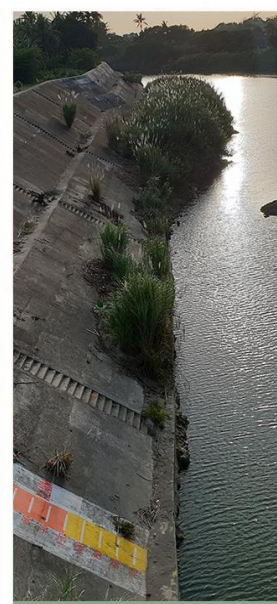


FINAL REPORT

ADB TA-9535 PHI:
Integrated Flood Risk
Management Sector
Project (IFRMSP)

OUTPUT 3:
Community-Based Flood
Risk Management
Subcomponent (CBFRMS)

PHASE II



December
2021

FINAL REPORT
Integrated Flood Risk Management Sector Project
(IFRMSP)

OUTPUT 3:
COMMUNITY-BASED FLOOD RISK MANAGEMENT SUBCOMPONENT (CBFRMS)

Phase 2
Apayao-Abulug River Basin
Buayan-Malungon River Basin
Jalaur River Basin

List of Acronyms

AARB	Apayao - Abulug River Basin
ADB	Asian Development Bank
AFF	Agriculture, Fisheries and Forestry
AIP	Annual Investment Plan
ANR	Assisted Natural Regeneration
ARMM	Autonomous Region of Muslim Mindanao
BARMM	Bangsamoro Autonomous Region of Muslim Mindanao
BDRRMC	Barangay Disaster Risk Reduction Management Council
CAR	Cordillera Administrative Region
CBDRRM	Community - Based Disaster Risk Reduction Management
CBDRRMP	Community - Based Disaster Risk Reduction Management Plan
CBFRMS	Community - Based Flood Risk Management Subcomponent
CCA - DRRM	Climate Change Adaptation - Disaster Risk Reduction Management
CCC	Climate Change Commission
CCDRA	Climate Change Disaster Risk Assessment
CCVA	Climate Change Vulnerability Assessment
CDP	Comprehensive Development Plans
CDRA	Climate and Disaster Risk Assessment
CLUP	Comprehensive Land Use Plan
CRT	Community Response Team
CSO	Civil Society Organization
DA	Department of Agriculture
DANA	Damage Assessment and Needs Assessment
DENR	Department of Environment and Natural Resources
DFA	Department of Foreign Affairs
DILG	Department of Interior Local Government
DILG - LGA	Department of Interior Local Government - Local Government Academy
DMF	Design and Monitoring Framework
DND	Department of National Defense
DOE	Department of Energy
DOH	Department of Health
DOST	Department of Science and Technology
DOTC	Department of Transportation and Communication

DPA	Disaster Preparedness Audit
DPWH	Department of Public Works and Highways
DRA	Disaster Risk Assessment
DREAM	Disaster Risk and Exposure Assessment for Mitigation
DSWD	Department of Social Welfare and Development
DTI	Department of Trade and Industry
EFWS	Early Flood Warning System
EMB	Environmental Management Bureau
EWS	Early Warning System
FLUP	Forest Land Use Planning
FMB	Forest Management Bureau
FRM	Flood Risk Management
GAA	General Appropriations Act
GIS	Geographic Information System
GOP	Government of the Philippines
HLURB	Housing and Land Use Regulatory Board
IFRMP	Integrated Flood Risk Management Project
IFRMSP	Integrated Flood Risk Management Sector Project
IP	Indigenous People
IRBMD	Integrated River Basin Management Development
IRBMDMP	Integrated River Basin Management Development Master Plans
IWMC	Iloilo Watershed Management Council
JRBMC	Jalaur River Basin Management Council
LCCAP	Local Climate Change Action Plan
LDRRMC	Local Disaster Risk Reduction and Management Council
LDRRMF	Local Disaster Risk Reduction and Management Fund
LDRRMO	Local Disaster Risk Reduction and Management Office
LDRRMP	Local Disaster Risk Reduction and Management Plans
LGU	Local Government Unit
LSP	Local Service Provider
MCA	Multi-Criteria Analysis
MDRRMP	Municipal Disaster Risk Reduction Management Plan
MENRO	Municipal Environment and Natural Resource Officer
MGB	Mines and Geosciences Bureau
MOA	Memorandum of Agreement
NCCAP	National Climate Change Action Plan
NCIP	National Commission on Indigenous Peoples
NCRFW	National Commission on the Role of Filipino Women

NDRRMC	National Disaster Risk Reduction and Management Council
NDRRMF	National Disaster Risk Reduction and Management Fund
NEDA	National Economic and Development Plan
NFSCC	National Framework Strategy on Climate Change
NGA	National Government Agency
NGO	Non-Government Agency
NSC	National Security Council
OCD	Office of Civil Defense
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PDPFP	Provincial Development & Physical Framework Plan
PDRRMC	Provincial Disaster Risk Reduction Management Council
PDRRMO	Provincial Disaster Risk Reduction Management Office
PDRRMP	Provincial Disaster Risk Reduction Management Plan
PMO	Project Management Office
PO	People's Organization
PSF	People Survival Plan
RBCO	River Basin Control Office
RBIIMS	River Basin Integrated Information Management System
RBMC	River Basin Management Council
RDC	Regional Development Council
TLRB	Tagum - Libuganon River Basin
TRTA	Transaction Technical Assistance
TWG	Technical Working Group

Table of Contents

1.0	Background	1
2.0	Methodology	1
2.1	Scoping and Consultation with Stakeholders in the Six River Basin	1
2.2	Comprehensive Review of Related Policies, Literature and Documents.....	2
2.3	Setting the Selection Criteria for CBFRMS	2
2.4	Design and Monitoring Framework (DMF) Process and Multi-Criteria Analysis (MCA)	3
3.0	National Policies and Plans on CCA and DRRM applicable to IFRMP and CBFRMS in the six River Basins.....	4
3.1	National Policies on CCA and DRRM	4
3.2	Guidelines in Mainstreaming CCA-DRRM to Local Comprehensive Development Plans	6
3.3	Integrated River Basin Management	7
3.4	Programs in the Six River Basins based on the IRBDMPs	8
4.0	Disaster Preparedness Audit (DPA) of LGUs in the Six River Basins	11
4.1	LGUs within the River Basins	11
4.2	Disaster Preparedness of Provinces.....	12
4.3	Cities and Municipalities	14
5.0	Flood Risk Assessment and Situation in the Six River Basins	16
5.1	Land Cover in the Six River Basin	16
5.2	Flood Prone Areas in Six River Basins	17
5.3	Agricultural Area Susceptible to Flooding in Six the River Basins.....	19
5.4	Estimated Population Susceptible to Flooding.....	21
5.5	Summary Results of Stakeholders Meetings, Consultations and Workshops.....	23
5.6	Proposed Direction and Strategy for Enhancing CBFRM	25
6.0	Project Description.....	26
6.1	Projected Impact	26
6.2	Desired Outcomes.....	27
6.3	Expected Outputs.....	27
6.4	Summary of Key Activities in the Three River Basins	30
7.0	Implementation Schedule	38
8.0	Institutional Arrangement	40
8.1	Overall Project Management	40

8.2.	River Basin Project Management and Coordination	40
8.3.	Engagement of Local Consulting Company (LCC) and Civil Society Organizations/Non-Government Organizations (CSOs/NGOs) for the management of CBFRMS	42
9.0	Gender and Social Safeguards Considerations	45
10.0	Monitoring and Evaluation (M & E).....	46
11.0	Communication Strategies	47
12.0	Cost Estimate Summary.....	47

List of Figures

Figure 1: Selection Criteria for CBFRMS	2
Figure 2: Organizational Structure of NDRRMC (Source: NDRRMC)	5
Figure 3: Hierarchy of DRRM Plans and DRRM Councils	6
Figure 4: Disaster Preparedness of Cities/Municipalities.....	15
Figure 5: Flood Prone Areas in the Six River Basins (Source: MGB)	18
Figure 6: Flood Susceptibility of Agriculture (Rice and Corn/Coconut and Banana).....	20
Figure 7: Flood Susceptibility Map of Affected Population.....	22
Figure 8. Inter-relationship of Key Project Activities	30
Figure 9. Mainstreaming process of FRM in Local Development Plans	33
Figure 10. Mainstreaming process of FRM in CBDRRMPs	35
Figure 11. Overall Gantt Chart of Key Project Activities, Phase 1	39
Figure 12. Proposed Overall Project Organizational Structure	40
Figure 13. Summary TOR of Consultants and CSO/NGO for CBFRMS.....	43
Figure 14. Relationship of Project Implementation with RBMC	44
Figure 15. Proposed Organizational Structure of CBFRMS LCC and CSOs/NGOs Team of Consultants and RB-PO.....	45
Figure 16. Project Monitoring Activities	47

List of Tables

Table 1. Status of IRBMD Master Plans	9
Table 2. Summary of Identified Non-structural Programs/Projects Proposed in IRBMD Master Plans of RBCO Relevant to CBFRMS	10
Table 3. DPA Indicators.....	11
Table 4. Number of Cities and Municipalities, Land Area and Population	11
Table 5. Provinces with Approved/Adopted Plans and Institutional Mechanisms related to DRRM.....	13
Table 6. Provinces that Completed the Process on Disaster Operational Readiness Audit	13
Table 7. LDRRMF Utilization per Province	14
Table 8. Number of LGUs Passed DPA in Planning and Setting up Institutional Mechanisms	15
Table 9. No. of LGUs Passed the Operational Readiness Audit in the Six River Basins	16
Table 10. Land Cover Type and Area (Hectares) in the Six River Basins	17
Table 11. Land Area Susceptible to Flooding in the Six River Basins.	17
Table 12. Rice and Corn Area Susceptible to Flooding in the Six River Basins	19
Table 13. Coconut and Banana Area Susceptible to Flooding in the Six River Basins.....	19
Table 14. Estimated Population in High and Very High Flood Susceptibility	21
Table 15. Indicators for CBFRMS Output 3.1: FRM mainstreamed in Local Development Plans.....	28
Table 16. Output Indicators per River Basin	28
Table 17. Initial List of LGUs targeted for mainstreaming FRM in CLUP and LDRRMP under CBFRMS.....	31
Table 18. Population, Poverty Incidence and Flood Susceptibility in Target LGUs for Output 3.1.....	32
Table 19. Proposed Number of Barangays.....	36

Table 20. Summary of Capacity Building Activities in the three River Basins.....	36
Table 21. Summary of Estimated Cost, Per Component	48
Table 22. Summary of Estimated Cost, Per Item.....	48

Integrated Flood Risk Management Sector Project (IFRMSP)

OUTPUT 3:

COMMUNITY-BASED FLOOD RISK MANAGEMENT SUBCOMPONENT (CBFRMS) IN THE SIX RIVER BASINS

1.0 Background

1. The Government of the Philippines (GPH) through the Department of Public Works and Highways (DPWH) sought the assistance of the Asian Development Bank (ADB) to prepare the Integrated Flood Risk Management Sector Project (IFRMSP). IFRMSP's purpose is to assist the government of the Philippines to reduce flood risks in the six river basins by improving flood risk management through planning, rehabilitating and constructing flood protection structure and raising community awareness and preparing and implementing disaster (flood) risk reduction and management plans.
2. This subcomponent is addressing the third output of the FRMSP by raising community awareness, and preparing and implementing disaster (flood) risk reduction and management plans to reduce different groups' vulnerabilities". Specifically, this component aims to support the strengthening of participatory and gender responsive community-based flood risk management (CBFRM). of the target six river basins, namely: (i) Abra River Basin, (ii) Apayao-Abulog River Basin, (iii) Buayan-Malungon River Basin, (iv) Jalaur River Basin, (v) Ranao (Agus) River Basin, and Tagum-Libuganon River Basin.
3. The Transaction Technical Assistance (TRTA) for IFRMSP has engaged Civil Society Organizations (CSOs) in the preparation of the project design of the Community-Based Flood Risk Management Subcomponent (CBFRMS) to ensure participatory bottoms-up planning and decision making. Likewise, the TRTA and CSOs have adopted the Design and Monitoring Framework (DMF) process of the Asian Development Bank (ADB) in facilitating the design of CBFRMS.

2.0 Methodology

4. The preparation of CBFRMS has adopted various methodologies which include: (i) scoping and consultation with stakeholders (ii) comprehensive review of related policies, literature and documents, (iii) setting the selection criteria and target communities, and (iv) engagement of CSOs to ensure participatory approach in designing responsive CBFRMS taking into consideration gender and development and the role of women to enhance capacities and related activities for CBFRM,

2.1 Scoping and Consultation with Stakeholders in the Six River Basin

5. The TRTA Team has conducted series of consultations and orientations with the stakeholders in the six river basins including (i) concerned national government agencies (NGAs) such as Department of Public Works and Highways (DPWH), Department of Environment and Natural Resources (DENR), Department of Interior and Local Government (DILG), Department of Agriculture (DA), National Commission on Indigenous Peoples (NCIP), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAG-ASA) and Office of Civil Defense (OCD), among others; (ii) Local Government Units (LGUs), (iii) River Basin Management Councils (RBMCs) its Technical Working Groups (TWGs), (iv) Civil Society Organizations (CSOs), (v) sectoral peoples and community organizations, (vi) Iloilo Watershed Management Council (IWMC) for Jalaur River Basin, and (vi) Bangsamoro Autonomous Region of Muslim Mindanao (BARMM) for Ranao (Agus) River Basin. The TRTA team has also conducted site visits to river basins and provided project briefings to concerned provincial, city and municipal officials on the preparation process of CBFRMS.

2.2 Comprehensive Review of Related Policies, Literature and Documents

6. The TRTA Team has conducted comprehensive review of project documents, related policies on Disaster Risk Reduction Management (DRRM) and Climate Change Adaptation (CCA) and river basin management, the Integrated River Basin Management Development Master Plan (IRBMDMP) in the six river basins, and various local (province, city municipal) development plans including Local Disaster Risk Reduction Management Plans (LDRRMPs). The review of documents has provided a general as well as site-specific planning contexts for the preparation of CBFRMS in the six river basins.

2.3 Setting the Selection Criteria for CBFRMS

7. With the existing policies, plans and programs, consultations with stakeholders and site visits in the six river basins, the selection criteria for LGUs in the design of CBFRMS were drawn and formed part of the interim report which was concurred by DPWH and ADB **Figure 1** illustrates the selection criteria and described below.

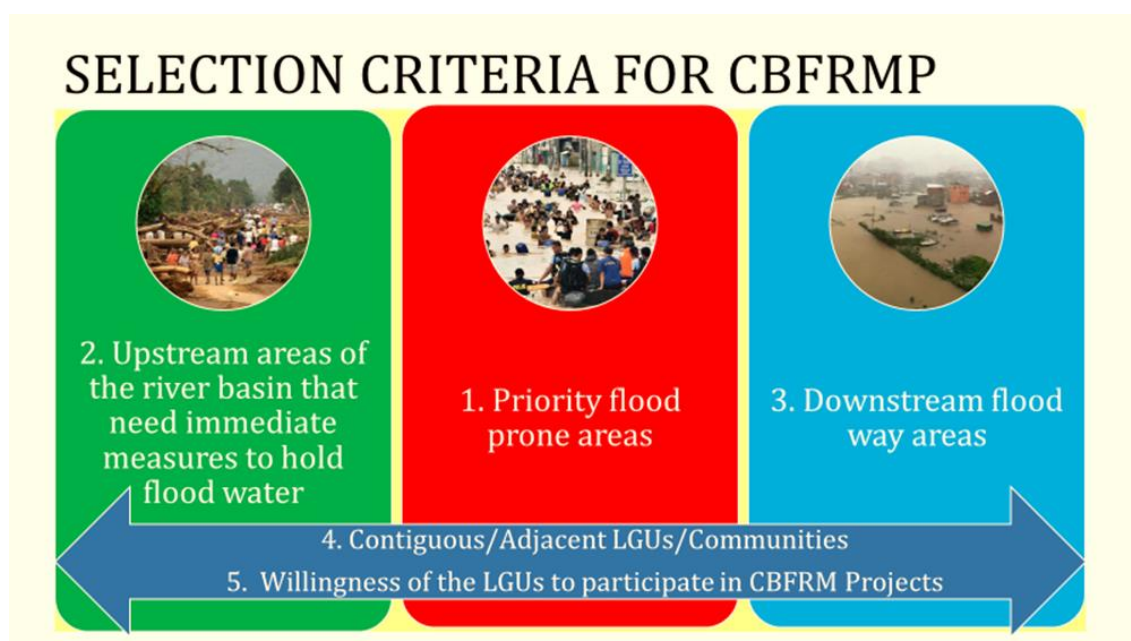


Figure 1: Selection Criteria for CBFRMS

- The flood prone areas (barangays covered by cities/municipalities).** The IRBMD master plans and the TRTA Team has almost common identification of flood prone areas and the barangays/municipality or city in river basins. These flood prone areas were included in the prioritization in consultation with the stakeholders where some areas were considered in the priority list.
- Sources of flood water in the upstream of the river basin.** Stakeholders pointed the deforestation or lack of infrastructure to hold water as some of the problems in the upstream of the river basins. Thus, mitigation and prevention in the upland portion of LGUs were also identified and considered.
- Downstream flood way areas.** The barangays, municipalities and cities in the mouth of the river or coastal areas that hinders the flow of flood water were likewise identified and considered for CBFRMS. The communities living in the areas are highly affected by flooding but they can also contribute in flood risk management.

