conditions of the subproject.

- In preparing the ESMP below refer to the Environmental and Social Assessment Section of the FS for specific safeguards issues and assessments

Issue	Assessment	Mitigation/Management Measure	Schedule/ Duration of the Mitigation Measure / Instrument (where this will be addressed) / Responsible Unit
Potential loss of crops, trees and other productive assets used for livelihood	☐ Road will entail damages to crops/trees or limit access to productive asset which are source of livelihood	☐ IPO to coordinate with IPS to negotiate with PAPs to agree on fair compensation	IPO/IPS/BLGU (It should be noted though that all losses or damages to crops/productive assets should have been resolved and validated by NCIP as requirement for approval of SP. However, additional or unanticipated losses may be identified during implementation or construction)
Demolition and reconstruction of affected structures	☐ Permanent structures (e.g. concrete structures) will have to be removed/demolished during PWS construction ☐ Temporary structures will have to be removed/demolished during PWS construction	☐ Compensate the owners of the structures that will be affected ☐ Assist the owners of the structure in the removal and in relocating/ reconstruction of the affected structures ☐ Contractor to coordinate with LGU and PAPs prior to removal/demolition of affected structures ☐ No measure required	Prior to implementation / MOA with the owner/s (if he/she/they will require compensation/assistance); Waiver of Rights/ Quit Claim (if the owner/s will not require compensation as reflected in Form 1)/ IPO / LGU
Potential violation of Indigenous Peoples rights	☐ The IPs are themselves beneficiaries of the PWS. Identify the IPs: _____	☐ Ensure IPs were consulted and have given consent for the PWS, by providing documentary evidence of consultations conducted and securing Certificate of	Prior to implementation / Submit minutes of meetings / consultations and Certificate of Consent to PSO as part of the procurement package / LGU

		Consent from the local tribal council	
Excessive water abstraction possibly resulting in:	Water abstraction is ____liter per second (lps) while capacity is ____lps This constitutes: [ ] a small percentage of the capacity of the water source. [ ] a significant percentage of the capacity of the water source but there are no existing competing water uses or no critical aquatic ecosystems to be affected downstream.	Redesign the PWS based on feasible rate of water abstraction given information on the sustainable capacity of the source or find another source; [ ] Secure NWRB clearance/water permit;	Prior implementation / [ ] DED/POW [ ] Preparation (must submit NWRB clearance as part of the procurement docs.) / LGU
[ ] saltwater intrusion into groundwater	[ ] rate of groundwater extraction could cause/worsen existing saltwater intrusion in the aquifer; [ ] groundwater source is far from the coast or saltwater intrusion is unlikely in the area;	[ ] Reduce or limit water extraction rate during dry season [ ] No measure required	Prior implementation [ ] DED/POW [ ] O&M and [ ]Capacity Building of BAWASA / LGU
Water at source allegedly not potable or water unsuitable for drinking	[] Historical/anecdotal / ocular evidence of bad water quality [ ] Source is within highly mineralized area such as mining site and geothermal area [ ] Presence of abandoned wells due to alleged heavy metal concentration (mercury, arsenic, etc.), taste, color, etc.	[ ] Conduct standard potability (coliform) test plus additional tests for suspect contaminants: [ ] Arsenic [ ] Mercury [ ] Lead [ ] Iron [ ] Magnesium [ ] Cadmium [ ] Others _____ before finalizing DED/POW; [ ] Otherwise look for another source	During preparation of FS and DED [ ] Certificate of Potability and favorable test results submitted as part of the procurement package (For Drinking Water Standards refer to DOH Admin Order No.2007-0012). Otherwise, adequate treatment system should be incorporated in the project design and reflected in the POW/DED.
	[ ] Expansion of existing water source used for drinking;	[ ] No measure required	During preparation of FS and DED
Potential sedimentation of creeks/water channels from the construction excavations / spoils	[ ] Construction will include clearing and leveling/ excavation of sloping lands involving significant amount of excavated spoils	[ ] Include slope protection/stabilization works on exposed loose soils and cuts. Describe the slope protection to be employed: _____ _____ [ ] Include restoration works such as spreading out piles of spoils and boulders, re-vegetation and/or landscaping of exposed areas at construction site.	During implementation / DED/POW; Contract / Contractor

	[ ] Construction works entail very minimal or no excavation	[ ] No measure required	During implementation / DED/POW; Contract / Contractor
Possible discovery of artifacts, bones, and other objects of interests during construction of the PWS and thus potential damage to physical cultural property	] Presence of physical cultural property (e.g. monuments, structures, archaeological sites, etc.) along the pipeline routes and near communal faucets. [ ] Discovery of artifacts bones and other objects of interest within a 10 meter radius [ ] Discovery of artifacts bones and other objects of interest outside 10 meter radius	[ ] Relocate water box/faucet area and/or reroute pipeline if possible; If not, [ ] Observe reporting and conservation protocols based on prior coordination with the National Historical Institute and National Museum. [ ] Suspension of the activities and immediately report to the PLGU and RPCSO SES Focal Person	During implementation / [ ] DED [ ] Reporting protocol included in the Contract [ ] Archaeological and Paleontological Chance Finds Procedure of MIADP- IESSF / Contractor/LGU
Potential drainage issues at communal faucets resulting in the formation of permanent pools of water and muddy soil near the faucets	[ ] Some communal faucets or water collection points are located in: [ ] clayey soils or soils that can easily become muddy [ ] low-lying areas that could easily become waterlogged	[ ] All communal faucet outfalls/water collection points are provided with concrete platforms and drainage canals	During implementation / DED/POW; Contract / Contractor
	[ ] All communal faucets or water collection points are located in sandy, well drained areas	[ ] No measure required	During implementation / DED/POW; Contract / Contractor
Local employment	[ ] Construction will provide local employment opportunities that will provide a standard salary wage based on RTWPB approved wage rates. [ ] Construction does not provide any local employment opportunities	[ ] Hiring priority shall be given to qualified local residents [ ] No measures required	During implementation / Contract / Contractor
Grievance during construction	[ ] Unclear policy on project implementation; there is no acceptable grievance redress mechanism in place. [ ] The project has already established an acceptable policy on addressing grievances [ ] Access to the Grievance Redress Mechanism (GRM posters and Grievance Form Drop Boxes) is available in strategic locations at all levels of project implementation: * Project Site * Barangay Hall/s * Municipal Hall/s	[ ] Establish an acceptable policy on project implementation and grievance redress mechanism [ ] Assign a Grievance Point Person (GPP) [ ] Monitor grievance resolution status and prepare report	During implementation / Operation and Management Plan (O&M); Executive Order (EO) creating the PPMIU Grievance Redress Mechanism (GRM) / LGU and PSO/RPCO Grievance Point Person/Grievance Officer

	∗ Provincial Hall		
Human activities in the PWS source site	[ ] There is a possibility of increase in human activities near and within the PWS water source due to improved access and site development	[ ] Strictly implement Sanitation Code of the Philippines such as prohibition of washing/bathing activities within 25 meters from the source	After project completion / O&M Plan; BAWASA Capacity Building Plan / LGU
	[ ] The PWS source is located far away from human settlements and activities	[ ] No measure required	
Potential lack of good housekeeping of the water source and the communal faucets/collection point sites	[ ] There are existing bathing and washing activities near or at the water source site (for spring-based PWS) or at the well sites (for artesian wells) [ ] Communal faucets/box sites (for Level II PWS) could become cluttered and strewn with garbage and discarded bottles, packages	[ ] Regular cleaning of the water source (tank/box and vicinities), and the communal faucet/box sites and vicinities;	After project completion / O&M Plan; BAWAS Capacity Building Plan / LGU
Potential changes in water quality due to new pollution sources	[ ] Water could become contaminated with new pollution sources from human activities	[ ] Regular sampling and potability tests conducted as required under DOH Admin Order No. 2007-0012	After project completion / O&M Plan; BAWAS Capacity Building Plan / LGU
Occupational and health and safety	Workers and local residents will be exposed increased health and safety risk due to construction traffic, heavy equipment operations, deep excavations, obstructions of trails and footpaths, contacts with workers from other areas, and other hazards at construction sites.	Contactor to comply with the safety measures and good housekeeping as per submitted and approved DOLE Occupational Safety and Health Plan	Prior to start of project implementation, Approved DOLE-OSH Plan /Contractor
Labour Influx Impact	*Assessment should be based on the projected maximum number of non- resident workers to be hired by the subproject given the need and local availability; the cultural vulnerability of host population; crime rates; gender imbalance; current epidemics, cultural differences, exposure of the population to modern ways; etc.*		
-Community health and safety	[ ] Projected influx >100 and host community is remote and there is risk of spread of HIV/AIDs or other STD [ ] Projected influx >100 and the host community is near the city or population centers and there is no	[ ] LGU/Contractor to undertake health screening of workers [ ] LGU/Contractor to undertake IEC on HIV/AIDS and STD [ ] None required	Contractors contract

	incremental risk to the spread of HIV/AIDS or STD [ ] Project influx <100		
	[ ] Presence of endemic diseases in the area (Malaria, Schistosomiasis, etc.)	[ ] IEC on _____ to workers	Contractors contract
-Potential increased in criminality	[ ] Projected influx >100	[ ] Crime screening of workers	Contractors contract
	[ ] Projected influx <100	[ ] None required	
-Potential cultural conflict between host community and migrant workers	[ ] Projected influx >100 and host population is IP or community is homogeneous and highly traditional or has different religion or remote and relatively unexposed to modern ways	[ ] Contractor to undertake IEC on local culture for their workers and undertake Community Relations Project	Contractors contract
	[ ] Projected influx <100 and host community is IP, has different religion than the migrant or highly traditional/remote and relatively unexposed to modern ways, host and migrant population belong to different ethnicity	[ ] Contractor to undertake a Community Relations Project	Contract
	[ ] Projected influx >100 and host community is near city or exposed to modern ways	[ ] None required	
	[ ] Projected influx <100 and host population and migrant belong to the same ethnicity	[ ] None required	
Possible Spread of COVID-19 virus adversely affecting Community, Occupational Safety and Health	[ ] Neglect of community and workers' rights and welfare during the operations amidst COVID-19 pandemic due to lack of management commitment on its prevention and control [ ] Non-compliance to the DOH minimum health standards and other governmental issuances particularly from IATF, DOH, DPWH, DTI, and DOLE due to lack of capacity, knowledge and resources [ ] Suspension of works due to challenges by COVID- 19 pandemic	The Contractor shall duly comply to all the requirements needed prior to deployment and continuation of the operations/activities during the COVID-19 Public Health Crisis, as set forth in PRDP Supplemental Guidelines on COSH, a harmonized guide of all national and local issuances relevant to COVID-19	During implementation / Enhancement of Enterprise Operations Manual and installation of relevant COVID-19 prevention and control measures as stipulated in PRDP Supplemental Guidelines on COSH and other relevant issuances/ Proponent Group/Enterprise management, LGU and Barangay

Quarry Site Requirement	Quarry site will have social and environmental impacts	Contractor to comply with the Site Selection, Operation and Abandonment Guidelines for Quarry Site	Prior to start of project operation / CEOHSP attached with the Guidelines / Contractor
Excess excavation/ waste dumpsite site requirement	Excess excavation/ waste dumping site will have social and environmental impacts	Contractor to comply with the Site Selection, Operation and Abandonment Guidelines for Excess Excavation/waste dumping site	Prior to start of project operation /CEOSHP attached with the Guidelines / Contractor

Prepared by: _____

Adopted by:

_____

Noted by the local community:

_____

Barangay Chairman

Annex E-3: Environmental and Social Assessment Guidelines and ESMP Template for Irrigation Subprojects

[Note: This template is designed to rapidly identify and assess the environmental issues and associated mitigation/management measures in Irrigation Sub-projects funded under MIADP. This template consolidates all safeguards aspect of Communal Irrigation Subproject as found in various project documents.]

