

REPUBLIC OF THE PHILIPPINES  
Province of Nueva Vizcaya

OFFICE OF THE GOVERNOR

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**MESSAGE**

**CARLOS M. PADILLA**  
Governor

## ACKNOWLEDGEMENT

The Palali-Mamparang Mountain Range-Local Conservation Area Management Plan could have not become a reality without the technical, material and financial support of institutions, individuals and groups. It is with gratitude that the Technical Working Group shall remain cognizant of the following who in one way or another have made our job easier:

To the United Nations Development Program-Small Grant Project 5 (UNDP-SGP5) for the grant that finance all activities, trainings and workshops that led to the completion of The Plan. This, in addition to funds for physical development and provision of alternative livelihoods to communities within the PMMR-LCA to initiate development in the area.

To Attorney Rodolfo Ferdinand N. Quicho, Jr., UNDP-SGP5, Country Manager, and his staff for providing guidance and full support during the implementation of the UNDP-SGP5 funded project in which formulation of the PMMR-LCA Management Plan is just one of its component.

To Madam Salve D. Narvadez, SGP5 Project Coordinator, FPE and her staff for their patience in monitoring physical and financial progress of project implementation.

To Governor Carlos M. Padilla for his financial and moral support inspiring us to proficiently prepare the PMMR-LCA Management Plan. His assertions on the significance of biodiversity within the PMMR has motivated members of the TWG to work hard to come up with The Plan.

To the members of the Sangguniang Panlalawigan, especially Honorable Flodemonte S. Gerdan, Chairman Committee on Environment, Natural Resources and Tourism, who authored the Provincial Ordinance declaring PMMR as Local Conservation Area. Their patience and unending support during the committee hearings and public hearings conducted for the final enactment of the Provincial Ordinance. Special mention goes to Vice-Governor Lambert Galima who prompted the appropriation of six million pesos (PhP 6,000,000.00) annual budget to be stipulated in the Provincial Ordinance for the implementation of The Plan.

To the Municipal Mayors of Bambang, Bayombong, Kasibu and Quezon, Honorable Flaviano Balgos Jr., Honorable Ralph C. Lantion, Honorable Alberto Bumulo Jr, and Honorable Dolores B. Binwag respectively, as well as their respective

members of their Sangguniang Bayan, who without accepting and endorsing the project to the Sangguniang Panlalawigan, this Management Plan could have not been accomplished.

To all the Barangay Captains and the communities of the sixteen Barangays covered by the project, without their endorsements, The Plan could have not been a reality. Their participation during the formulation of the Management Plan, specifically their recommendations of strategies and activities that could be carried was very significant.

To the leaders of the twenty-two People's Organizations who have provided information and analysis of the current situation in their Barangays. Their very active participation during workshops conducted served as a strong motivation for the TWG to complete the Management Plan.

To Forester Constante V. Espiritu, OIC-PENRO; Forester Tito A. Tanguilig, PENAR Officer, Dr. Andres Taguam, President of NVSU and Madam Merlinda P. Calubaquib, Project Manager of PRRM, for assigning their technical staff to be members of the Technical Working Group.

To Mr. Roger Dulnuan, MENRO Kasibu Staff; Forester Julie C. Sandaga, MENRO Quezon staff; Barangay Artemio Brazil, of Cordon, Kasibu, Barangay Kagawad Jhun Sadac of Barangay Watwat, Kasibu; Barangay Kagawad Balmer Demetrio of Barangay Mabuslo, Bambang, Mr. Joseph Jimenez PO President of PPUFA of Baresbes, Quezon for attending workshops and providing suggestions for the improvement of the Management Plan.

To the members of the Technical Working Group, Forester Edna Willie, Forester Noemi Villanueva, Forester Godfrey Lopez, from the Department of Environment and Natural Resources; Forester Arlyne Taranco, Forester Errol Egoy, Forester Roger Haboc from the Provincial Environment and Natural Resources Office-PLGU; Mr. Melchor C. Manzano, MENRO- Quezon; For. Esthie Ollie MENRO-Kasibu; Ms. Marilyn A. Juan, MPDC-Bayombong and Engr. Edmund Butay, MENRO-Bambang; Forester Arvin P. Vallesteros and Forester Elmer T. Castañeto from the Nueva Vizcaya State University; Forester Merlinda Calubaquib, Mr. Pablo Paet, Jr., Mr. Nilo Manangan, Mr. Allan Mel Soriano and Ms. Joan Agaloos from the Philippine Rural Reconstruction Movement; Captain Joseph Buhay, President of the PMMR-LCA-Federation of Barangay Captains, Mr. Jerry Cabacungan, President of the Federation of PMMR-Conservationist, Ms. Teresita S. Acosta and Ms. Juliet M. Wasit of FRIENDS for sharing their technical expertise, actively participating in all field work and workshops, and their patience in attending meetings, without which The Plan could have not been made a reality.