- d. **Contagious/Adjacent LGUs/Communities.** To maximize project impacts, participating LGUs/communities should be contiguous or adjacent as much as possible along the flood prone areas representing upstream, midstream and downstream areas to cover different ecosystems in the ridge to reef approach.
- e. **Willingness of the LGUs to participate in CBFRMS components and activities.** The LGUs shall express interest and willingness to the project. To institutional this criterion, the LGUs shall enter into a Memorandum of Agreement (MOA) with the Executing Agency, assign Focal Persons, allocate counterpart resources such as but not limited to funds, personnel and facilities needed for the implementation of CBFRMS. The MOAs shall be done prior to project implementation

2.4 Design and Monitoring Framework (DMF) Process and Multi-Criteria Analysis (MCA)

- 8. The TRTA Team and CSOs has adopted the DMF process in developing and preparing the CBFRMS in the six river basins. The following process has been carried out:
 - a. **Preparation of Flood Risk Situationer.** The TRTA Team and CSOs prepared Flood Risk Situationer from secondary data and the generated GIS maps (source: MGB and UP-DREAM Project) as well as from primary data gathered from scoping and initial consultations. The Flood Situationer report were presented and validated with the stakeholders during series of multi-sectoral consultations, focus group discussions and key informant interviews. The CSOs also conducted site visits to validate information gathered which formed part of the report.
 - a. **Participatory Flood Risk Assessment.** From the Flood Risk assessment, the TRTA Team has conducted series of consultations and carried out stakeholders' analysis, problem analysis, objective and solution analysis, and results chain analysis to address and mitigate the impact of flooding in the six river basins.
 - b. **Identification and Prioritization of Proposed CBFRMS Interventions.** Based on the Participatory Flood Risk Assessment, the TRTA Team and partner CSOs has prepared the summary of proposals and recommendations and further subjected to stakeholders consultation. Planning workshops to determine and prioritize interventions and locations were conducted using a multi-criteria analysis (MCA). The MCA was adopted from the ADB-TA 8111: Demonstrating Ecotown Framework in the Upper Marikina River Basin Protected Landscape.¹ The MCA include (i) Urgency, (ii) No regrets option, (iii) Efficiency, (iv) Equity and social acceptability, (v) Sustainability, (vi) Replicability and scalability, (vii) Environmental impacts, (viii) Timing (ix) Level of implementation, and (x) Bottoms up vs top down. With the facilitation of the TRTA Team and CSOs, the stakeholders used these criteria as general context in prioritizing the proposed project interventions. From these, the stakeholders determined the desired outcomes, expected outputs and projected impact of the proposed CBFRMS.
 - c. **Finalization of the CBFRMS.** The Draft CBFRMS underwent several consultations with the RBMCs' TWGs and multi-stakeholders. The resulting Draft CBFRMS were presented to ADB and DPWH where the comments and suggestions were considered. Further, the Revised Draft CBFRMS underwent consultation (via face to face and remote), again with the multi-stakeholders, also with the presentations of IPIF2 infrastructure component, and nature-based solutions report.

¹ Final Report, ADB-TA 8111: Demonstrating Ecotown Framework in the Upper Marikina River Basin Protected Landscape.¹, Southeast Asian Regional Center for Graduate Study and Research in Agriculture SEARCA), Climate Change Commission (CCC), and Asian Development Bank (ADB), 2011

3.0 National Policies and Plans on CCA and DRRM applicable to IFRMP and CBFRMS in the six River Basins

9. This section contains relevant laws, policies and programs on Climate Change Adaptation (CCA) and Disaster Risk Reduction and Management (DRRM), integrated river basin management, and guidelines in mainstreaming CCA and DRRM in local development planning. The highlights of these policies and plans are discussed below.

3.1 National Policies on CCA and DRRM

10. The Government of the Philippine has passed Republic Act 9729 otherwise known as Climate Change Act in 2009. This landmark legislation resulted to the creation of the Climate Change Commission (CCC) and the Climate Change Office (CCO), which is directly under the Office of the President. The CCC is the main policy-making body on climate change related concerns and the CCO serves as the Secretariat of CCC. The CCC has adopted the National Framework Strategy for Climate Change (NFSCC) that provides the general roadmap towards climate change resilience in the country which resulted to the formulation and adoption of the National Climate Change Action Plan (NCCAP).
11. The DPWH Secretary together with Secretaries of several national government agencies DILG, DA, Department of Energy (DOE), DENR, Department of Education (DepEd), Department of Foreign Affairs (DFA), Department of Health (DOH), Department of National Defense (DND), Department of Science and Technology (DOST), Department of Social Welfare and Development (DSWD), Department of Trade and Industry (DTI), Department of Transportation and Communication (DOTC), National Economic Development Authority (NEDA), National Security Council (NSC), National Commission on the Role of Filipino Women (NCRFW)), Presidents of leagues of LGUs (Provinces, Cities, Municipalities, and Barangays), and Representatives from academe, business sector, and non-government organizations are members of the CCC Advisory Board.
12. Section 4 of RA 9729 mandates the formulation of the Local Climate Change Action Plan (LCCAP) which states that the "The LGUs shall be the frontline agencies in the formulation, planning and implementation of climate change action plans in their respective areas, consistent with the provisions of the Local Government Code, the Framework, and the National Climate Change Action Plan. The Barangays shall be directly involved with municipal and city governments in prioritizing climate change issues and in identifying and implementing best practices and other solutions. Municipal and city governments shall consider climate change adaptation as one of their regular functions. Provincial governments shall provide technical assistance, enforcement and information management in support of municipal and city climate change action plans. Inter-local government unit collaboration shall be maximized in the conduct of climate- related activities. Non-government and People's organizations as well as representatives from vulnerable sectors shall also be consulted".
13. Further LGUs are tasked to "regularly update their respective action plans to reflect changing social, economic, and environmental conditions and emerging issues, furnish the Commission with copies of their action plans and all subsequent amendments, modifications and revisions thereof, within one (1) month from their adoption, and mobilize and allocate necessary personnel, resources and logistics to effectively implement their respective action plans. The local chief executive shall appoint the person responsible for the formulation and implementation of the local action plan, preferably with training and knowledge on climate change or related subjects, and the LGU is expressly authorized to appropriate and use the amount from its Internal Revenue Allotment necessary to implement said local plan effectively".
14. The Peoples Survival Fund (PSF) Act of 2012 or RA 10174 amended RA 9729 which provide funding mechanism to carry our climate change adaptation and mitigation initiatives. Furthermore, RA 10174 has paved the way towards the integration of disaster risk reduction into climate initiatives and programs and provide the policy framework support for funding climate change adaptation at the local levels.

15. Under Republic Act 10121 of 2010 known as “Strengthening the Philippines Disaster Risk Reduction and Management providing for the National Disaster Risk Reduction and Management Framework and Institutionalizing and appropriating funds”, the local government units (provinces, cities, municipalities, and barangays) are mandated to prepare Local Disaster Risk Reduction Management Plans (LDRRMP). At the regional level, there exists Regional DRRM Council and overall National Disaster Risk Reduction and Management Council (NDRRMC). The Department of Interior and Local Government Units with supervision over LGUs serves as the Vice Chairperson of NDRRMC while DPWH serves as member. Under the law, the LGUs have the following mandates:
- i) Approve, monitor and evaluate the implementation of the LDRRMPs and regularly review and test the plan consistent with other national and local planning programs;
 - ii) Ensure the integration of disaster risk reduction and climate change adaptation into local development plans, programs and budgets as a strategy in sustainable development and poverty reduction;
 - iii) Recommend the implementation of forced or preemptive evacuation of local residents, if necessary; and
 - iv) Convene the local council once every three (3) months or as necessary
16. The same law has mandated the Office of Civil Defense (OCD) to have the primary mission of administering a comprehensive national civil defense and disaster risk reduction and management program by providing leadership in the continuous development of strategic and systematic approaches as well as measures to reduce the vulnerabilities and risks to hazards and manage the consequences of disasters. **Figure 2** presents the organizational structure of NDRRMC.

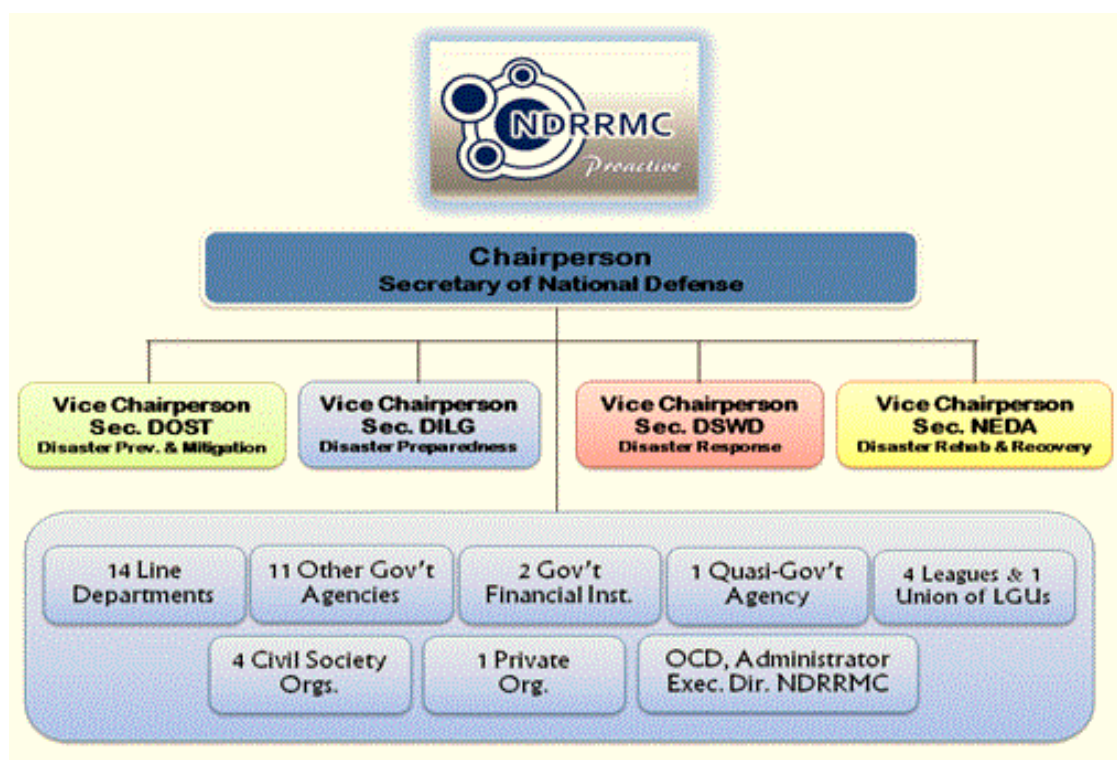


Figure 2: Organizational Structure of NDRRMC (Source: NDRRMC)

17. Further, R.A. 10121 (Section 3 (c)) recognizes the Community-Based Disaster Risk Reduction and Management or CBDRRM which is a process of disaster risk reduction and management in which at risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities, and where the people are at the heart of decision-making and implementation of disaster risk reduction

and management activities. The CBDRRM process shall have appropriate expression at the Local DRRM Plan (LDRRMPs). The same law mandates the LGUs to develop, strengthen and operationalize mechanisms for partnership or networking with the private sector, CSOs, and volunteer groups (Section 12 (c) (13).

18. The core functions of LGUs on DRRM were also defined under the law which are (i) mitigation and prevention, (ii) preparedness, (iii) response, and (iv) rehabilitation and reconstruction. **Figure 3** presents the hierarchy of DRRM plans from national, regional, provincial, city, municipality to barangays with corresponding DRRM councils to approve and monitor the implementation of such plans.

19. Aside from the National Disaster Risk Reduction Management Fund (NDRRMF) to be allocated from the General Appropriations Act (GAA), Section 21 of the law mandated the LGUs to set-up the Local Disaster Risk Reduction and Management Fund (LDRRMF), which states that “the present Local Calamity Fund shall henceforth be known as the Local Disaster Risk Reduction and Management Fund (LDRRMF). Not less than five percent (5%) of the estimated revenue from regular sources shall be set aside as the LDRRMF to support disaster risk management activities such as, but not limited to, pre-disaster preparedness programs including training, purchasing life-saving rescue equipment, supplies and medicines, for post-disaster activities, and for the payment of premiums on calamity insurance.

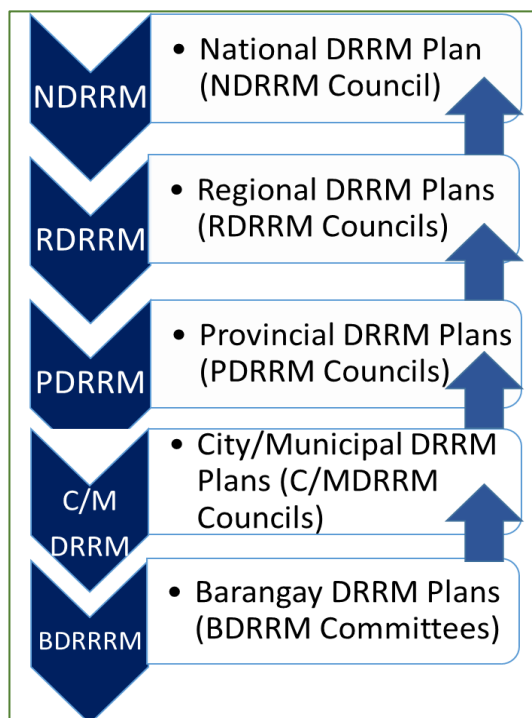


Figure 3: Hierarchy of DRRM Plans and DRRM Councils

20. The LDRRMC shall monitor and evaluate the use and disbursement of the LDRRMF based on the LDRRMP as incorporated in the local development plans and annual work and financial plan. Upon the recommendation of the LDRRMO and approval of the *Sanggunian* (local Council) concerned, the LDRRMC may transfer the said fund to support disaster risk reduction work of other LDRRMCs which are declared under state of calamity. Of the amount appropriated for LDRRMF, thirty percent (30%) shall be allocated as Quick Response Fund (QRF) or stand-by fund for relief and recovery programs in order that situation and living conditions of people in communities or areas stricken by disasters, calamities, epidemics, or complex emergencies, may be normalized as quickly as possible. Unexpended LDRRMF shall accrue to a special trust fund solely for the purpose of supporting disaster risk reduction and management activities of the LDRRMCs within the next five (5) years. Any such amount still not fully utilized after five (5) years shall revert back to the general fund and will be available for other social services to be identified by the local sanggunian.
21. The Joint Memorandum Circular No. 2013-1 20 of NDRRMC and DILG on the allocation and utilization of LDRRMF issued on March 25, 2013 states that “The LDRRMF shall cover the thirty percent (30%) lump sum allocation for quick response team and the seventy percent (70%) allocation for disaster prevention and mitigation, preparedness, response, rehabilitation and recovery.”

3.2 Guidelines in Mainstreaming CCA-DRRM to Local Comprehensive Development Plans

22. The Comprehensive Land Use Plan (CLUP) serves as basis in the formulation of Local Comprehensive Development Plans (CDPs) which are the basis for the preparation of Annual Investment Plans (AIPs). The CDPs and AIPs set the development priorities of the LGUs where local

funds are specifically allocated. The CCA-DRRM programs, projects, and activities (PPAs) shall be mainstreamed to both the CDPs and AIPs.

23. Towards this end, the Housing and Land Use Regulatory Board (HLURB), now the Department of Settlement, Housing and Urban Development (DSHUD), required that all LGUs shall update CLUPs and incorporate vulnerability and risk assessment to mainstream CCA-DRRM in local development plans. This is contained in HLURB's Resolution No. 915 s of 2014: Supplemental Guidelines on Mainstreaming Climate Change and Disaster Risks Reduction in Comprehensive Land Use Plan (CLUP). The steps on the conduct of Climate and Disaster Risk Assessment (CDRA) are contained in the said guidelines, which include the following:

- Step 1.** Collect and analyze climate and hazard information
- Step 2.** Scoping the potential impacts of disasters and climate change
- Step 3.** Exposure Database Development
- Step 4.** Conduct a Climate Change Vulnerability Assessment (CCVA)
- Step 5.** Disaster Risk Assessment (DRA)
- Step 6.** Summarize Findings

24. The Climate and Disaster Risk Assessment (CDRA) Report forms part of the Enhanced CLUP.

3.3 Integrated River Basin Management²

25. Below are some national policies on river basins management relevant to the disaster risk reduction management including flooding.
26. *Executive Order (EO) No. 192, series of 1987* has mandated the Department of Environment and Natural Resources (DENR) as the "primary government agency responsible for the conservation, management, and the development of the country's environment and natural resources, as well as their proper use, and shall ensure the equitable sharing of the benefits derived there from for the welfare of the present and future generations of Filipinos". This includes management of the river basins and its ecosystems.
27. Executive Order No. 510 dated March 5, 2006 mandates the River Control Office under the DENR to rationalize various river basin projects, and promote and advocate an integrated river basin management to ensure protection of environment and people against flood and natural disasters.
28. Further, *Executive Order No. 816* dated July 06, 2009 declare the River Basin Control Office under the Department of Environment and Natural Resources as the lead government agency for integrated planning, management, rehabilitation and development of country's river basins. By virtue of this Executive Order the River Basin Control Office (RBCO) under the Department of Environment and Natural Resources (DENR) is mandated as the oversight agency for all government efforts and initiatives within the country's river basins. The RBCO have following powers and functions:
- i) Rationalize and integrate all national plans, projects and programs within the country's river catchments basins, with the authority to serve as the oversight office of all various government agencies and corporations with relevant and related river basin initiatives, projects and programs, such as, but not limited to, river basin infrastructure development, flood control, environmental protection and integrated water resources management.
 - ii) To this end, such government agencies and corporations shall coordinate their planned and ongoing river basin initiatives with RBCO, to which the RBCO shall review and endorse approval and funding from the national budget thereof as may be provided under existing laws, rules and regulations;

² <https://riverbasin.denr.gov.ph/>

- iii) Harmonize all relevant national river basin policies and formulate new policies and create enabling policy environment that shall allow effective and efficient management and governance of the country's river basins. To this end, all national government agencies and corporation shall consult with the RBCO in such planning and implementation, and have the RBCO as ex-officio member in the policy steering or project implementing boards as may be created therefore;
 - iv) Serve as the national policy coordination office for local government units and non - government organization in the development and sustainability of all river and catchment basin initiatives;
 - v) Serves as DENR's implementing office in the implementation, monitoring and evaluation of DENR's programs and projects within the country's river basin;
 - vi) Serve as central fund administration for river basins appropriation provided under the DENR's budget that shall allow a more rationalized and optimized management of government public spending; and
 - vii) Serve as the government's central river basin database management agency, to which all government agencies and existing river basin organizations with relevant mandates and development initiatives within the river basins are required to cooperate and regularly submit their updated database for integration and consolidation by RBCO using River Basin Integrated Information Management System (RBIIMS).
29. With the powers and functions mentioned above, RBCO has led the formulation of Integrated River Basin Management and Development (IRBMD) Master Plans of the 18 major river basins and mandate the organization of River Basin Management Councils (RBMCs). The RBMCs are composed of representatives from the Regional Offices of DENR and other concerned NGAs, covered Provincial, City and Municipal Governments and Civil Society Organizations. Some of the IRBMD Master Plans were already updated with the conduct of vulnerability assessments.

