

REGIONAL ACTION PLAN FOR IMPLEMENTING THE PHILIPPINE MASTER PLAN FOR CLIMATE RESILIENT FORESTRY DEVELOPMENT

Region 5, Bicol Region

I. Background and Rationale

The first Philippine forestry master plan which was formulated in 1990 was revised in 2003 in view of new developments in the forestry and environment sectors both at the local and international scenes. Ten years after its implementation, the Forest Management Bureau (FMB) again decided to update the 2003 revised master plan for forestry development (RMPFD), to take into consideration the potential impacts of climate change to the forestry sector. The revision was in consonance with the Climate Change Act of 2009 requiring that all government programs and policies should consider the impacts of climate change. Hence, a Philippine master plan for climate resilient forestry development (PMPCRFD) was formulated where three strategic programs were identified for implementation to ensure that the forestry sector can respond to the adverse impacts of climate change and address varying demands for forest ecosystems goods and services from multiple clients. The three major programs include the following:

1. Program on strengthening resilience of forest ecosystems and communities to climate change;
2. Program responding to demands for forest ecosystem goods and services; and
3. Program promoting responsive governance in the forestry sector.

This plan outlines DENR Bicol region's action plan to support implementation of the PMPCRFD for CY 2016-2028.

II. Regional Profile

The Bicol region is located in the southernmost tip of Luzon Island (figure 1). It is bounded by Lamon Bay to the north, Pacific Ocean to the east, and Sibuyan Sea and Ragay Gulf to the west. The northernmost province, Camarines Norte, is bordered to the north by the province of Quezon, thereby connecting the region to the rest of Luzon.

2.1 Physical features

Bicol region is generally mountainous and hilly with some stretches of plains from Camarines Sur to Albay called the Bicol River Basin. The region's coastal areas are characterized by



the presence of numerous bays and gulfs. These are the Ragay Gulf, San Miguel Bay and Lagonoy Gulf outlining the coasts of Camarines Norte and Camarines Sur; Albay Gulf and Sorsogon Bay in Albay and Sorsogon; Alimand Ilog and Nin Bays in Masbate.

Prominent elevations mark the region's landmass foremost of which is the famous Mayon Volcano with an elevation of 2,462 meters above sea level. Other volcanoes and mountains dominating the countryside are Mt. Malinao (1,548 meters), Mt. Masaraga (337 meters) and Mt. Catburawan (473 meters) in Albay; Mt. Isarog (1,966 meters) and Mt. Iriga (1,143 meters) in Camarines Sur and Bulusan Volcano (1,560 meters) in Sorsogon (<http://bicol.da.gov.ph>).

The prevailing types of climate in region 5 are the second and fourth types. The second type is characterized by a very pronounced maximum rainfall (November-January) and no dry season. Catanduanes, Sorsogon, Eastern Albay and Eastern and Northern Camarines Sur and Camarines Norte exhibit this weather type. The fourth type is characterized by evenly distributed rainfall throughout the year. Places under this type include the western part extending from Camarines Sur to the south western tip of Sorsogon. The region receives an average rainfall of 3,013 millimeters and mean annual temperature of 27.2 degrees Celcius.

2.2 Socio-Economic Profile

The Bicol Region is composed of six (6) provinces: Albay, Camarines Norte, Camarines Sur, Sorsogon, and the island-provinces of Catanduanes and Masbate. It has one (1) independent component city - Naga City, and six (6) component cities: Iriga, Legazpi, Tabaco, Ligao, Masbate City, and Sorsogon City.

Based on the 2015 national census region 5 has a total population of 5,796,989. Its average annual population growth rate from 2000 to 2015 is about 1.40%. Camarines Sur is the most populated province and together with Masbate has the highest annual population growth rate in the region (Table 1).

Table 1. Population and Annual Population Growth Rates of Bicol Region

Provinces	Population			Annual Pop. Growth Rate		
	May 2000	May 2010	Aug. 2015	2000-2010	2010-2015	2000-2015
REGION V (BICOL REGION)	4,686,669	5,420,411	5,796,989	1.46	1.29	1.40
ALBAY	1,090,907	1,233,432	1,314,826	1.23	1.22	1.23
CAMARINES NORTE	470,654	542,915	583,313	1.44	1.38	1.42
CAMARINES SUR	1,551,549	1,822,371	1,952,544	1.62	1.32	1.52
CATANDUANES	215,356	246,300	260,964	1.35	1.11	1.27
MASBATE	707,668	834,650	892,393	1.66	1.28	1.53
SORSOGON	650,535	740,743	792,949	1.31	1.30	1.31

Source: PSA, CY 2000, 2010, 2015

Agriculture is the largest component of the region's economy, followed by commercial fishing. Coconuts, abaca, banana, coffee and jackfruit are the top five permanent crops in the region. Rice and corn are among the chief seasonal crops. The Philippine Statistics

Authority (PSA) forecasted the 2016 annual rice production of Bicol Region to be at 877,122.43 MT, making the Bicol region the 4th largest producer of palay in the Philippines. Mining is also one of the contributors to the region's economy.