To all those who have in one way or another provided technical, financial and moral support our sincerest appreciation.

To GOD, our Heavenly Father, who continuously pours His blessings upon us, as stewards of His creation for the knowledge He has given us.

***The Technical Working Group***

## LIST OF ACRONYMS

AFP	Armed Forces of the Philippines
AIP	Annual Investment Plan
ANR	Assisted Natural Regeneration
AOR	Area of Responsibility
BDFE	Biodiversity Friendly Enterprise
BK	Bantay Kalikasan
BIG	Bio-Intensive Gardening
BLGU	Barangay Local Government Unit
BMB	Biodiversity Management Bureau
BPMU	Barangay Project Management Unit
CBFMA	Community-Based Forest Management Agreement
CENRO	Community Environment and Natural Resources Office
CEPA	Community Education and Public Awareness
CERMSD	Center for Environment Research and Management for Sustainable Development
CFSA	Community Forestry Stewardship Agreement
CLUP	Comprehensive Land Use Plan
CI-P	Conservation International Philippines
CITES	Convention on International Trade on Endangered Species
CR	Critically Endangered
CSC	Certificate of Stewardship Contract
CSO	Civil Society Organization
DA	Department of Agriculture
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DF	Development Fund
DIFS	Diversified Integrated Farming System
DILG	Department Interior Local Government
DIOFS	Diversified Integrated Organic Farming
DOST	Department of Science and Technology
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
ENR	Environment and Natural Resources
FAO	Food and Agriculture
FDC	Forest Dependent Communities
fdf	Forest Dependent Family
FMA	Forests Management Agreement
FRENDS	Friends of the Environment for Development and Sustainability
FLUP	Forest Land Use Plan
FRI	Forest Resource Inventory
IAS	Invasive Alien Species

IP	Indigenous Peoples
IPR	Individual Property Rights
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
LAWIN	Land and Wildlife Inventory
LCA	Local Conservation Area
LCE	Local Chief Executive
LCAMP	Local Conservation Area Management Plan
LDIP	Local Development and Investment Plan
LGU	Local Government Unit
mASL	Meters Above Sea Level
MENRO	Municipal Environment and Natural Resources Office
MLGU	Municipal Local Government Unit
MOA	Memorandum of Agreement
M & E	Monitoring and Evaluation
NewCAPP	New Conservation Area Priority Project
NGA	National Government Agency
NGO	Non-Government Organization
NGP	National Greening Program
NIPAS	National Integrated Protected Area System
NTFP	Non-Timber Forest Product
NT	Near-Threatened
NV	Nueva Vizcaya
NVSU	Nueva Vizcaya State University
PrAO	Protected Area Office
PAO	Provincial Agriculture Office
PBCPP	Philippine Biodiversity Conservation Priority Program
PD	Presidential Decree
PDIP	Provincial Development and Investment Plan
PDPEP	Provincial Development and Physical Framework Plan
PEC	Provincial Environment Code
PENARO	Provincial Environment and Natural Resources Office
PENRO	Provincial Environment and Natural Resources Office (under DENR)
PES	Payment for Environmental Services
PLGU	Provincial Local Government Unit
PMMR	Palali-Mamparang Mountain Range
PMMR-LCAMP	Palali-Mamparang Local Conservation Area Management Plan
PMMRMC	Palali-Mamparang Mountain Range Management Council
PMU	Project Management Unit
PNP	Philippine National Police
PO	Peoples Organization
PPA	Program, Project, Activities

PPP	Private, Public, Partnership
PRRM	Philippine Rural Reconstruction Movement
PTO	Provincial Tourism Office
PZ	Production Zone
RA	Republic Act
RBI	Rapid Biological Inventory
R & D	Research and Development
SALT	Sloping Agriculture Land Technology
SAPA	Special Use Agreement in Protected Area
SDG	Sustainable Development Goals
SMART	Spatial Monitoring and Recording Techniques
SME	Small to Medium Enterprise
SMPMMRMC	Sierra Madre Palali-Mamparang Mountain Range Management Council
SP	Sangguniang Panlalawigan
SPZ	Strict Protection Zone
SWC	Soil and Water Conservation
SWOT	Strength, Weaknesses, Opportunities and Threats
SWPA	Source Water Protection Area
TESDA	
TFLA	Tree for Legacy Agreement
TWG	Technical Working Group
UNDP	United Nations Development Program
VH	Very High
VuL	Vulnerable

## **EXECUTIVE SUMMARY**

The Palali-Mamparang Mountain Range Local Conservation Area Management Plan (PMMR-LCAMP) is a framework that would serve as a guide in the overall management of forests and forestlands of the seventeen (17) Barangays in the Sierra Madre's Palali-Mamparang Mountain Range for the next ten years from 2017 to 2026. Included in this framework are the strategies and policy direction of the Provincial Local Government Unit (PLGU) for the restoration, retention, and protection of natural areas primarily for biodiversity and/or nature conservation, soil and water conservation and social and cultural development.