3.4 Programs in the Six River Basins based on the IRBDMPs

30. The Department of Environment and Natural Resources (DENR), through its River Basin Control Office (RBCO), has facilitated the formulation of IRBMD Master Plans in the 18 major river basins in the country. **Table 1** shows the summary status of the IRBMD Master Plans in the six river basins covered by the TRTA. It can be noted that all master plans were completed in 2013 and 2014 or more than five years already during the preparation of the IFRMP.

Table 1. Status of IRBMD Master Plans

River Basins	Year Completed	RDC Resolution	Year of RDC Approval	Endorsed by National Steering Committee (Year)
Abra	2014	RDC CAR – RPOC Res. No 21 (s 2017)	2017	2014
Apayao-Abulog	2014	RDC 2 Res 02-69-2015 RDC CAR Res. No. 28 s 2018	2017	2014
Jalaur	2014	RDC 6 Res. No. 11 (s 2015)	2014	2014
Buayan-Malungon	2013	RDC XII Res. 11 (s 2014)	2014, 2017	2013, 2017
Ranao (Agus)	2014	RDC Res No. 63 (s 2014)	2014	2014
Tagum-Libuganon	2014	RDC XI Res No. 79 (s2015)	2016	2014

Note: RDC - Regional Development Council, RPOC – Regional Project Coordination Committee

31. All of these IBRMD master plans contained river basin physical profile, socio-economic conditions, vulnerability assessments, including flood risk information, proposed programs and projects, institutional mechanisms, monitoring and evaluation, and budget estimates among others. The robust information in these master plans were used in the preparation of the flood risk situationer in the six river basins. These information are further validated by the flood risk management master plans recently prepared by IPIF-2. The master plans contained both structural and non-structural proposed programs and projects in the short-, medium- and long-term covering watershed and watershed management, water resources management, CCA-DRRM, coastal and inland aquatic resources management, biodiversity conservation, institutional strengthening and capacity building, and other cross cutting measures. Some of the indicative non-structural programs and proposed projects in the IRBMDMPs grouped into criteria set by the TRTA and relevant for CBFRMS are presented in **Table 2**. These measures include those that are beyond the scope of flood risk management, but they were included in the analysis as part of the integrated river basin and water resources management.

Table 2. Summary of Identified Non-structural Programs/Projects Proposed in IRBMD Master Plans of RBCO Relevant to CBFRMS

River Basins	Upstream/ Upland Areas	Midstream/Flood Prone Areas	Downstream/ Coastal Areas	Cross Cutting
Abra	• Vegetative Cover Improvement • Agro-Forestry • Windbreaks • Small Water Impounding Projects	• Adaptive Cropping Calendar • Use of Tolerant Crops	• Inland/ Coastal Solid Waste Management	• Research and Development • Vulnerability Assessment
Apayao-Abulog	• Agroforestry • Watershed Rehabilitation • Windbreaks	• Drought Tolerant Crops • Cropping Calendar	• Inland/ Coastal Solid Waste Management	• Weather Monitoring and Early Warning System • Research and Development • Vulnerability Assessment
Jalaur	• Reforestation • Relocation Sites	• Riverbank Stabilization • Irrigation System • Flood Adaptation and Management	• Clearing of Drainage Canal	• Capacity Building • Law Enforcement • IEC • EWS • Insurance, etc.
Buayan-Malungon	• Forest Landscape Restoration and Rehabilitation Project • Development of Rainwater Harvesting Systems	• Climate-Resilient Agriculture Project • Agricultural Waste Management	• River Channel Improvement Project	• Early Warning and Flood and Landslide Forecasting System • IEC on gender roles in RB management for climate resiliency
Ranao (Agus)	• Forest Restoration and Rehabilitation • Agro-Forestry • Forest Protection	• Wetland Assessment • Wetland Management	• River Channelization • Solid Waste Management	• EFWS for floods • Preparation of High-Resolution Maps • Capacity Development on CCA-DRM
Tagum-Libuganon	• Reforestation • Agro-Forestry • Bamboo Plantation Development • Bantay Gubat (Forest Guard)	• Preparation and implementation of TLRB Solid Waste Management Plan • Riverbank Stabilization	• Desilting Mouth of the River • Coastal Resources Assessment	• Flood Forecasting and Warning System • IEC on Environmental Issues

Source: Excerpts from IRBMD Master Plans of the Six River Basins, RBCO-DENR

4.0 Disaster Preparedness Audit (DPA) of LGUs in the Six River Basins

32. The information below is from the 2018 disaster preparedness audit compiled by DILG in its Seal of Good Local Governance (SGLG). The data herein indicates the status of LGUs in disaster preparedness including flooding as well as capacity in preparing and implementing CCA-DRRM Projects such as CBFRMS. **Table 3** presents the indicators in determining the disaster preparedness of LGUs.
33. Utilization rate of Local Disaster Risk Reduction and Management Fund (LDRRMF) is another indicator, and the rates of the target six river basins are described in Section 4.2 and 4.3

Table 3. DPA Indicators

CLUSTER	INDICATORS
Early Preparation Action	
Organizing	- Organized LDRRRMC - Established LDRRRMO - Standard Operating Procedures Available
Hazard Assessment, Planning and Budgeting	- Hazard Awareness - Risk and Vulnerability Assessment conducted - Assessment linked to plans CLUP, DRRM Plan, contingency Plan and CC Action Plan
Critical Preparedness Action	
Operational Readiness	- Early Warning System in place - Evacuation Center identified - Information guide for evacuees in place - Search and rescue team organized, equipped and trained - Pre-positioning of relief operations, medical and security

Source: DILG Undersecretary Panadero, Facing the New Normal Challenges and Directions for Disaster Preparedness and Climate Change Adaptation

4.1 LGUs within the River Basins

34. The list of LGUs came from the IRBMD Master Plans and the Geographic Information System GIS Mapping conducted by the TRTA. Those LGUs mentioned from the master plans were retained, but those listed in the GIS Mapping with only less than 3% of covered areas were not included in this list.
35. The six river basins covered 159 cities and municipalities in 18 provinces with a total land area of 1,694,645.15 hectares, and a population of more than 8.5 Million people. **Table 4** shows the number of cities and municipalities per province covered by the six river basins.

Table 4. Number of Cities and Municipalities, Land Area and Population

River basin	Provinces	Number of Cities/ Municipalities	Land Area of Covered LGUs (ha)	Area within RB (ha)	% Area within the RB	Total Population of Covered LGUs (2015)
Abra River Basin	Abra	27	666,713.17	373,385.74	76.80%	246,257
	Benguet	2	63,812.14	23,411.25	4.82%	94,937
	Ilocos Sur	14	152,188.08	61,341.84	12.62%	349,004
	Mountain Province	3	46,030.31	28,010.77	5.76%	68,621

River basin	Provinces	Number of Cities/ Municipalities	Land Area of Covered LGUs (ha)	Area within RB (ha)	% Area within the RB	Total Population of Covered LGUs (2015)
	Subtotal	46	928,743.70	486,149.61	100.00%	758,819
Ranao (Agus) River Basin	Lanao Del Norte	8	90,005.61	14,829.66	9.09%	517,929
	Lanao Del Sur	32	247,530.64	148,298.89	91%	828,408
	Subtotal	40	337,536.26	163,128.54	100.00%	1,346,337
Apayao-Abulug River Basin	Apayao	7	568,328.23	311,725.51	77%	119,184
	Cagayan	10	251,161.37	93,094.73	23%	370,632
	Subtotal	17	819,489.60	404,820.24	100%	489,816
Buayan-Malungon River Basin	Davao Del Sur	2	45,061.32	4,182.79	2.91%	87,628
	Davao Occidental	2	81,971.37	20,548.59	14.31%	171,417
	Saranggani	2	183,243.18	108,397.58	75.50%	260,877
	South Cotabato	4	138,144.97	10,435.95	7.27%	856,536
	Subtotal	10	448,420.84	143,564.91	100%	1,376,458
Jalaur River Basin	Antique	1	30,842.71	431.44	0.24%	19,124
	Capiz	2	74,520.91	2,834.85	1.61%	97,470
	Iloilo	26	283,530.48	173,143.49	98.15%	1,550,970
	Subtotal	29	388,894.10	176,409.79	100%	1,667,564
Tagum-Libuganon River Basin	Agusan Del Sur	1	109,999.83	11,914.81	3.72%	42,501
	Compostela Valley	5	193,707.40	51,998.16	16.22%	331,787
	Davao Del Norte	10	296,984.84	245,071.43	76.45%	912,209
	Davao City	1	234,369.74	11,587.67	3.61%	1,632,991
	Subtotal	17	835,061.81	320,572.07	100%	2,919,488
TOTAL		159	3,758,146.31	1,694,645.15		8,558,482

Source: IRBMD Master Plans and GIS Mapping conducted by GIS Team

4.2 Disaster Preparedness of Provinces

36. Out of 18 provinces covered by the six river basins, 14 (77.78%) have Provincial Physical Development Framework Plan (PPDFP), 15 (88.88%) have PDRRMP, all have organized PDRRMC, 17 (94.44%) have appointed or designated PDRRMO Heads, and 17 (94.44%) have at least more than three designated staff of PDRRMO. **Table 5** shows the number of provinces with DRRM related plans and institutional mechanisms in place.

Table 5. Provinces with Approved/Adopted Plans and Institutional Mechanisms related to DRRM

River Basin	No of PROVINCE	With PPDFP	With PDRRMP	With PDRRMC	With PDRRMO Heads	With LDRRMO Staff ≥3 plantilla position
Abra	4	3	4	4	4	4
Apayao-Abulog*	2	1	1	2	1	2
Jalaur	3	3	3	3	3	3
Buayan Malungon	4	3	2	4	3	4
Ranao (Agus)	2	1	2	2	2	1
Tagum-Libuganon	3	3	3	3	3	3
TOTAL	18	14	15	18	16	17

Source: Disaster Preparedness Audit 2018, DILG

*In 2018, the Province of Cagayan has not submitted yet its PDRRMP, but in 2019, it was already completed and reported adopted by the Sangguniang Panlalawigan

37. In terms of passing the process in disaster operational readiness audit, 16 (88.89%) have evacuation management system, 14 (77.78%) have Search and Rescue/Emergency Response (SAR/ER) Teams, 15 (83.33%) have Early Warning Systems (EWS), and 13 (72.22%) have contingency plans including for flooding. **Table 6** shows the provinces with evacuation management system, SAR/ER, EWS and Contingency Plans.

Table 6. Provinces that Completed the Process on Disaster Operational Readiness Audit

River Basin	No of Province	Evacuation Management System	SAR/ER	EWS	Contingency Plan (including flooding)
Abra	4	3	3	3	3
Apaya-Abulog	2	2	1	2	1
Jalaur	3	3	3	3	3
Buayan Malungon	4	3	3	3	2
Ranao (Agus)	2	1	1	1	0
Tagum-Libuganon	3	3	3	3	3
TOTAL	18	15	14	15	13

Source: Disaster Preparedness Audit 2018, DILG

38. In terms of fund utilization of the 70% of 5% Local Disaster Risk Reduction Management Fund (LDRRMF), 17 provinces have an average utilization of only 51.14% which is also reflective of the national average LDRRMF utilization. **Table 7** shows the utilization of LDRRMF per province. The province of Cagayan has no available data in the audit.
39. Low utilization rate of LDRRMF maybe attributed to delays in the procurement of goods and services and recording of expenditure on cash basis. Those amount obligated from the LDRRMF allocation for the year but not yet released is not considered as expenditure, thereby, contributing to lower utilization on record. Thus, it is important that the LDRRMF allocation shall be programmatic in the Annual Investment Plan to support the implementation of LDRRMP and operations of LDRRMOs.

Table 7. LDRRMF Utilization per Province

River Basin	REGION	PROVINCE	Allocation LDRRMF (2017)	70% for Preparedness	Utilization of 70% LDRRMF (70%)	% Utilization of 70%
Abra	CAR	Abra	51,851,663.11	36,296,164.18	25,259,726.78	70.00%
	CAR	Benguet	50,698,928.55	35,489,249.99	11,790,410.18	33.00%
	1	Ilocos Sur	79,329,009.00	55,530,306.30	27,809,794.62	50.00%
	CAR	Mountain Province	36,134,807.45	25,294,365.22	22,421,076.61	89.00%
Agus	10	Lanao del Norte	76,160,330.00	53,312,231.00	12,270,799.90	23.00%
	ARMM	Lanao del Sur	104,817,174.60	73,372,022.22	73,372,022.22	100.00%
Apayao- Abulug	CAR	Apayao	42,614,815.00	29,830,370.50	2,218,159.24	7.00%
	2	Cagayan	No data	No data	No data	No data
Buayan- Malungon	11	Davao del Sur	56,425,000.00	39,497,500.00	1,796,711.33	5.00%
	11	Davao Occidental	40,000,000.00	28,000,000.00	10,516,692.00	38.00%
	12	Sarangani	53,582,575.00	37,507,802.50	27,853,730.08	74.00%
	12	South Cotabato	6,052,743.00	4,236,920.10	1,917,025.47	32.00%
Jalaur	6	Antique	60,254,837.00	42,178,385.90	35,398,037.40	84.00%
	6	Capiz	75,232,000.00	52,662,400.00	36,651,463.00	70.00%
	6	Iloilo	116,609,462.00	81,626,623.40	45,585,588.10	56.00%
Tagum- Libuganon	13	Agusan del Sur	94,133,855.00	65,893,698.50	19,607,074.61	30.00%
	11	Compostela Valley	66,019,311.00	46,213,517.70	19,034,357.90	41.00%
	11	Davao del Norte	76,797,089.00	53,757,962.30	15,550,539.10	29.00%
TOTAL			1,086,713,599.71	760,699,519.80	389,053,208.54	51.14%

Source: Disaster Preparedness Audit 2018, DILG

4.3 Cities and Municipalities

40. The cities/municipalities that passed the process on planning and setting up institutional mechanisms indicated that out of the 159 total number of cities/municipalities covered by the six river basins, 57 (35.85%) have CLUPs, 102 (64.15%) have LDRRMPs, 81 (50.94%) have LCCAPs, and 115 (72.33%) LGUs have more than 50% of its barangays with CBDRRM Plans and Budget. In terms of institutional

and personnel compliment, out of the total number of municipalities, 108 (67.92%) have organized LDRRMCs, 88 (55.35%) with appointed or designated LDRRMO Heads, and 103 (64.78%) with appointed or designated staff. Appointed are those with regular plantilla positions approved by the Civil

41. Service Commission and those designated are either concurrent personnel from other units or contract of service/job orders. **Figure 4** and **Table 8** shows the number of LGUs that passed the audit in planning and setting up of necessary institutional mechanism relevant to DRRM.

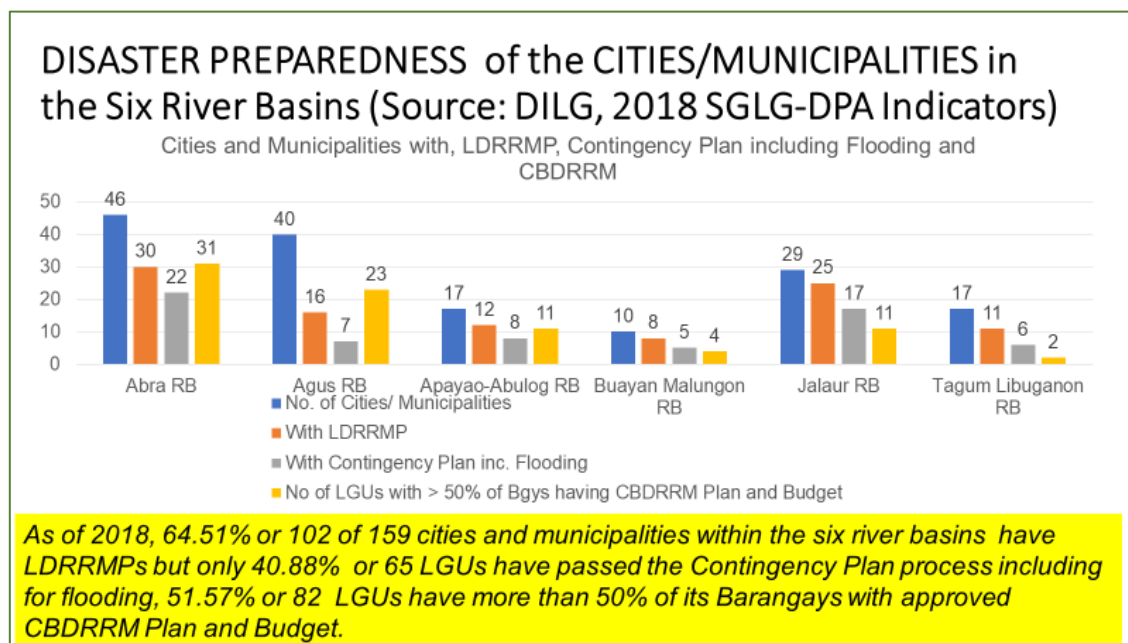


Figure 4: Disaster Preparedness of Cities/Municipalities

Table 8. Number of LGUs Passed DPA in Planning and Setting up Institutional Mechanisms

River Basin	Number of Cities/ Municipalities	No of LGUs With CLUP	No of LGUs with LCCAP	No of LGUs With LDRRMP	No of LGUs with LDRRMC	No of LGUs with LDRRMO HEAD	No of LGUs with >3 LDRRMO STAFF	No of LGUs with CBDRRM Plan and Budget (> 50% of Barangays)
Abra	46	15	26	30	31	27	30	38
Apaya-Abulog	17	8	11	12	13	14	13	14
Jalaur	29	17	21	25	28	22	28	27
Buayan Malungon	10	4	4	8	9	3	10	9
Ranao (Agus)	40	5	10	16	13	14	14	13
Tagum-Libuganon	17	8	9	11	14	8	8	14
TOTAL	159	57	81	102	108	88	103	115

Source: Disaster Preparedness Audit 2018, DILG

42. In terms of passing the process on operational readiness audit, 101 (63.52%) with early warning system, 84 (32.52%) have evacuation management system, 112 (74.54%) have search and rescue (SAR) and emergency response (ER) teams. And considering all the plans, institutional mechanisms, EWS, and evacuation management, only 30 (18.86%) LGUs are considered Disaster Preparedness passers. The cities and municipalities in the six river basins have an average of 56% LDRRMF

utilization (excluding Pamplona and Ballesteros of Cagayan Province). **Table 9** shows the number of LGUs with passing marks in the operational readiness audit.

