

Barangay Watershed Management Framework Plan for Dagatan Lake

Brgy. Ibabang Palale, Tayabas City, Quezon Province

1.0 INTRODUCTION

1.1 RATIONALE FOR PREPARING WATERSHED MANAGEMENT PLAN FOR DAGATAN LAKE WATERSHED

Dagatan Lake has been a haven for wildlife and fishes since 1950's. Through the years, the abundance of natural resources in the area has been exposed to human pressure due to unregulated extraction thereof and the absence of management strategies from concerned agencies and local government.

In 1995, a study was conducted by scientists and local experts in the Lake and its surrounding areas to document the diversity of species living therein of both fauna and flora. The study concluded that variety of species was living in harmony in the area but exposed to risks and pressure exerted by human population living in the vicinity of then Lake.

But the research did not result into any action agenda and no plans were formulated that will sustainably manage and protect this unique resource. Many things have happened during these past two decades that may have eventually changed the physical landscape of the area.

This plan, therefore, is an overdue attempt to set natural resources management and protection of the Lake in motion.

1.2 THE ENVIRONMENTAL PLANNING PROCESS

The planning process involved secondary data gathering, field observation, workshop-planning with Focused Group Discussion (FGD) on key issues, as well as transect walk to record resources present in the area. The process allowed inclusion of wide range of issues which affects, directly or indirectly, to the watershed.

Key informants, Local Officials, Local experts and actual resource users were interviewed and they make listings of common species of fauna and flora that were still

present in the area. Issues and concerns were also extracted and noted from them. They comprised the participants during the Focused Group Discussions (FGD) that Tanim Kalikasan facilitated.

After the conduct of FGDs, a transect walk was done to validate and record actual resources in the area. Listing and recording of wildlife, tree species and other onsite observations along the transect line were made. Issues and concerns with regards to the lake and other surrounding areas were likewise recorded, supplied mostly by the local guides and barangay officials.

Finally, a short planning workshop was conducted to gather inputs from the elders, barangay officials and members of community organizations in the area.

1.3 ORGANIZATION OF THE REPORT

This plan has several portions. Part 2 outlines general analysis of the current condition of the watershed. This covers biophysical, socio-economic, and wildlife status of the area. Part 3 covers the plan which include the community's vision, mission, goals and general strategies. The last portion is Part 4 which covers priority action plans.

WMP Approach

The main approach of this Watershed Management Plan (WMP) is integrated and community-based. It also complementary with existing barangay plans and takes into consideration of the environmental plans of the municipality. The plan also recognizes the importance of involving other stakeholders and support groups especially in terms of logistical, technical and financial support.

The Barangay

Barangay Ibabang Palale is located near the boundary of the municipality of Mauban, Atimonan and Pagbilao. It has a total land area of 3,002.41 hectares making it the largest barangay in the municipality of Tayabas City. The barangay was established under Presidential Decree No. 86-A which is sub-divided into 7 sitios.

2.0 SITUATIONAL ANALYSIS

2.1 ECOLOGICAL PROFILE OF DAGATAN LAKE WATERSHED

2.1.1 Bio-Physical Features

Location and Area Distribution

Dagatan Lake is a two (2) hectare lake that lies on the secluded Sitio Busal of Barangay Ibabang Palale. It remains untouched until now due to its relative distance from the center of Barangay. One can be able to reach the lake by approximately 12 kilometers walk through a hilly trail going up the lake from Sitio Sentro. Freshwater fish like *palos, tilapia, dalag, hito, baculi and mollusks such as suso, bituo and bikuyo* are abundant. Surrounding in this lake is the forest area of barangay which *rufus hornbill* (kalaw or kalo) are found. According to the Municipal Environment and Natural Resource Office, Dagatan Lake is soon to be declared as a protected area.

The households are largely dependent on farming and extraction of forest resources for their livelihood. Small-scale illegal logging, kaingin, charcoal-making and wildlife hunting (pet trade and subsistence) are some of the environmental problems in the area which contribute to the disruption and fragmentation of the habitats of the endemic flora and fauna.

Geology

Soil type in the watershed is clay loam. Chalk soil or limestone soil are also observed in some mountain peaks. Rock formations near the creeks are also present. Geological setting signifies occurrence of non-metallic mineral deposits with high economic potential. Huge quantities of cement raw material and lime stone are present in the vicinity of Ibabang Palale, a barrio south-east of Tayabas.

Soil

Soil type in Ibabang Palale is generally characterized by Macolod clay loam type and in some part of Bolinao clay loam.