The main concern for the declaration of the PMMR as LCA is for biodiversity conservation including the provision of opportunities for the communities to improve their well-being through the sustainable utilization of the resources in the forests and forestlands.

This PMMR LCA Management Plan is presented in six (6) parts as follows:

1. Introduction. This section covers the topic on the background of the undertaking, the communities covered by the LCA, and the conceptualization and planning process. It also presents the legal mandates allowing or authorizing such undertaking;
2. Description of the LCA Area. Topics covered and discussed in this part are the description of the bio-physical profile existing in the area and the socio-economic profile of the sixteen (16) barangays in four (4) municipalities covered by the declared local conservation area. The environmental threats and pressures currently affecting the LCA are also discussed;
3. Situation Analysis. This section provides an assessment of the problems or issues and concerns based on the current bio-physical, social and economic profiles obtained; the state and condition of people and ecosystem and analysis of stakeholders;
4. Vision, Mission, Goals and Objectives (VMGO) statements. Given the bio-physical, social and economic problems and issues identified, this section presents the organizational directions that the management plan seeks to accomplish. The end-state of the local conservation area at the end of 10 years is clearly stated;
5. Management programs, strategies and activities. This section is the core of the plan. It discusses the programs, strategies and activities that needs to be done in order to achieve the desired Vision, Mission, Goals and Objectives; and



6. Administration and institutional arrangement. This section presents the organizational structure (provincial, municipal and barangay government units, CSOs) that will implement the management plan. It discusses the strategies and activities to be done, who will do/implement such activities, and how will the activities be done.
7. Development of the logical framework. This provides a brief summary of the vision, goals, activities, purpose indicators, output indicators and how these are verified and important assumptions.
8. Financial plan. This section provides where to access funds for the implementation of the Management Plan and a summary of the budgetary requirements for the next remaining 9 years.

## **I. Introduction**

### **1. Background and Rationale**

The significance of the Palali-Mamparang-Caraballo Mountain Range (PMCMR) for terrestrial and inland water biodiversity conservation as part of the Sierra Madre Biodiversity Corridor has been acknowledged. Its priority level for terrestrial and inland water areas of biological importance is very high. It is listed in the Philippine Biodiversity Conservation Priority Program (PBCPP, 2002) as extremely high conservation priority area for amphibians and reptiles, very high conservation and research priority area for arthropods, and very high conservation priority area for terrestrial mammals.

Cognizant of its importance, the Provincial Local Government of Nueva Vizcaya has stipulated in its Provincial Environment Code, “the declaration of the Palalai-Mamparang Mountain Range as Local Conservation Area for its protection and sustainable development”.

### **2. Plan Coverage**

The Palali-Mamparang Mountain Range is located on the eastern corridor of the province of Nueva Vizcaya, within the administrative jurisdiction of ten (10) out of the fifteen (15) municipalities. These are the municipalities of Diadi, Bagabag, Solano, Quezon, Bayombong, Bambang, Dupax del Norte, Dupax del Sur, Alfonso Castañeda and part of Sta. Fe.

### **3. Conceptualization and Planning Process**

To start the formulation of the PMMR LCA Management Plan, a multi-stakeholder Technical Working Group (TWG) was created with representations from national, provincial and municipal government agencies stationed in Nueva Vizcaya involved with environment protection and conservation. Representations to the TWG from were also taken from Barangay Councils of the seventeen (17) Barangays covered by the LCA, 18 PO leaders, representative from Philippine Rural Reconstruction Movement (PRRM), Nueva Vizcaya State University (NVSU) and FRIENDS.

Socio-economic and biophysical data were gathered through interviews, focus group discussion and dialogues. Survey and mapping of the PMMR LCA was done and analyzed. Consultation and orientation meetings were conducted at the community level to secure endorsements of the project from the community and from the Barangay Council. The endorsements were submitted to the Sangguniang Bayan of the four (4) municipalities for review and basis in endorsing the project to the Sangguniang Panlalawigan.

### **4. Legal Basis**

The formulation of the PMMR-LCA Management plan is based on relevant provisions of the following mandates:

#### **a. RA 7160, Local Government Code**

The declaration of the Palali-Mamparang Mountain Range as Local Conservation Area is consistent with the intention of Republic Act 7160, the Local Government Code, to uphold the rights and duties of the Local Government Units (LGUs) “to share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction”.