Table 9. No. of LGUs Passed the Operational Readiness Audit in the Six River Basins

River Basin	Number of Cities/ Municipalities	No of LGUs with Early Warning System	No of LGUs with Evacuation Management System	No. of LGUs with SAR & ER Teams	Average LDRRMF Utilization	No of LGU DP Passer
Abra	46	29	26	23	62.91%	11
Apaya- Abulog	17	15	8	9	51%	4
Jalaur	29	26	26	27	48.83%	9
Buayan Malungon	10	9	9	10	83%	2
Ranao (Agus)	40	9	7	9	30%	3
Tagum- Libuganon	17	13	8	11	37%	1
TOTAL/ Average	159	101	84	89	56%	30

Source: Disaster Preparedness Audit 2018, DILG

5.0 Flood Risk Assessment and Situation in the Six River Basins

43. The TRTA and CSOs prepared flood situation reports in the six river basins which formed part of the river basin specific CBFRMS. Below is summary of information on land cover, flood prone areas, estimated affected population, and exposure of agricultural areas.

5.1 Land Cover in the Six River Basin

44. **Table 10** presents the area per land cover type in the six river basins measured by TRTA team through GIS based on land cover map of National Mapping and Resources Information Authority (NAMRIA) in 2015, which is also used by the IPIF-2. The data shows that only 10.40% of more than 1.76 million hectares are considered closed forest. Almost 49% of the land area are classified as open forest (21.83%) and brush/shrubs (26.80%), around 30% are planted to annual crops (17.25%) and perennial crops (12.3), and 7% grasslands. This shows that there is a big challenge for increasing forest vegetation and an opportunity for agro-forestry development. It is notable that around 32% of the land area of Ranao (Agus) River Basin remains classified as closed forest while Apayao-Abulog has still around 19% closed forest areas. The rest of the river basins have minimal closed forest areas.

Table 10. Land Cover Type and Area (Hectares) in the Six River Basins

Land Cover Type	Abra	Apayao-Abulog	Jalaur	Buayan-Malungon	Ranao (Agus)	Tagum-Libuganon	TOTAL	In Percent (%)
Annual	54,015.32	56,948.21	93,606.13	21,767.30	40,826.89	26,664.84	293,828.68	17.25%
Brush/	167,750.40	103,297.67	65,897.19	32,753.26	17,335.73	69,459.52	456,493.78	26.80%
Built-up	5,898.80	5,687.27	2,439.16	1,716.86	3,476.68	6,339.79	25,558.57	1.50%
Closed	38,641.78	76,511.05	1,369.72	1,177.26	52,010.37	7,508.14	177,218.32	10.40%
Fishpond	53.16	98.48	2,109.94	201.46	16.08	425.78	2,904.90	0.17%
Grassland	67,609.69	6,973.97	421.29	38,344.48	3,715.63	7,660.63	124,725.69	7.32%
Inland	7,740.90	6,384.50	1,190.43	1,793.22	766.91	3,615.52	21,491.48	1.26%
Mangrove	19.65	2,860.51	104.15	7,834.36	27.71	34.28	10,880.66	0.64%
Open	144,087.56	134,234.44	9,263.25	469.04	32,643.96	51,244.37	371,942.62	21.83%
Perennial	1,047.79	11,226.12	0.00	37,550.99	12,308.08	147,446.12	209,579.10	12.30%
Marshland/	0.00	1,123.52	0.00	0.00	0.00	12.56	1,136.07	0.07%
Open/	5,154.74	2,314.85	5.74	0.00	0.00	198.67	7,674.01	0.45%
Total Area	492,019.80	407,660.61	176,406.98	143,608.24	163,128.03	320,610.22	1,703,433.88	100.00%
%	28.88%	23.93%	10.36%	8.43%	9.58%	18.82%	100.00%	

5.2 Flood Prone Areas in Six River Basins

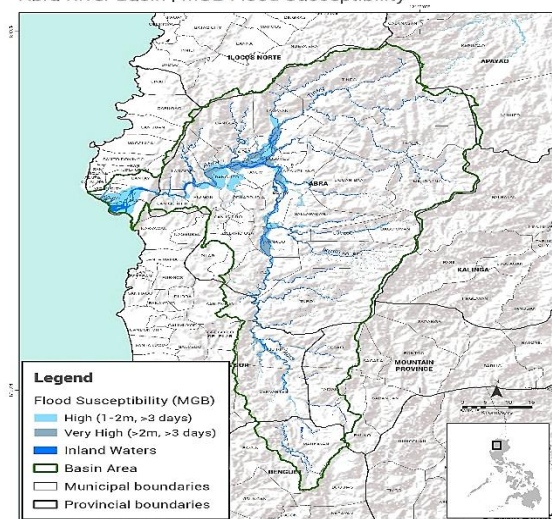
45. The TRTA and CSOs have identified the flood prone LGUs which are usually located in the midstream and downstream areas. In terms of land area, only around 16.39% are susceptible to flooding classified as low (2.55%), moderate (4.88%), high (5.88%), and very high (3.08%) as shown in **Table 11**. **Figure 5** illustrates the flood prone areas in the six river basins as per MGB flood susceptibility maps. Tendency of flood prone areas based on MGB's flood susceptibility maps are similar to the inundation maps by probable floods simulated by IPIF-2 in general.

Table 11. Land Area Susceptible to Flooding in the Six River Basins.

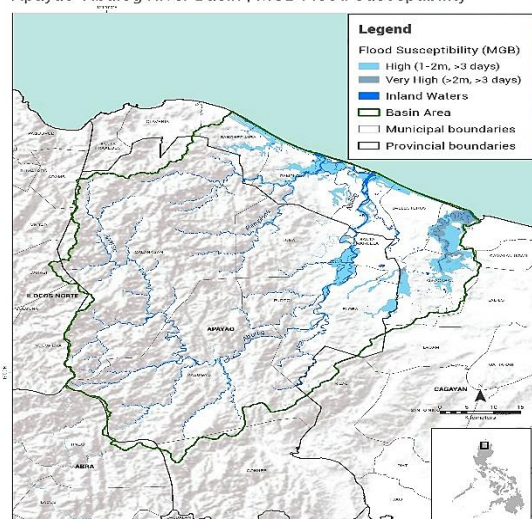
River Basin	Low (≤0.5m, <1 day)	Moderate (0.5-1m, 1-3 days)	High (1-2m, >3 days)	Very High (>2m, >3 days)	No susceptibility	Total Area (has)
Abra	3,549.49	8,483.56	18,020.06	14,978.17	446,988.52	492,019.80
Apayao-Abulog	11,121.04	26,597.51	26,892.37	3,467.46	339,582.23	407,660.61
Jalaur	8,015.96	16,613.46	18,437.61	13,499.94	119,840.01	176,406.98
Buayan-Malungon	99.92	3,089.60	4,031.62	453.83	135,933.27	143,608.24
Ranao (Agus)	3,462.65	8,122.74	2,076.63	8,492.87	140,973.15	163,128.03
Tagum-Libuganon	17,155.91	20,159.86	30,699.33	11,649.68	240,945.44	320,610.22
TOTAL (has)	43,404.97	83,066.73	100,157.62	52,541.95	1,424,262.63	1,703,433.89
%	2.55%	4.88%	5.88%	3.08%	83.61%	100.00%

Source: MGB and TRTA GIS Mapping

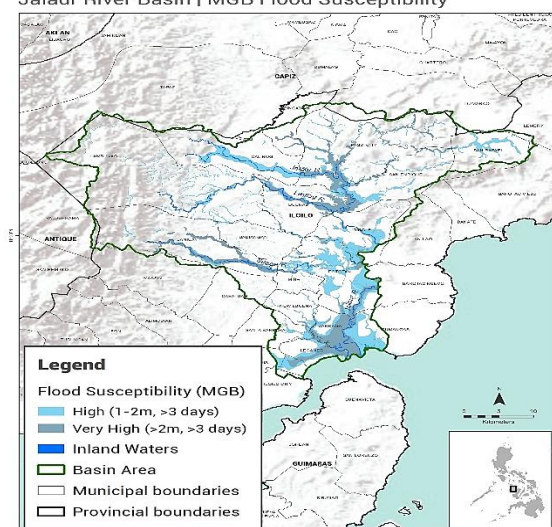
TRTA for IFMRSP
Abra River Basin | MGB Flood Susceptibility



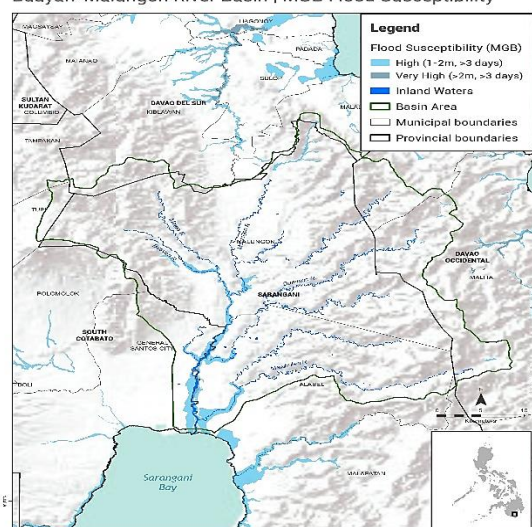
TRTA for IFMRSP
Apayao-Abulog River Basin | MGB Flood Susceptibility



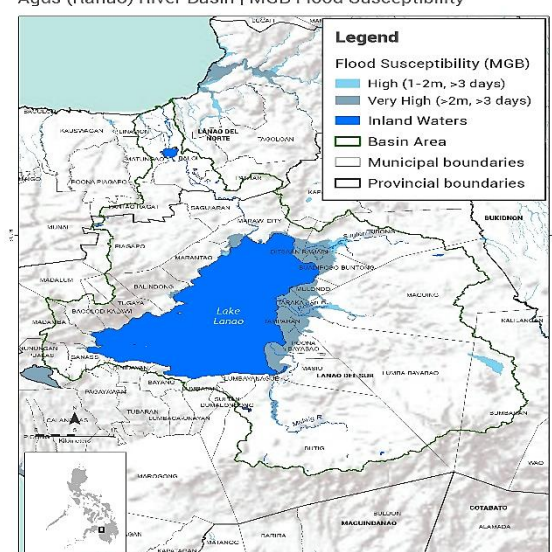
TRTA for IFMRSP
Jalaur River Basin | MGB Flood Susceptibility



TRTA for IFMRSP
Buayan-Malungon River Basin | MGB Flood Susceptibility



TRTA for IFMRSP
Agus (Ranao) River Basin | MGB Flood Susceptibility



TRTA for IFMRSP
Tagum-Libuganon River Basin | MGB Flood Susceptibility

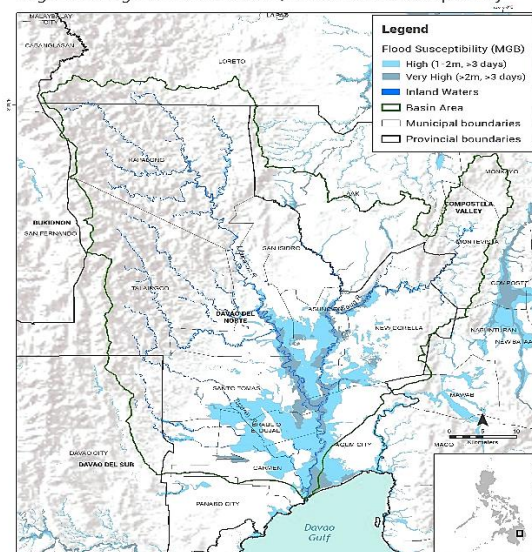


Figure 5: Flood Prone Areas in the Six River Basins (Source: MGB)

5.3 Agricultural Area Susceptible to Flooding in Six the River Basins

46. Based on the MGB flood susceptibility map, almost 48% of the rice and corn area of 293,238.68 hectares in the six river basins are susceptible to flooding categorized into low (9.39%), moderate (14.27%), high (16.29%), and very high (8.13%) susceptibility. On the other hand, only around 18% of the banana and coconut area of 62,331.65 hectares are susceptible to flooding from low (7.02%), moderate (3.45%), high (6.56%) and very high (1.03%) susceptibility. **Table 12** shows the rice and corn while **Table 13** presents the coconut and banana areas susceptible to flooding. **Figure 6** presents the flood susceptibility map for agriculture/crops.

Table 12. Rice and Corn Area Susceptible to Flooding in the Six River Basins

River Basin	Low (≤0.5m, <1 day)	Moderate (0.5-1m, 1-3 days)	High (1-2m, >3 days)	Very High (>2m, >3 days)	No susceptibility	Total Area (has)
Abra	2,387.85	4,785.34	9,239.87	4,040.38	33,561.89	54,015.32
Apayao-Abulog	7,166.07	17,492.44	13,368.36	1,623.86	17,297.49	56,948.21
Jalaur	6,307.97	13,651.99	14,299.96	9,598.62	49,747.59	93,606.13
Buayan-Malungon	759.34	18.06	566.90	70.71	20,352.29	21,767.30
Ranao (Agus)	937.47	2,493.06	5,241.04	6,491.46	25,663.85	40,826.89
Tagum-Libuganon	10,044.28	3,485.62	5,147.54	2,061.26	5,926.14	26,664.84
TOTAL	27,602.97	41,926.51	47,863.66	23,886.29	152,549.24	293,828.68
%	9.39%	14.27%	16.29%	8.13%	51.92%	100.00%

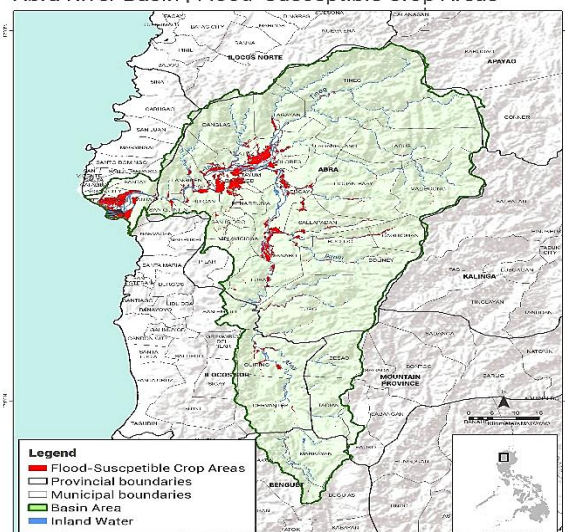
Source: MGB and TRTA GIS Mapping

Table 13. Coconut and Banana Area Susceptible to Flooding in the Six River Basins

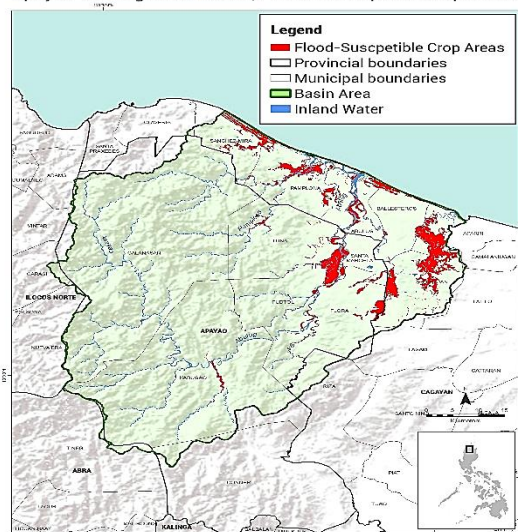
River Basin	Low (≤0.5m, <1 day)	Moderate (0.5-1m, 1-3 days)	High (1-2m, >3 days)	Very High (>2m, >3 days)	No susceptibility	Total Area (has)
Abra	16.08	187.52	161.91	156.65	525.63	1,047.79
Apayao-Abulog	1,837.66	1,866.53	1,915.58	99.74	5,506.61	11,226.12
Jalaur	nil	nil	nil	nil	Nil	nil
Buayan-Malungon	2,271.18	62.42	1,817.60	95.68	33,304.10	37,550.99
Ranao (Agus)	198.03	34.36	185.41	190.91	11,699.38	12,308.08
Tagum-Libuganon	55.48	0.86	10.58	98.39	33.37	198.67
TOTAL	4,378.42	2,151.69	4,091.08	641.36	51,069.09	62,331.65
%	7.02%	3.45%	6.56%	1.03%	81.93%	100.00%

Source: MGB and TRTA GIS Mapping

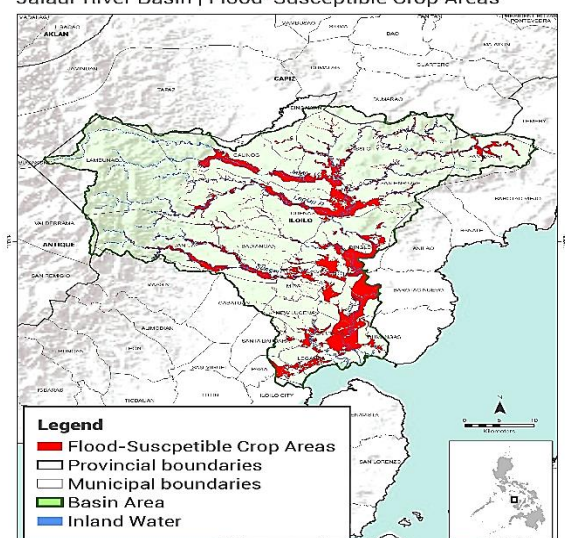
TRTA for IFMRSP
Abra River Basin | Flood-Susceptible Crop Areas



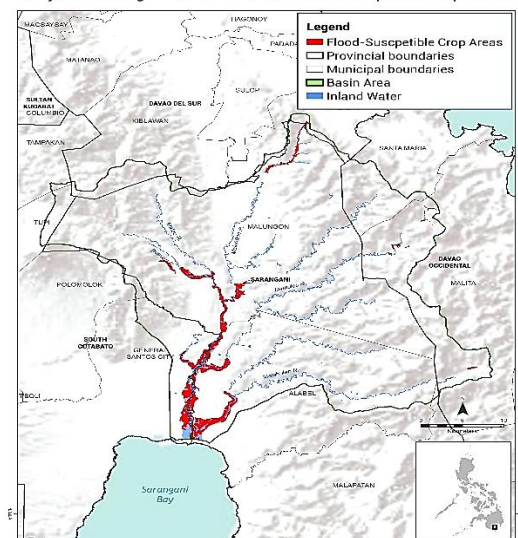
TRTA for IFMRSP
Apayao-Abulog River Basin | Flood-Susceptible Crop Areas