Land Classification and Uses

The main land use of Barangay Ibabang Palale is agricultural, with around 85% of its land area devoted to coconut with the remaining 14% planted with vegetables, rootcrops and other seasonal crops. Only around 1% is forest.

Flora and Fauna

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SPECIES	STATION 1 (Mabilog)	STATION 2 (Sabang ng Malabo)	STATION 3	STATION 4 (Dagatan Lake)
Balete				x
Avocado				x
Antipolo			x	x
Tibig				x
Tagudtud				x
Banay-banay				x
Mala-ikmo				x
Bunglaw				X
Bona				X
Banilad				X
Mala-nangka				X
Kalantas				X
Tagumerit				X
Maka-asim			x	X
Mala-bawang				X
Panam-ang				X
Bayabasan			x	X
Wisak-Babae				X
Tamauyan				X
Duguan				X
Wisak-Lalaki	x	x		X
Kulasihan				X
Katmon	x		x	X
Calumpit		x	x	X
Sayong-sayong	x			X
Pugahan				X
Mala-ikmo		x		X
Yakal				X
Mala-chico				X
Amlang				X
Tuob				X
Tilang				X
Dulotan				X

SPECIES	STATION 1 (Mabilog)	STATION 2 (Sabang ng Malabo)	STATION 3	STATION 4 (Dagatan Lake)
Balobo			x	
Rambutan Gubat			x	
Dalitan			x	
Uway (palasan/ babuyan/limuran			x	
Sintonas			x	
Dapdap			x	
Tangisang bayawak			x	
Maka-asim			x	
Palsahingin			x	
Agumit			x	
Bangliw			x	
Sintonas			x	
Taluto			x	
Maragahasaha			x	
Baloto		x		
Arangan		x		
Apleng-maya		x		
Ditang Gubat		x		
Alagaw		x		
Bunga/Binga		x		
Sagaksak		x		
Layagan		x		
Narra	x			
Batino	x			
Banilad	x			
Anilao	x			

Overall, are 358 species of trees, 19 species of vines, 15 species of palms, 39 species of ferns, 15 species of grasses and 42 species of fungi, according to assessments made in year 1995. Some of these were no longer observed during the transect walk that the team conducted in the area.

In addition to floral resources, Tayabas City in general is endowed with various wildlife species some of which were reportedly observed in Dagatan Lake Watershed. According to the Local guides, there was a remarkable decreased of species type in the area. Large trees were gone and cut down. Wildlife species also dwindled due to hunting and habitat loss. Local folk reported seldom seeing birds unlike before as they traverse the transect line. Nevertheless, bats are still prevalent in the area signifying that are still suitable forest habitats for them. List of these bats is provided in the table below.

Scientific Name	Common Name	Study Area		Total
		Iba. Palale	Lawigue	
<i>Cynopterus brachyotis</i>	Common short-nosed fruit bat	1	2	3
<i>Ptenochurus jagori</i>	Musky fruit bat	12	3	15
<i>Pteropus</i> spp.	Flying foxes	P	P	
<i>Rousettus amplexicaudatus</i>	Common rousette	P	P	
<i>Hipposideros ater</i>	Dusky roundleaf bat	1	0	1
<i>Hipposideros bicolor</i>	Bicolored roundleaf bat	1	0	1
<i>Hipposideros diadema</i>	Diadem roundleaf bat	2	6	8
<i>Hipposideros lekaguli</i>	Large Asian roundleaf bat	3	0	3
<i>Hipposideros pygmaeus</i>	Philippine pygmy roundleaf bat	17	0	17
<i>Rhinolophus</i> cf. <i>arcuatus</i> ¹	Arcuate horseshoe bat	21	0	21
<i>Rhinolophus</i> cf. <i>inops</i>	Philippine forest horseshoe bat	18	2	20
<i>Rhinolophus philippinensis</i> ¹ cf.	Enormous-eared horseshoe bat	37	0	37
<i>Rhinolophus rufus</i>	Large rufous horseshoe bat	17	3	20
<i>Miniopterus australis</i>	Little net-winged bat	16	6	22
<i>Miniopterus schreibersi</i>	Common bent-winged bat	16	0	16
<i>Miniopterus tristis</i>	Greater bent-winged bat	2	0	2
<i>Macaca Fascicularis</i>	Long-tailed macaque	P	P	
<i>Apomys microdon</i>	Small Luzon forest mouse	3	0	3
<i>Phloeomys cumingi</i>	Southern giant cloud rat	P	P	
<i>Rattus everetti</i>	Common Philippine forest rat	11	0	11
<i>Paradoxurus hermaphroditus</i>	Palm civet	P	P	
No. of trap-nights		686	0	686
No. of net-nights		19	3	22
No. of harp trap-nights		6	1	7
No. of non-volant small mammal species		12	0	2
No. of bat species		16+	6+	16+

¹ probably includes 2 or more species, P – Present but not captured

Source: Progress Report on a Preliminary Mammal Survey of Caves in Tayabas, Quezon Province, Luzon by Danilo S. Balete, Lawrence R. Heaney and Joel Sarmiento, October 12, 2009. (cited in Tayabas Our Town A Socio-economic and Cultural Profile by the Office of the Municipal Planning and Development Coordinator, 2011.)