2.3 Resources

Region 5 has varied resources that include land, forests and biodiversity resources, water, minerals and ecotourism areas, among others.

Land Resources

Region 5 has a total land area of 1,763,249 hectares. Of this, 31 % or 541,189 hectares are classified as forestlands while 69% or 1,222,060 hectares are alienable and disposable lands (table 2). Most of the forestlands are situated in the provinces of Camarines Sur and Masbate.

Table 2. Land Classification in Region 5

Land Classification	Area (ha)	%
Forestlands	541,189	31%
Classified Forestlands	511,316	29%
Established Timberlands	412,996	23%
Forest Reserves, National Park/ Prot. Areas & Other Reservations	98,320	6%
Unclassified forestlands	29,873	2%
Alienable and disposable lands	1,222,060	69%
Total	1,763,249	100%

Source: Philippine Forestry Statistics, CY 2014

Forests Resources

About 12% (208,015 hectares) of the region's land area are still forested consisting of open forest (11.2%), closed forest (4.3%), and mangrove forests (1.2%). Most of the forests are located in Camarines Sur (61,346 ha.) followed by the provinces of Catanduanes (45,007 ha) and Albay (42,099 ha.). Masbate has the least forest, covering only an estimated area of 6,778 hectares. Table 3 summarizes the land cover per province in region 5 for CY 2010.

Table 3. Land Cover of Region 5, CY 2010

Province	Land Area	Total Forest	Close Forest	Open Forest	Mangrove Forest	% of Region's Forest	% of Prov. Forested	% of total Forest Closed
Region 5	1,763,249	208,015	39,646	143,416	24,953	100.0%	11.8%	19%
Albay	255,257	42,099	11,196	29,831	1,072	20.2%	16.5%	27%
Camarines Norte	211,249	28,104	9,466	15,079	3,559	13.5%	13.3%	34%
Camarines Sur	526,682	61,346	8,221	45,861	7,264	29.5%	11.6%	13%

Province	Land Area	Total Forest	Close Forest	Open Forest	Mangrove Forest	% of Region's Forest	% of Prov. Forested	% of total Forest Closed
Catanduanes	151,148	45,007	10,763	32,249	1,995	21.6%	29.8%	24%
Masbate	404,769	6,778	0	140	6,638	3.3%	1.7%	0%
Sorsogon	214,144	24,681	0	20,256	4,425	11.9%	11.5%	0%
% of Region		12%	2%	8%	1%			

Source: Phil Forestry Statistics, CY 2014

In general, there was an increase in the forest cover of region 5. From about 156,476 hectares in 2003 its total forest (close, open and mangrove forests) has increased to 208,015 hectares in 2010. This means that around 51,539 hectares of forests were added in region 5 in a span of 7 years or an annual increase of 7,362 hectares. While there was an overall increase in forest cover, Camarines Sur lost close to 70% of its close forest which were mostly converted to open forest. Thus, in terms of biodiversity loss, the province of Camarines Sur is most critical in Bicol region. In contrast, the provinces of Albay and Catanduanes registered an increase in forest cover for all types of forests. The forest cover change in region 5 is summarized in table 4.

Table 4. Forest Cover Change in Region 5 (CY 2003-CY 2010)

Provinces	Close Forest			Open Forest			Mangrove Forest			Net Change
	2010	2003	Change	2010	2003	Change	2010	2003	Change	
Albay	11,196	2922	8,274	29,831	12222	17,609	1,072	683	389	26,272
Camarines Norte	9,466	10813	(1,347)	15,079	5736	9,343	3,559	5458	-1,899	6,097
Camarines Sur	8,221	25494	(17,273)	45,861	29353	16,508	7,264	2340	4,924	4,159
Catanduanes	10,763	10381	382	32,249	31507	742	1,995	252	1,743	2,867
Masbate	0	0	-	140	0	140	6,638	2860	3,778	3,918
Sorsogon	0	1008	(1,008)	20,256	13541	6,715	4,425	1906	2,519	8,226
Total	39,646	50,618	(10,972)	143,416	92,359	51,057	24,953	13,499	11,454	51,539

* Include plantations

Source: Philippine Forestry Statistics, CY 2004 and CY 2014.

