



towards climate change resilience

BATANGAS PROVINCE



LOCAL CLIMATE CHANGE ACTION PLAN
2017-2023
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ACRONYMS AND ABBREVIATIONS

ABC – Association of Barangay Captains

BDRRMC – Barangay Disaster Risk Reduction Management Committee

Brgy. - Barangay

CAO – City Assessor’s Office

CDRRMC – City Risk Reduction and Management Council

CDRRMO – City Disaster Risk Reduction and Management Office

CDRRMP – City Disaster Risk Reduction and Management Plan

CC - Climate Change

CCA - Climate Change Adaptation

CCATWG – Climate Change Adaptation Technical Working Group

CCC - Climate Change Commission

CCVI - Climate Change Vulnerability Index

CDP – Comprehensive Development Plan

CEO – City Engineer’s Office

CityENRO – City Environment and Natural Resources Office

CLUP – Comprehensive Land Use Plan

CMO – City Mayor’s Office

CPDO – City Planning and Development Office

CRM – Coastal Resource Management

CSWDO – City Social Welfare and Development Office

DA - Department of Agriculture

DENR - Department of Environment and Natural Resources

DepEd - Department of Education

DILG - Department of Interior and Local Government

DOST - Department of Science and Technology

DPWH – Department of Public Works and Highways

DRR - Disaster Risk Reduction

DRRM - Disaster Risk Reduction and Management

GG - Greenhouse Gases



GSO – General Services Office

HUDCC - Housing and Urban Development Coordinating Council

IBRDC – Iloilo Bariano River Development Council

ICCHCC – Iloilo City Cultural Heritage Conservation Council

ICER – Iloilo City Emergency Responders

ICUPAO – Iloilo City Urban Poor Affairs Office

ICTIPB – Iloilo City Trade and Investment Promotion Board

IEC - Information and Education Campaign

IWRM - Integrated Water Resources Management

LDC – Local Development Council

LCCAP – Local Climate Change Action Plan

LCE – Local Chief Executive

LEIPO – Local Economic Investment Promotions Officer

MIGEDC – Metro Iloilo Guimaras Economic Development Council

NCCAP - National Climate Change Action Plan

NDRRMC - National Disaster Risk Reduction and Management Council

NGA – National Government Agency

NGO - Non-Government Organization

NWRB - National Water Resources Board

OCA – Office of the City Agriculturist

PIO – Public Information Office

PNP – Philippine National Police

PPP - Public-Private Partnership

SP – Sangguniang Panlungsod

TFASIS – Task Force Anti Squatting and Illegal Structures

TMTRO – Traffic Management and Transport Regulation Office



Chapter 1: INTRODUCTION

Legal Mandate

In response to the urgency for action on climate change, the Philippines passed Republic Act 9729, also known as the Climate Change Act of 2009, anchored on the constitutional provision which states that “it is the policy of the

State to afford full protection and the advancement of the right of the people to a balanced and healthful ecology... to fulfill human needs while maintaining the quality of the natural environment for current and future generations.”² RA 9729 provides, among others the following:

- Establishment of a Climate Change Commission, an independent and autonomous body that has the same status as that of a national government agency. The CCC is under the Office of the President and is the “sole policy-making body of the government which shall be tasked to coordinate, monitor and evaluate the programs and action plans of the government relating to climate change pursuant to the provisions of this Act.”
- The Commission shall be composed of the President of the Republic of the Philippines who shall serve as the Chairman, and three (3) Commissioners to be appointed by the President, one of whom shall serve as the Vice Chairperson of the Commission.
- The LGUs as front line agencies in the formulation, planning and implementation of climate change action plans in their respective areas, shall formulate their Local Climate Change Action Plan, consistent with the provisions of the Local Government Code, the Framework, and the National Climate Change Action Plan.
- Inter-local government unit collaboration shall be maximized in the conduct of climate- related activities.

The National Climate Change Action Plan (NCCAP) as Anchor of the Local Climate Change Action Plan (LCCAP)

The Batangas Province Local Climate Change Action Plan (LCCAP) 2017-2023 is anchored on the National Climate change Action Plan (NCCAP) which was adopted in April 2010 and which outlines the country’s agenda for adaptation and mitigation for 2011 to 2028. In drafting the NCCAP, the multi-sectoral processes conducted ensured that the concerns of various sectors are heard and considered. The NCCAP comprehensively addresses the challenges of climate change. Public financing will prioritize adaptation to reduce vulnerability and risks of communities particularly the marginalized poor. At the same time, this plan will provide a policy environment that will encourage the participation of the private sector to optimize mitigation opportunities towards sustainable development. Consistent with the Framework, the ultimate goal is to build the adaptive capacities of women and men in their communities, increase the resilience of vulnerable sectors and natural ecosystems to climate change, and optimize mitigation opportunities towards gender responsive and rights-based sustainable development.