The irrigation interventions are community-based small-scale irrigation schemes using a Farmer-led Irrigation Development (FLID) process, in which farmers drive the establishment, improvement, and/or expansion of irrigated agriculture, and which is well suited for developments in remote and isolated areas.

Name of Irrigation Project:			
Location:			
Implementing LGU:			
Number of hectares of service area:			
Type:	☐ SWIP	☐ Run-of-river	☐ Pump and storage
New or Rehabilitation:			
Estimated total Cost:			

A. Site and Design Consideration

[*Do not proceed with the Subproject preparation including this ESMP unless all items below are confirmed true.*]

1. None of the subproject structures is located inside a declared protected area of natural habitat (*c.f. Loan Agreement: MIADP will not fund subprojects located inside a declared Protected Area*);

2. In case of run-of-the river system, there are no ongoing sand/gravel quarrying within 500 meters upstream and 1 km downstream of the diversion points. Otherwise, the LGU has signified that all quarrying activities within the said stretch shall be stopped once the construction has started and that no quarrying permits shall be issued in the future.

3. The subproject will not displace, disfigure or render inoperable/inaccessible any monument or physical structure of known cultural and historical significance.

4. For new construction: the source or water shall meet the quality standard for irrigation, i.e., minimum silt content and absence of water-borne diseases (schistosomiasis, malaria, etc.); damage/disturbance to ecologically significant flora and fauna shall be minimal; and intake point or diversion shall be outside protected areas or critical watersheds;

B. Environmental Regulatory Requirements

The following are the basic environmental safeguard requirements for irrigation subprojects:

- For a communal irrigation system subproject (new or rehabilitation / improvement)

- With a service area of less than or equal to 300 hectares, the proponents need to prepare and submit an Environmental Management Plan.
- For an irrigation subproject with a service area of more than 300 but less than 1,000 hectares, an Initial Environmental Examination (IEE) Checklist should be submitted prior to securing an Environmental Compliance Certificate (ECC) from the DENR.
- For a subproject with service area greater than or equal to 1,000 hectares, an IEE Report is needed prior to securing an Environmental Compliance Certificate (ECC) from the DENR.
- A subproject with a service of area greater than 1,000 hectares should submit a municipal watershed management plan in addition to an Environmental Impact Statement (EIS) to be submitted to the DENR-EMB.
- Conduct vulnerability assessment if the activity functioning / implementation is vulnerable to climate variability.

C. Site Selection, Planning and Design

- Base the irrigation system design and capacity on adequate historical and updated information to correctly estimate the water requirement and the range of discharge or flow of the surface water source in varying seasons.
- Integrate in the determination of water flows to be diverted downstream the river water requirements
- Conduct water sampling and testing to assess water quality to determine if water is suited for irrigation and to establish baseline so that any future degradation and environmental / public health threats can be detected.
- Provide slope protection through bank compaction, rip-rapping on critical sections, or vegetative stabilization construction.
- Designate a Spoils Storage Area, with top soil set aside for later use and allow maximum re-use of spoils.
- Provision of adequate drainage system and proper grading of canals so that IS structure will not be prone to flooding & consequent erosion.

D. Operation and Maintenance

- Practice water-saving irrigation techniques, such as Controlled irrigation, which has been shown to reduce water used in rice production by 16-35% without decreasing grain yield.
- Continuous flooding, in contrast to Controlled Irrigation, not only wastes scarce water resources but also triggers too much leaching soil nutrient imbalance (zinc deficiency), and lodging problems sowing to weak base and anchorage of the plant. It also results in lesser and untimely water in the fields near the tail-end, high water-use in gravity irrigation systems, and too much water cost in pump irrigation systems.
- Promote controlled application of agrochemicals based on the Integrated Pest Management (IPM) Plan.
- Training of the farmers on the proper selection, dosage and timing of agro-chem applications to ensure maximum absorption by the plant and soil.
- Periodic analysis of the irrigation water near the downstream is part of the service area prior to the existence of natural waterways.
- Regular removal of debris and other waste that may obstruct water flow.

Annex E-4: Environmental and Social Assessment Guidelines and ESMP Template for Crop Production

Project Name:	
Location:	
Proponent:	
Contact Name/Number:	
Estimated Number of Beneficiaries: (gender disaggregate)	
Project Cost:	

Project Design and Specifications					
Type of Building:	☐ Warehouse	☐ Office	☐ Farm	Other facilities:	
Total Area:	Total area:		Floor Area:		
Building Material:	☐ Concrete	☐ Wood	☐ Others:		
Utility Requirement and Source:	Water:	m^3	Electricity:	kwh	

A. Site and Design Consideration

1. The Project does not encroach into or traverse into a forest and/or declared protected area of natural habitat.
2. The Project will not displace, disfigure or render inoperable/inaccessible any monument or physical structure of known cultural and historical significance.
3. This project is not located in an area which is vulnerable to natural hazards and risks.

B. Environmental/Social Issues and Mitigation Measures

Instructions:

- The following are issues frequently associated the Subprojects. Issues include alleged/perceived impacts, potential impacts, health and safety and environmental risks. Entries in the "Assessment" column should describe or provide qualifications regarding the significance of the issues. Issues that are deemed critical or significant should have a corresponding entry in the "Mitigation" column.
- Instrument of Implementation should indicate how and where the measures will be implemented in the Subproject.
- Please feel free to add, delete or modify any of the items in the template. You may re-state/edit the columns on issues/assessment/mitigation measure as deemed applicable to the specific conditions of the subproject.
- In preparing the ESMP below refer to the Environmental and Social Assessment Section of the FS for specific safeguards issues and assessments.

Issue	Assessment	Mitigation/Management Measure	Schedule/ Duration of the Mitigation Measure / Instrument (where this will be addressed) / Responsible Unit
Consistency with land use	**Current land use** Within 1 km radius (as per zoning ordinance). [ ] Residential [ ] Commercial/ Institutional [ ] Industrial [ ] Agricultural/ Recreational [ ] Protected Areas [ ]Others, specify: _____ _____ **Actual land use** Within 1 km radius (as per zoning ordinance.) [ ] Residential [ ] Commercial/ Institutional [ ] Industrial [ ] Agricultural/ Recreational [ ] Protected Areas [ ]Others, specify: _____ _____	[ ] Attached proof of compatibility with land use. [ ] Proof of compliance with the Municipal Zoning ordinances and regulations.	Prior to start of the activity/ Contract/ Proponent Group/
Potential loss of crops, trees and other productive assets used for livelihood	☐ Road will entail damages to crops/trees or limit access to productive asset which are source of livelihood	☐ IPO to coordinate with IPS to negotiate with PAPs to agree on fair compensation	IPO/IPS/BLGU (It should be noted though that all losses or damages to crops/productive assets should have been resolved and validated by NCIP as requirement for approval of SP. However, additional or unanticipated losses may be identified during implementation or construction)
ROW for availability of utility source	[ ]There is an available power/water line to the proposed site [ ] ROW for utility sourcing (power/water)must be secured prior to construction	[ ] PG/PLGU to secure ROW prior to construction	Prior to construction/ ROW Documents/ Proponent Group and LGU
Change in land surface structure / topography / terrain and slope	Slope: [ ] flat (0-3%) [ ] gently sloping to rolling (3-18%) [ ] steep (>18%)	[ ] Provide an erosion control and slope protection measures. [ ] Designate a spoil storage area, with topsoil set aside for later use and allow maximum re-use of spoils. [ ] Soil cultivation/plowing during the dry season.	During agriculture activities/ O & M/ Proponent Group

		[ ] Stabilization of embankment with grasses or other soil cover. [ ] Use of contour plowing and ripraps to prevent soil wash out due to rain. [ ] Others, please specify:_____	
Land conversion for the plantation	[ ]High elevation and forested area converted to (crop) plantation [ ] The proposed plantation site is idle and ideal for farming and classified w/in agricultural zone [ ]The proposed site is already planted with (crop)	[ ] The organization to establish criteria on Site/Land Selection and Environmental Management System [ ] Monitor and study the possible invasive characteristic of the (crop) and its effect to localized crops; i.e. its water requirement, pest control and others.	Prior project implementation/ IMA / Proponent Group and LGU/
Local employment	[ ] Project will provide local employment opportunities	[ ] Hiring priority shall be given to qualified local residents.	During construction/ IMA, Contract/ Contractor and Proponent Group/
Increase encroachment/migration (business establishment, agri-expansion etc.) and might lead to indiscriminate conversion of land for commercial/agricultural use	[ ] Better facilities and more opportunities may welcome influx of people near the vicinity.	[ ]Enforce necessary regulatory and control measures to prevent indiscriminate conversion of the land [ ] Implement proper Land Use and Zoning Ordinances [ ] Secure Special Land Use Permit	During project operation/ LGU CLUP, O& M Plan, Land Use Permit/ Proponent Group and LGU/
Wastewater generated in the processing and operation, equipment and facility maintenance.	[ ] Average volume of wastewater to be produced and homogeneous quality of solid waste to be generated. [ ] Large amounts of wastewater to be produced and homogeneous quality of solid waste to be generated. [ ] Waste products that will be produced may attract pests	[ ] Set-up a wastewater facility, water impoundment. [ ] Practice solid waste management in the site. [ ] Control the attractable insects, rodents and possible increase of diseases. [ ] Employ composting for the solid waste to produce organic fertilizers.	During project operation/ O & M Plan/ Proponent Group/
Accumulatio n of solid waste during crop harvest period.	[ ] Crop yields will produce material wastages such as refused raw harvest and other plants' discarded parts. [ ] Improper handling of solid waste in the facility will attract insects, rodents, and; [ ] dried solid waste could be a fire hazard.	[ ] Practice composting and use the refused materials as soil enhancers and organic fertilizers. [ ] Proper handling and disposal of garbage through provision of garbage bins. [ ] Establishment of Materials Recovery Facility (MRF) to allow the regular conduct of segregation,	Project farming or operation period/ O&M/ Project proponent

		recycling and residuals collection/disposal [ ] Do not burn the solid waste	
Exposure of workers to extreme weather condition during operation	] Lack of protective equipment and inappropriate working clothes [ ]Working space is limited	] Provision of appropriate equipment and working clothes for protection from extreme sunlight and sheds for rain. [ ] Allocate suitable area for <indicate enterprise specific process/es>	During operation/ O&M Plan; POW/ Proponent Group/
Occupational health hazards to workers during operation	[ ] Workers are exposed to unsafe and hazardous condition [ ] Operations do not expose workers to hazardous/unsafe conditions	[ ] Provide safety standards and guidelines for workers strict compliance [ ] Put up safety signs within the construction site [ ] Provide potable water & sanitary facilities for workers [ ] Provide first aid kits in strategic areas [ ] Provide fire extinguishers	During operation/ O&M Plan/ Proponent Group/
Indiscriminate use of inorganic fertilizer and other agro- chemicals	[ ] The soil quality of the proposed plantation site is poor and requires application of fertilizer [ ] Soil quality is good and farmers practice soil management.	[ ] Farmers to undergo training on soil management. Use of organic fertilizer. [ ] Proposed plantation site to undergo soil test and appropriate/approve d fertilization should be followed [ ] Practice organic farming if fertilizers are needed to get rid of synthetic chemicals and avoid excessive application of the same. [ ] For Pest Management, seek for the assistance DA's IPM KASAKALIKASAN	During project operation/ IPO
Potential increase use of pesticides due to intensification of crop production in the area	[ ]There is an ongoing IPM Project of DA in the service area [ ] Farmers in the service area have not been trained on IPM	[ ] DA to continue to support IPM Project which involves: _____ _____ _____ [ ] LGU to Coordinate with DA on IPM training	During project operation/ O&M Plan/ Proponent Group and LGU/
Labour Influx Impact	*Assessment should be based on the projected maximum number of non- resident workers to be hired by the subproject given the need and local availability; the cultural vulnerability of host population; crime rates; gender imbalance; current epidemics, cultural differences, exposure of the population to modern ways; etc.*		
-Community health and safety	[ ] Projected influx >100 and host community is remote and there is risk of spread of HIV/AIDs or other STD	[ ] LGU/Contractor to undertake health screening of workers	Contractors contract