Water resources

Region 5 is drained by many river systems that are used for power generation, irrigation and domestic/ industrial purposes. It has 14 watershed forest reserves covering approximately 98,756 hectares (table 5). Many of its watersheds support national irrigation systems as indicated in annex 1.

Table 5. List of Watershed Forest Reserves in Region 5

Name of Reserve	Location	Area (ha)	Proc. No.
Bacon Manito Watershed Geothermal Reservation	Albay and Sorsogon	25,000	2036-A amended by E.O. 837
Buhi-Barit Watershed Reservation	Buhi, Sangay and Iriga, Camarines Sur	18,370	573
Capalonga Watershed Forest Reserve	Calaponga, Cam. Norte	752	128
Dahican Watershed Forest Reserve	Mambulao, Camarines Norte	44	592

Diwata Watershed Forest Reserve	San Fernando, Masbate	350	370
Jose Panganiban Watershed Forest Reserve	Jose Panganiban, Camarines Sur	1160	1151
Abasig-Matognon-Mananap Watershed Forest Reserve	Labo, San Vicente, San Lorenzo Ruiz, Cam. Norte	5545	836
Lagonoy Watershed Forest Reserve	Lagonoy, Camarines Sur	470	500
Catanduanes Watershed Forest Reserve	Catanduanes	26010	123
Magallanes and Juban Watershed Forest Reserve	Magallanes & Juban, Sorsogon	1032	108
Matang-Tubig Watershed Forest Reserve	Monreal, Masbate	1,305	368
Mt. Masaraga Watershed Forest Reserve	Polangui, Oas, Ligao, Tabaco, Albay	810	84
Tugbo Watershed Forest Reserve	Mobo, Masbate	247	369
Tiwi Watershed Reservation	Malinao & Tiwi, Albay	17,661	739
Total		98,756	

Source: Philippine Forestry Statistics, CY 2014

Biodiversity Resources

A comprehensive inventory of biodiversity resources has not been undertaken in the Bicol Region. However, it is home to both the world's largest and smallest fishes. Donsol, a fishing town in Sorsogon province, serves as a sanctuary to whale sharks (*Rhincodon typus*), which are considered as the largest fish in the world. Locally known as "butanding", whale sharks visit the waters of Donsol from November to May. They travel across the oceans but nowhere else have they been sighted in a larger group than in the waters of Sorsogon. They measure between 18 to 40 feet in length and weigh about 20 tons.

The world's smallest commercial fish, sinarapan (*Mistichthys luzonensis*), can be found only in Lakes Bato and Buhi in Camarines Sur province. Sinarapan is a goby which grows to an average length of 1.25 centimeters, just slightly longer than the dwarf goby. Today, unabated fishing in the two lakes threatens the population of sinarapan.

The following sites in the region have been declared by law as protected areas and components of the National Integrated Protected Areas System (NIPAS): the Malabungot Protected Landscape and Seascape (Garchitorena, Camarines Sur), Chico Island Wildlife Sanctuary (Cawayan, Masbate), Naro Island Wildlife Sanctuary (Cawayan, Masbate), Lagonoy Natural Biotic Area (Lagonoy, Camarines Sur), Abasig-Matogdon-Mananap Natural Biotic Area (Camarines Norte), Bongsalay Natural Park (Batuan, Masbate), Mayon Volcano Natural Park (Albay), Bicol Natural Park (Camarines Norte and Camarines Sur), Bulusan Volcano Natural Park (Sorsogon), and Mt. Isarog Natural Park (Camarines Sur). These areas are habitat to important flora and fauna some of which are endemic to the Bicol Region. For instance, the Isarog shrew-mouse, which inhabits in Mt. Isarog, Camarines Sur is endemic to the region.

Ecotourism Areas

The region's tourism industry has been revived by the popularity of Mayon Volcano, the new CamSur Water Sports Complex, whale shark spotting, among others, which consequently increased the number of upscale resorts. Some of the beaches in Bicol, such as those in Caramoan island, have also gained prominence for local and foreign tourists.

Other tourist destinations in the region include the colonial churches in Naga City and pilgrimages to Our Lady of Peñafrancia. The municipality of Daet and Catanduanes province have long been destinations for surfers. The opening of the Southern Luzon International Airport in Legazpi City, which is under construction, is hoped to further boost tourism in the region (https://en.wikipedia.org/wiki/Bicol_Region).