#### **b. RA 9147, Wildlife Resources Conservation and Protection Act**

The PMMR LCA is within the coverage of the Wildlife Resources Conservation and Protection Act, otherwise known as RA 9147, an act providing for the conservation and protection of wildlife resources and their habitats, appropriating funds therefore and for other purposes.

**c. DENR Memorandum Circular No. 2007-02, Guidelines on the Establishment and Management of Critical Habitat**

This memorandum defines its coverage to include: (a) Critical habitats, refer to areas outside protected areas under Republic Act No. 7586 that are known habitats of threatened species; (b) Threatened species listed in DAO 2004-15 (Establishing the List of Terrestrial Threatened Species and their Categories, and List of Other Wildlife Species pursuant to RA 9147); (c) presence of man-made pressures/threats such as but not related to logging, quarrying, mining, squatting/informal settling, and mineral exploration; and (d) Priority areas for conservation identified by the Philippine Biodiversity Conservation Priority Setting Program and other key biodiversity areas;

**d. Joint DENR-DILG MC No. 2003-01**

This memorandum provides for the operationalization and institution-alization of partnership among DENR, DILG, and LGUs on developed and other forest management functions. The DENR Regional Office No. II, through its PENRO Office, is committed to collaborate with the Province of Nueva Vizcaya and the Municipalities of Bambang, Bayombong, Kasibu and Quezon in the management of the PMMR as LCA.

**e. Nueva Vizcaya Provincial Environment Code**

The PMMR LCA is also supportive of the provisions of the approved Nueva Vizcaya Provincial Environment Code particularly Chapter II, Article 1, Section 7. A.5, which states that the PLGU shall identify and declare Local Conservation Areas (LCAs) consistent with the New Conservation Areas in the Philippines Project (NewCAPP), the PLGU is committed to conserve Biodiversity within the Palali-Mamparang Mountain Range.

**II. Description of the LCA Area:**

These are the features of the LCA as described:

**1. Bio-physical Profile**

**a. Physical Environment**

**Slope.** As watershed haven, the landscape of Nueva Vizcaya is categorically mountainous and hilly. Seventeen (17%) percent of the land area is considered steep to very steep with more than 30% slope. Others included are – steep to hilly (18-30% slope) which constitute about 45.31% of the total land area, sloping to rolling (8-18%) or 23.09% of the land area and level to undulating (0-8%) is about 14.09 percent.

**Elevation.** The elevation of PMMR-LCA is remarkably important as it provides information of the microenvironment of the area particularly the temperature that helps determine the type of crops best suited. It is often noted that some crops have specific temperature for optimum growth and productivity (Castañeto 2016).

**Soil.** Nueva Vizcaya is generally mountainous constituting 53% of its total land area. The rest are hilly 34.5% and alluvial areas constitute more or less 12.2%. Geologically, its mountains and hilly lands were developed from various igneous and sedimentary rocks composed of ultrabasic and metamorphosed volcanic rocks.

**Ecosystems.** The forest ecosystem in Palala-Mamparang Mountain is basically tropical rain forests characterized by broadleaf evergreen trees, dipterocarps, vines, tree ferns and palms. The different vegetation types identified were: dipterocarp forest (760 – 1200 masl), montane forest (1200 – 1500 masl) and mossy forest (1500 – 1705 masl).

The freshwater ecosystem within the PMMR includes the Kasibu river-Tubo river-Diduyon river that drains into the Cagayan river, and Buliwao river and Maasin river that drains into the Magat River. These rivers are rich with freshwater resources and significant for the economic development not only in the province but also in the Region specifically for the provision of irrigation water for agricultural production.

**Climatic Type/Condition.** Palali-Mamparang Local Conservation Area experiences a Type III classification of climate that prevails in most parts of the province. This type of climate is described as having no very pronounced season and relatively dry from November to April and wet during the rest of the year. Maximum rain is also not very pronounced with short dry season that usually last from one to three months.

## **b. Biodiversity of the LCA**

PMMR has the following biodiversity features:

**Species Diversity.** Among the identified avifauna of PMMR includes the Crested Serpent Eagle (*Spilornis cheela*) or locally called as Kali; Philippine Eagle Owl (*Bubo*

philippensis), Brahminy kite, Philippine falconet, Philippine scops owl, Philippine hawk owl and Peregrine falcon.

Of the birds that can be found in this area are the coppersmith barbet, malkoha, species of kingfisher, dove species, flycatchers, warblers, sunbirds, blue nape parrot, and colassisi. Tarictic hornbill (*Penelopides Panini*) has also been identified.

Other animal species identified include Philippine brown deer, Philippine warty pig, Northern Luzon giant cloud rat (*Phloeomys pallidus*) which are commonly hunted, shrew rat, common Philippine forest mouse (*Rattus sp.*), civet cat sp., musky fruit bat, Luzon shrew and arcuate horseshoe bat.