	[ ] Projected influx >100 and the host community is near the city or population centers and there is no incremental risk to the spread of HIV/AIDS or STD [ ] Project influx <100	[ ] LGU/Contractor to undertake IEC on HIV/AIDS and STD [ ] None required	
	[ ] Presence of endemic diseases in the area (Malaria, Schistosomiasis, etc.)	[ ] IEC on _____ to workers	Contractors contract
-Potential increased in criminality	[ ] Projected influx >100	[ ] Crime screening of workers	Contractors contract
	[ ] Projected influx <100	[ ] None required	
-Potential cultural conflict between host community and migrant workers	[ ] Projected influx >100 and host population is IP or community is homogeneous and highly traditional or has different religion or remote and relatively unexposed to modern ways	[ ] Contractor to undertake IEC on local culture for their workers and undertake Community Relations Project	Contractors contract
	[ ] Projected influx <100 and host community is IP, has different religion than the migrant or highly traditional/remote and relatively unexposed to modern ways, host and migrant population belong to different ethnicity	[ ] Contractor to undertake a Community Relations Project	Contract
	[ ] Projected influx >100 and host community is near city or exposed to modern ways	[ ] None required	
	[ ] Projected influx <100 and host population and migrant belong to the same ethnicity	[ ] None required	
Possible Spread of COVID-19 virus adversely affecting Community, Occupational Safety and Health	[ ] Neglect of community and workers' rights and welfare during the operations amidst COVID-19 pandemic due to lack of management commitment on its prevention and control [ ] Non-compliance to the DOH minimum health standards and other governmental issuances particularly from IATF,	The Contractor shall duly comply to all the requirements needed prior to deployment and continuation of the operations/activities during the COVID-19 Public Health Crisis, as set forth in PRDP Supplemental Guidelines on COSH, a harmonized guide of all national and local issuances relevant to COVID-19	During implementation / Enhancement of Enterprise Operations Manual and installation of relevant COVID-19 prevention and control measures as stipulated in PRDP Supplemental Guidelines on COSH and other relevant issuances/ Proponent Group/Enterprise

	DOH, DPWH, DTI, and DOLE due to lack of capacity, knowledge and resources [ ] Suspension of works due to challenges by COVID- 19 pandemic		management, LGU and Barangay
Conflict between members of the organization	[ ] Unclear policy on project beneficiary prioritization [ ] The organization already established acceptable policy on project beneficiary prioritization	[ ] Organization to establish acceptable policy on project beneficiary prioritization [ ] Organization to conduct periodic review and assessment of the policy	Before and during project implementation and operation/ Policy on beneficiary selection and prioritization/ Proponent Group/
Grievance of non-members of the PG during construction and enterprise operation	[ ] Unclear policy on project implementation; there is no acceptable grievance redress mechanism in place. [ ] The proponent LGU has already established an acceptable policy on addressing grievances [ ] Access to the Grievance Redress Mechanism (GRM posters and Grievance Form Drop Boxes) is available in strategic locations at all levels of project implementation: [ ] Project Site [ ] Barangay Hall/s [ ] Municipal Hall/s [ ] Provincial Hall	[ ] Establish an acceptable policy on project implementation and grievance redress mechanism [ ]Assigna Grievance Focal/Point Person [ ] Monitor grievance resolution status and prepare report	Before and during project implementation and operation/ O&M/ EO creating the PPMIU, Proponent Group and LGU/

Prepared by: _____

Adopted by:

_____

Noted by the local community:

_____

Barangay Chairman

Annex E-5: Environmental and Social Assessment Guidelines and ESMP Template for Production and Enterprise Facilities

Project Name:	
Location:	
Proponent:	
Contact Name/Number:	
Estimated Number of Beneficiaries: (gender disaggregate)	
Project Cost:	

Project Design and Specifications					
Type of Building:	☐ Warehouse	☐ Office	☐ Farm	Other facilities:	
Total Area:	Total area:		Floor Area:		
Building Material:	☐ Concrete	☐ Wood	☐ Others:		
Utility Requirement and Source:	Water:	m^3	Electricity:	kwh	

Issue	**Assessment**	**Mitigation/Management Measure**	**Schedule/ Duration of the Mitigation Measure / Instrument (where this will be addressed) / Responsible Unit**
Possible discovery of artifacts, bones and other objects of interests during construction of the processing plant	[ ] Discovery of artifacts, bones and other objects of interests within the 10 meter radius [ ] Discovery of artifacts, bones and other objects of interests outside the 10 meter radius	[ ] Suspension of the activities and immediately report to the PLGU and RPCO SES Focal Person	During construction period/ Contract/ Contractor/
Temporary Increase of solid waste during construction	[ ] There will be significant volume of waste generated during clearing and construction	[ ] Proper handling and disposal of construction waste	During construction period/ Contract, POW/ Contractor/
Potential loss of crops, trees and other productive assets used for livelihood	☐ Road will entail damages to crops/trees or limit access to productive asset which are source of livelihood	☐ IPO to coordinate with IPS to negotiate with PAPs to agree on fair compensation	IPO/IPS/BLGU (It should be noted though that all losses or damages to crops/productive assets should have been resolved and validated by NCIP as requirement for approval of SP. However, additional or unanticipated losses may be identified during implementation or construction)

Hazard to health and safety of workers and nearby residents during construction of civil works	[ ]Hazard and accident prone activity include demolition and construction	[ ]Standard, safety and proper procedures employed during demolition and construction of the structures [ ] Installation of warning signs and safety devices. [ ]Employ best construction safety practices and housekeeping	During construction/ POW and Contract/ Contractor and Proponent Group/
Local employment	[ ] Project will provide local employment opportunities	[ ] Hiring priority shall be given to qualified local residents.	During construction/ IMA, Contract/ Contractor and Proponent Group/
Increase encroachment/migration (business establishment, agri-expansion etc.) and might lead to indiscriminate conversion of land for commercial/agricultural use	[ ] Better facilities and more opportunities may welcome influx of people near the vicinity.	[ ]Enforce necessary regulatory and control measures to prevent indiscriminate conversion of the land [ ] Implement proper Land Use and Zoning Ordinances [ ] Secure Special Land Use Permit	During project operation/ LGU CLUP, O& M Plan, Land Use Permit/ Proponent Group and LGU/
Wastewater generated in the processing and operation, equipment and facility maintenance.	[ ] Average volume of wastewater to be produced and homogeneous quality of solid waste to be generated. [ ] Large amounts of wastewater to be produced and homogeneous quality of solid waste to be generated. [ ] Waste products that will be produced may attract pests	[ ] Set-up a wastewater facility, water impoundment. [ ] Practice solid waste management in the site. [ ] Control the attractable insects, rodents and possible increase of diseases. [ ] Employ composting for the solid waste to produce organic fertilizers.	During project operation/ O & M Plan/ Proponent Group/
Decreased concern/ cession of environmental management during the operation and processing of goods in the facilities	[ ]High market demands may lead to increase operations and may negatively impact air, water and soil quality [ ]Wear and tear of machineries may result to noise and air pollution	[ ]Local capability strengthening on self-monitoring and environmental compliance by the Proponent Group [ ] Proponent group/ LGU to appoint a Pollution Control Officer (PCO)	After turnover to Proponent Group/ O & M Plan/ Proponent Group/
Exposure of workers to extreme weather condition during operation	] Lack of protective equipment and inappropriate working clothes [ ]Working space is limited	] Provision of appropriate equipment and working clothes for protection from extreme sunlight and sheds for rain. [ ] Allocate suitable area for <indicate enterprise specific process/es>	During operation/ O&M Plan; POW/ Proponent Group/
Exposure of workers to foul odor from the processing/production	[ ]Processing/ Production emits foul odor during operation due to _____ [ ] Processing/ production does not produce foul odor	[ ] Provide workers with adequate protective equipment [ ] Practice appropriate <insert enterprise specific process/es>	During operation/ POW/ Proponent Group/

Occupational health hazards to workers during operation	[ ] Workers are exposed to unsafe and hazardous condition [ ] Operations do not expose workers to hazardous/unsafe conditions	[ ] Provide safety standards and guidelines for workers strict compliance [ ] Put up safety signs within the construction site [ ] Provide potable water & sanitary facilities for workers [ ] Provide first aid kits in strategic areas [ ] Provide fire extinguishers	During operation/ O&M Plan/ Proponent Group/
Indiscriminate use of inorganic fertilizer and other agro- chemicals	[ ] The soil quality of the proposed plantation site is poor and requires application of fertilizer [ ] Soil quality is good and farmers practice soil management.	[ ] Farmers to undergo training on soil management. Use of organic fertilizer. [ ] Proposed plantation site to undergo soil test and appropriate/approve d fertilization should be followed [ ] Practice organic farming if fertilizers are needed to get rid of synthetic chemicals and avoid excessive application of the same. [ ] For Pest Management, seek for the assistance DA's IPM KASAKALIKASAN	During project operation/ IPO
Potential increase use of pesticides due to intensification of crop production in the area	[ ]There is an ongoing IPM Project of DA in the service area [ ] Farmers in the service area have not been trained on IPM	[ ] DA to continue to support IPM Project which involves: _____ _____ _____ [ ] LGU to Coordinate with DA on IPM training	During project operation/ O&M Plan/ Proponent Group and LGU/
Labor Influx Impact	*Assessment should be based on the projected maximum number of non- resident workers to be hired by the subproject given the need and local availability; the cultural vulnerability of host population; crime rates; gender imbalance; current epidemics, cultural differences, exposure of the population to modern ways; etc.*		
-Community health and safety	[ ] Projected influx >100 and host community is remote and there is risk of spread of HIV/AIDs or other STD [ ] Projected influx >100 and the host community is near the city or population centers and there is no incremental risk to the spread of HIV/AIDS or STD [ ] Project influx <100	[ ] LGU/Contractor to undertake health screening of workers [ ] LGU/Contractor to undertake IEC on HIV/AIDS and STD [ ] None required	Contractors contract
	[ ] Presence of endemic diseases in the area (Malaria, Schistosomiasis, etc.)	[ ] IEC on _____ to workers	Contractors contract

-Potential increased in criminality	[ ] Projected influx >100	[ ] Crime screening of workers	Contractors contract
	[ ] Projected influx <100	[ ] None required	
-Potential cultural conflict between host community and migrant workers	[ ] Projected influx >100 and host population is IP or community is homogeneous and highly traditional or has different religion or remote and relatively unexposed to modern ways	[ ] Contractor to undertake IEC on local culture for their workers and undertake Community Relations Project	Contractors contract
	[ ] Projected influx <100 and host community is IP, has different religion than the migrant or highly traditional/remote and relatively unexposed to modern ways, host and migrant population belong to different ethnicity	[ ] Contractor to undertake a Community Relations Project	Contract
	[ ] Projected influx >100 and host community is near city or exposed to modern ways	[ ] None required	
	[ ] Projected influx <100 and host population and migrant belong to the same ethnicity	[ ] None required	
Possible Spread of COVID-19 virus adversely affecting Community, Occupational Safety and Health	[ ] Neglect of community and workers' rights and welfare during the operations amidst COVID-19 pandemic due to lack of management commitment on its prevention and control [ ] Non-compliance to the DOH minimum health standards and other governmental issuances particularly from IATF, DOH, DPWH, DTI, and DOLE due to lack of capacity, knowledge and resources [ ] Suspension of works due to challenges by COVID- 19 pandemic	The Contractor shall duly comply to all the requirements needed prior to deployment and continuation of the operations/activities during the COVID-19 Public Health Crisis, as set forth in PRDP Supplemental Guidelines on COSH, a harmonized guide of all national and local issuances relevant to COVID-19	During implementation / Enhancement of Enterprise Operations Manual and installation of relevant COVID-19 prevention and control measures as stipulated in PRDP Supplemental Guidelines on COSH and other relevant issuances/ Proponent Group/Enterprise management, LGU and Barangay