2.4 Vulnerability to Climate Change Hazards.

Climate projections by PAGASA (2011) indicate that there will be increasing temperature in 2050. In terms of rainfall, rainy season will have more rainfall while dry season will become drier. For region 5, the estimated increase in temperature will range from 1.6°C to 2.4°C, with higher temperature increase during the months of March to May. Meanwhile, decrease in rainfall is estimated to range from -7.4% to -25.2%. These reduction in rainfall is expected from March to May, while up to 42.9% increase in rainfall is expected during the rainy months of June, July and August. (table 6 and 7).

Table 6. Seasonal temperature increases in 2050 under medium-range emission scenario, Region 5

Provinces	Observed Baseline in °C (1971-2000)				Change in 2050 in °C (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Albay	25.6	27.2	27.8	27.1	1.8	2.2	1.9	1.8
Camarines Norte	25.7	27.6	28.3	27.3	1.8	2.2	2.1	1.8
Camarines Sur	25.6	27.5	28.1	27.1	1.8	2.2	2.0	1.8
Catanduanes	24.7	26.3	27.2	26.4	1.6	2.0	1.9	1.7
Masbate	26.6	28.4	28.6	28.0	1.8	2.4	2.1	1.8
Sorsogon	25.9	27.4	27.9	27.3	1.6	2.1	1.8	1.5

Source: PAGASA, 2011

Table 7. Seasonal rainfall change (in %) in 2050 under medium-range emission scenario in Region 5

Provinces	Observed Baseline (1971-2000)				Change in 2050 (2036-2065)			
	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
Albay	739.8	386.9	705.8	941.3	5.7	-18.2	25.3	10.3
Camarines Norte	1029.6	398.5	565.6	1285.7	5.6	-31	8.9	1.5
Camarines Sur	666.8	347.4	639.6	1029.4	4.1	-25.2	16.5	1.9
Catanduanes	1075.4	512.7	646.3	1199.5	13.5	-18.7	24.4	8.2
Masbate	510.2	250.7	569.4	739.3	11.1	-7.4	42.9	27.9
Sorsogon	958.1	427.9	660.4	973.6	7.4	-11.4	27.3	16.2

Source: PAGASA (2011)

With more rains during the rainy season, floods, soil erosion and landslide may be aggravated endangering lives and properties of communities especially in Masbate, Sorsogon and Albay. On the other hand, with less rains during the dry season, water availability for irrigation, power generation and domestic use will be adversely affected. The region is already categorized as a water stressed region and this condition is expected to worsen with climate change. The projected increase in temperature may also lead to

increased incidence of forest fires and destroy the limited forests of the region. Other hazards to which the region is vulnerable is summarized in table 8.

Table 8. Provincial Vulnerability to Climate Related Hazards & Poverty Incidence in Region 5

Region/ Province	Vulnerability					2012 Poverty Index Poverty Incidence among families (%)
	Typhoons	Earthquake	Tsunamis	Water stress	Combined Climate Risks	
Region 5						34.1
Albay	Very high	Low	High	High	Very High	36.1
Camarines Norte	High	Low	Medium	High	High	24.7
Camarines Sur	High	Low	Medium	High	High	33.5
Catanduanes	High	Medium	Low	High	Medium	27.1
Masbate	High	Low	High	High	Very High	44.2
Sorsogon	Very high	Medium	Low	High	Very High	32.1

Source: NSCB website: <http://www.nscb.gov.ph>

III. Development Challenges in the Forestry Sector of Region 5

The challenges faced by the forestry sector in region 5 is summarized in the succeeding discussions

1. There is a need to continue the protection of existing forests and rehabilitate degraded forestlands in region 5. While the general trend is that forest cover is increasing in region 5, this trend must be sustained and if possible expand further forest plantation/ orchard development in A & D lands to further enhance ecosystems services to local communities.
2. Protection and rehabilitation of watersheds to ensure adequate supply of water for irrigation, domestic use and power generation. Most of the lands in key watersheds of region 5 (such as the Bicol River Basin) are classified as A&D lands and as such are mostly used for agriculture and other non forest uses. The ability of the region to continuously supply irrigation and domestic water as well as hydro electric energy may be compromised if land uses within the watersheds are not harmonized. There may be a need to encourage private land owners in some A & D lands to adopt agroforestry by integrating fruit/ forest trees in their farming systems so that agricultural use complements watershed conservation. This may require some form of subsidy to land owners to motivate them to shift to watershed friendly land uses
3. Loss of Biodiversity is a critical problem that is going on unnoticed. A closer examination of the forest cover loss data in region 5 would show that large areas of close forests (17,273 hectares) had been destroyed in Camarines Sur in a span of 7 years from 2003 to 2010. Since close forests are known to contain rich biodiversity resources, large scale destruction of this type of forest imply loss of habitat of important biodiversity species. Aside from Camarines Sur, Camarines Norte and Sorsogon also lost significant areas of close forests.
4. Reducing the impacts of climate change hazards should be given priority attention. Region 5 is highly vulnerable to climate and geological related hazards such as typhoons,