The Batangas Province Local Climate Change Action Plan (LCCAP) 2017-2023 outlines the specific programs and strategies for adaptation and mitigation for 2017to 2023 and provides key actions that enhances adaptive capacity and resilience of communities and natural ecosystems to climate change, adopts the total economic valuation of natural resources while ensuring biodiversity conservation, and recognizes the competitive advantage of putting value on the direct use, indirect use, option to use and non-use of environment and natural resources, as a short to long-term sustainable development goal.

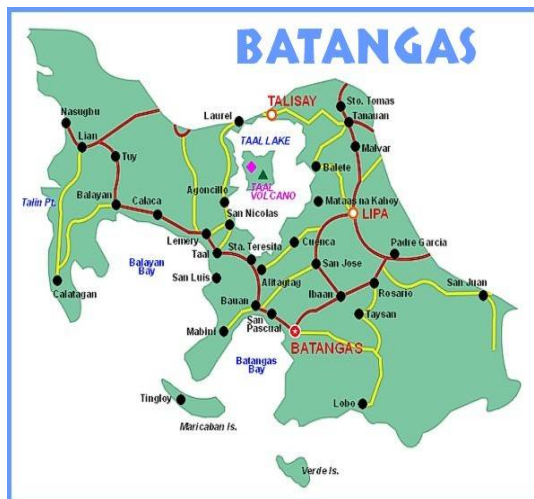


Chapter 2: BACKGROUND ON BATANGAS PROVINCE

Physical and Environmental Profile



TAAL (BATANGAS PROVINCE)



Batangas is a province of the Philippines Located on the southwestern part of Luzon in the Calabarzon region. Its capital is Batangas City and it is bordered by the provinces of Cavite and Laguna to the North and Quezon to the east. Across the Verde Island Passages to the south is the island of Mindoro and to the west lies the South China Sea.



1. PHYSICAL ENVIRONMENTAL PROFILE

Location and Boundaries

The province of Batangas is in the island of Luzon and among the five (5) provinces that comprised the CALABARZON (Cavite, Laguna, Batangas, Rizal and Quezon) Region, is situated at the intersection of 14° North latitude and 121° East longitude. It is about 107.5 kilometers away south of the metropolitan area and is bounded on the north by the province of Cavite, on the east by Laguna and Quezon, on the south by the Verde Island passage and on the west by West Philippine Sea. Across the Verde Island Passage to the south are the Islands of Oriental and Occidental Mindoro.

Land Area

The Province of Batangas has a total land area of 316,581 hectares or 3,165.81 square kilometers and accounts for 1.06 percent of the Philippines' total land area. Batangas City has the biggest share of the province's land area with 28,300 hectares (8.94 percent). This is followed by the Municipality of San Juan with 27,340 hectares (8.64 percent) and Municipality of Nasugbu with 26,300 hectares (8.31 percent) of the provincial land area. On the other hand, Municipality of Sta. Teresita has the smallest land area of 1,250 hectares or barely 0.39 percent of the total land area.