Conflict between members of the organization	[ ] Unclear policy on project beneficiary prioritization [ ] The organization already established acceptable policy on project beneficiary prioritization	[ ] Organization to establish acceptable policy on project beneficiary prioritization [ ] Organization to conduct periodic review and assessment of the policy	Before and during project implementation and operation/ Policy on beneficiary selection and prioritization/ Proponent Group/
Grievance of non-members of the PG during construction and enterprise operation	[ ] Unclear policy on project implementation; there is no acceptable grievance redress mechanism in place. [ ] The proponent LGU has already established an acceptable policy on addressing grievances [ ] Access to the Grievance Redress Mechanism (GRM posters and Grievance Form Drop Boxes) is available in strategic locations at all levels of project implementation: [ ] Project Site [ ] Barangay Hall/s [ ] Municipal Hall/s [ ] Provincial Hall	[ ] Establish an acceptable policy on project implementation and grievance redress mechanism [ ]Assign Grievance Focal/Point Person [ ] Monitor grievance resolution status and prepare report	Before and during project implementation and operation/ O&M/ EO creating the PPMIU, Proponent Group and LGU/

Prepared by: _____

Adopted by:

_____

Noted by the local community:

_____

Barangay Chairman

Annex F: Cultural Heritage Management Plan

The MIADP will ensure that none of its subprojects will damage irreplaceable cultural properties of the IP. Setting guidelines for all subprojects shall include strict avoidance of cultural resources particularly structures of cultural or historical significance and known archaeological sites. In cases where subprojects that are approved by the IP community would pass through sites considered as cultural properties of the IP, the MIADP must exert its best effort to relocate, realign or revise the subprojects so that these sites can be preserved and remain intact.

The MIADP will not fund subprojects that would displace, damage, render inaccessible or render inoperable any structures that are deemed to have high cultural and historical significance by the IP community. In case of chance finds or discovery or archaeological artefacts during construction, all activities in the affected sites must be suspended while the DA MIADP management reports the finds to and coordinates with the National Historical Institute.

Physical cultural resources is defined as Movable or immovable objects, sites, structures or groups of structures having archeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The following are also specifically defined under the new Act:

(a) **"Built Heritage"** shall refer to architectural and engineering structures, such as but not limited to bridges, government buildings, houses of ancestry, traditional dwellings, quartels, train stations, lighthouses, small ports, educational technological and industrial complexes, and their settings, and landscapes with notable historical and cultural significance;
(b) **"Cultural Heritage"** shall refer to the totality of cultural property preserved and developed through time and passed on to posterity;
(c) **"Cultural Property"** shall refer to all products of human creativity by which a people and a nation reveal their identity, including churches, mosques and other places of religious worship, schools and natural history specimens and sites, whether public or privately-owned, movable or immovable, and tangible or intangible;
(d) **"Important Cultural Property (ICP)"** shall refer to a cultural property having exceptional cultural, artistic, and historical significance to the Philippines, as shall be determined by the National Museum and/or National Historical Institute.
(e) **"Tangible cultural property"** shall refer to a cultural property with historical, archival, anthropological, archaeological, artistic and architectural value, and with exceptional or traditional production, whether of Philippine origin or not, including antiques and natural history specimens with significant value.
(f) **Indigenous properties** - The appropriate cultural agency in consultation with the National Commission on Indigenous Peoples shall establish a program and promulgate regulations to assist indigenous people in preserving their particular cultural and historical properties.

The chance find procedure is used in case of accidental discovery of an artifact or fossil of possible cultural or historical significance. The procedure in this ESMF describes a physical cultural resources management plan that includes measures to avoid or mitigate any adverse impacts on physical cultural resources; measures needed for managing any chance find; and the reporting system to authorities.

In compliance with the requirements of the National Cultural Heritage Act of 2009 (Republic Act 10066), National Museum Act of 1998 (Republic Act 8492) and Cultural Properties Preservation and Protection Act (Presidential Decree 374), cultural treasures and properties that will be accidentally found at the site will be surrendered to the National Museum through the Cultural Properties Regulation Division.

The chance find procedure will be implemented and disseminated to contractors and its workers. Contractors will be made aware of cultural properties to look out for that may have heritage, cultural, social and spiritual significance such as pottery, ceramics, wrought iron, gold, bronze, silver, wood or other heraldic items, metals, coins, medals, badges, insignias, coat of arms, crests, flags, arms and armor, furniture, carvings, paintings, sculptures, jewelry, and other objects classified as antiques. The chance find procedure will include the following:

(a) Immediately stop work if a suspected find is discovered at the site and contact the National Museum to report the chance find. Simultaneously, coordinate the matter with the local government unit's Department of Tourism, Culture and Arts of Manila (DTCAM).
(b) Record details in the incident report and take photos of the find.
(c) Secure the area to prevent any damage or loss of removable objects. In cases of removable antiques or sensitive and delicate artifacts and relics, a night guard will be assigned to secure the area until the representative from the National Museum takes over to assess the artifacts and the site.
(d) The decision to remove the artifacts or relic will be taken by the authorities from the National Museum.
(e) Construction activities will resume only after permission is granted from the National Museum.

The suspension of excavation activities shall be lifted only upon the written authority of the National Museum or the National Historical Institute and only after the systematic recovery of the archaeological materials.

The project should also take note of the varying levels of significance a particular cultural heritage may have to various stakeholders, therefore, the stakeholder engagement plan must consult national cultural agencies, local heritage conservation societies, religious and secular authorities protecting heritage objects, indigenous peoples, elders and leaders of communities, local artisans or traditional artists or cultural bearers, conservationists or heritage experts, anthropologists, and archaeologists, and ethnographers and similar experts who study the past human habitation.

During the implementation of the project, it is also possible that previously unknown sites, practices, or traditions may be discovered or unearthed which have not been previously declared, designated, or protected, therefore, the project must consider the impacts of subproject activities to such discoveries. Whenever possible, the project should encourage and engage the local government units concerned to take part in the mapping of local cultural heritage whether artifacts, oral traditions, among others.

There are some subprojects that may possibly utilize some cultural products for commercial purposes that may exploit traditional knowledge, systems, and practices or, in cases of built heritage, may bring in more tourists which can affect the structure or the tangible heritage. Subprojects must seek prior consent and proper attribution to cultural communities or indigenous groups who are owners of traditional knowledge or of ancestral lands where some projects may pass through. In the same vein, the economic benefits such activity may reap should accrue accordingly to the affected community in terms of employment, vocational training and other forms of community development.

ESS 8 reminds the Borrower will not proceed with such commercial use unless it:

- Carries out meaningful consultation with stakeholders as described in ESS10;
- Provides for fair and equitable sharing of benefits from commercial use of such cultural heritage, consistent with customs and traditions of the project affected parties; and
- Identifies mitigation measures according to the mitigation hierarchy.

Annex G: Fertilizers & Pesticide Management Guidelines

Pursuant to section 9 of PD 1144, all fertilizers and pesticides handlers must obtain a license with the Fertilizer and Pesticide Authority (FPA).

"No person shall engage in the business of exporting, importing, manufacturing, formulating, distributing, supplying, repacking, storing, commercially applying, selling, marketing of any fertilizer, pesticide and other agricultural chemicals except under a license issued by the FPA."

Requirements for Dealers/Outlets (Subprojects)

Any person, partnership or corporation desiring to sell fertilizers, pesticides and other agricultural chemicals has to apply and secure a license from FPA. In addition to the filing of application for dealership license, the following are also required from the applicants;

1. Copy of the latest income tax return (for single proprietorship)
2. Copy of latest financial statement (for corporation)
3. Copy of any of the following;
    a. SEC Registration –for corporations
    b. DTI Registration – for single proprietorship
    c. CDA Registration - for cooperatives
4. Inspection report and recommendation from the FPA field office
5. Copy of certificate of attendance to the two-day accredited safety dispenser (ASD) training
6. Passing of accredited safety dispenser (ASD) accreditation examination
7. List of fertilizers/pesticide companies/distributors represented and trade names of products sold.
8. "Good housekeeping compliance certificate" issued by the FPA and CRAN representative
9. Applicant must have a weighing scale of 200-250 kg capacity (for fertilizer dealers)
10. Payment of the license fee

Grounds for Revocation of License

All types of licenses issued by the FPA may be revoked, cancelled or suspended on the basis of any of the following;

1. False statement in the application or any required report or record
2. False claims in advertisement
3. Violations of or failure to observe FPA rules and regulations
4. Refusal to allow inspection
5. Commission of prohibited acts under PD 1144

The license shall be notified of the revocation or suspension of his/her license. He/she shall be given hearing before FPA gives its final revocation order. Such hearing must be requested formally within ten days from the receipt of notice.

Source: Accredited safety dispenser of fertilizer and pesticides training manual, DA-FPA

The Department of Agriculture through DA Order No. 09, series of 2020 rationalized and strengthened the crop pest management functions, services, and related tasks of the department.

IDENTIFIED POTENTIAL ENVIRONMENTAL AND HEALTH RISKS ASSOCIATED WITH CHEMICAL FERTILIZERS AND PESTICIDES

The following are identified environmental impacts related to the use of chemical fertilizers and pesticides:

Media	Potential Issues
Surface and ground water	Pesticides may pollute surface water through runoff which transports chemical fertilizers and pesticides to streams, rivers, and other surface water bodies. Groundwater contamination may occur from chemical residues in land and in surface water.
Soil contamination	Chemical pesticides residues may be retained in soil during application; long-term excessive use will cause higher residues retained in soil which will cause soil contamination.
Air pollution	Vapor from sprayed fertilizers and pesticides will be released into the air; Some chemicals are very stable and vapor may travel beyond the application location.
Flora and fauna	Application of chemicals may cause harm to non-target species because of aerosol. Runoff into water bodies may potential affect aquatic species.
People	Consumption of crops and plants where chemical was applied could cause health hazards.
Worker health and safety	Long term inhalation and exposure of farmers to toxic pesticides could eventually result in respiratory illnesses or other disease conditions.

FERTILIZER AND PESTICIDE MANAGEMENT PLAN

The Integrated Pest Management (IPM) is an aspect of sustainable agriculture that is based on planned and strategic use of pest control methods. For each subproject there must be prepared and submitted detailed fertilizer and pesticide management plan in accordance to requirements of FPA (specific for each project use). The plan will adopt the National IPM Program of the Kasaganaan ng Sakaban at Kalikasan or KASAKALIKASAN that aims to promote sustainable agriculture and rural development.

Training and Capacity Building

The fertilizer and pesticide management plan includes training of farmer IPs in order to empower them to become experts in their fields by developing their ability to make critical and informed decisions that will render crop production systems more profitable and at the same time sustainable and environmentally-friendly. Orientation of farmers will be undertaken to adopt to farmer's experiences, culture and capabilities.

The use of appropriate varieties and the practice of sound cultural management during land preparation, water and nutrient management, and control of insect pests and weeds will be discussed to respect farmers' cultural practices and enhance their ecological knowledge and skills in growing health crops. The cooperative approaches will bring about sharing of knowledge and empowerment of farmers.

Safety

It is important for the people to understand the importance of safety during the application and handling of chemical fertilizers and pesticides. Farmers will be required to wear and use appropriate personal protected fears in the course of the activities to reduce the potential for dermal, inhalation, eye and oral contact of the chemicals, thereby reducing the chances of poisoning. The personal protective gears that should be used include chemical goggles, gloves, hat, boots, masks, and long sleeved shirt or full trousers.

It is mandatory for the pesticide contaminated clothing to be kept from other fabric or clothes and cleaned and dried in a well-ventilated place before storage.