floods, landslides, storm surge, earthquakes, and volcanic eruptions. The increased frequency and intensity of these hazards, aggravated by changes in climatic conditions, will continue to endanger the lives and properties of communities. Most LGUs and majority of the population are not prepared for hazards and communities are not organized for disaster risk reduction. The experiences of the province of Albay in disaster risk management must be scaled up to other LGUs.

6. Collaborative management is necessary to address the overlapping mandates of different agencies in the management of forests and forestlands. However, to be effective, the capabilities of members of the collaborative management bodies must be upgraded. Most LGUs for instance, lack technical capability and financial resources to manage and implement devolved forestry programs. They also lack the capability to enforce forestry laws and regulations and mobilize communities in forest protection activities. Most of them do not have approved forest land use plans which can complement their comprehensive land use plans and local development plans.

IV. Regional Comparative Advantages and Competitive Goods and Services: Opportunities for Forestry Development

While lots of challenges exist in the forestry sector, the region has inherent comparative advantages and competitive goods and services which can be strengthened to maximize the forestry sector's contribution to regional development. The comparative advantages of region 5 include the following:

1. It has vast areas of agricultural lands in Camarines Sur suited for the production of rice, pineapple and other crops;
2. Presence of watershed reservations that provide water for dams and other reservoirs for irrigation, power generation and for domestic use;
3. Extensive areas of forests, lakes, rivers, biodiversity resources, beaches and presence of dugong that are potential for ecotourism;
4. Existing pasture areas in Masbate that can be developed further for grazing purposes to satisfy local demand for meat;
5. Existing plantations of fuelwood and pili trees that provide livelihood to local population and which have potential for agroforestry farms;
6. Habitat for sinarapan which support both fisheries and ecotourism;
7. Established markets for various products such as pili, rice, pineapple and cattle fuelwood and other non-timber products;
8. Presence of mangroves and coastal resources that support fisheries
9. Relatively high rainfall in most provinces

The following are the region's competitive goods and services which can be supported through its regional action plan for PMPCRFD implementation, to maximize the forestry sector's contribution to regional and national development.

1. Ecotourism
2. Power generation
3. Pili products;
4. Formosa Pineapple, considered the sweetest pineapple

5. Water production for domestic use and to support rice production;
6. Fuelwood products
7. Cattle raising
8. Fisheries products such as the sinarapan in Camarines Sur

The matrix of comparative advantages and competitive goods and services of region 5 as identified by DENR region 5 is attached as annex 2.

V. Regional Action Plan for Implementing the Philippine Master Plan for Climate Resilient Forestry Development

The regional action plan for implementing the PMPCRFD addresses the forestry challenges and maximizes the opportunities provided by the comparative advantages and competitive goods and services of the region. It focuses on ensuring the health and resiliency of forest ecosystems and communities to climate change hazards so that forest resources can sustainably provide and meet the increasing demands for forest ecosystems goods and services. Equally important is the institutionalization of climate responsive governance where various stakeholders collaborate and participate in making decisions in the management of forest resources and ecosystems.

5.1 The Forestry Sector Vision

The region adopts the vision of the Philippine master plan for climate resilient forestry development as follows:

*Climate resilient and sustainably managed watersheds and forest ecosystems,
providing environmental and economic benefits to society*

To achieve the vision and address the challenges in the forestry sector, the region has adopted the following goals of the PMPCRFD:

1. To place all forestlands under sustainable management in order to meet demands for forest goods and services and to promote resilience to climate change;
2. To strengthen resilience of forest dependent communities to climate change hazard;
3. To place all forestlands of the region under appropriate land management arrangements; and
4. To sustainably manage watersheds in partnership with stakeholders.