Species richness of Mt. Palali also includes six (6) species of snake, ten (10) species of lizards, one (1) turtle species and nineteen (19) species of amphibians particularly frogs.

## **2. Socio-cultural and Economic Profile**

### **a. Human Population**

The total population within the PMMR-LCA is 26,338 disaggregated into 13,783 male and 12,555 female. The total area of the 16 Barangays, which includes alienable and disposable lands is 39,437 hectares of which 24,917 hectares of forestlands declared as Local Conservation Area. The density, population to total area is 0.81 which apparently is low. However, 63.17% of the total land area are timberlands which could not be alienated since it belongs to the state and therefore no settlement should be allowed. In reality there are settlements in timberlands and with increasing population and land a finite entity, increase in population poses a problem to the ecosystems, resources and biodiversity in the area. Households in barangays covered under the LCA are mostly migrant Ifugaos, other Igorot tribes, and Bugkalots but they no longer practice their traditional way of production.

### **b. Economy**

The economy of the province is agri-based and in general the main economic activity of communities in the PMMR is agriculture. Rice and corn are the major products in large areas of alienable and disposable land and portions of forestlands. Vegetable production is the major economic activities in the uplands with ginger, tomato, squash, cabbage, and eggplant as the major vegetable crops. Other vegetable crops are sweet potatoes,

cucumber, seating beans, native and Chinese pechay, ampalaya, okra, gourd, string beans, bell pepper, and carrots.

### **3. Environmental Threats and Pressures**

Community leaders and members of the Technical Working Group (TWG) identified the following major environmental threats:

#### **a. Forest/grass Fire**

Grass/forest fire ranks number one threat to 3 municipalities namely: Bambang, Bayombong and Quezon. For the municipality of Kasibu, result shows that there is less occurrence of forest/grass fire.

#### **b. Kaingin and Conventional Farming Technology**

Among the pressures and threats to biodiversity in the declared LCA as identified by the community is kaingin. Kaingin per se, is not a threat but it is the unabated conversion of natural forest into farms using conventional farming technology that is a threat to biodiversity. Expansion of clearings into the natural forests could lead to further loss of forest cover resulting into soil erosion, landslides or even flashfloods.

#### **c. Firewood Gathering**

A lot of households still use firewood for cooking. This is an added threat to the LCA area since firewood gatherers are not selective. Dipterocarps and other native tree species are cut for this purpose.

#### **d. Charcoal-making**

Charcoal-making was rampant in the municipalities of Bayombong and Quezon in previous years but due to the concerted efforts of the DENR, PNP and LGUs in the implementation of laws, policies and ordinances, its extent has drastically diminished. Charcoal-making is not a common problem in the municipality of Kasibu but is common in the municipality of Bambang.

#### **e. Timber Poaching**

Cutting of planted trees for house construction and other domestic needs is allowed for humanitarian purposes. However, this practice is being abused. Cutting permit for planted trees are used as license to cut dipterocarp and native tree species. Certification of tree ownership issued by Barangay Captains is misinterpreted as permit to cut by some Barangay residents.

#### **f. Gathering of Non-timber Forest Products**

Unsustainable gathering of non-timber forest products (NTFP) such as rattan, wild orchids, cogon, and bamboo by local residents as source of additional income persists. These are usually use as raw materials for instance, soft-broom making.

#### **g. Use of Herbicides and Pesticides**

The use of herbicides and pesticides is a threat within the production zone of the PMMR. It is considered a main problem in the municipalities of Bambang and Kasibu but not in Bayombong and Quezon. The use of herbicides and pesticides makes the soil loose making it prone to soil erosion and landslide.

#### **h. Wildlife Hunting**

Still considered a threat to biodiversity is wildlife hunting at a reduced level that maybe due to decreased population of wildlife such as deer, wild pig, and wild chicken. Hunting of birds is still common.

#### **i. Mining**

The large-scale mining operations in nearby Barangay of Didipio and existing small-scale mining operations pose threats to the integrity of the watersheds and may cause loss of biodiversity not only within the PMMR, but within the Sierra Madre Biodiversity Corridor.

### **III. Situation Analysis**

Based on the foregoing bio-physical, social and economic profile together with the identified environmental threats and pressures, the following analyses emerged:

#### **1. PMMR Livelihood Development Situational Analysis and Key Management Issues**

Despite the positive improvements brought about by livelihood projects within the PMMR covered communities from various external (LGUs, CSOs, other groups and associations) organizations, several setbacks are also experienced specifically in terms of technology adoption and project sustainability. These are:

- Communities prefer to practice conventional farming as it is more convenient to them as compared to organic farming which requires high start-up capital and labor;
- Lack of resources for technology transfer of skills and knowledge acquired by project beneficiaries to other farmers is also another aspect which contributes to failure of a livelihood project after funding support ceased.
- Marketing support is a major factor which determines whether a livelihood project will succeed or not. This is one aspect which is often lacking in several projects introduced within the PMMR covered communities;

In order to protect, maximize and advance the gains achieved by several livelihood projects within PMMR, it is important that this management plan integrate strengthened marketing support to existing livelihood within PMMR communities with environment protection as added value.