Use and Storage of Agro-Chemicals

The following guidelines should be observed in the use and storage of the agro-chemicals:

a) Do not store the agro-chemicals in unlocked cabinets that are within reach of children.
b) Do not transfer pesticides into containers that could be associated with food.
c) Do not apply insect repellants over cuts, irritated skin, eyes, mouth, hands, or directly over the face.
d) Do not store unnecessary amounts of pesticides. Purchase only what is needed at the time.
e) Apply an appropriate level of caution to those who might come in tact and become exposed.
f) Look for pesticide alternatives.

Disposal of Spent Agro-Chemical Containers

Spent agro-chemical containers are considered as hazardous materials. It is good practice to use water soluble containers to avoid generating contaminated containers. The following guidelines should be observed in managing spent containers:

a) Do not dispose spent containers in the open field.
b) Collect spent containers and separate these from the non-hazardous wastes.
c) Rinse the containers to minimize risks of contamination of soil, surface water and groundwater.
d) One-way pesticide containers should not be reused or refilled once the contents have been deployed to avoid potential contamination.
e) Reuse closed-loop refillable container many times.
f) Do not recycle spent container to store food products.
g) Do not burn plastics and pesticides because these may generate environmentally persistent toxic emissions.
h) Do not bury pesticide containers at the place of use.
i) Where recycling is not possible, containers will have to be disposed in a secured landfill.

Annex H: Guidelines in the Preparation of the Contractor's ESMP

The following guidelines were referred from the PRDP guidelines in the preparation of Contractor's ESMP. The winning contractor will be required to prepare a Contractor's ESMP, incorporating all the measures in the signed and approved Environmental and Social Management Plan (ESMP) for which the contractor is responsible for and construction industry standards on occupational and community health and safety.

The IPO and MIADP SES shall discuss the Social Assessment and Environmental Assessment (SA/EA) including the approved ESMP and other related safeguards compliance of the subproject during the pre-procurement and pre-bidding conferences to provide awareness to the Contractor on their safeguards responsibilities during implementation.

During the pre-construction conference, the winning contractor should submit a draft Contractor's ESMP. The Contractor's ESMP shall be subject to review and approval by the PSO/NPCO SES prior to issuance of any Notice to Proceed. The approved Contractor's ESMP shall be the basis for daily and periodic compliance monitoring of contractor works by LGU and MIADP SES.

The following are the suggested steps in formulating the Contactor's ESMP:

1) IPO/LGU and Contractor to discuss and review all measures in SA/EA and approved ESMP of the subproject if the actions are indeed handed over to the appropriate responsible person. An agreement between the LGU and Contractor shall be made. *E.g. a) Reconstruction of affected structures could either be through LGU or the Contractor depending on the agreement; b) Cut Trees will be returned by the Contractor to the Project Affected Persons instead of the LGU*
2) After discussion and finalizing the approved ESMP, using the same document all measures having the contractor as a responsible person should be retained and form part as initial draft for Contractor's ESMP.
3) Once all items have been retained, the contractor to review all mitigation measures and provide specific details. Note that in preparing the Contractor's ESMP the winning contractor should have started their initial survey with the area in order to provide site specific measures and/or information.

Example:

- If there will be reconstruction of affected structures will be made by the contractor, a list of PAPs, their location, and items to be reconstructed should be incorporated in the measure;
- Provide how to properly handle waste oils and grease by discussing if there will be: 1) specific containers, 2) storage area; and 3) process for its disposal;
- Provision of specific locations and area size of bunk houses, quarry sites, borrow pits, batching plants and disposal sites;
- Total number of laborers and their wages;
- Exact time of construction works;
- Schedule of hauling of waste materials;
- Total number of toilets to be set up and location. Likewise, source of water;
- The specific speed limits and stations for detours;
- Updating of final stations for the works based on the survey;
- Exact role during the grievance redress mechanism as discussed with the LGU;
- Details on the Occupational, Health and Safety Plan;
- And other measures under the responsibility of the contractor that need to be provided with Specific details.

4) Note that the PRDP have provided guidelines for Batching Plant, Quarry Site, Borrow Pit; and Waste Dumping Site, the winning contractor will have to answer the checklist and attach it in the ESMP. Likewise, specific details as to the location, area, lease information, capacity of the site, and certifications, if any, should be incorporated in the matrix of the Contractor's ESMP under the assessment column.

5) For the Occupational Health and Safety Plan, the approved DOLE – OSH Plan should be attached in Contractor's ESMP and be strictly followed by the contractor. In the matrix of the Contractor's ESMP, contractor may provide salient points to the DOLE – OSH Plan or simply refer details to the attachment under the mitigation measure column.

6) Once all site specific details have been provided, the contractor to sign the document and submit to MIADP SES for review and approval.

   The approved Contractor's ESMP along with other safeguards instruments such as the approved ESMP, GRM Posters, should be visible in the office and bunk houses of the contractor.

Annex I: Compliance and Impact Monitoring Report

Component: _____ Project No: _____
Name of Subproject: _____
Location of Subproject: _____

Components of Subproject:
_____
_____
_____

ISSUES (IMPACTS)	MITIGATION MEASURES	RESULT OF MITIGATION	ACTION NEEDED	REMARKS
*items in the compliance monitoring checklists				

Signed:

_____
Compliance Monitoring in Charge

Annex J: Environmental and Social Management Plan Compliance Monitoring Checklist

Component: _____ Project No: _____
Name of Subprojects: _____ Components of Subprojects: _____
Location of Subprojects: _____

	Yes	No	Remarks
A. General Requirements			
a. Two (2) copies of letter of intent			
b. Name of authorized contact person with telephone number/s			
c. Two (2) copies of the Safety and Health Program. One copy must be original print.			
B. CSH Program must contain the following:			
1. Name of person who prepared the program (please indicate if accredited by DOLE as OSH Practitioner)			
2. Project Description:			
a. Specific name of project			
b. Location of the project			
c. Project classification			
d. Project owner			
e. Name of main contractor			
f. Estimated number of workers to be deployed			
g. Estimated start of execution of project			
h. Estimated duration			
i. Scope of work to be undertaken			
3. Company Safety Policy written on a company letterhead Must be duly signed by the highest company official or the highest-ranking company representative who has overall control of project execution.			
4. Name/s of Site Safety and Health Personnel Must specify the proposed structure and membership of the safety and health committee (Specify the name/s)			
5. Specific duties and responsibilities of the Safety Officer			
Specific provisions on the following (if applicable):			
6. On-site safety and health promotion and continuing information dissemination			
7. Accident and incident investigation and reporting			
8. Protection of the general public within the vicinity of the construction site			
9. Environmental control			
10. Guarding of hazardous machinery			
11. Personal Protective Equipment			
12. Handling of hazardous substances			
13. General materials handling and storage procedures			
14. Workers skills and certification (for critical occupation)			
15. Provisions for transportation facilities for workers in case of emergency			
16. Temporary fire protection facilities and equipment			
17. First aid and health care medicines, equipment and facilities			
18. Workers welfare facilities			
19. Proposed hours of work and rest breaks			
20. Construction waste disposal			
21. Testing and inspection of construction heavy equipment			
22. Disaster emergency preparedness contingency plan			
23. COVID-19 prevention health and safety protocols			
24. Standard operating procedure and job hazard analysis for the following activities and other hazardous work not outlined herein.			
a. Site clearing			

	Yes	No	Remarks
b. Excavations			
c. Erection and dismantling of scaffolds and other temporary working platforms			
d. Temporary electrical connections/installations			
e. Use of scaffolds and other temporary working platforms			
f. Working at unprotected elevated working platforms or surfaces			
g. Use of power tools and equipment			
h. Gas and electric welding and cutting operations			
i. Working in confined spaces			
j. Use of internal combustion engines			
k. Handling hazardous and/or toxic chemical substances			
l. Use of hand tools			
m. Use of mechanized lifting appliances for movement of materials			
n. Use of construction heavy equipment			
o. Demolition			
p. Installation, use and dismantling of hoist and elevators			
25. Penalties/Sanctions for violation of the provision/s of the CSH Program			
26. Grievance redress mechanism to address workers complaints			
C. Attachments			
1. Photocopy of Registration Forms received and approved by the concerned DOLE Regional Office			
2. Photocopy of Invitation to Bid/Project Contract			
3. Photocopy of Certificate of Completion of required training of all designated OSH personnel			
- Safety Officer – Basic Occupational Safety and Health Training for Construction Site Safety Officer			
- OH Nurse – Basic Occupational Safety and Health Training for OH Nurse (if any)			
- First Aider - Standard First Aid Training and valid PNRC ID as first aider			
- OH Physician – Basic Course on Occupational Medicine (if any)			
4. Certificate of Inspection and Testing of Construction Heavy Equipment			
5. Skills Certificate of Construction Heavy Equipment operators issued by TESDA (if any)			

Prepared by: _____

Annex K: Description of Declared Protected Areas in Mindanao

Protected Areas in Mindanao under NIPAS

Protected Area	Location	Area (hectares)
Region 9		
1. Basilan Natural Biotic Area	Basilan	4,545.99
2. Aliguay Island Protected Landscape and Seascape	Isabela City	1,188.36
3. Turtle Islands Wildlife Sanctuary	Tawi-Tawi	242,958.29
4. Great and Little Sta. Cruz Islands Protected Landscape and Seascape	Zamboanga City	1,827.16
5. Pasonanca Natural Park	Zamboanga City	12,102.08
6. Jose Rizal Memorial Protected Landscape	Zamboanga del Norte	474.82
7. Murcielagos Protected Landscape and Seascape	Zamboanga del Norte	100.40
8. Selinog Island Protected Landscape and Seascape	Zamboanga del Norte	959.41
9. Siocon Resource Reserve	Zamboanga del Norte	855.59
10. Dumanquillas Bay Protected Landscape and Seascape	Zamboanga del Sur	26,112.21
11. Mt. Timolan Protected Landscape	Zamboanga del Sur	2,244.54
12. Buug Natural Biotic Area	Zamboanga Sibugay	1,261.46
Region 10		
13. Mt. Kalatungan Range Natural Park	Bukidnon	22,225.11
14. Mt. Timpoong Hibok-Hibok Natural Monument	Camiguin	2,203.39
15. Mt. Inayawan Range Natural Park	Lanao del Norte	4,236.18
16. Baliangao Protected Landscape and Seascape	Misamis Occidental	315.50
17. Initao-Libertad Protected Landscape and Seascape	Misamis Oriental	921.02
18. Mt. Balatukan Range Natural Park	Misamis Oriental	8,437.86
Region 11		
19. Mabini Protected Landscape and Seascape	Compostela Valley	7,292.62
20. Mainit Hot Springs Protected Landscape	Compostela Valley	1,422.63
21. Aliwagwag Protected Landscape	Davao Oriental and Compostela Valley	10,261.06
22. Mati Protected Landscape	Davao Oriental	884.46
23. Pujada Bay Protected Landscape and Seascape	Davao Oriental	20,873.43
Region 12		
24. Sarangani Bay Protected Seascape	General Santos City and Sarangani	210,887.69
25. Mt. Matutum Protected Landscape	South Cotabato and Sarangani	13,947.00
Region 13		
26. Agusan Marsh Wildlife Sanctuary	Agusan del Sur	40,940.96
27. Siargao Island Protected Landscape and Seascape	Surigao del Norte	283,974.77
28. Tinuy-An Falls Protected Landscape	Surigao del Sur	4,321.75

Aside from the above protected areas that were established under NIPAS, there are additional six (6) protected areas that were established through other legal instruments as outlined in Table 3.