5.2 Strategic Programs

Considering the identified issues and the region's comparative advantages and competitive goods and services, the forestry programs in region 5 will focus on the following:

1. Protection of existing forests to support ecotourism, hazard mitigation and watershed management for power generation, irrigation and domestic water supply;
2. Grazing land management to take advantage of the region's existing pasture areas;
3. Forest Plantation development to address local demand for fuelwood demands;

4. Rehabilitation of other protection forests to mitigate climate change hazards such as flooding;
5. Agroforestry farm development to diversify livelihood & support pili and pineapple production;
6. Rehabilitation of degraded mangroves for fisheries and disaster risk reduction
7. Institutionalizing collaborative management

a. Program to Strengthen Resilience of Forest Ecosystems and Communities to Climate Change Hazards

Effective climate change mitigation and adaptation strategies will be integrated into the regional forestry action plan to meet the multiple objectives of preventing further forest degradation, reducing disaster risks, maximizing productivity, and reducing vulnerability to climate hazards.

Objectives

1. To align land uses within watersheds and forest ecosystems by integrating the forest land use plans of 87 LGUs into their comprehensive land use plans;
2. To undertake vulnerability assessment and adaptation planning in 34 priority watersheds;
3. To formulate the integrated watershed management plan of 21 priority watersheds;
4. To protect 226,801 hectares of existing forests and plantations starting in 2016 gradually increasing to 285,183 hectares in 2028;
5. To diversify livelihood of local communities by developing 35,865 hectares of agroforestry farms;
6. To rehabilitate 6,717 hectares of protection forests through assisted natural regeneration and
7. Rehabilitate 5,000 hectares of degraded mangrove areas

Strategic Activities, Targets and Period of Implementation

The activities that will be implemented to strengthen resilience of forest ecosystems and communities to climate change hazards, and their implementation period and targets are summarized in table 9.

Table 9. Summary of Activities and Period of Implementation to Strengthen Resilience of Communities and Ecosystems to Climate Change Hazards

Strategic Programs and Activities	Targets and Implementation Period			
	2016	2017 -2022	2023 -2028	Total
1. Vulnerability assessment and adaptation planning in priority watersheds (no.)	4	30	0	34
2. Formulation of integrated watershed management plans (no.)	1	20	0	21

Strategic Programs and Activities	Targets and Implementation Period			
	2016	2017 -2022	2023 -2028	Total
3. Updating of IWMP (No)	0	0	38	38
4. FLUP formulation (no. of LGUs)	3	84	0	87
5. Protection of existing forests and plantations including mangroves (ha)	226,801	263,933	285,183	285,183
6. Mangrove rehabilitation (ha)	0	2,860	2,140	5,000
7. Agroforestry development (mixed crops in ha)	2,365	33,500	0	35,865
8. Rehabilitation of protection forests (ANR) in ha.	6,717	0	0	6,717
9. Training on vulnerability assessment, adaptation planning, integrated pest management, IWM, FLUP (no. of training)	0	6	6	12

b. Program to Address Increasing Demands for Forest Goods and Services

Considering the regional comparative advantages, and its competitive goods and services, the regional action plan of region 5 will give more focus on addressing demands for fuelwood, cattle, agroforestry products such as pineapple and pili, water, biodiversity for ecotourism, and the need to reduce disaster risks and improve environmental conditions especially in urban centers..

Objectives

The specific objectives of this program are:

1. To develop 11,371 hectares of fuelwood plantations;
2. To protect, conserve and rehabilitate 400 hectares in priority watersheds through vegetative measures and 10,000 cu. meters through structural measures for power generation, domestic and industrial use and for irrigation to support production of rice and other agricultural crops;
3. To develop 8,590 hectares of pasture areas to address local demands for meat; and
4. To develop forest parks, and green belts in key cities of the region

Strategic Activities, Targets and Period of Implementation

The activities, targets and their period of implementation to address demands for forest goods and services are summarized in table 10.

Table 10. Summary of Activities, Targets and Period of Implementation to Address Demands for Forest Goods and Services

Strategic Activities	Targets and Implementation Period			
	2016	2017 -2022	2023 -2028	Total
1. Demarcation of forestland boundaries & forest management zones (ha.)	0	541,189	0	541,189
2. Development of seed production areas in all provinces (no. of sites)	0	6	0	6
3. Establishment of mechanized nurseries (no.)	0	1	0	1
4. Fuelwood/ bio energy plantation dev't in all provinces (ha)	0	2,900	8,471	11,371
5. Management of grazing lands in Masbate (ha)	6,166	8,590	8,590	8,590