## **2. Identification of Major Issues Related to People and Ecosystems that Require Attention**

One of the major issues within the LCA is the rapid increase of population in the area due to natural birth and migration. This has a domino effect in terms of ecosystem health and availability of natural resources. Increase population results to opening of settlement areas within the forest and conversion of natural forests/areas into agricultural production areas.

Adoption of proper technology in agricultural production areas on soil and water conservation, revival of good and/or cultural practices of Indigenous People's on kaingin practice should also be encouraged. As far as practicable no new settlement should be allowed in natural forests/areas.

## **3. Stakeholders Analysis**

Communities within the LCA as on-site stakeholders with off-site stakeholders such as government organizations, CSOs and other externals groups and association have direct, collaborative and supportive roles in protecting and conserving the Palali-Mamparang Mountain Range area.



## **IV. Vision, Mission, Goals and Objectives**

Based on the situation assessment, the TWG formulated the Vision, Mission, Goals and Objectives of the PMMR-LCA for the next ten (10) years. These are stated below:

### **1. Vision**

A life sustaining paradise where human and biodiversity are in co-existence enjoying a balanced and healthy ecosystem.

### **2. Mission**

Promotion of effective and efficient management of PMMR-LCA as a biodiversity conservation area, research and ecotourism hub through active participation of stakeholders.

### **3. Goals**

**Long term goal:** Sustainable, effective and efficient management of the PMMR-LCA of the Central Sierra Madre Mountain Range for biodiversity conservation and provision of ecosystem services through a well-defined PMMR Management Plan.

**Goal 1:**

Restored and enriched forests of PMMR-LCA support biodiversity and enhanced ecosystem services;

**Goal 2:**

Established enabling mechanisms for the effective and efficient management for PMMR-Local Conservation Area in placed;

**Goal 3:**

Reduced dependence of communities on forests resources through the provision of small to medium enterprise (SME) attained.

### **4. Objectives**

#### **A. Biodiversity Conservation and Physical Development**

1. To conserve, protect and develop natural resources within the conservation area for sustainable ecosystem services and improve habitat for wildlife.
2. To strictly implement local and national policies/laws and protect natural forest from encroachment and other unlawful services by 2018 through 2028.
3. To strengthen Bantay Kalikasan teams by 2018.
4. To conserve and protect flora and fauna within the conservation area by 2018 through 2028.
5. To augment 4,000 hectares of natural forests by 2028 through ANR.
6. To rehabilitate and conserve at least 4,000 hectares of grasslands and brushlands by 2018 through 2028.
7. To declare and rehabilitate buffer zones of creeks and rivers by 2018 through 2028

## **B. Institutionalization Development**

1. To institutionalize and strengthen collaborative partnership among various sectors for the effective and efficient management of the conservation area by 2019.
2. To conduct regular meeting of the PMMR LCA Management Council by 2018 through 2028.
3. To create/institutionalize MENR Office with municipalities covered by the conservation area and appropriate funds for its operation by 2018 through 2028.
4. To orient, capacitate and strengthen MENRO and staff for the implementation of LCA concerns by 2018.
5. To allocate annually 5 % from the 20% development fund.
6. To legislate policies/local ordinances supporting PMMR LCA Management Plan implementation.

## **C. Socio-Economic Development**

1. To strictly implement adoption of agroforestry within buffer zones by 2020.
2. To develop 7,000 hectares of existing agriculture/cultivated areas within 30% to 50% slope into diversified organic integrated farms for provision of economic goods by 2018 through 2028.
3. To establish communal and/or household woodlots or tree plantation by 2018 through 2028.
4. To conduct information drive for upland communities to improve knowledge on LCA management by 2018 through 2020.
5. To strengthen and capacitate POs to improve LCA management by 2019.
6. To provide sustainable small or medium enterprise to reduce dependence on natural resources by 2028.
7. To facilitate networking and linkaging for marketing. access of financial and technical assistance for the implementation of PMMR LCA Management Plan by 2018 through 2028.

## **V. Management Programs, Strategies, Interventions and Activities**

Towards the achievement of identified objectives, the PMMR LCA Management Plan will be implemented through three (3) major program components. These are:

1. Physical Development & Bio-Conservation Program;
2. Program for Development of Enabling Mechanism for PMMR-LCA Management; and
3. Socio-economic Development Program.