Protected Areas Established under Other Legal Instruments

Protected Area	Location	Area	Legal Instruments
Mimbilisan Protected Landscape	Barangay Mapua, Municipality of Balingoan Misamis Oriental, Region X	66.515 hectares	Proc. No. 134 (5 July 1999); RA 9494 (22 August 2007)
Mount Malindang Natural Park	Cities of Oroquieta, Ozamis and Tangub, and Municipalities of Sapang Dalaga, Concepcion, Don Victoriano, Calamba, Aloran, Panaon, Jimenez, Tudela Sinacaban, Clarin and Bonifacio Provinces of Misamis Oriental, and portions of Zamboanga del Norte and Zamboanga del Sur, Region X	53,262 hectares	RA 6266 (19 June 1971); RA 9304 (30 July 2004)
Mount Hamiguitan Range Wildlife Sanctuary	Municipalities of Mati, Gov. Generoso, and San Isidro Province of Davao Oriental, Region XI	6,834 hectares	RA 9003 or Mt. Hamiguitan Range Wildlife Sanctuary Act of 2004
Mount Kitanglad Natural Park	Municipalities of Baungon, Talakag, Lantapam, Impasugong, Sumilao, Lobona, and Manolo Fortich; and Malaybalay City Province of Bukidnon, Region XI	47,270 hectares	RA 8978
Mount Apo Natural Park	Kidapawan City and Municipalities of Makilala and Magpet in the Province of Cotabato, Region 12 Municipalities of Bansalan and Sta. Cruz, and Digos City in Davao del Sur, and Davao City, Region 11	54,974 hectares	Proc. No. 882 (24 September 1996); RA 9237 (3 February 2004); DAO No. 2010-03 (12 February 2010)

Annex L: Environmentally Critical Projects (ECPs) and Environmentally Critical Areas based on the Philippine EIS System

Environmentally Critical Projects:

1. Heavy Industries

   a) Non-ferrous metal industries
   b) Iron and steel mills
   c) Petroleum and petro-chemical industries including oil and gas
   d) Smelting plants

2. Resource Extractive Industries
   a) Major mining and quarrying projects
   b) Forestry projects
      a. Logging
      b. Major wood processing projects
      c. Introduction of fauna (exotic animals) in public/private forests
      d. Forest occupancy
      e. Extraction of mangrove products
      f. Grazing

   c) Fishery Projects
      a. Dikes for fishpond development projects

3. Infrastructure Projects
   a) Major dams
   b) Major power plants (fossil0fuelled, nuclear fueled, hydroelectric or geothermal)
   c) Major reclamation projects
   d) Major roads and bridges.

4. Golf course projects

Reference: Revised Procedural Manual for DAO 2003-30, Proclamation No. 2146 (1981) and Proclamation No. 803 (199

All subprojects are subject to environmental screening and categorization as outlined in DENR Administrative Order 2003-30 and EMB Memorandum Circular 2014-005 of the PEISS. The regulations defines four categories of projects, based on their type, scale and location. Category A projects are considered environmentally critical projects (ECPs). Category B projects are not considered environmentally critical but are located in environmentally critical areas (ECAs) and are above certain scale or size thresholds. Category C-type projects are environmental enhancements such as wastewater treatment and solid waste management. Lastly, Category D projects are neither environmentally critical types nor located in environmentally critical areas or those that are below not environmentally critical but located in environmentally critical areas and are below certain scale or size thresholds. Category D subprojects are not required to prepare environmental impact statements (EIS). The Revised Procedural Manual for DENR DAO 2003-30 specifies the scale or size thresholds below which a non ECP located in ECA would fall under Category D. These regulations, certain subproject types that are considered environmentally critical and all projects that are located in environmentally critical areas are required to prepare an Environmental Impact Statement. For guidance in screening under the PEISS of the likely subprojects Table below presents the project parameters for non-environmentally critical projects in ECAs that are applicable to MIADP subprojects.

Applicable Project Parameters for Non-Environmentally Critical Projects in Environmentally Critical Areas

Subproject	Project Size Parameters	Category B	Category D
Road widening, rehabilitation and/or improvement		>50% increase in capacity (or in terms of length/width) and >2 km but <20km (length with no critical slope) Or >2km but <10km (length with critical slope)	≤50% increase in capacity (or in terms of length/width) but ≤2km increase in length
Bridges		>50m but <5 km	≤50m Regardless of length for footbridges or for pedestrian only
Irrigation systems	Service area	>300 but <1,000 hectares	≤300 hectares
Water supply system (Levels 1 and 2)		Level III (distribution system only)	Level II / Level I Water refilling station
Rice/corn mills	Hourly production rate	>1 ton/hr or mill with polishing regardless of production rate if with polishing)	≤1 ton/hr
Warehouses (storage facilities with no hazardous or toxic materials	Total/gross floor area	>1 hectare but <5 hectares	≤1 hectare
Compost/fertilizer making	Annual rated/production rate	>3,750 MT	≤3,750 MT
Poultry	Stocking population	>10,000 BUT <100,000 heads	≤10,000 heads
Piggery	Stocking population	>100 but <5,000 heads	≤100 heads
Fishery/aquaculture	Hectares	>1hectare but <5 hectares	≤1 hectare or seaweed farming
Agricultural plantation	hectares	>50 hectares but <500 hectares	≤50 hectares
Agricultural processing including rice, corn, fruits and vegetables and other agricultural products	Annual production rate	>5,000MT but <50,000MT	≤5,000MT
Food preservation (e.g. drying, freezing) and other similar methods aside from canning	none	none	none
Coconut processing plants	Annual production rate	>200MT but <25,000 MT	≤200MT
Animal products processing (fish/meat processing, canning, slaughterhouses)	Annual production rate	>200MT but <2,500 MT	≤200MT
Animal feed mill	Annual production rate	>200MT but <2,500MT	≤200MT
Cutflower industry/projects	none	none	Regardless of capacity of area
Cottage industries	none	none	Regardless of capacity

Environmentally Critical Areas in accordance with the Philippine EIS System

1. All areas declared by law as national parks, watershed reserves, wildlife reserves and sanctuaries
2. Areas classified as prime agricultural lands
3. Areas frequently visited and/or hard-hit by natural calamities (geologic hazards, floods, typhoons, volcanic activity, etc.
4. Areas of unique historic, archaeological or scientific interests
5. Areas set aside as aesthetic potential tourist spots
6. Areas which are traditionally occupied by cultural communities or tribes
7. Areas which constitute the habitat for any endangered or threatened species of indigenous Philippine Wildlife (flora and fauna)
8. Areas with critical slopes (slopes of 40% of greater)
9. Recharged areas of aquifers
10. Water bodies characterized by one or any combination of the following conditions:
    a. Tapped for domestic purposes
    b. Within the controlled and/or protected areas declared by appropriate authorities
    c. Which support wildlife and fishery activities.
11. Mangrove areas characterized by one or any combination or the following conditions:
    a. With primary pristine and dense young growth
    b. Adjoining mouth of major river systems
    c. Near or adjacent to traditional productive fry or fishing grounds
12. Areas which act as natural buffers against natural erosion, strong winds and storm floods
13. Coral reef characterized by one or any combination of the following conditions:
    a. With 50% and above coralline cover
    b. Spawning and nursery grounds for fish
    c. Which act as natural breakwater of coastlines.

Reference: Revised Procedural Manual for DAO 2003-30 and EMB Memorandum Circular 2014-005 (Revised Guidelines for Coverage Screening and Standardized Requirements of Philippine EIS System

Annex M: Road Safety and Traffic Management Guidelines

Road safety risks

The following are some of the road safety risks that the project should consider in preparing the Environment and Social Management Plan (ESMP):

• Maintaining existing unsafe speeds or increasing speeds (e.g. from changes in mis-perception of safety by road users, reduced congestion allowing higher speeds, lack of sufficient engineered traffic calming measures, new speed limits, policy changes, and/or improved road surfaces);
• Inadequate enforcement of speeds, impaired driving, vehicle overloading, etc. which leads to a low level of 'general deterrence' and engenders unsafe road user behavior;
• Increased traffic volume:
o Project-related vehicle fleets (e.g. trucks, ambulances servicing new hospitals);
o Project-related pedestrian, bicycle, or motor traffic (e.g. increased heavy freight flows from economic activities such as mining or agricultural developments, pedestrian movements to a new school);
o New generated traffic at project-related locations, new access points (e.g. new schools or service centers on major highways), and in urban corridors with mixed traffic and speeds (e.g. project-related highways passing through unprotected linear villages);
o Induced traffic, i.e. vehicles altering their usage patterns from another corridor to the project corridor as a response to less congestion or faster trips; and/or,
o Project-related public transport nodes (e.g. public transport on a rural road).
• Inadequate road safety features on the road to protect road users in the event of inevitable human error:
o Unsafe or non-existent crash barriers, infrangible objects near roadsides; no clear zones;
o Inadequate guidance to road users (inadequate lighting, sight distance, poor horizontal and vertical signage);
o Unclear road environment, which sends road users the wrong messages (e.g. a pedestrian crossing on a high-speed rural road, without additional traffic calming measures, will make a pedestrian feel falsely safe when crossing the street);
o Inadequate maintenance of road safety features such as delineation or speed calming; and/or,
o Inadequate safe amenity for vulnerable road users, such as usable footpaths and bus shelters, separated bicycle lanes, and motorcycle lanes.
• Land use changes through transport plans and resulting network structures for public transport, active transport and private and commercial vehicles;
• Greater use of inherently risky travel modes (e.g. increased walking, cycling, and especially motorcycle use will result in more FSIs, unless appropriate protective measures are taken);
• Poor maintenance of vehicles—particularly those procured under the project—compromising vehicle safety;
• Inadequate or nonexistent crash incident management; and/or
• Limited post-crash medical services at the scene, for transporting victims to medical treatment facilities, and at treatment facilities themselves leading to unnecessary deaths and disabilities

Road Safety during Construction

Road safety during construction with mitigation measures.

1. Monitoring of the adherence of contractor vehicles to the Contractor's Traffic Management Plan is essential. These plans need to clearly define as a minimum: (i) the approved haul routes for all construction traffic; (ii) maximum speed limits (which are often lower than the legal speed limit) at locations on the route (e.g. 40 km/h or 30 km/h when vulnerable users are present, such as during school hours starting 200m before to 200m after a school), and the hours at which vehicles operate

and; (iii) Temporary Traffic Management (TTM) in work zones. The SE is to monitor and report on the contractor's adherence to the TMP. Due to their low cost, GPS trackers (see Annex 5) are an effective way of ensuring that project vehicles are operating on: (i) approved routes; (ii) at approved times; and, (iii) at appropriate speeds. Potentially, deducts could be used to penalize contractors for non-compliance. GPS trackers are recommended for all projects, particularly Substantial/High-risk projects. 62. The TMP and TTM requirements need to have been earlier defined in the project ESMP, and the TMP requirements included in the bidding documents. The TMP needs to be reviewed and cleared by the SE, with a technical review by the Task Team recommended.

2. Construction vehicles and equipment on public roads are specifically mentioned in the ESS4. This is because they are often large and unwieldy and not well suited for operation in mixed traffic on normal roads. Examples include large, self-propelled excavators, cranes and graders. In energy projects, there is frequent use of large specialized vehicles which carry equipment and pre-fabricated elements.

3. Most road authorities and traffic police forces require operators of specialized, over-dimensioned vehicles, or those transporting abnormal loads, to obtain a permit to use the public highway. Typically, these relate to a specific journey, on a pre-determined route and travel at certain times of day to minimize disruption, particularly if road closures are required. Where no formal requirements are in force, every effort should be made to engage with relevant roads authorities and police forces so that an appropriate route is chosen and that adequate measures are taken to protect communities and other road users.

4. The road safety requirements will need to be specified in the bidding documents and form a part of the works contract. Furthermore, the contractor's TMP and/or OHSP, which is approved by the Borrower, will need to provide the contractor's measures for the safe use of equipment.

5. Limiting speeds of travel is a key safety mechanism, especially for equipment with a higher center of gravity that a conventional vehicle, which increases roll-over risk. Pilot vehicles and prominent signage should be used for appropriately wide loads. Movement of construction equipment at night is only recommended with comprehensive lighting of the vehicles and equipment. It is this type of commitment that the Contractor is expected to propose in the TMP.