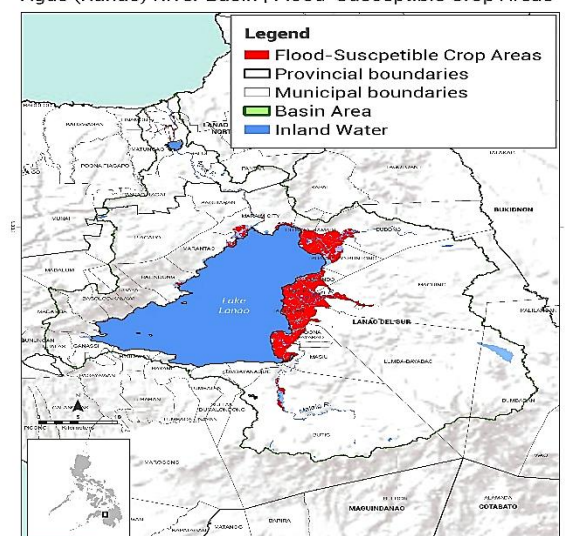
TRTA for IFMRSP
Jalaur River Basin | Flood-Susceptible Crop Areas



TRTA for IFMRSP
Buayan-Malungon River Basin | Flood-Susceptible Crop Areas



TRTA for IFMRSP
Agus (Ranao) River Basin | Flood-Susceptible Crop Areas



TRTA for IFMRSP
Tagum-Libuganon River Basin | Flood-Susceptible Crop Areas

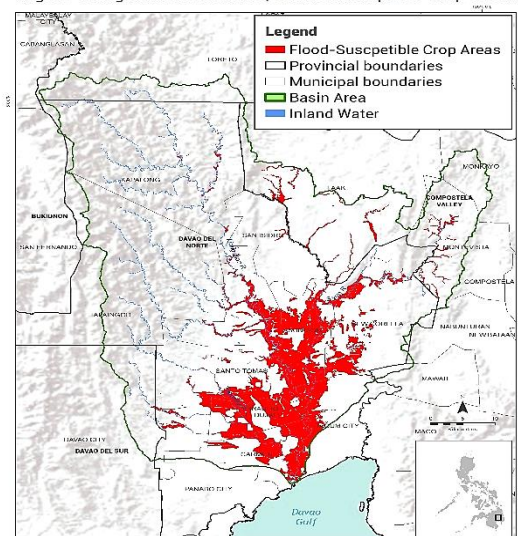


Figure 6: Flood Susceptibility of Agriculture (Rice and Corn/Coconut and Banana)

5.4 Estimated Population Susceptible to Flooding

47. The estimated population with high and very high susceptibility to flooding is 7.49% or 641,138 people out of the 8.55 million population of the six river basins. **Table 14** shows the number of people susceptible to flooding in the six river basins. **Figure 7** shows the flood susceptibility maps of affected population

Table 14. Estimated Population in High and Very High Flood Susceptibility

River Basin	Total Population in covered LGUs (2015)	Estimated Population (2015) in high and very high flood susceptibility based on MGB's Flood Susceptibility Maps	In percent (%)
Abra	758,819	75,628	9.97%
Apayao-Abulog	489,816	43,184	8.82%
Jalaur	1,667,564	198,582	11.91%
Buayan Malungon	1,376,458	18,761	1.36%
Ranao (Agus)	1,346,337	118,553	8.81%
Tagum-Libuganon	2,919,488	186,430	6.39%
TOTAL	8,558,482	641,138	7.49%

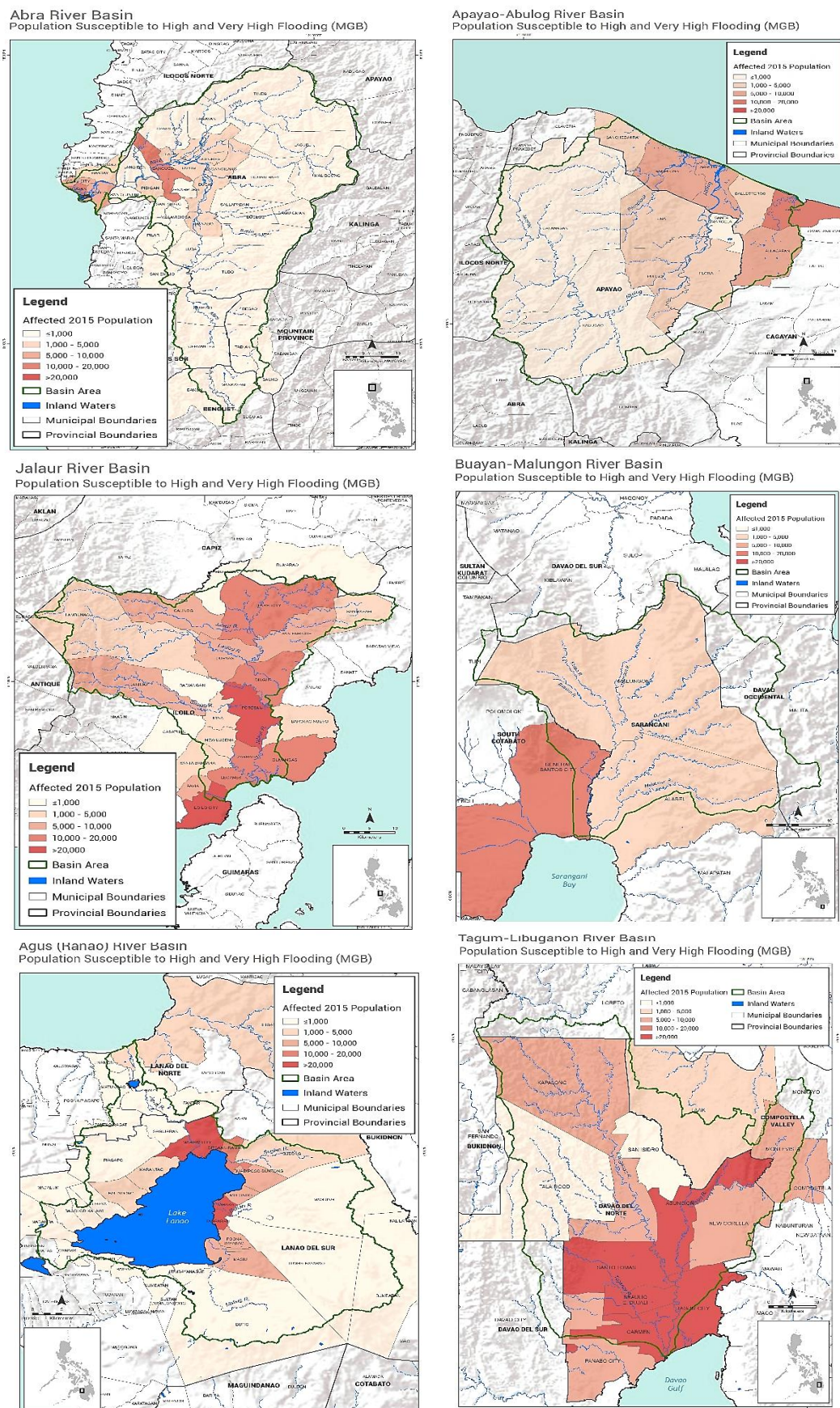


Figure 7: Flood Susceptibility Map of Affected Population

5.5 Summary Results of Stakeholders Meetings, Consultations and Workshops

48. The series of meetings, consultations and workshops carried out by the TRA and CSOs were able to gather information on stakeholders analysis, problem analysis, and generated proposed solutions related to flood risk management. Below are the summary of multi-stakeholders consultations.

- a. **Stakeholders Analysis.** With the adoption Integrated River Basin Management Development Master Plans in the six river basin, key stakeholders are already involved in the process and the institutional mechanism are in place. The River Basin Management Councils (RBMCs) provide policy guidance and overall coordination supported by the Technical Working Groups (TWGs). The TWGs handles coordination of technical and administrative support to the programs and projects in the river basins including monitoring and supervision of implementation. The River Basin Coordination Offices (RBCOs) under DENR serves as secretariat to the RBMCs. The RBMCs and TWGs, are generally composed of the following groups:

- Regional Offices of National Government Agencies (mentioned above)
- Local Government Units (covered provinces, cities, municipalities). Note that Provincial Governors serve as Chairperson and Vice Chairperson or C-Chairperson of RBMCs
- Civil Society Organizations (non-government organizations, academe, private sector)
- Peoples' Organizations (e.g. farmers, women, indigenous peoples)

For Jalaur, an Iloilo Watershed Management Council (IWMC) is also coordinating the Jalaur River Basin Management Council, as it was organized under the IWMC. For Ranao (Agus) River Basin, the Bangsamoro Autonomous Region of Muslim Mindanao shall be involved as Lanao Del Sur is part of its territory.

In summary there exist a very good institutional framework and stakeholders participation in RBMCs. However, there is a need to further strengthen this mechanism to enhance its operations

- b. **Problem and Solution Analysis.** The stakeholders identified the problems and proposed solutions or recommendations to reduce flooding through FRM. Below is the summary of the identified problems and proposed solutions almost common to all river basin

Identified Problems that causes flooding (due to typhoon, prolonged and excessive rainfall, and flash floods)	Proposed solution/recommendations to reduce flooding
UPLAND Deforestation or forest denudation due to illegal logging, timber poaching, slash and burn (<i>kaingin</i>), forest fire, conversion of forest land to agriculture and farming, and timber poaching. Improper watershed management, improper farming practices in the upland, and soil erosion	Forest protection, reforestation, agro-forestry, nursery development, agro-eco-tourism development, mobilization and strengthening of forest guards
MIDSTREAM Clogged waterways, silted riverbeds, soil erosion, inadequate hydrologic	Clearing of waterways, desilting of riverbanks, increase vegetation along the riverbank, regulate

infrastructure, unregulated quarrying and mining, illegal tree cutting, poor drainage system, lack of slope protection	quarrying, improvement of drainage system, planting of bamboo and increase vegetation along the riverbank, establishment of slope protection or bio-engineering
DOWNSTREAM Clogged waterways, poor and silted drainage system, silted riverbeds and coastal area (mouth of the river to the sea), unregulated quarrying, illegal structures and informal settlements along the riverbank, lack of river dikes and infrastructure, unmanageable and increasing nipa stands,	Clearing of waterways, desilting of riverbanks, harmonize and prepare drainage management plan, increase vegetation along the riverbank, improvement of drainage system, regulate quarrying, resettlement of informal settlers, demolition of illegal structures, establishment of riverdikes/rip raps, construction of diversion canals and flood control structures, management of nipa stands
CROSS CUTTING Weak capacity of LGUs on disaster preparedness and FRM, poor/lack watershed/forest management plans, conflicting tenurial instruments of forest lands, poor water resources management, poor solid waste management, poor law enforcement of environmental laws and guidelines and implementation of building code and zoning ordinance, weak capacity of LGUs to communities to adapt to climate change and FRM, lack of early warning system devices, weak public communication and warning system	Assist LGUs to mainstream FRM in Local Development Plans, harmonize land use/watershed/forest management plans, preparation of drainage/sewerage management plans, establishment of small water impounding projects and mini hydro plants. strict implementation of environmental laws/guidelines and building code/zoning ordinance, improve solid waste management (materials recovery facility, sanitary landfill), establishment of automated weather monitoring stations and early warning system, capacity building of LGUs and communities for CCA-DRRM and FRM, organization and mobilization of River Guards (<i>Bantay Suba/Ilog</i>), Improve information, education and communication (IEC) for FRM

- c. **Effects of flooding.** The stakeholders identified the effects and consequences of flooding which include the following:
- Injury and loss of lives
 - displacement of people
 - damage to agriculture (crops and livestock) and loss of livelihood
 - damage to property and public facility and infrastructure (roads, bridges, communication, powerlines, water supply)
 - increased vulnerability of both human settlements and ecosystems (e.g. mangroves, biodiversity)
 - damage to aquatic and marine resources
 - disruption of economic activities and public transportation
 - increased in poverty
 - increased risk to water borne diseases
 - suspension of classes/schooling

5.6 Proposed Direction and Strategy for Enhancing CBFRM

49. Considering the flood risk assessment, the disaster preparedness of LGUs, the problem analysis and recommendations of the stakeholders, the following directions and strategies serve as guidepost for CBFRMS:
- i. **Mainstream FRM in Local Development Plans.** The LGUs (cities and municipalities) are mandated to mainstream CCA-DRRM to the enhance CLUP and prepare LDRRMP and LCCAP, and the barangays to prepare CBDRRMP. The LGUs have automatic appropriations for LDRRM Fund which shall be included in their respective Annual Investment Plan or budget. Flooding is a recurrent disaster events in the country and mainstreaming FRM in local development plans will help reduce flooding. However, only few LGUs passed the disaster preparedness audit (DPA) where these plans included as indicators. Thus, there is a need to assist local government units to complete the Climate and Disaster Risk Assessment (CDRA) which is a requirement to enhance or update CLUP and serve as basis for the LDRRMP and LCCAP. Further, the LDRRMP serves as basis in the preparation and implementation of guidelines in early warning system, evacuation management system, incidence command system, organization of DRRM volunteers, capacity building of LGU personnel, procurement of tools and equipment, and proper allocation of LDRRMP among other. Mainstreaming FRM to Local Development Plans will help LGUs to be more disaster prepared and capable of managing flood risks.
 - ii. **Harmonize land use, watershed management and forest management plans.** The river basins covered different provinces with respective Provincial Physical Development and Framework Plans (PPDFP) and the cities and municipalities with their respective comprehensive land use plans (CLUPs) and forest land use plans (FLUPs). Likewise, DENR-RBCO has the IRBDM Master Plan and some provinces have watershed management plans. There is a need to look and harmonize these plans. The harmonization will also be an opportunity to mainstream and harmonize FRM interventions in the Integrated River Basin or Watershed Management Plans.
 - iii. **Build Capacity of LGUs and Communities in CCA-DRRM and FRM.** There is need to improve capacity of LGUs, communities and stakeholders in CCA-DRRM and FRM. The identified and proposed capacity building for FRM include preparation of drainage management plan, policy and evaluation studies, early warning system and weather monitoring, climate smart agriculture (including agro-forestry and upland agriculture) and livelihood development, IEC, and technical training for the planning and implementation of demonstration projects.
 - iv. **Strengthen institutions in the six river basins.** The River Basin Management Councils (RBMCs) and its Technical Working Groups (TWGs) are the main coordinating body for the development and implementation of program and projects in the river basin. Thus, there is a need to strengthen the capability of RBMCs and TWGs for program coordination, data management and monitoring and evaluation. The DENR -RBCO can stir this institutional strengthening and mobilize active participation of stakeholders.
 - v. **Strict Implementation of Environmental Laws/Guidelines and Zoning Ordinance.** Across the river basin ecosystems (upland, midstream, downstream), there is a need for strict implementation of environmental laws and guidelines as well as zoning ordinance and building code to partly address the identified problems that causes flooding. The concerned national government agencies (DILG, DENR, DSHUD, DPWH) and the local government units shall cooperate in the implementation of laws and guidelines.
 - vi. **Mobilize communities to protect the river basins and promote FRM.** The stakeholders reiterated the need to further capacitate and strengthen the environmental/forest guards (Bantay Kalikasan/ Bantay Gubat) to protect the forest and its ecosystem. Further, there

are calls to mobilize and organize River Guards (Bantay Suba/ Ilog) to protect and guard the river basins. These organizations will likewise be trained for community flood monitoring system and can serve as conduits for the implementation of FRM programs and projects. The organizations shall encourage involvement and participation of women.

- vii. **Detailed Planning and Implementation of Demonstration Projects to capacitate communities and raise awareness on FRM.** The demonstration projects are local community action to address causes of flooding in the upland, midstream and downstream of the river basins. The detailed planning and implementation of demonstration projects is one capacity-building intervention to community actions that may address the identified causes of flooding which may include: (i) increase forest cover through reforestation, agro-forestry, and conservation, (ii) stabilize riverbank through increased vegetation, regulation of mining, soil erosion control, and community-based infrastructure; (iii) clear waterways and drainage through desilting and periodic clearing operations, preparation and implementation of drainage management plans, and management of nipa stands ; (iv) improve solid waste management to reduce clogging of garbage in waterways, (v) adapt smart agriculture mainstreaming to CCA and FRM in farming activities, and (vi) establish community early warning systems, among others.
- viii. **Provide livelihood and adapt to climate change.** For sustainability of demonstration projects, it should integrate livelihood components which include but not limited to nursery development, bamboo plantation in reforestation, agro-forestry, SWIP for irrigation, climate smart agriculture, nipa palm management/nipa-based products processing.

6.0 Project Description

- 50. The CBFRMS addresses the third objective of the Integrated Flood Risk Management Sector Project (IFRMSP) which is to “raise community awareness, and preparing and implementing disaster (flood) risk reduction and management plans to reduce different groups’ vulnerabilities”.
- 51. The TRTA and CSOs have facilitated the participatory project design process involving stakeholders analysis, problem tree and objective tree analysis, series of consultations with the stakeholders through focus group discussions, key informant interviews, courtesy calls with the local officials and concerned regional offices of NGAs, and community/site visits, and project development workshops.
- 52. The design summary of Output 3: Community-Based Flood Risk Management Subcomponent (CBFRMS) consist of the desired impact, expected outcomes, outputs, key activities, and inputs or needed resources which are products of series of consultations and workshops. The details of the proposed CBFRMS including specific project description, cost estimate, timeframe, institutional arrangements, communication strategy, and monitoring evaluation form part of the project design.
- 53. The Government of the Philippines and Asian Development Bank has decided to implement the project in two phases. **Phase 1** to cover Abra River Basin, Ranao (Agus) River Basin, and Tagum Libuganon River Basin as the Integrated Flood Resilience and Adaptation (InFRA) Project I while **Phase 2** will cover Apayao Abulog River Basin, Buayan-Malungon River Basin, and Jalaur River Basin. This document is focused on Phase 2.
- 54. The integrated Design and Monitoring Framework of CBFRMS for Phase 2 covering the three river basins is presented in **Annex III.2-1 in Volume II for Output 3 Phase II**.

6.1 Projected Impact

- 55. The main goal of the project is to strengthen resiliency of communities and local government units in flood risk management. In the three river basins, the collective desired project impact is reduced flood risk and strengthened climate and disaster resilience of communities and LGUs .

6.2 Desired Outcomes

56. The specific objective of the project is to “raise community awareness in preparing and implementing disaster (flood) risk management, reduce different groups’ vulnerabilities, and strengthen participatory and gender responsive community-based flood risk management (CBFRM).
57. The desired outcomes of CBFRMS are capacitated communities and local government units in implementing local actions on FRM in the three river basins.