Climate, Rainfall and Temperature

Ibabang Palale and the entire Tayabas City is characterized by the absence of a distinct dry season. According to PAGASA there were 279 rainy days in the whole year of 2009. Temperature is generally warmer than normal for the months of June, July and August. Average temperature ranges from 21°C to 32°C in the year 2009.

2.1.2 Socio-Eco-Cultural Features

Watershed Inhabitants

There were no permanent residents within the immediate vicinity of Dagatan Lake. Local residents are concentrated at the centers of the barangay and its sitios. These

households are largely dependent on farming and extraction of forest resources for their livelihood. Small-scale illegal logging, kaingin, charcoal-making and wildlife hunting (pet trade and subsistence) are some of the environmental problems in the area which contribute to the disruption and fragmentation of the habitats of the endemic flora and fauna.

Ibabang Palale has 3,407 people comprising 801 households based on CBMS 2010 data. The indicators generated by the Community-based Monitoring System (CBMS), a tool developed to localize monitoring of the Millennium Development Goal (MDG) to measure multi-dimensional poverty levels, revealed the following proportions per indicator in Barangay Palale:

- Proportion of women who died due to pregnancy-related causes (1.2)
- Proportion in terms of:
 - number of children under 5 years old who died (0.3),
 - children 0-5 years old who are malnourished (0.8),
 - households without access to safe water supply (17.5),
 - households without access to sanitary toilet facilities (19.4),
 - children 6-12 years old not attending elementary school (21.4),
 - children 13-16 years old not attending high school (35.6),
 - children 6-16 years old not attending school (14.4),
 - households with income below the poverty threshold (43.8), and
 - households with income below the food threshold (23.7).

Overall, the composite core indicator performance of Ibabang Palale is 1.2 which means that although the barangay registered low on certain indicators the combination of all indicators would result in generally low. (See: MDG Profile of Tayabas City)

2.1.3 Economic Sectors

Most households are involved in farming, particularly of coconut. Around 85% of the area are devoted to coconuts while only 14% are devoted to vegetables, rootcrops and other seasonal crops. The rest are residential and build up area.

Agriculture

There is no updated data yet available on crop production and livestock in the barangay.

Forestry and Forest Resource Utilization

There are no existing comprehensive policies in the barangay regarding the utilization, exploitation, conservation and protection of forest and non-forest timber products. However, they observe and support coconut conservation efforts spearheaded by the Philippine Coconut Authority (PCA) and the Provincial Government of Quezon.

2.1.4 Infrastructure and Other Facilities

Road System

There are barangay roads leading to the center of the village but there was no road networks connecting each sitio and the far flung areas of the barangay. Hence, local villagers reach these areas by foot or through beasts of burdens.

Communication Facilities

Many of the residents use cellphones for communication. Cellular phone signal is generally poor to non-existent in farther nooks of the barangay.

Electricity

Electricity is also available in the area. Most of the households used electricity except for one household.

2.1.5 Local Institutions

Current Barangay Officials

Name	Position
Baasis, Eufrocino Sr. Oabel	Brgy. Captain
Naynes, Emilio Caagbay	Brgy. Council
Pagana, Eric Raca	Brgy. Council
Cabuyao, Miguel Abesamis	Brgy. Council
Cabuyao, Diosdado Labita	Brgy. Council
Oabel, Paulo Jasfer Padua	Brgy. Council
Caagbay, Jose Cabuyao	Brgy. Council
Dela Cruz, Nestor Raca	Brgy. Council

Non-Government Organizations

Currently, there are several non-governmental organizations that have reached the area or dealt with the local villagers. These include micro-finance institutions loans like TSPI, CARD and others. Tanim Kalikasan came lately for their project on natural resources management

People's Organizations

The barangay has several peoples' organizations. These include senior citizens, youth, women, and farmers' organizations.

LEGAL FRAMEWORKS FOR THE MANAGEMENT OF THE WATERSHED

The Revised Forestry Code of the Philippines (PD 705)

Under Section 3 of this PD, critical watershed is defined as a drainage area of a river system supporting existing and proposed hydro-electric power and irrigation works needing immediate rehabilitation as it is being subjected to a fast denudation causing accelerated erosion and destructive floods. It is closed from logging until it is fully rehabilitated.