Road Safety Management

1. Attention should also be paid to ensuring that all road safety measures included within the design (e.g. line-marking, traffic signs, traffic management devices, footpaths, guard-rails), are in place before the road is opened to traffic, and prior to issuance of the Certificate of Substantial Completion. Until all road safety measures have been completed, then the road cannot be fit for purpose from a road safety perspective. This will identify any road safety issues that may not have been properly addressed by the contractor, or which may have been missed/emerged since the design stage audits.

2. If a post-construction audit is to be done, and it is required that any road safety deficits be addressed as a precondition for issuance of the Certificate of Substantial completion, then this should be included in the relevant provisions of the bidding documents.

Annex N: Land Access Framework

1. The MIADP recognizes that a sub-project which will be proposed by the participating IP organizations (IPO) may cause economic losses such as damage to or loss of crops, trees and other productive asset that are sources of livelihood of affected IPs. While land ownership in ancestral domain (AD) are declared communal by virtue of the CADT, some sections of the ADs are also designated for individual/household or some IP households have been duly given authority for resource usage of portions of the ADs for livelihood purposes. This Land Access Framework (LAF) defines the standards and procedures for identifying potential economic displacements' negotiating for settlement or compensation to replace economic damage/loss; compensation standards; , documenting the agreements or negotiated settlement; and monitoring the implementation of the settlement in accordance with ESS5 as well as the NCIP Administrative Order No. 3: Enhanced Guidelines on FPIC. While an FPIC is not required at Project level since MIADP is designed to support IP-solicited/identified sub-projects, the participatory social preparation phase serves as the process for ensuring that the participating ADs and still complies with the principles and procedures of A.O. No .3.

2. The following are the major principles of the LAF

- Proposed investment and/or infrastructure sub-projects will be designed to avoid land acquisition and resettlement, and encroachment on identified international and local cultural and heritage sites (including sacred grounds and burial sites of indigenous communities; critical areas identified or reserved by the ICCs/IPs for special purposes; and other areas specifically identified by ICCs/IPs in their ADSDPP.

- Each proposed sub-project will undergo a screening process to identify environmental and social risks, including identifying of potential impact in terms of economic displacement/losses to IP households. This screening will be an integral part of the social preparation stage and as a requirement for submission and approval of sub-projects that will be supported by MIADP.

- In case of unavoidable damages or loss of productive assets, the MIADP will provide and ensure compliance with the procedure and the standards as provided for in this LAF.

3. **Screening for economic displacement or losses:** The screening checklist (Annex C) is expected to be accomplished by any IPO that intends to prepare and submit a proposal for a sub-project. The screening is an initial assessment to identify if the proposed sub-project will cause economic displacement or losses to any IP of any level, nature or volume. If the screening identifies potential economic displacement, the IPO will have to undertake an inventory or census of all affected IPs through a participatory or direct consultation with them. The census will capture the following data:

a) Name and address of affected IP
b) Inventory of all crops, trees or any productive asset. This will include use of land for livestock raising.
c) Initial preference for replacement of losses/damages, whether in kind (replacement of damages/losses) or in cash.

4. **Negotiation for Settlement**: Once the census of affected IPs have been completed, the IPO will seek authority from the concerned IP Political Structure (IPS)[19] for use of a specified land area for the proposed sub-project. The authority to use a specific natural resource for sub- project activities will be documented either through an IPS resolution or joint agreement between the IPS and the IPO in accordance with customary practices. Since the CADT awards the ancestral domain as communal resource of the whole IP group, it also mandates the IPS to make decisions on use of land within the AD.

5. In case the screening identifies potential losses of productive assets, the IPO will also request the IPS to convene series of negotiation with the affected IPs to ensure appropriate and fair compensation or replacement of losses. The affected IPs or IPs who will be affected by any proposed sub-projects will be given all the options for compensation, either in cash or replacement in kind as well as voluntary donation. There will be no full completion of the negotiation until such time that the affected IPs agrees to the terms of compensation, including acceptable replacement.

6. The specific steps or process of negotiation with affected IPs will follow the respective customary laws and practices of the concerned IP group. Each AD has their respective customary laws and practices for negotiation with project-affected IPs with some AD designating individual negotiators while others designate a team of IP members (usually elders). The final decision, however, is affirmed by the designated IPS or leader.

7. The full process will be documented and will include an Entitlement Plan, both of which will be part of the supporting documents of the proposed sub-project. The Entitlement Plan will identify the specific type and volume of productive losses; the corresponding negotiated compensation amount per crop/asset; manner of compensation for each IP-affected person/household; and, schedule of compensation which should not be beyond the start date that the damages/losses will be incurred. It will be signed or confirmed by both the PAP and the IPS. Please note that customary practices are considered indigenous knowledge that could only be shared in specific terms by willful consent of the IP groups once they are selected as eligible for MIADP. Thus, the specific process and steps for negotiation related to compensation of damages/losses due to the sub-project will be documented as part of the submission of the proposed sub-project. The NCIP, as member of the RPCSO, will ensure that the process is participatory and fair to the affected IPs in accordance with LAF through field-based investigation before or during appraisal of the proposed sub-project. In case the proposed sub-project will entail essential use of land that is outside the AD, the Barangay LGU and the IPs will jointly take responsibility for negotiating with concerned project-affected persons.

8. **Compensation:** In terms of compensation, each AD has their respective process for determining the fair compensation for damaged economic assets. The ADs designate groups to prepare a table of damaged crop tariff which presents a list of different types of crops, trees or productive assets that will be damaged with the corresponding value based on prevailing market price in the area. The valuation of the damaged crops or assets will consider the losses during transition period until such time that the affected IPs are able recover the loss of income. The process of preparing the damaged crop tariff table is participatory and this is used as basis for negotiating with the affected IPs.

9. The compensation can entail trading of new crops to replace the potentially damaged crops, both of which are determined/agreed upon to be of the same value. In case an IP will lose access to land which is being used for raising livestock, the compensation can be by way of the IPS authorizing usage of another replacement land within the AD, taking into consideration that the replacement land

[19] IPS is the term used in the ADSDPP to refer to the governing structures in an ancestral domain. This can include the Tribal Council as apex of governing body and its committees.

can serve the same purpose and will not entail additional travel time/cost for the affected IP. In case the affected IPs prefer to be paid in cash, the IPS will determine and mobilize resources from their own community resource development fund, the LGUs or other possible donors. The compensation for replacement can also be in terms of inclusion in community labor for sub-projects or participation in the proposed agricultural enterprise. Lastly, the affected IP can opt to voluntary donate the losses, which will be presented as a last option. In case of voluntary donation, the affected IP will be requested to sign a donation document and the value of damaged crops/assets will be duly recognized as part of community counterpart contribution.

10. **Grievance:** Although the negotiation for settlement have reached an agreement between the IPS and the affected IP, they can use the Project GRM should they have complaints about the implementation of the agreements on the compensation for loss of productive assets. The IPO will report on the status of the Entitlement Plan. The LPMIU and the RPCSO will ensure compliance to the LAF as part of the basis for approval of any proposed sub-project.

Annex O: Stakeholders Discussion, Orientation, and Consultation

Highlights of Consultations

1. Site visits/consultations were also conducted at the Manobo community on 24-28 July 2019 and four other IP communities/ADs in Bukidnon (3) and Gingoog City (1) to solicit/generate issues/concerns, recommendations, plans, among others of the community. Some of the issues raised include the constraints in transporting of their agricultural products from the farm to the marketplace and the low (market-wise uncompetitive) buying price offered by the traders.

2. From July to September 2019, DA had also conducted stakeholder engagements which are consultative and participative meetings and workshops with the IPOs, the Mindanao-Based State Universities and Colleges, cooperatives and rural financial institutions and banks. The IPOs shared their experiences and agricultural IKSPs to the Project Preparation Team (PPT) which shall be considered in the design of the project. On the other hand, the cooperatives, which have been considered as potential Technical Service Providers (TSP), also shared their project proposals and programs to the ICCs/IPs during the said stakeholder's engagement.

3. During the Project Preparation Stage, the DA-MIADP was able to conduct meetings with other National Government Agencies (NGAs) as they provide technical supports and prepare Memorandum of Agreements (MOAs) and Memorandum of Understandings (MOUs) for the project to be more efficient and effective when it is implemented. The DA also coordinated with the National Economic and Development Authority (NEDA) and the Department Budget and Management (DBM) to prepare for formal approval of the ICC Technical Committee and ICC-Cabinet Committee.

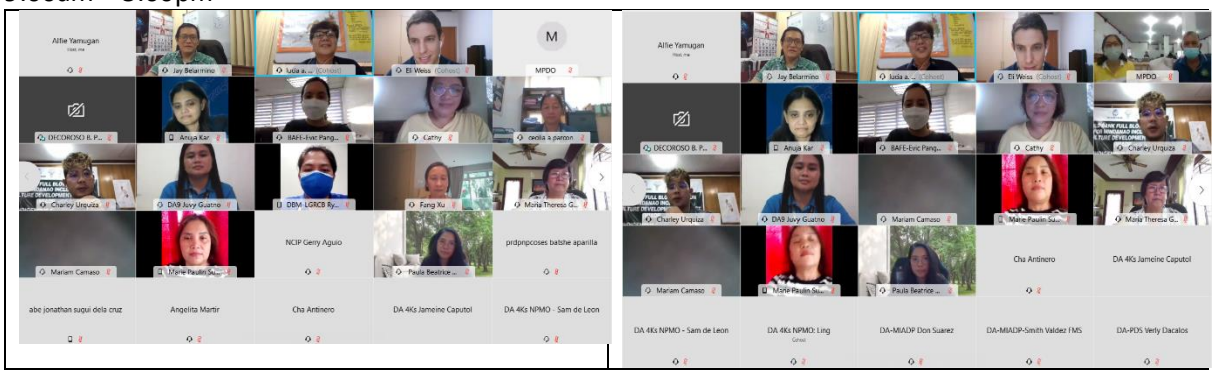
4. The DA-4Ks also had dedicated consultation with the National Commission on Indigenous Peoples. (NCIP). The NCIP agreed to be a major partner for the Project and has been part of the project preparation. The NCIP partners pledged support to the MIADP by providing technical assistance to the project partner-IPOs and to purchase the agricultural products from the partner-IPOs.

5. From May to June 2021, DA conducted follow-up virtual consultations in Five (5) regions of Mindanao with a total number of 135 participants comprised of representatives of regional field officers of DA, NCIP; municipal and barangay LGUs; and IPOs in 11 pre-selected ADs. The consultations focused on the updated design features of MIADP as well as the basic operational procedures/policies, including procurement, financial management and the various ESF instruments (i.e., ESMF, SEP and LMP). In general, there were no objections to the MIADP design and operational arrangements**,** including the ESF requirements. Most of the reactions were confirmation of commitment to participate in MIADP while other comments raised were recommendations to facilitate field implementation as well as comments that were clarificatory in nature, particularly in terms of the preparatory activities which could already be undertaken even while awaiting approval of the Project, which indicated the readiness of local stakeholders for start-up.