The identified major strategies to be undertaken include the following:

- 1. Resource Management & Restoration of Habitat for Wildlife:** Activities include: Identification, survey and mapping of areas for restoration; Restoration and enrichment activities within natural forest; Establishment of buffer zones within PMMR LCA; Restoration activities in production forest; Establishment of communal woodlots and/or individual on-farm tree plantation in each Barangay; Expand LCA in other municipalities; Resource inventory and monitoring;

2. **Multi-sectoral and Community-based Law Enforcement & Protection:** Organization and deputation of Bantay Kalikasan; Habitat protection and threats monitoring;
3. **Enterprise Development to Reduce Threat to Habitat and Natural Resources:** One enterprise that is being recommended is *Diversified integrated organic farming system (DIOFS)*. The DIOFS model has eight (8) components, namely: fruits or orchard, livestock/poultry, bio-intensive gardening/vegetable production, rice production, fish/aquaculture and plantation forest in **production zones** in partnership with local residents.
4. **Promotion and Development of Eco-tourism:** Identification of feasible ecotourism destination for enterprise development shall be explored. Among these are the Edralin falls in Barangay Antutot, Kasibu, Mapalyao-Lamlam-miis-Mangilokos falls in Barangay Buliwao, Quezon, the famous Capisaan Cave in Barangay Capisaan, Kasibu; Ammococan falls and Señora falls in Barangay Banging, Bayombong, Villa Luz falls in Barangay Abian, Bambang. Agri-tourism sites could also be developed in Kasibu and Quezon.
5. **Payment for Environmental Services:** Payment for environment services (PES), a new conservation paradigm shall be adopted as a scheme to increase income of communities protecting and developing the forests and/or natural resources. A comprehensive research on the various ecosystems within the PMMR and the services they provide shall be conducted to determine how best to implement this.
6. **Gender Responsive Community-based Livelihood Development:** Women who belong to these tribes play a key role in the economic livelihood of their families. It is in this context that women are expected to play a vital role in planning, decision-making, implementation and monitoring and evaluation of the project's plans and programs of the PMMR-LCA.
7. **Water Rights Application by BLGUs and POs:** Water, being a basic fabric for the existence of communities, shall be protected through water rights application by BLGUs and POs in order to ensure that local communities shall be accorded utmost priority in its utilization. By having applied water rights to water bodies, communities shall also be protected from the interests of big companies now and in the future.

- 8. Climate Change Mitigation and Adaptation:** The overall management of the PMMR as Local Conservation Area contributes to climate change mitigation and adaptation. Some activities that will be implemented include:

*Afforestation.* There are areas within the PMMR that were used in the past as pasturelands and are now left undeveloped. Afforestation shall be established in these areas to contribute to carbon stock enhancement in addition to reforestation activities as already discussed.

*Integrated fire management.* Formulation of an integrated fire management to be able to prevent and/or totally stop the occurrence of forest fire.

*Maintenance of forest biodiversity.* Initial findings on biodiversity indicate that there are wildlife species that have been totally lost such as, kalaw, deer which are indications of degraded habitats. Habitat of wildlife should be restored through rainforestation to maintain if not restore forest biodiversity.

*Maintenance of forest health and vitality to reduce vulnerability.* Maintenance of forest health through rainforestation, Assisted Natural Regeneration, forest protection, prevention of forest fires are activities necessary to reduce vulnerability of the LCA.

- 9. Sustainable Financing and Other Potential Revenue Sources:** An annual allocation of six million pesos (PhP 6,000,000.00) is provided for in the Provincial Ordinance No. 2017-139. This ensures the institutionalization of the PMMR Management Council for its operations. The program for the development and protection of the Sierra Madre's Palali-Mamparang Mountain is part of the Provincial Development and Physical Framework Plan (PDPFP).
- 10. Research and Development:** R & D shall be anchored on the objectives of the LCA and aligned with the thrusts of relevant, national, regional and local R & D goals. With limited funding, proponents of research can submit their proposals to external funding agencies. Research outputs must be translated to technologies that shall be beneficial to local communities. The PMMR-LCA Management Council shall encourage collaborative efforts with proponents with the members of the R & D committee taking the lead in this particular undertakings.
- 11. Capability Building and Empowerment of Communities, POs, LGUs:** Capacity building for members of the four committees is significant to ensure effective and

efficient plan implementation. To this end, training needs assessment and orientation for members of the various committee shall be conducted by 2018. TNA shall be conducted to identify gap in the skills necessary and needed by members of the committee in performing their assigned task. Training plan shall be formulated to respond to their needs.