6.3 Expected Outputs

58. Based on the consultations with the stakeholders in the three river basins, the expected outputs as agreed can be summarized into the following: (i) Output 3.1- FRM mainstreamed in Local Development Plans , and (ii) Output 3.2 - LGUs and communities capacitated in FRM

- a. **Output 3.1- FRM mainstreamed in Local Development Plans,** It is expected that the FRM will be mainstreamed in enhanced CLUPs and LDRRMPs of selected 19 component cities and municipalities. The disaster preparedness audit of LGUs on disaster risk reduction management suggest the need for assistance to update or prepare their respective CLUPs and LDRRMPs. Such updating will also serve as an opportunity for mainstreaming FRM. Many LGUs need technical support for the completion of the Climate and Disaster Risk Assessment (CDRA) to provide a science-based decision in preparing or updating CLUPs and LDRMMPs. These 19 cities and municipalities were selected based on the following criteria: (i) priority flood prone LGUs in the midstream and downstream of the river basin, (ii) upstream LGUs that need immediate measures to hold flow water, (iii) downstream flood way areas, (iv) contiguous or adjacent LGUs, and (v) willingness of the LGUs to participate in the CBFRMS.

Likewise, FRM is expected to be mainstreamed in the Community-Based Disaster Risk Reduction Management Plans (CBDRRMP) of 259 barangays in the three river basins. The CBFRMS will provide technical support to the barangays in updating their respective CBDRRMPs through participatory planning process with the Barangay Disaster Risk Reduction Management Committees (BDRRMCs) composed of barangay officials and representatives of community organizations representing women, youth, religious organizations, jeepney and tricycle operators and drivers association, market vendors association, private sector, and homeowners association among others. The proposed barangays are those along the riverbanks selected based on the criteria on the priority cities and municipalities. However, there are barangays to be covered outside of the priority cities and municipalities for the assistance in eCLUP and LDRRMPs.

The list of LGUs and number of barangays were discussed and further validated with TWGs of RBMCs during final consultations. **Table 15** shows the summary of Output 3.1 indicators and the target number of cities, municipalities and barangays where the FRM will be mainstreamed in local development plans.

Table 15. Indicators for CBFRMS Output 3.1: FRM mainstreamed in Local Development Plans

OUTPUTS	Apayao- Abulug RB	Jalaur RB	Buayan- Malungon RB	TOTAL	TOTAL No of LGUs within RB*	% No of LGUs for CBFRMS
1. CDRA completed and FRM mainstreamed in enhanced CLUP	Eight (8) municipalities	Six (6) city/ municipalities	Five (5) city/ municipalities	19 LGUs	54	35.19%
2. FRM mainstreamed in LDRRMPs	Eight (8) municipalities	Six (6) city/ municipalities	Five (5) city/ municipalities	19 LGUs	54	35.19%
3. FRM mainstreamed in CBDRRMPs	104 barangays	108 barangays	47 barangays	259 barangays	1,680 Barangays	15.42%

*Source: Integrated River Basin Management Development Master Plans

- b. **Output 3.2: LGUs and communities capacitated in FRM.** The LGUs and communities in the three river basins have different and unique priority capacity building needs. The key output indicators include (i) policy review and evaluation studies conducted, (ii) technical training on ecosystems management, forest protection and reforestation, agro-forestry riverbank stabilization early warning system, solid waste management, climate smart agriculture, and alternative livelihood conducted, and (iii) IEC materials developed, and (iv) priority FRM community-based demonstration project proposals prepared. These capacity building activities will help strengthen LGUs and communities to address the identified causes of flooding in the river basins. **Table 16** shows the outputs indicators per river basin.

Table 16. Output Indicators per River Basin

Key Indicators	River Basin/Output Indicator
(i) policy review and evaluation studies conducted	Apayao-Abulug River Basin - Assessment of Integrated Watershed Management Planning - Assessment of the Implementation of Solid Waste Management System in Flood Prone Barangays in Apayao-Abulug River Basin Jalaur River Basin - Assessment of Drainage Management System in seventeen (17) LGUs Buayan-Malungon

Key Indicators	River Basin/Output Indicator
	Harmonization of Comprehensive Land-use Plans in the 8 eight LGUs under the river basin.
ii) Technical training on flood risk management (FRM) and climate and disaster risk assessment (CDRA) conducted in the three riverbasins	<i>Apayao-Abulug River Basin</i> - Trained 90 LGU personnel of 9 LGUs and CSO representatives on FRM and CDRA where at least 30% shall be women <i>Jalaur River Basin</i> - Trained 230 LGU personnel of 23 LGUs and CSO representatives on FRM and CDRA where at least 30% shall be women <i>Buayan-Malungon Riverbasin</i> - Trained 30 LGU personnel of 3 LGUs and CSO representatives on FRM and CDRA where at least 30% shall be women
(iii) Capacity-building on Climate Smart Agriculture for FRM conducted.	- Hands-on training for the adoption of climate smart agriculture conducted in 15 flood prone LGUs or five LGUs per River Basin - Weather Monitoring Teams in the 15 LGUs formed and trained - Trained LGU Personnel and Farmers in the Climate Smart Technologies
(iv) Public Awareness and Participation on FRM increased	- Assessment Workshops on Public Information and Communication for FRM conducted in the three riverbasins with LGU, CSO and Agency Information Officers - Training of Information Officers in enhancing communication platforms conducted - IEC Materials on CBFRMS and various FRM related topics developed and disseminated - Project's Social Media communication platform established in the three river basins
(v) Priority Community-Based FRM Demonstration Project Proposals Prepared	- Project development workshops conducted with 17 LGUs covered by Output 2 - At least 3 proposals per river basin prepared, one each for the upstream, midstream and downstream

65. The Output 3.1 and Output 3.2 of CBFRMS supports the infrastructure component of Output 2 of the InFRA Project Phase 2. All LGUs to be covered by the Output 2 of the InFRA Project Phase 2 will also be covered by mainstreaming FRM to local development plans and capacity building activities.

6.4 Summary of Key Activities in the Three River Basins

66. The key activities to achieve expected outputs, desired outcomes and projected impacts are divided into two major activities, namely: (i) mainstreaming of flood risk management in local development plans, and (ii) strengthening capacity of LGUs and communities on FRM. These interventions cover the upstream, midstream and downstream areas adopting the ridge to reef, room for the river, and integrated water resources management approaches. The key activities are inter-related as it contributes to each other. **Figure 8** illustrates and describes inter-relationship of key activities which are linked to the achievement of project outputs. Below are the descriptions of the key project activities.



Figure 8. Inter-relationship of Key Project Activities

a. Mainstreaming FRM in Local Development Plans

67. The project will provide assistance to LGUs in the updating and preparation of CLUPs, LDRRMPs, CBDRRMPs.

i. Mainstreaming FRM in CLUP and LDRRMPs in the three River Basins

68. The project will provide assistance to 19 **LGUs** (cities and municipalities) in mainstreaming FRM to enhance CLUPs and LDRRMPs. This shall be in accordance with the guidelines of the Department of Settlement, Housing and Urban Development or DSHUD (formerly Housing and Land Use Regulatory Board or HLURB).
69. The assistance will cover completion of Climate and Disaster Risk Assessment (CDRA) Report which form part as Volume 3 of enhanced CLUP. CDRA covers assessment of natural hazards including flooding, typhoon/storms, sea level rise, storm surge, and drought/heat stress among others in at least five sectors, namely: economic, infrastructure, environment, social and land use.
70. Currently, the target partner LGUs are in different stages on the status of CLUP and LDRRMP. Some already completed and updated and some are still preparing and updating their respective CLUPs and LDRRMPs. In any rate, the mainstreaming will take off from the

status of their local development planning process at the inception of project implementation. **Table 17** presents the initial list of LGUs targeted to mainstream FRM in CLUPs and LDRRMPs representing upstream, midstream and downstream of the river basins based on the selection criteria mentioned above. **Figure 9** presents the steps in preparing CDRA and mainstreaming of FRM in CLUP and LDRRMP.

Table 17. Initial List of LGUs targeted for mainstreaming FRM in CLUP and LDRRMP under CBFRMS

River Basin	Upstream	Midstream	Downstream
Apayao- Abulug	• Calanasan, Apayao • Kabugao, Apayao	• Sta. Marcela, Apayao • Pudtol, Apayao • Flora, Apayao • Luna, Apayao	• Abulog, Cagayan • Ballesteros, Cagayan
Jalaur	• Janiuay, Iloilo • Calinog, Iloilo	• Pototan, Iloilo • Passi City, Iloilo	• Dumagas, Iloilo • Zarraga, Iloilo
Buayan- Malungon	• Malalag, Davao Del Sur • Malita, Davao Occidental	• Malungon, Saranggani (with both upstream and midstream portions)	• Alabel, Saranggani • General Santos City, South Cotobato

71.

Table 18 shows the population, poverty incidence and flood susceptibility of the LGUs mentioned above. The flood susceptibility of crops (rice, corn, coconut and banana) include those categorized as low, moderate, high and very high. The number of population are those in in the categories of high and very high flood susceptibility. **Annex III.2-2 in Volume II for Output 3 Phase II** shows the complete list of LGUs in the river basin with similar information.

Table 18. Population, Poverty Incidence and Flood Susceptibility in Target LGUs for Output 3.1

RB PROVINCE	City/ MUNICIPALITY	Population 2010	Population (2015)	2015 POVERTY INCIDENCE	Rank (Highest Poverty Incidence)	Total Crop Area	Crop Area Susceptible to Flooding (L-M-H-VH)	% Crop Area Susceptible to Flooding	Rank (Highest Crop Area susceptible to Flooding)	Population Susceptible to Flooding (High and Very High)	% Population Susceptible to Flooding (High and Very High)	Rank (Highest Population Susceptible to Flooding)
APAYAO-ABULUG RIVER BASIN												
Cagayan	Abulug	30,675	32,497	14.38	12	9,153.63	8,663.17	94.64	2	6,834	21.03	3
Cagayan	Ballesteros	32,215	34,299	12.46	15	8,084.57	6,946.42	85.92	4	2,097	6.11	9
Apayao	Flora	16,743	17,391	17.78	7	5,571.16	3,020.32	54.21	7	1,147	6.60	8
Apayao	Luna	18,029	19,063	17.38	8	5,413.60	2,826.97	52.22	8	1,139	5.97	10
Apayao	Pudtol	13,305	14,925	26.41	2	4,621.20	2,354.53	50.95	9	1,305	8.74	6
Apayao	Santa Marcela	12,010	13,613	16.42	9	4,674.46	2,273.42	48.63	10	993	7.29	7
Apayao	Kabugao	16,170	15,537	24.88	3	1,899.06	380.92	20.06	12	283	1.82	11
Apayao	Calanasan	11,568	12,604	27.08	1	1,203.79	166.47	13.83	13	98	0.78	12
BUAYAN-MALUNGON RIVER BASIN												
Sarangani	ALABEL	75,477	80,359	44.7	4	9,801.95	2,737.92	27.93	1	3,044	3.79	1
Sarangani	MALUNGON	95,044	103,604	48.3	3	35,520.47	1,400.47	3.94		1,672	1.61	3
South Cotabato	GENERAL SANTOS	538,086	592,884	23.5	7	5,441.61	885.57	16.27	2	14,046	2.37	2
Davao Occidental	MALITA	15,905	17,787	57.3	1	4,694.34	623.44	13.28	3			
Davao del Sur	MALALAG	35,295	38,731	17.3	8	525.63	14.49	2.76	4			
JALAU RIVER BASIN												
Iloilo	Pototan	70,955	75,070	21.24	20	7,882.85	7,425.83	94.20	6	33,654	44.83	2
Iloilo	Passi	79,663	80,544	23.25	14	15,804.13	3,999.78	25.31	20	13,111	16.28	9
Iloilo	Calinog	54,430	60,413	28.3	3	5,705.15	2,435.19	42.68	13	9,537	15.79	10
Iloilo	Dumangas	66,108	69,108	21.01	21	2,341.27	2,333.44	99.67	4	12,488	18.07	7
Iloilo	Januay	63,031	63,905	25.71	6	8,170.82	2,840.46	34.76	15	8,127	12.72	11
Iloilo	Zarraga	23,693	25,605	17.4	25	2,536.62	2,536.62	100.00	1	18,023	70.39	1

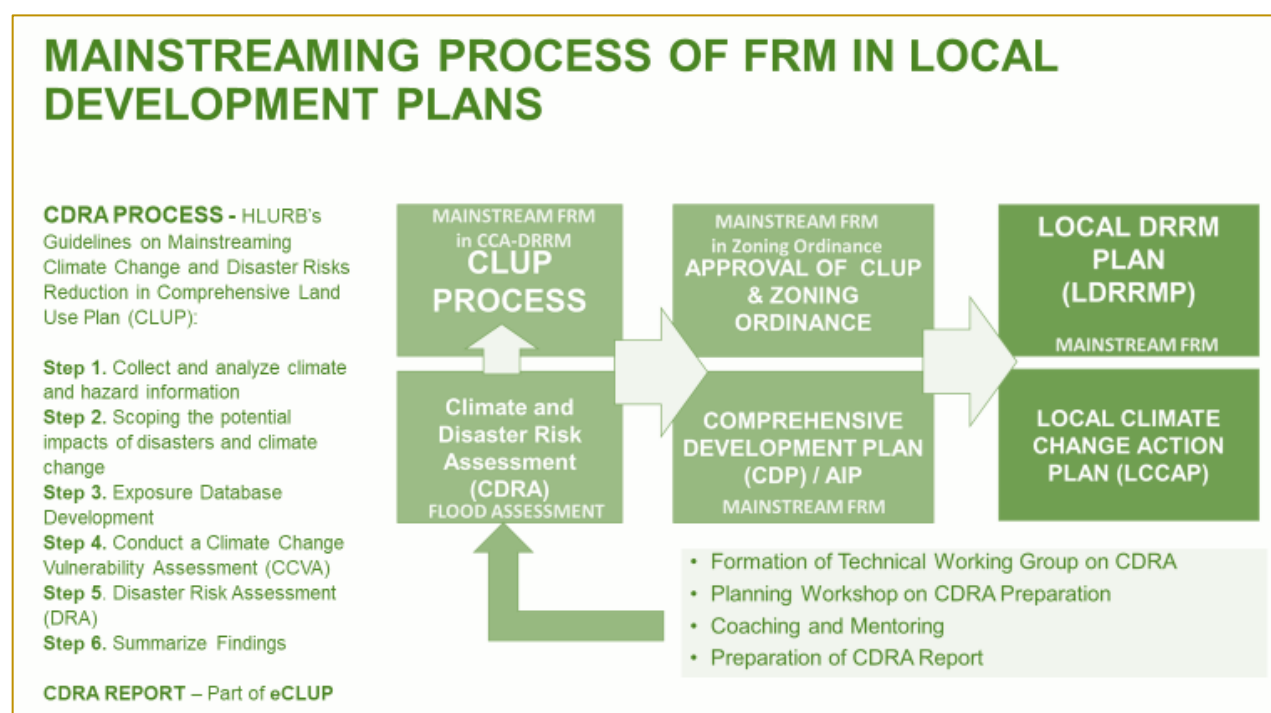


Figure 9. Mainstreaming process of FRM in Local Development Plans

72. The key activities include the following:
- a) **Conduct of CDRA and completion of CDRA Report following the HLURB Guidelines, to wit:**
 - Step 1: Collect and analyze climate and hazard information
 - Step 2: Scoping the potential; impacts of disasters and climate change
 - Step 3: Exposure database development
 - Step 4: Conduct of climate change vulnerability assessment (CCVA)
 - Step 5: Disaster Risk Assessment (DRA)
 - Step 6: Summarizing Findings
73. Prior to the conduct of CDRA, the LGUs shall form a Technical Working Group to be composed of concerned offices such as DRRM, Planning, Engineering, General Services, Agriculture, Accounting, Budget, Environment, and Social Services, among others. To complete CDRA, the following shall be conducted with the assistance from the project:
1. Orientation and Training on the Steps of CDRA (with Consultants/NGO assistance)
 2. Data gathering and consolidation (LGUs)
 3. Database development and interpretation of CCVA and DRA with GIS/spatial mapping (with consultants/NGO assistance)
 4. Presentation of results to Local Council, LDRRMC, and Local Chief Executive (TWG with the assistance of consultants/NGO)
 5. Adoption and approval of CDRA Report (Local Council and LCE)
74. The consultants shall be engaged to serve as facilitator, provide technical services and coaching and mentoring until the CDRA report is completed.
- b) **Updating of CLUP into enhanced CLUP or eCLUP**

75. Once the CDRA Report is completed, the current CLUP can be updated or enhanced through the usual CLUP participatory process where flood risk management can be mainstreamed. With FRM mainstreamed in CLUP, the LGUs can also plan the utilization of LDRRM Fund in the Annual Investment Plan (AIP) based on the identified priorities in addressing and preparing for disaster including FRM. The eCLUP with corresponding zoning ordinance shall be officially adopted by the Local Councils. The consultants shall be engaged by the project to assist LGUs in mainstreaming of FRM to eCLUPs.
76. The updating of the City and Municipal CLUPs shall also consider the Provincial and Physical Development Framework Plans (PDPFP) to ensure consistency and harmonization of land use plans of the province and city/municipality. This process is being ensured through the review and approval process of CLUPs at the Provincial Land Use Committee (PLUC).

c) Updating of LDRRMPs

77. With CDRA report completed, the LDRRMP can also be prepared or updated along with the updating of CLUP where FRM is mainstreamed. The updated CLUP and LDRRM can also serve as basis of LGUs in preparing their Contingency Plans on floods, flash floods, typhoon, storm surge and rainfall induced landslide. Updating of CLUPs and LDRRMP as well as preparation of contingency planning are critical mandates of LGUs and included as indicators in the Disaster Preparedness Audit (DPA) of DILG. The consultants shall be engaged by the project to assist LGUs in mainstreaming of FRM to LDRRMPs. The LGUs can also use CDRA report in preparing and updating their respective Local Climate Change Action Plans (LCCAPs).
78. The Consultant can help present the CDRA Report to Local Council, LDRRMC, and Local Chief Executive (LCE). The Local Council or LDRRMC may pass a Resolution approving the CDRA Report and for concurrence of the LCE.
79. For the adoption of updating the CLUP, the consultants can help present the Draft for consideration and approval of the Local Council. It is necessary that the Local Council shall pass a resolution or local ordinance approving the updating of CLUP. The LCE shall likewise approve the resolution or ordinance. Further, the updated CLUP shall be submitted to the Provincial Land Use Council (PLUC) for confirmation.
80. On the otherhand, the LDRRMP shall be presented to the LDRRMC for adoption and to Local Council for approval through resolution. The LCE shall likewise approve the resolution.

ii. Updating of CBDRRMP in the three River Basins

81. The project will assist 259 Barangays to mainstream FRM in their CBDRRMPs. The assistance will include participatory planning workshops and coaching and mentoring with the Barangay Disaster Risks Reduction Management Councils (BDRRMCs). The BDRRMCs are expected to update or formulate CBDRRMP in accordance with DILG and OCD guidelines including preparation of Barangay LDRRM Fund in their respective annual investment plans (AIPs). CBDRRMP is a mandate of all Barangays in accordance with the national law. The LGUs will select the participating barangays along the riverbank covering upstream, midstream and downstream ecosystem. **Figure 10** presents the process in mainstreaming FRM in CBDRRMPs.