Strategic Activities	Targets and Implementation Period			
	2016	2017 -2022	2023 -2028	Total
6. Watershed rehabilitation				
Vegetative SWC (ha)	400	0	0	400
Structural soil and water conservation (cu. Meters)	0	8,000	2,000	10,000
Organization and capacitation of watershed management bodies , such as the watershed management council (no.)	0	6	0	6
7. Support to urban forestry in major cities and urban centers (LGUs assisted)	0	6	6	12

c. Institutionalizing Responsive Governance in Forestry

The governance of forestlands and protected areas in the region has been complicated, by overlapping institutional mandates and overlapping tenure at the forest management unit level. With different policy issuances, such as the local government code, indigenous peoples rights act, national integrated protected area system act and the water code, among others, DENR no longer has exclusive jurisdiction over forest ecosystems. This overlapping mandates have resulted to overlapping tenure instruments at the forest management unit level. In many instances, CADTs, protected areas, watershed reserves, and CBFMAs overlap with each other, leading to confusion on who is accountable for the management of the allocated forestlands and protected areas.

Apart from overlapping mandates and overlapping tenure, the different demands for forest ecosystems goods and services from multiple clients, which often times are conflicting, requires collaborative management of forests and forestlands. In view of this situation, the forestry sector in the region will enhance the skills and capabilities of its personnel so that it can effectively collaborate with other stakeholders in implementing programs on strengthening resilience to climate change hazards and respond to demands for forest ecosystems goods and services.

Objectives

The primary objectives of this program are the following:

1. To establish clear accountability in the management of forestlands;
2. To promote active participation of stakeholders in the management of forests and forestlands;
3. Keep track of progress in the implementation of the Philippine forestry master plan and
3. Strengthen the capabilities of DENR and other stakeholders in implementing forest management programs related to enhancing resilience to climate change and responding to demands for forest goods and services from multiple clients.

Strategic Activities and Targets

The activities, targets and their implementation periods to institutionalize responsive governance in the forestry sector in region 5 are summarized in table 11.

Table 11. Summary of Activities, Targets and Period of Implementation to Institutionalize Responsive Governance in Region 5

Strategic Programs and Activities	Targets per Implementation Period			
	2016	2017 -2022	2023 -2028	Total
Promoting Responsive Governance				
1. Inventory of forest occupants (No.)	0	1,500	0	1500
2. Tenure issuance in open access forestlands (ha)	0	100,000	100,000	200,000
3. Organization and capacitation of multi-sectoral collaborative management bodies (region & province)	0	6	6	6
4. Creation and operationalization of regional/provincial TWG on climate change (no.)	0	7	7	7
5. Capability enhancement for DENR/ LGUs (no. of trainings)	1	18	18	37
6. Semi-annual / annual monitoring and evaluation of PMPCFRD implementation (No.)	1	12	12	25
7. Performance assessment of tenure holders (No.)	0	6	6	12

d. Support programs

Cross cutting support programs will focus on facilitating implementation of the three major forestry programs in the region. These are designed to inform the public of the important role of forest ecosystems in mitigating the adverse impacts of climate change and in securing water supply and other forest ecosystems goods and services. These are also intended to develop sustainable financing mechanisms, promote science based decision making and improve accountability through forest certification and improved data base.

Objectives

The support programs aim to:

1. Generate stakeholders' support in the implementation of the Philippine master plan for climate resilient forestry development;
2. Develop a data base management system to establish appropriate baseline data as basis for management decisions and monitoring and evaluation
3. Identify sustainable sources of financing for implementing the forestry master plan
4. Institutionalize a system for certifying sustainably managed forests and industries
5. Provide research based information for forest management decision making, vulnerability assessment and climate change adaptation planning

Strategic Activities, Targets and Period of Implementation

The strategic activities, targets and period of implementation to achieve the objectives of this program are summarized in table 12,

Table 12. Summary of Support Program Activities, Targets and Implementation Period

Strategic Activities	Targets per Implementation Period			
	2016	2017 -2022	2023 -2028	Total
1. Information, education and communication campaign (no. of LGUs)	28	114	114	114
2. Upgrading of regional MIS facilities (no.)	0	7	7	7
3. Implementation of forest certification (Provinces)	0	6	6	6

Strategic Activities	Targets per Implementation Period			
	2016	2017 -2022	2023 -2028	Total
4. Identification and assessment of sustainable sources of financing in forestry projects (No. of sites assessed)	0	12	6	18
5.Forestry research (no. of studies)	0	12	6	18

VI. Plan Implementation

This regional action plan shall be implemented by DENR region 5 in collaboration with LGUs, NCIP, CBFMA/ CADT holders, private investors, and other relevant stakeholders. Orientation/ information campaign about the regional action will be undertaken for LGUs and key stakeholders to encourage them to participate in its implementation.