Its management may be undertaken by the Department of Environment and Natural Resources (DENR) and the Local Government Unit exercising jurisdiction over the area. Other government agencies may also share responsibilities such as the National Irrigation Authority and the Biodiversity Management Bureau.

Local Government Code of 1991 (RA 7160)

The Local Government Code mandates each LGU to exercise powers expressly granted, those necessarily implied therefrom, as well as powers necessary, appropriate, or incidental for its efficient and effective governance, and those which are essential to the promotion of the general welfare. The LGUs are also mandated to promote health and safety and the right of the people to a balanced and healthful ecology.

Ecological Solid Waste Management Act of 2000 (RA 9003)

Ecological Solid Waste Management Act is important in the area as residents continue to dump garbage in the rivers and tributaries. This causes water pollution which makes the rivers unfit for recreation.

Wildlife Act of 2001 (RA 9147)

This law is in line with the state policy to conserve the country's wildlife resources and their habitats for sustainability. It provides for a regulatory mechanism for the protection, conservation, use and exploitation of wildlife species in the country as well as the propagation of endemic species.

It aims to: (a) conserve and protect wildlife species and their habitats to promote ecological balance and enhance biological diversity; (b) regulate the collection and trade of wildlife; (c) pursue, with due regard to the national interest, the Philippine commitment to international conventions, protection of wildlife and their habitats; and (d) initiate or support scientific studies on the conservation of biological diversity.

2.2 Key Issues and Problems Affecting the Watershed

CAUSE	ISSUES/PROBLEMS	EFFECT
Weak environmental law enforcement and regulation	Timber poaching and unsustainable harvesting of trees in Dagatan Lake Watershed and vicinity	<ul style="list-style-type: none">• Reduction of the surface area of Dagatan Lake• Few old trees remaining• Reduced spring water supply
Unregulated and unabated hunting of wildlife	Loss biodiversity	Very few wildlife are not observed in the area

3.0 VISION, GOALS AND STRATEGIES

3.1 VISION

We envision Dagatan Lake Watershed as eco-tourism attraction with clean and balanced ecosystem, rich in biodiversity and providing potable sources of water and other environmental services to a community that respects local customs and traditions and who are all united in the continued protection and development of the watershed.

3.2 MISSION

To protect, restore, and improve Dagatan Lake Watershed by establishing cooperation between the community, the barangay government of Ibabang Palale and other concerned agencies.

3.3 SHARED VALUES

- Home of righteous/God-fearing/God-loving
- Environment friendly
- Respect to the elderly and local customs and traditions

3.4 GOALS

- To restore degraded areas by undertaking tree planting activities.
- To construct barangay roads connecting far flung areas to the barangay center.
- To strictly implement policies and ordinances of the barangay on the environment.
- To establish a reliable source of potable water supply for the barangay.
- To educate the people in the importance of protecting the watershed area.

3.3 GENERAL STRATEGIES

In relation to the vision and goals, this management plan has the following general strategies, to wit:

- Monitoring and protection of Dagatan Lake as core management unit;
- Monitoring, protection and rehabilitation of Dagatan Lake and its immediate environment;
- Development of ecotourism potentials of Dagatan Lake;
- Development of alternative livelihood opportunities; and
- Behavioural change campaigns in support of environmental and wildlife conservation.

4.0 PRIORITY PROJECTS: 2016-2020

4.1 SELECTION AND DEVELOPMENT OF PROJECTS

The top issues that should be given priority attention are as follows:

- a. Dwindling forest cover and/or native trees due to unsustainable timber harvesting and charcoal making
- b. Loss of biodiversity and other previously common wildlife species in the area
- c. Weak enforcement of environmental laws
- d. Inaccessibility of Dagatan Lake Watershed
- e. Lack of available potable source of water supply for community residents
- f. Availability of alternative sources of livelihood

4.2 GENERAL DESCRIPTION OF PLAN COMPONENTS

4.2.1 Forest and Biodiversity Conservation and Management

Rationale

Dagatan Lake Watershed is an important natural resource base that provides un-estimated ecological services in the form of water, biodiversity, and forest resources to the residents of Ibabang Palale and its neighbouring barangays.