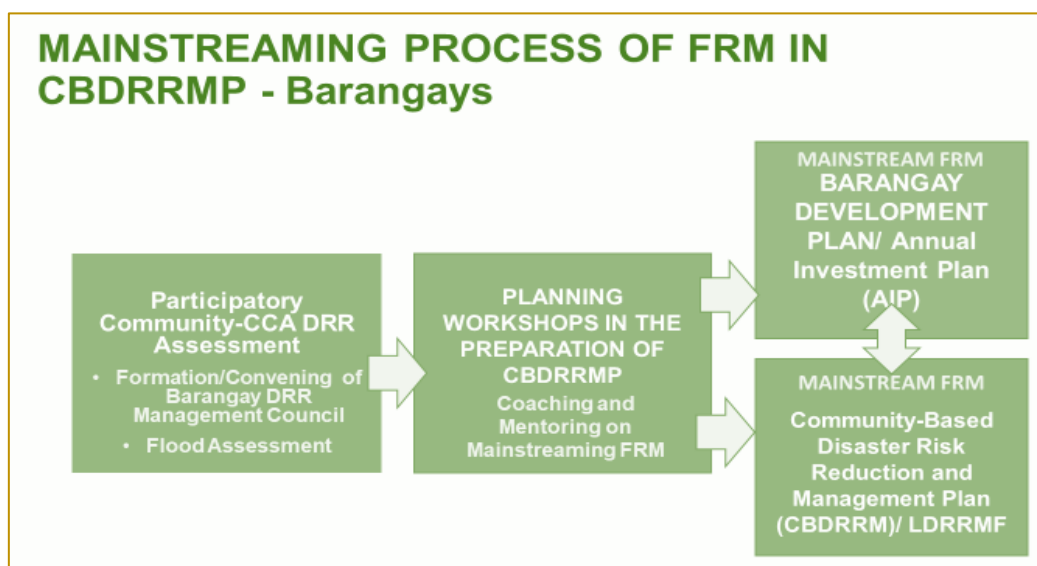


Figure 10. Mainstreaming process of FRM in CBDRRMPs

82. The process and activities shall include the following:
- Convening and orientation of Barangay DRRM Councils or Committees
 - Participatory Disaster/Flood Risk Assessment
 - Conduct of planning workshops in mainstreaming of FRM in preparation of CBDRRMP
 - Coaching and mentoring in the preparation of CBDRRMP and allocation of Barangay DRRM Fund in accordance with DILG Guidelines
 - Sangguniang Barangay (Village Councils) to adopt/approve the CBDRRM Plan with budget
83. It shall be noted that at least 50% Barangays with CBDRRMP and budget is one of the indicators of DPA for cities and municipalities. In general the list of barangays were initially selected in the following manner:
84. For Apayao-Abulug river basin, all barangays categorized with high and very high flood susceptibility and other critical barangays are included in the priority list
85. For Jalaur river basin, 108 priority barangays along the river bank was initially selected in consultation with the Provincial Government and DENR.
86. For Buayan Malungon river basin, 47 barangays with higher flood susceptibility and representatives of all LGUs covered were initially selected.
87. The target barangays represent 15.42% of the total number of Barangays within the river basin as shown in **Table 19**. The list of Barangays will be further reviewed and finalized during project implementation. The final selection of barangays shall be done in consultation with the TWG of RBMCs and covered LGUs (province/city/municipality)

Table 19. Proposed Number of Barangays

River Basin	No of Provinces	No of city/ municipality within the RB*	Total Number of Barangays	Number of barangays within RB	Proposed Number of Barangays for CBFRRMS	% No of Barangays to be covered for CBFRRMS
Apayao-Abulug	2	17	953	408	104	25.49%
Jalaur	3	29	2,964	1,199	108	9.01%
Buayan-Malungon	4	8	167	73	47	64.38%
TOTAL	9	54	3,282	1,680	259	15.42%

**Source: IRBDMMPs * TRTA GIS Mapping*

88. The list and map of the proposed Barangays are presented in **Annex III.2-3 in Volume II for Output 3 Phase II.**

b. Strengthening Capacity of LGUs and Communities on FRM

89. The capacity building interventions covers (i) Policy Review and Evaluation studies, (ii) technical training on FRM and climate and disaster risk assessment, (iii) Capacity Building for the Adoption of Climate Smart Agriculture for FRM, (iv) Enhancing Public Awareness and Participation in FRM. These capacity building activities will help strengthen LGUs and communities to address the identified needs to adopt to and mitigate flooding in the river basins.
90. All of the capacity building activities shall mainstream gender and development concerns and ensure women's participation. **Table 20** presents the summary of capacity building activities in the three river basins.

Table 20. Summary of Capacity Building Activities in the three River Basins

Capacity Building Activities	Apayao-Abulug River Basin	Jalaur River Basin	Buayan Malungon River Basin
Policy Review and Evaluation Studies	- Assessment of Integrated Watershed Management Planning - Assessment of the Implementation of Solid Waste Management System in Flood Prone Barangays in Apayao-Abulug River Basin	Jalaur River Basin Assessment of Drainage Management System in seventeen (17) LGUs	Harmonization of Comprehensive Land-use Plans in the 8 eight LGUs under the river basin.

Capacity Building Activities	Apayao-Abulug River Basin	Jalaur River Basin	Buayan Malungon River Basin
Technical Training on FRM and CDRA (All Cities and municipalities not included in Output 3.1	NINE (9) LGUs with 90 LGU Personnel and CSO participants	THREE (3) LGUs with 30 LGU Personnel and CSO participants	23 LGUs with 230 LGU Personnel and CSO participants
Capacity Building for the Climate Smart Agriculture for FRM conducted	5 LGUs with bigger crop areas susceptible to flooding	5 LGUs with bigger crop areas susceptible to flooding	5 LGUs with bigger crop areas susceptible to flooding
Enhancing Public Awareness and Participation	Nine (9) LGUs CSOs and Agencies involved in RBMC	Three (3) LGUs CSOs and Agencies involved in RBMC	23 LGUs CSOs and Agencies involved in RBMC
Preparation of Community-Based FRM Investment Projects	5 LGUs covered by Output 2	9 LGUs covered by Output 2	3 LGUs covered by Output 2

91. The LGUs not included in Output 3.1 shall be covered by the technical training on FRM and CDRA. The list is included in **Annex III.2-3 in Volume II for Output 3 Phase II**.
92. with the corresponding number of population, poverty incidence and flood susceptibility of population and crop areas. The LGUs that will be covered by the Capacity Building on Climate Smart Agriculture are those with larger flood susceptibility crop areas. The detailed description of Capacity Building activities is presented in **Annex III.2-4 in Volume II for Output 3 Phase II**.

7.0 Implementation Schedule

93. The project will be implemented in an overlapping two phases. The first phase as the InFRA Project I will cover the three river basins, namely: (i) Abra, (ii) Ranao (Agus), and (iii) Tagum Libuganon. This second phase include: (i) Apayao-Abulog, (ii) Buayan-Malungon and (iii) Jalaur. Each project phase will be implemented for four (4) years.
94. Prior to Year 1 of Phase 2, the DPWH and its Project Management Office (PMO) shall complete administrative requirements and establishing the institutional arrangement through Memorandum of Agreement (MOA) with all key partner agencies. Year 1-2 will cover the assistance on mainstreaming FRM in local development plans while Year 2-4 will be the implementation of capacity building activities and preparation of priority community FRM projects. **Figure 11** illustrates the Gantt chart of key project activities. The detailed implementation schedule is presented in **Annex III.2-5 in Volume II for Output 3 Phase II**.

Activities	Year 1				Year 2				Year 3				Year 4			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preparatory Activities																
1 Selection of CSOs/NGOs																
2 Establishment of Project Management Office fro CBFRMS/Staff Mobilization																
3 Preparation and approval of Project Inception Report																
4 Signing of Memorandum of Agreement among parties																
Key Project Activities																
A Mainstreaming of Flood Risk Management in local development plans																
1 Selection of Final List of Partner LGUs and Communities (Barangays)																
2 Preparation and signing of Memorandum/Letter of Agreement with partner cities, municipalities and barangays																
3 Mainstreaming (FRM) in the CLUPs and LDRRMPs																
4 Mainstreaming FRM in Community Based Disaster Risk Reduction Management (CBDRRMP) - Batches 1-5)																
B. Capacity Building on FRM																
1 Policy Review an evaluation studies																
a. Assessment of Integrated Watershed Management Planning																
b. Assessment of the Implementation of Solid Waste Management System in Flood Prone Barangays in Apayao-Abulug River Basin																
c. Assessment of Drainage Management System in seventeen (17) LGUs																
d. Harmonization of Comprehensive Land-use Plans in the 8 eight LGUs under the river basin																
2 Technical Training on FRM and CDRA (at least 5 LGUs/50pax per training)																
a. Batchces 1 and 2																
b. Batches 3, 4 and 5																
3 Capacity Building for the adoption of Climate Smart Agriculture for FRM																
4 Enhancing Public Awareness and Participation																
5 Preparation of Priority CBFRM Demonstration Projects																
C. Monitoring and Evaluation																
1 Baseline Survey																
2 Annual Review																
D. REPORTING																
1 Quarterly Reports																
2 Annual Report																
3 Midterm Report																
4 Project Completion Report																

Figure 11. Overall Gantt Chart of Key Project Activities, Phase 1

8.0 Institutional Arrangement

8.1 Overall Project Management

95. The implementation of CBFRMS shall be in accordance with the overall project management framework adopted by the IFRMP. The DPWH shall be the implementing and executing agency and expected to organize an Inter-Agency Project Steering Committee (IA-PSC). **Figure 12** present the overall project organizational structure as adopted by ADB and DPWH (InFRA1))

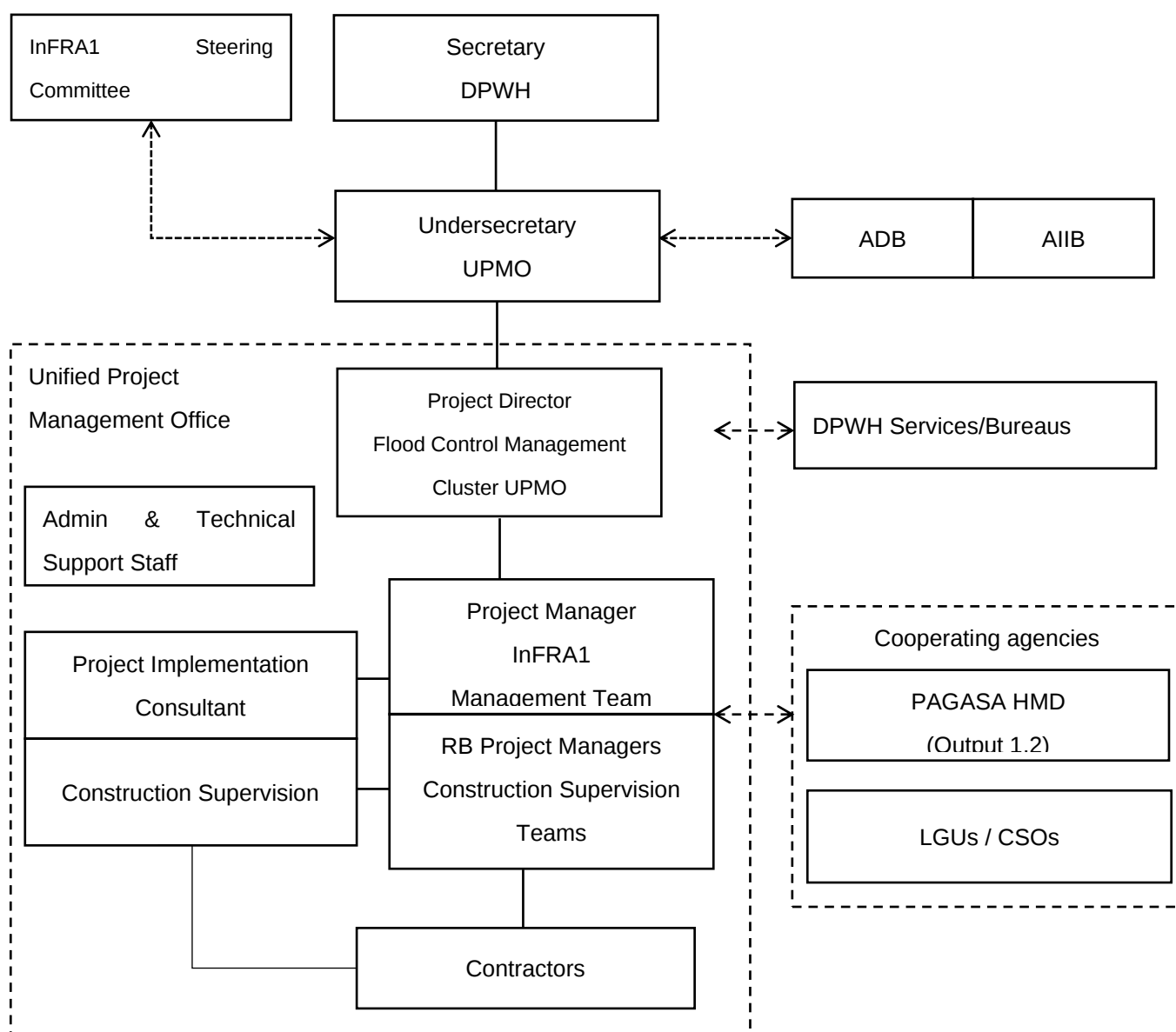


Figure 12. Proposed Overall Project Organizational Structure

8.2 River Basin Project Management and Coordination

96. Institutional arrangements for the implementation of CBFRMS in the River Basins shall be inclusive and participatory involving all stakeholders and in accordance with the RBMC institutional framework. A Memorandum of Agreement among key institutions (DPWH, DENR, DILG and the RBMCs) shall be entered into to serve as an instrument for cooperation in project implementation. The following are the key responsibilities of the key institutions:

- a. The **DPWH** Regional Office designated by the DPWH Central Office as Focal Region (s) in the River Basin shall exercise over-all supervision for the implementation of project activities. The DPWH shall ensure smooth coordination of project activities with other programs and projects of other agencies in the river basin.
- b. The Department of Environment and Natural Resources through the concerned **River Basin Control Office (RBCO)** which is mandated by **Executive Order No. 816** dated July 06, 2009 declaring the River Basin Control Office as the lead government agency for integrated planning, management, rehabilitation and development of country's river basins, shall provide technical support for the implementation of project activities related to its mandates. Likewise, DENR shall tap its other units such as Forest Management Bureau (FMB) for forest management, Mining and Geosciences Bureau (MGB) for regulation of quarrying, and Environmental Management Bureau (EMB) for water quality and solid waste management among others. DENR-RCBO shall facilitate coordination
- c. The concerned regional offices of the **Department of Interior and Local Government (DILG)** that exercise supervision over LGUs in accordance with the Local Government Code shall ensure participation of concerned LGUs for the implementation of project activities. The DILG also serves as Vice Chairperson of NDRRMC and provide guidance to LGUs in the performance of DRRM mandates. DILG may also involve its Outcome Group on DRRM consisting of the Bureau of Local Government Development (BLGD), Bureau of Local Government Services (BLGS), Bureau of Local Government Development (BLGD), DILG-Central Office Disaster Information Coordinating Center (CODIX), National Barangay Operations Bureau (NBOO), and Local Government Academy (LGA), as needed.
- d. The **River Basin Management Council (RBMC)** composed of the concerned regional offices of concerned national government agencies (DA, DAR, DOST, OCD, NCIP), covered LGUs (province, city and municipality), and civil society organizations (CSOs) shall facilitate coordination of project activities involve several agencies. The RBMC shall be represented by designated Chair and Co-Chair which are usually the Governors of covered provinces. In the case of Jalaur River Basin, The Iloilo Watershed Management Council (IWMC) under the Office of the Governor of the Province of Iloilo shall be involved. The major functions of concerned key national government agencies within the RBMC related to the implementation of CBFRMS shall be the following:
 - i. The **Office of Civil Defense** in accordance with **Republic Act 10121 of 2010** known as strengthening the **Philippine Disaster Risk Reduction and Management providing for the National Disaster Risk Reduction and Management Framework and Institutionalizing and appropriating fund**. OCD can provide relevant capacity building support for flood risk management under the context of DRRM. OCD shall be included as part of the Inter-agency oversight committee for the implementation, not only of the CBFRMS but the whole IFRMP. Likewise, OCD regional offices can provide technical support and advisory to the river basin management councils and LGUs in the implementation of CBFRMS.
 - ii. The concerned regional offices of the **Department of Science Technology (DOST) through PAGASA** in accordance with its mandate shall be responsible for capacity building for early warning system (EWS) and weather forecasting. PAGASA regularly coordinates with its counterparts at the regional and river basin level. Thus, they can support the EWS related sub-activities of CBFRMS.
 - iii. The **National Commission and Indigenous Peoples (NCIP)** in accordance with its mandate shall be responsible in enhancing participation and capacity of Indigenous Peoples (IPs) consistent with the Indigenous Peoples Rights Act (IPRA). There are IPs

and declared ancestral domain in the three river basins. Thus, the NCIP through its regional offices can support the implementation of CBFRMS at the river basin level.