General Land and Water Characteristics and Resources

Topography and slope

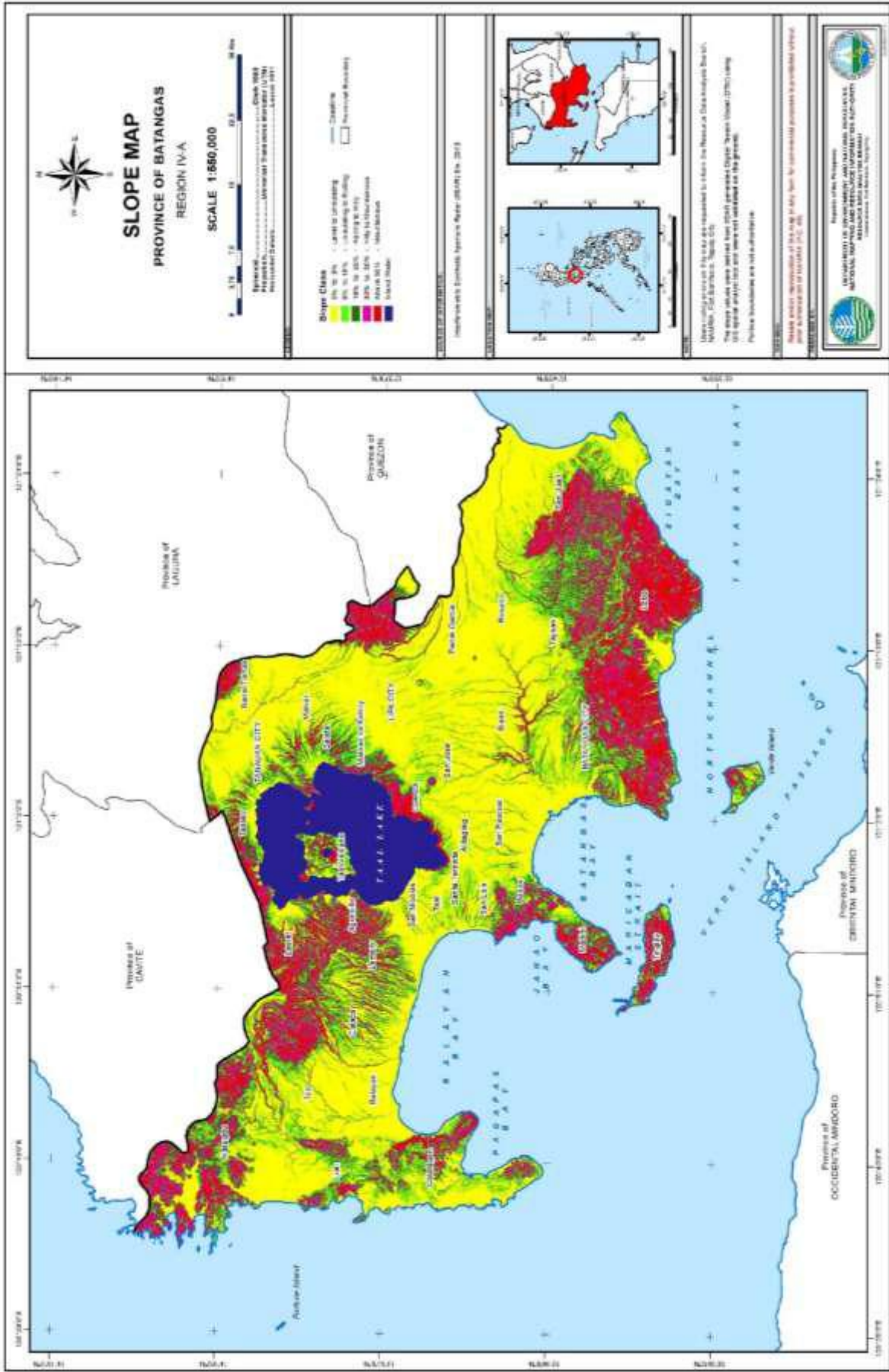
Batangas Province's terrain is mostly composed of elevated lands, small low flat lands, rolling hills and numerous mountains. Elevated lands can be found in different municipalities of Sto. Tomas, Malvar, Mataasnahoy, San Jose and the cities of Lipa and Tanauan. Lowland rice culture relatively can adapt in small low flat lands in the municipalities of Padre Garcia and some portions of Rosario, Taysan, Lemery, Calaca, Lian, San Juan and Nasugbu. Lands that are good for production forest and considered as rolling hills are found in Rosario, Lemery, Calaca, Lian, San Juan, San Luis, Tuy and Agoncillo. The land topography of Cuenca, Calatagan, Balayan, Ibaan, Bauan, San Pascual, Taal, San Nicolas, Sta. Teresita, Alitagtag and Batangas City are gently rolling with some mountains. They are often utilized for coconut plantations and agro-forestry development and the like.



Some parts of mountainous municipalities of Lobo, Mabini, Tingloy, Laurel and Talisay are considered protected areas. Furthermore, prominent mountains in the province are Lobo Mountains in Lobo, Batulao in Nasugbu, Panay in Mabini, Makulot in Cuenca, Banoy and Pinamucan in Batangas City, Mt. Malarayat Forest Reserve and Susong Dalaga in Lipa City, San Pedrino in Southwestern Balayan, Los Picos and Pico de Loro in Nasugbu and Compradia located between San Juan and Rosario. Batangas shares with Laguna and Quezon, with Mt.

Makiling, and Mt. Malipunyo, and Tagaytay Ridge with Tagaytay City. Generally, Batangas has a rolling terrain with almost fifty percent (50%) of its land area having a grade of less than 15°. Slopes can be found along the shores of Verde Island Passage and the shores of Taal Lake. The central part of the province is Mt. Makulot with summit of 1,145 meters above sea level.

Batangas Province's Slope Map designates what municipalities are level to gently sloping, gently sloping to undulating, undulating to rolling, rolling to hilly, hilly to steepy hilly and steepy hilly to mountainous.





☐ Natural Resources

Batangas province is bestowed with bountiful nature like water bodies and mineral resources. Forest resources in the Province yield a wide variety of products such as buri, bamboo, forest vines and firewoods. Although it is characterized with patches of second growth forest, steep topography and thin soil, it has however the lowest proportion of forest area in the CALABARZON Region.