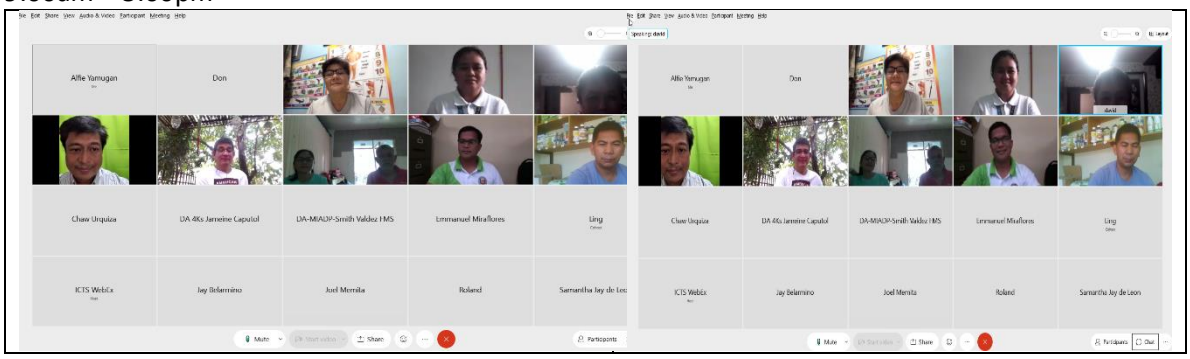
TIME AND DATE	CADT NO.	LOCATION	Tribe
➢ **May 6, 2021 (Thursday) 9:00 am – 5:00 pm**	R11-MAL-0609-119	Brgys. Lagumit, Little Baguio, Manuel Peralta, Datu Danwata, Demoloc, Pinalpalan, Kilalag, Macol, Kinangan and Pangaleon, all in Mun. Malita, Prov. Of Davao del Sur	B'laan-Tagacaolo
➢ **May 14, 2021 (Friday) 9:00 a.m. – 5:00 p.m.**	R13-ROS-0908-078	Municipality of Rosario, Prov. Of Agusan del Sur	Manobo
	R13-BUN-0909-136	Barangays Poblacion, Imelda, Consuelo, Bunawan Brook, Nueva Era, San Andres, Mambalili, San Marcos, Libertad, Municipality of Bunawan, Province of Agusan del Sur	Manobo
➢ **May 18, 2021 (Tuesday) 9:00 a.m. – 5:00 p.m.**	R09-DUM-1204-029	Barangays of Marangan, San Juan, Calumangi, Gumpingan, Dulian, Dilud, Sunop, Senote, La Fortuna, Guintananan, Salvador, Labangon, Tagun, Tamurayan, Canibungan, Danlugan, Macasing, Malagalad, Dulop, San Vicente, Datu Tutukan and Bagong Silang, Saad (portion)Bagong Valencia (portion), Municipality of Dumingag, Province of Zamboanga del Sur Barangay Manguiles (portion), Municipality of Mahayag, Zamboanga del Sur; Barangay of Seriac (portion), Municipality of Siayan, Province of Zamboanga del Norte	Subanen
➢ **May 19, 2021 (Wednesday) 9:00 a.m. – 5:00 p.m.**	R09-ZAM-1005-033	Barangays of Sangali and Victoria, Zamboanga City	Bajau
➢ **May 20, 2021 (Thursday) 9:00 a.m. – 5:00 p.m.**	R10-GIN-0116-203	Brgys. Hindangon & Bal-ason, Gingoog City, Prov. Of Misamis Oriental and portion of Brgy. San Luis, Mun. Of Malitbog & portion of Guilang Guilang, Municipality of Manolo Fortich, prov. Of Bukidnon (a.k.a. KALANAWAN CADT)	Higa-onon
➢ **May 21, 2021 (Friday) 9:00 a.m. – 5:00 p.m.**	R10-IMP-0914-174	Sitio Kibuwa, Impalutao, Impasug-ong, Bukidnon	Bukidnon-Tagakaolo
➢ **May 27, 2021 (Thursday) 9:00 a.m. – 5:00 p.m.**	R12-SEN-0609-111	Mun. of Senator Ninoy Aquino (Kulaman), Prov. Of Sultan Kudarat	Manobo-Dulangan
➢ **May 28, 2021 (Friday) 9:00 a.m. – 5:00 p.m.**	R12-MAG-0909-139	Barangay Manobo, Municipality of Magpet, Pro. Of North Cotabato	Manobo

MIADP Stakeholders Consultation Photos

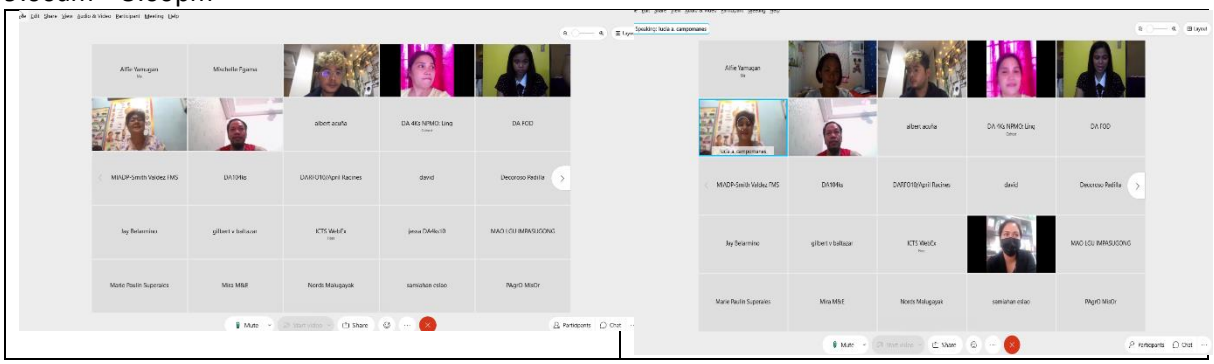
Region 9
May 18, 2021 (Tuesday)
9:00am – 5:00pm



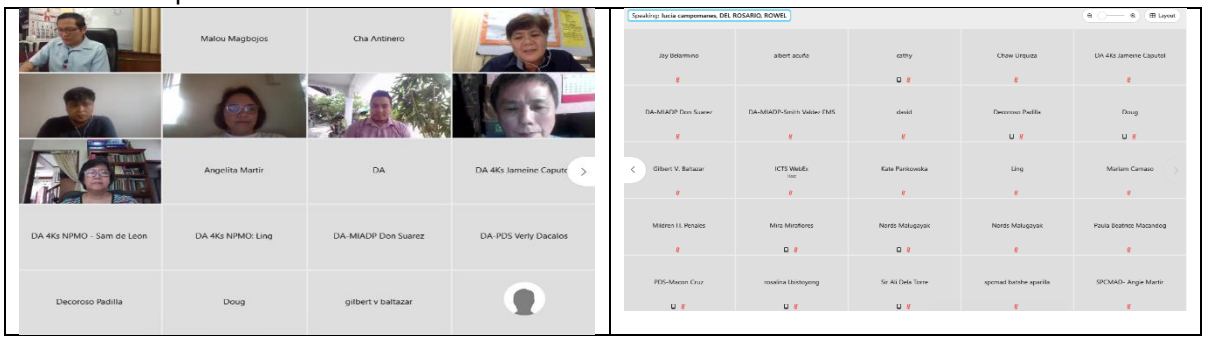
Region 9
May 19, 2021 (Wednesday)
9:00am – 5:00pm



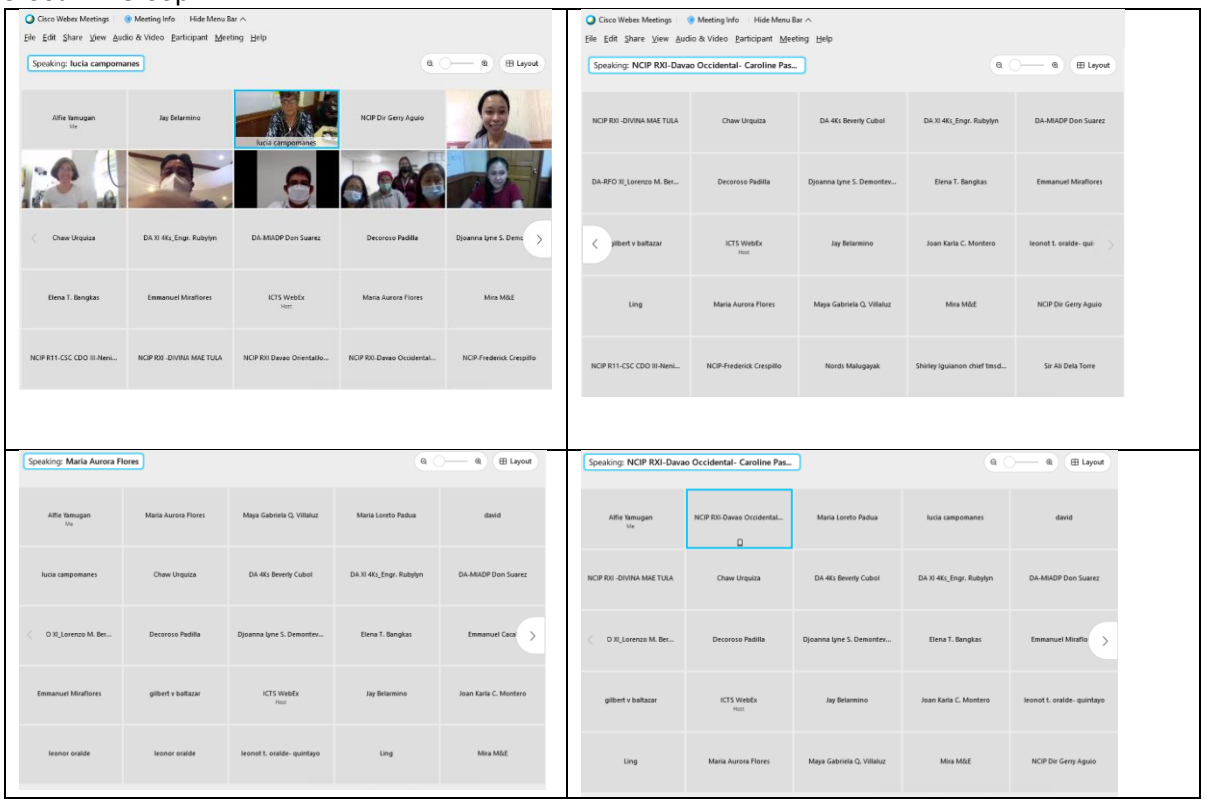
Region 10
May 20, 2021 (Thursday)
9:00am – 5:00pm



Region 10
May 21, 2021 (Friday)
9:00am – 5:00pm

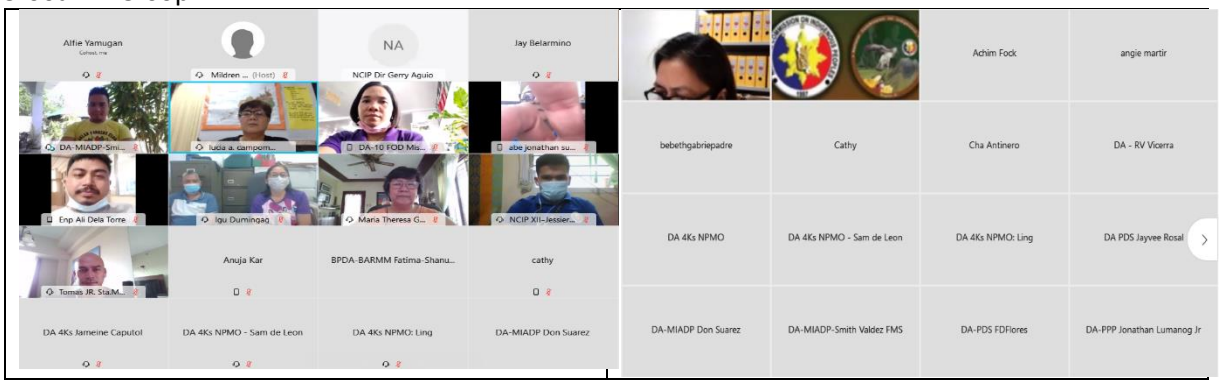


Region 11
May 6, 2021(Thursday)
9:00am – 5:00pm



Region 12
May 27, 2021 (Thursday)
9:00am – 5:00pm

Region 12
May 28, 2021 (Friday)
9:00am – 5:00pm



Region 13
May 14, 2021 (Friday)
9:00am – 5:00pm