- iv. The Local Government Units (Provinces, Cities, Municipalities, Barangays) are mandated to formulate and implement LDRRMPs. As direct beneficiaries of the CBFRMS, LGUs shall actively participate in several project activities and enter into Memorandum of Agreement as necessary. The selected cities and municipalities shall support the updating of CLUPs and LDRRMPs. All LGUs (Provinces, Cities and Municipalities) in the three riverbasin shall be involved in the capacity building activities under CBFRMS. The selected 150 barangays shall support the updating or formulation of Community-Based Disaster Risk Reduction Management Plan or the Barangay Disaster Risk Reduction Management Plan.
- v. For Jalaur River Basin, the Iloilo Watershed Management Council through its Provincial Environment and Natural Resources Office, Provincial Agriculture Office, Provincial Engineering Office, Provincial Disaster Risk Reduction Management Office, and Jalaur Watershed Management Council can provide technical support for the implementation of CBFRMS in Jalaur River Basin.

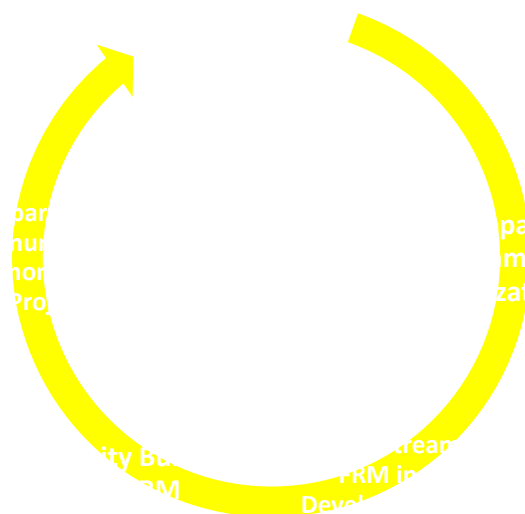
97. **Annex III.2-6 in Volume II for Output 3 Phase II** presents the responsibilities of key agencies/organizations for the implementation of CBFRMS.

8.3. Engagement of Local Consulting Company (LCC) and Civil Society Organizations/Non-Government Organizations (CSOs/NGOs) for the management of CBFRMS

98. A Local Consulting Company (LCC) in association with **CSOs/NGOs** to provide technical assistance and project management support for the implementation of CBFRMS in the three river basins. The LCC in association with CSOs/NGOs shall be selected on a competitive basis in accordance with Government guidelines on procurement of services.
99. The major terms of reference (TOR) of the LCC and CSOs/NGOs shall include receiving and managing the funds, providing technical assistance in the mainstreaming of flood risk management in local development plans, facilitating capacity building for FRM, selection and detailed planning of demonstration projects and establishing project monitoring and evaluation system. **Figure 13** shows the summary of TOR along the project management cycle. The detailed Terms of Reference is presented in **Annex III.2-7 in Volume II for Output 3 Phase II**.

GENERAL TOR OF LOCAL CONSULTING COMPANY AND CSOs

- Provide overall project and financial management
- Provide technical support experts to LGUs and communities
- Conduct social preparation of the target communities in coordination with LGUs
- Provide assistance to LGUs in the completion of Climate and Disaster Risk Assessment (CDRA) and mainstreaming of FRM in E-CLUP, LDRRMPs (Municipalities) and CDBRRMPs (Barangays)
- Conduct of capacity building/training on FRM
- Assist communities/LGUs in the selection preparation of priority Community-Based FRM demonstration projects
- Development and production of IEC materials/knowledge management
- Facilitate the conduct of project monitoring and evaluation



53

Figure 13. Summary TOR of Consultants and CSO/NGO for CBFRMS

100. At the river basin level, the LCC and CSOs/NGOs shall directly coordinate with the concerned DPWH focal regions to facilitate cooperation and project partnership with the agencies and organizations involved in the RBMCs.
101. The LCC shall organize and deploy team of consultants and project support staff to implement and coordinate the project activities in the three river basins which shall include the following:
 - a. **Team of Key Consultants and Support Staff which shall be organized by LCC in association with CSOs**
 - i. Team Leader cum DRRM Specialist
 - ii. Land Use Planning Specialist
 - iii. Capacity Building Specialist
 - iv. Deputy Team Leader cum CSO/NGO Specialist for Apayao-Abulug River Basin
 - v. Deputy Team Leader cum CSO/NGO Specialist for Buayan-Malungon River Basin
 - vi. Deputy Team Leader cum CSO/NGO Specialist for Jalaur River Basin
 - vii. Project Support Staff (2)
 - b. **River Basin Project Office (RB-PO)** which shall be organized by the CSOs/NGOs under the supervision of LCC in each of the river basin.
 - i. CSO/RB Project Coordinator
 - ii. Project Support Staff
 - c. The CSOs/NGOs shall likewise deploy consultants and resource persons to implement the project activities required for Output 3.1 and Output 3.2.
102. **Figure 14** presents the relationship of the project to River Basin Management Council while **Figure 15** shows the proposed organization of Team of Consultants and RB-PMO for the implementation of CBFRMS.

PROPOSED INSTITUTIONAL ARRANGEMENT FOR CBFRMS

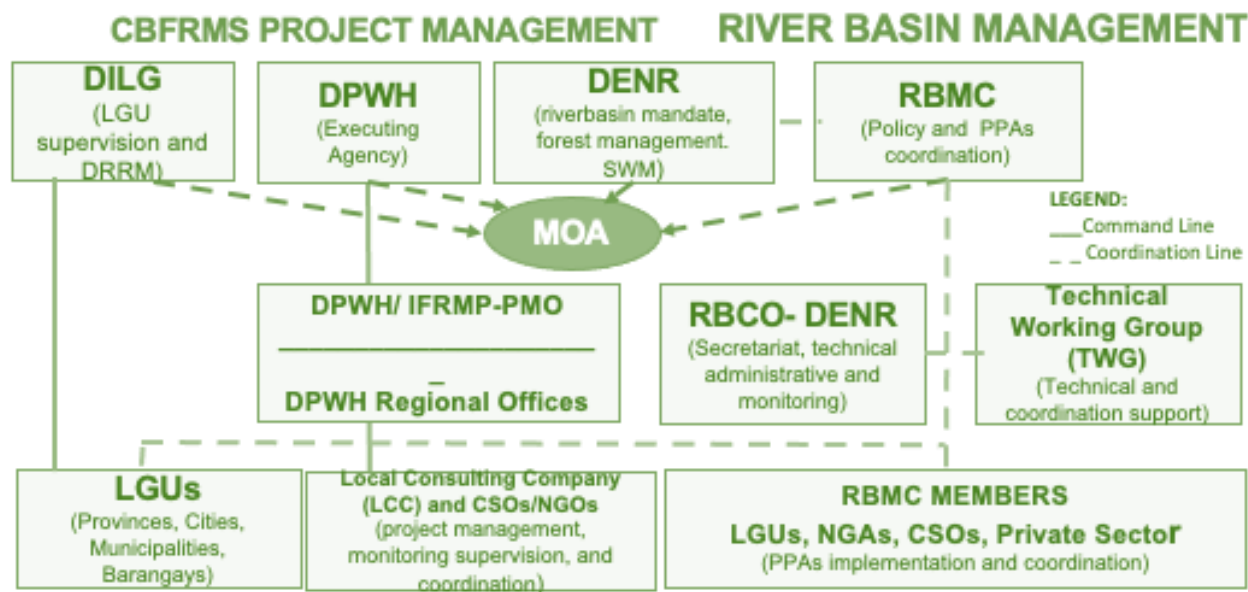


Figure 14. Relationship of Project Implementation with RBMC

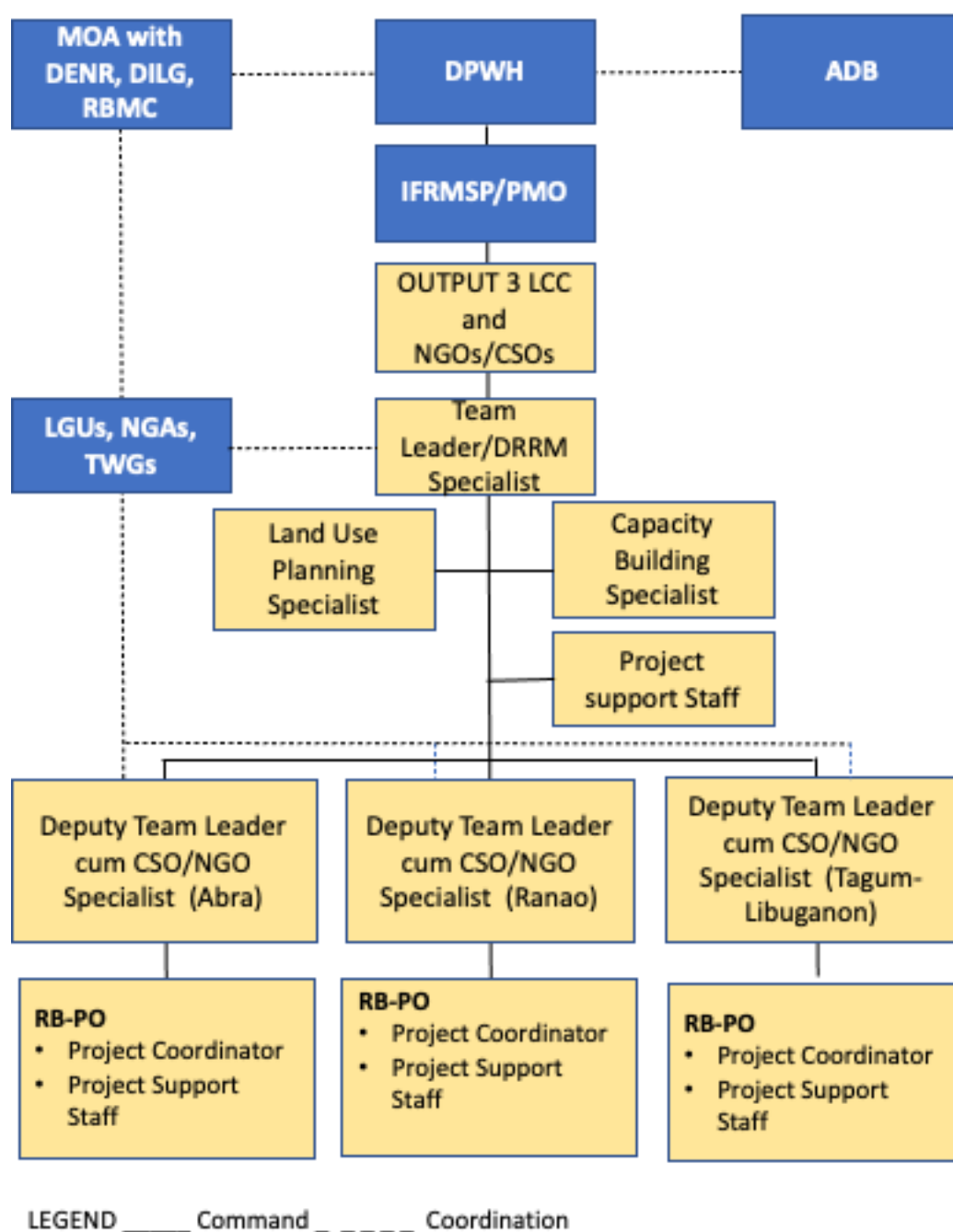


Figure 15. Proposed Organizational Structure of CBFRMS LCC and CSOs/NGOs Team of Consultants and RB-PO

9.0 Gender and Social Safeguards Considerations

103. In the implementation of the project, capacity building of the community members, LGUs officers and staff, CSOs and other stakeholders from regional offices of NGAs, and the private sector is critical. The project shall protect the rights, culture and tradition of Indigenous Peoples in accordance with the Indigenous Peoples Rights Act (IPRA) and the Ancestral Domain Sustainable Development Protection Plans (ADSDPPs) in the three river basins. If necessary, demonstration projects to be implemented in the ancestral domain shall secure Free, Prior and Informed Consent (FPIC) of the Indigenous Peoples Organizations or Councils. The project shall closely coordinate with the National Commission on Indigenous Peoples or local bodies in-charge of IP concerns

104. For implementing the activities for mainstreaming FRM in local development plans, and capacity-building, the gender and development aspects and women participation shall be mainstreamed. Consistent with the general policy on gender sensitivity of development programs, project activities shall consider participation of women. At least 30% of women in training activities shall be women.

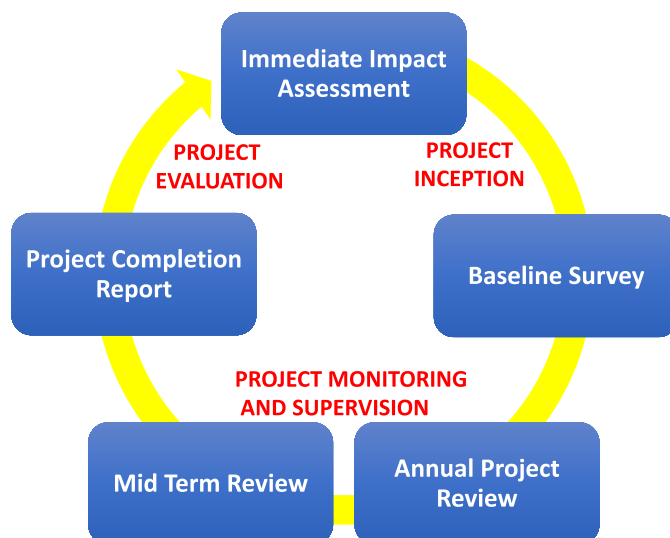
10.0 Monitoring and Evaluation (M & E)

105. The project shall adopt a Results Based Monitoring and Evaluation (RBME) based on the Design and Monitoring Framework of CBFRMS. The following monitoring and evaluation activities and milestones shall be carried out during project implementation per river basin:
- a. **Baseline Survey.** At the beginning of the project, a baseline survey shall be conducted based on the indicators adopted in the DMF. A third party shall be engaged to conduct the baseline survey.
 - b. **Annual Project Review.** The PMO in consultation with the TWG of BM RBMC shall conduct annual project review and prepare annual project report with recommendations. The report shall be presented to BM RBMC for guidance and coordination.
 - c. **Midterm Review.** A midterm review of CBFRMS shall be included in the overall Midterm Project Review of IFRMSP (InFRA Project Phase 2). The review shall use the results of the baseline survey to track progress and outputs of CBFRMS.. Results of the review shall be presented to the BM RBMC for guidance and possible adjustments on the CBFRMS.
 - d. **Project Completion Report (PCR).** The LCC and CSO/NGOs in consultation with the TWG of RBMCs shall prepare the PCR towards the end of the project. The report shall be presented to the BM RBMC for information and further guidance.
 - e. **Immediate Impact Assessment (IIA).** The impact assessment shall be conducted along with the evaluation of IFRMSP Phase 2 (InFRA Project). It is expected that at the end of the project, the immediate impact of CBFRMS will be assessed in terms of relevance, effectiveness, efficiency and sustainability. A with or without project analysis shall also form part of this assessment.
106. Results of the M&E activities per river basin shall be consolidated by the Consultants to be engaged for CBFRMS. **Figure 16** illustrates the key project monitoring activities during the implementation of CBFRMS. The Midterm Review and the Immediate Impact Assessment will be conducted by the overall IFRMSP monitoring and evaluation team (s).

Note: The “project” in this section refers to CBFRMS.

Monitoring and Evaluation

- **Baseline Survey.** At the beginning of the project, a baseline survey shall be conducted based on the indicators adopted in the DMF. A third party shall be engaged to conduct the baseline survey.
- **Annual Project Review.** The LCC and CSO/NGO in consultation with the TWG of RBMCs shall conduct annual project review and prepare annual project report with recommendations.
- **Midterm Review.** At the middle of the project, a midterm review shall be conducted to objectively assess the progress of the project in accordance with the indicators. A third party evaluator shall be engaged for this purpose.
- **Project Completion Report (PCR).** The LCC and CSO/NGO in consultation with the TWG of RBMCs shall prepare the PCR towards the end of the project.
- **Immediate Impact Assessment (IIA).** A third party evaluator(s) shall be engaged by the project to assess the immediate impact of
- **All reports/results shall be presented to the RBMC for guidance and coordination**



44

Figure 16. Project Monitoring Activities

11.0 Communication Strategies

107. The CBFRMS shall adopt a project communication plan of IFRMSP in accordance with the GOP and ADB communication strategies. All IEC and visibility materials shall support the project objective of raising the awareness of communities and LGUs in flood risk management. Likewise, the communication strategies shall promote participation of women, indigenous peoples, Christians and Muslims alike. The following communication strategies shall be considered during project implementation

- Assessment of available communication platforms of LGUs, NGAs, and CSOs in the river basin that can be utilized for the IEC on FRM
- Prepare a Visibility and Communication Plan involving all stakeholders to ensure raising awareness and enhance community participation
- Periodic dialogues and updating of project activities with stakeholders through RBMCs and inter-agency bodies to promote and ensure project ownership
- Capacitate information officers on the knowledge management and mainstreaming FRM in their respective campaign messaging
- Development and production of IEC materials for specific target audience and general public
- Community organizing and mobilization to enhance participation of communities

12.0 Cost Estimate Summary

108. The total cost of CBFRMS Phase 2 in the InFRA Project 2 is around **USD6.59million** for four (4) years. The estimated project cost is shown in **Table 21** (summary cost per component) and **Table 22** (summary cost per item). The detailed cost estimates are presented in Excel file and also included in the CBFRMS per river basin report.

Table 21. Summary of Estimated Cost, Per Component

	COMPONENT	Apayao- Abulog	Buayan- Malungon	Jalaur	LCC/CSOs	TOTAL	%
	CSO Service (I to IV)						
I	Mainstreaming FRM in Local Development Planning	1,243,412	690,330	928,416		2,862,158	43.42%
II	Capacity Building on FRM	643,121	617,094	777,501		2,037,716	30.91%
III	Monitoring and Evaluation	80,000	80,000	80,000		240,000	3.64%
IV	River Basin Project Management Operations	280,915	280,915	280,915		842,745	12.78%
V	National Consultant Services				609,398.00	609,398	9.24%
	TOTAL	2,247,448	1,668,339	2,066,832	609,398.00	6,592,017	100.00%

Table 22. Summary of Estimated Cost, Per Item

	COST ITEM	Apayao- Abulog	Buayan- Malungon	Jalaur	LCC/CSOs	AMOUNT	%
	CSO Service (A to D)						
A	Consultancy and Training by CSOs	1,886,533	1,307,424	1,705,917		4,899,874	74.33%
B	Monitoring and Evaluation	80,000	80,000	80,000		240,000	3.64%
C	River Basin Project Management Office Operations	280,915	280,915	280,915		842,745	12.78%
D	National Consultant Services				609,398.00	609,398	9.24%
	TOTAL	2,247,448	1,668,339	2,066,832	609,398.00	6,592,017	100.00%