**12. Policy Development:** Implementing laws and ordinances to respond to the needs of stakeholders within the LCA. Suggested legislation may include the following among others:

- Legislation on: Forest protection; Soil and water conservation; Adoption of Diversified Organic Integrated Farming System; Protection of flora and fauna, including their habitats; Land use; Wood harvesting for fuelwood, lumber for house construction and other construction material needs.
- Local ordinance to support ecotourism implementation and management.
- Policy on utilization of revenue from ecotourism sites and payment for environmental services.

**13. Effective Management of Tenured Areas and Recognition of Property Rights:** Provision of security of land tenure and access rights to resources. The IPR-A and FMA, is a motivating factor for people's participation in project implementation. The purpose of issuing individual property rights is to realize effective management of forestlands at the household level. Recognition of Individual Property Rights (IPR) is vital in the protection, rehabilitation and development of LCA. The IPR acts as a motivation to land claimants to invest in production and development since uncertainty over their land claims is eliminated.

**14. Networking:** Leveraging investments from potential donors and investors is an important mechanism that shall be adopted to augment limited funds for PMMR-LCA management. Large tract of grassland and brushland are probable production areas for cacao, coffee, orchards and other industrial products that could be made available to private investors in the municipality. Irrigator's association and furniture-makers association shall be encouraged to augment funds for watershed rehabilitation.

**15. Community Education and Public Awareness:** Community education and public awareness (CEPA) campaign is necessary to change the values of communities through the production of various campaign materials that includes: flyers that indicates the plan for the management of the PMMR, reading materials that

emphasizes biodiversity conservation and forest protection, mobile IEC materials (t-shirts) to reach a wider audience on biodiversity conservation and forest management and the billboards that serves as a reminder of the value of the PMMR and the resources therein among others.

**16. Provision of Infrastructure Support:** Infrastructure support aims to provide economic development to communities in the upland and protection and conservation of natural forest in the production zone only, not within protection zone. The provision of infrastructure could increase income from the use of areas devoted to upland agriculture and tree plantation. Improvement and creation of farm to market road is a key factor that could spell economic growth from production, revenue and opportunities to farmers and traders.

**17. Monitoring and Evaluation:** Monitoring shall be done on a quarterly basis to track progress of project implementation against time and resources and make the necessary adjustments in cases of failure of implementation. Evaluation shall be done annually to determine learnings from project implementation. Generally M & E will look into the target versus accomplishment on quantity, quality and timeliness of activities conducted.

## **VI. Administration and Institutional Arrangements**

### **1. Administration**

Provincial Ordinance No. 2017-139 provides for the creation of the Palali-Mamparang Mountain Range Management Council (PMMRMC) tasked to oversee the implementation of the Palali-Mamparang Mountain Range Management Plan (PMMRMP). It is a multi-sectoral body that is the highest policy-making body and supervisory body in the overall management of the PMMR-LCA. It shall serve as the venue for democratic decision-making process to ensure transparent, accountable and participatory management.

### **2. Composition of the PMMR Management Council**

The Council is composed of representations stipulated in the Provincial Ordinance 2017-139, chaired by the Governor and co-chaired by the DENR-PENRO.

### **3. Operationalization of the TWG**

The main task of the duly constituted Technical Working Group is policy formulation, implementation and review. Regular review of currently implemented policies and regulations is important on a responsive assessment of developed monitoring and evaluation schemes. On stated regular meetings of the Council reporting shall be encompassing to keep all involved well informed.

#### **4. Creation of PMMRC Committee**

The creation of committees is deemed necessary to facilitate the various activities of the PMMR LCA. Committee plans and reports shall be submitted to the PMMRC for monitoring and evaluation. These committees are as follows: Critical Habitat Protection and Development Committee; Livelihood and Enterprise Development Committee; IEC/CEPA Committee; and Monitoring and Evaluation Committee shall:

#### **5. Financial Plan**

Funds to finance the overall management and development of the PMMR-LCA is enormous and shall be access from both internal and external sources. In addition to the PhP 6,000,000.00 annual allocation as per Provincial Ordinance 2017-138, additional fund shall come from the 5% of the 20% development fund of the PLGU, the MLGU and the BLGU. External funding shall be access through project proposal development submitted to funding agencies. The Provincial Tourism and the Provincial Agriculture are also expected to provide funds for activities stipulated in the Management Plan, as member of the PMMR-LCA Management Council. Adopt a mountain scheme, payment for environmental services are possible sources of funds.

Total budgetary requirement for the remaining 9 years, (activities have commenced in 2017) is PhP 93,540,285.00. Physical Development and Biodiversity Conservation Program has the highest cost with PhP 49, 253,425.00, followed by Socio-Economic Development Program, PhP 31,890,810.00, and Institutional Strengthening and Capacity Building with PhP 12,396,050.00.



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