Financing of the regional action plan for implementing the PMPCRFD will come both from the government and the private sector. Government financing will primarily come from existing programs/ projects of the DENR and to some extent from existing programs of the LGUs, especially those related to disaster risk reduction, climate change adaptation and the formulation/ updating of the comprehensive land use plans which integrates the FLUP, protected area management plans, ADS DPP and the watershed management plans as mandated under existing guidelines. Fund sourcing will be undertaken for activities and programs which are not included in existing programs and projects of DENR, LGUs and other agencies. Where there are opportunities for donor assistance, unfunded programs and projects will be submitted for possible financial support. Attachment 4 presents the distribution of regional forestry targets by fund sources.

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ANNEXES

Annex 1. Priority Watersheds in Region 5 Supporting NIA National Irrigation Systems

River Basin	Name of Watershed	National Irrigation System (NIS) Supported	Province	Municipality	Watershed Area NIA (ha)	NIS Service Area (In Ha)
Bicol RB	Ponso Watershed	Hibiga RIS	Albay	Pulnagui & Oas	10,090	420
Bicol RB	Basay River Watershed	Mahaba RIS	Albay	Liago & Oas		566
Bicol RB	Nasisi River Watershed	Nasisi RIS	Albay	Ligao & Guino batan		780
Bicol RB	Bublusan Watershed	Ogsong RIS	Albay	Gui batan & Camalig		180
Bicol RB	Buhi-Iriga River Watershed	Buhi-Lalo RIS, Lake Buhi RIS (Buhi-Lalo)	Camarines Sur, Albay	Buhi, Nabua & Iriga City Tiwi	41,350	4,984
Bicol RB	Nabua River Watershed	Barit (Rida) RIS	Camarines Sur	Baao, Buhi & Iriga City	19,500	2,224
Basud RB	Daet River Watershed	Daet RIS	Camarines Norte	Daet, San Vicente, &	6,320	-
Talisay RB	Talisay River Watershed	Talisay RIS	Camarines Norte	Daet & San Vicente	2,820	2,603
Bicol RB	Sipocot-Pulantuna Watershed	Libmanan-Cabusao RIS	Camarines Sur	Libmanan, Sipocot, Lupi,	54,200	2,195
Bicol RB	Pili River Watershed	Pili RIS	Camarines Sur	Pili	2,680	250
Bicol RB	Tigman River Watershed	THIRIS Tigman Dam	Camarines Sur	Calabanga & Tinambac	8,990	3,542
Bicol RB	Hinagyanan River Watershed	THIRIS Hinagyanan Dam				
Bicol RB	Inainigan/Inarihan	THIRIS Inarihan Dam				
Sabang RB	Sabang River Watershed	San Francisco RIS	Sorsogon			
Tubugan RB	Tubugan River Watershed	San Ramon RIS	Sorsogon	Bulan, Irosin & Mat g	1,590	590

Annex 2. Comparative Advantages and Competitive Goods and Services, Region 5

Comparative advantages	Competitive Goods and Services								
	Cattle	Pili	Fuelwood	Rice	Water for irrigation, power & domestic use	Fisheries	Ecotourism	Minerals	Pineapple
Large areas of agricultural lands				Camarines Sur					Cam. Norte
watersheds and existing dams				Camarines Sur, Albay	Albay, Camarines Sur, Sorsogon		Camarines Sur, Catanduanes, Masbate		
Increasing forests							All provinces		
Existing grazing lands	Masbate								
Existing tree plantations			All provinces (thru NGP)						
Existing fruit orchards		Albay, Cam. Norte, Cam. Sur, Sorsogon							
established markets	Masbate	Albay, Cam. Norte, Cam. Sur, Sorsogon		Camarines Sur				Cam. Norte, Masbate	Cam. Norte
Protected areas							All provinces		
Presence of Dugong							Sorsogon		
Habitat for sinarapan						Cam. Sur	Cam,. Sur		
caves							Albay		
beaches/islands							All provinces		
lakes and rivers							Albay, Camarines Sur		
mangroves and coastal resources						All provinces	Camarines Sur, Masbate, Sorsogon		
Business Investors							Albay, Camarines Norte, Camarines Sur, Sorsogon		
Mineral Lands								Cam. Norte, Masbate	