General Objectives

To protect, restore and improve the upland resources like trees and wildlife in the watershed area

Specific Objectives:

- a. Declaration of the Dagatan Lake Watershed as critical habitat by the City Government
- b. Rehabilitation/restocking of degraded areas within the watershed area
- c. Strengthening of Tapat Kalikasan, a volunteer group within the barangay, to conduct monitoring and assist in the enforcement of environmental laws, rules and regulations
- d. Strengthen environmental governance capacity of Barangay Council leaders
- e. Develop agriculture-related livelihood opportunities for the local residents
- f. Conduct behaviour change campaigns to bring back traditional customs and traditions on environment

4.2.2. Framework Plan

Below is the general framework plan formulated by the barangay officials and key participants who joined the workshop-planning process conducted in the barangay.

Components/Activities	Timeframe					Target Outputs	Collaborating Agencies
	1	2	3	4	5		
a. Declaration and management of the Dagatan Lake Watershed as critical habitat by the City Government	x	x	x	x	x	<ul style="list-style-type: none"> • City Ordinance adopting Dagatan Lake Watershed as critical habitat and watershed • Resolution filed with 	Barangay, City ENRO, DENR/CENRO, Tanim Kalikasan, Tanggol

						<p>DENR requesting the latter for also declare the area as critical habitat/watershed</p> <ul style="list-style-type: none"> • Adoption of a barangay ordinance on wildlife and timber poaching 	Kalikasan
b. Rehabilitation/restocking of degraded areas within the watershed area	x	x	x	x	x	<ul style="list-style-type: none"> • Areas needing rehabilitation/restoration identified and surveyed • Community nursery of indigenous, fruit trees and high value crops established • Regular community tree planting activities conducted • Coffee and cacao farms established in strategic and suitable areas 	Barangay, DENR, Tanim Kalikasan, City agriculture Office, City ENRO
c. Strengthening of Tapat Kalikasan, a volunteer group within the barangay, to conduct monitoring and assist in the enforcement of environmental laws, rules and regulations	x	x	x	x	x	<ul style="list-style-type: none"> • Members of Tapat Kalikasan trained, deputized, and organized into a capable community enforcement team • Enforcement plan developed, adopted by the Sangguniang Barangay and integrated into the annual plan 	Barangay, City ENRO, City Agriculture Office
d. Strengthen environmental governance capacity of Barangay Council leaders		x	x	x		<ul style="list-style-type: none"> • All elected and appointed barangay officials 	Barangay, City ENRO, City Agriculture Office, Tanggol Kalikasan
e. Develop agriculture-related livelihood opportunities for the local residents	x	x	x			<ul style="list-style-type: none"> • Organic farming promoted and adopted in the barangay • Cacao-coffee technology promoted • Farmer-market link established 	Barangay, City ENRO, City Agriculture Office, Tanim Kalikasan, DA, DENR
f. Conduct behaviour change campaigns to bring back traditional customs and traditions on environment	x	x	x	x	x	<ul style="list-style-type: none"> • Behavioural change campaign plan (BCCP) formulated • Barangay ordinance adopting the BCCP promoting of traditional and indigenous culture 	Barangay, DepEd, City Government, Public Library

						<ul style="list-style-type: none"> • Annual Santacruzán 	
g. Infrastructure			x	x	x	<ul style="list-style-type: none"> • Farm to market road leading to Dagatan Lake Watershed constructed • Potable water supply/ spring water development 	Barangay, DPWH, City Government

4.2.3. Adoption of the Plan

The Sangguniang Barangay headed by the Barangay Captain shall pass a resolution approving this plan and integrating its contents in the annual plan of the barangay.

ANNEX 1: WORKSHOP PARTICIPANTS

Name	Contact Number	Gender
Veneracio Padua		Female
Eladio Naynes		Male
Gregorio Baasis		Male
Cornelia Villaflor		Female
Maricel Pasacsac		Female
Ismael Oabel		Male
Miguel Cabuyao		Male
Jose Caagbay		Male
Paulo Vaster Oabel		Male
Eric Pagana		Male
Rafael Naynes		Male
Esperidion Naynes		Male
Placido Ursolino, Jr.		Male
Renato Banagan		Male
Leonardo Eucina		Male
Nestor dela Cruz		Male
Crisologo Cabuyao		Male
Jomel Remolona		Male
Melvin Rada		Male
Anacleto Zarsuelo		Male
Domingo Cabriga		Male
Dolores Zarsuelo		Female
Benita Zarsuelo		Female
Anselmo Cabile		Male
Total		Male - Female -

Tanim Kalikasan Staff

Name	Task
Glenn M. Forbes	Facilitator
Darwin Bulusan	Resource Person/facilitator
Gil dela Cruz	Field Coordinator
Elena Derige	Documenter/Secretariat
Eduardo Gaytano	Documenter
Orlando Pangalina, Jr.	Driver/Field Coordinator