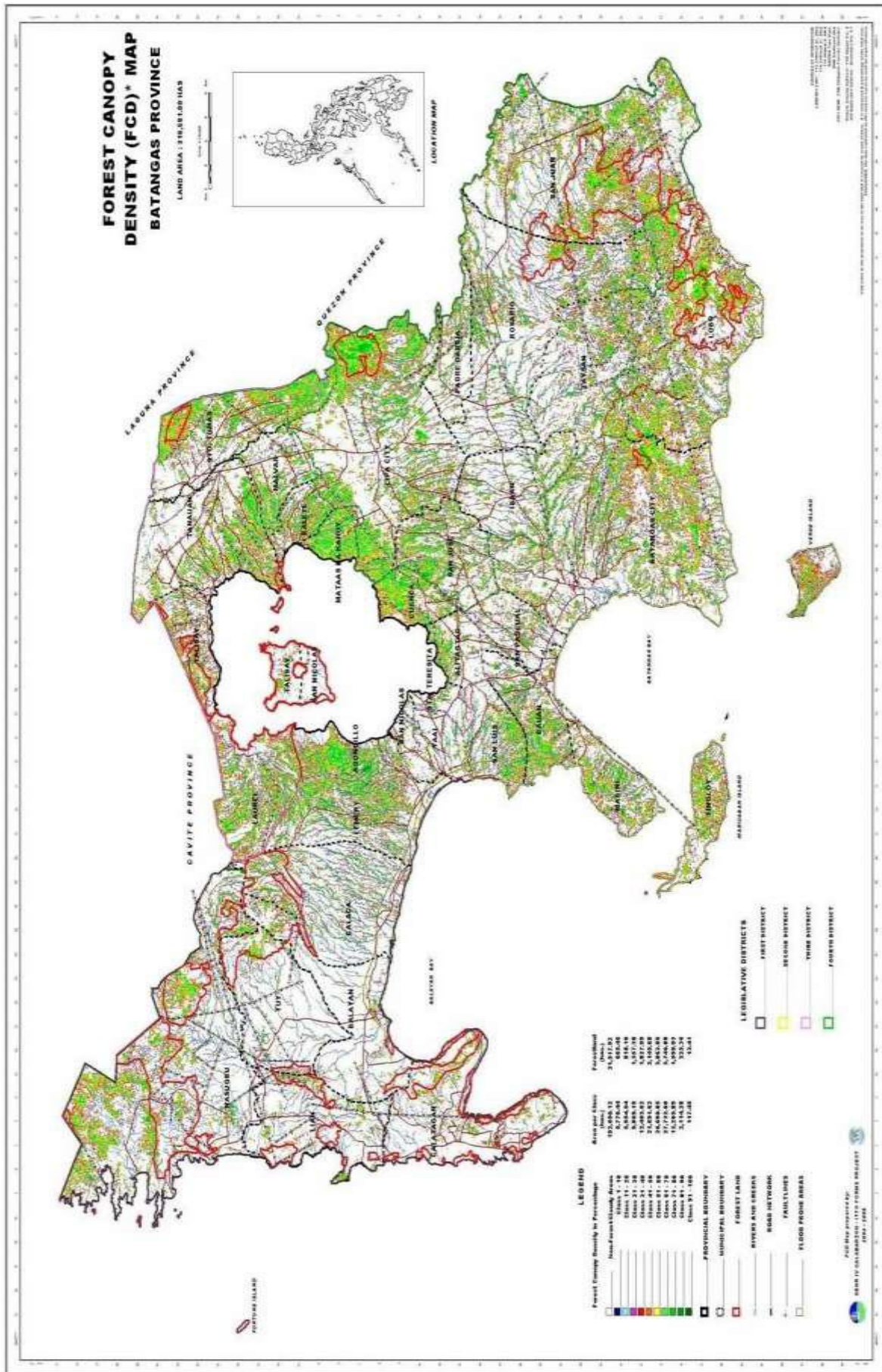
Based on CY 2003 NAMRIA Satellite Image Data of the Philippine’s Forest Cover, 13,899 hectares or only four (4) percent are with forest cover out of the total provincial land area of 316,581 hectares. This can be explained by the fact that about 86 percent of the land was classified as Alienable and Disposable (A&D) lands. The remaining 14 percent is classified as forestlands. Although there are forest development activities in the A&D lands of about four (4) percent, Batangas still stands fourth among the CALABARZON region provinces in terms of forest cover.

Table 22. Forest Cover (in hectares) based on NAMRIA CY 2003 Satellite Image of Forest Canopy Density

Province	Total	Total Forest Cover			Total	Within Forestlands Broad-leave			Total	Within A&D lands Broad-leave		
		Close d	Ope n	Mangr ove		Close d	Ope n	Mangr ove		Clos ed	Ope n	Mangr ove
Batangas	13,899	2,232	11,381	286	2,362	305		191	11,537	1,927	9,515	95
Cavite	5,737		5,439	298	4,103		1,866		1,634		1,336	298
Laguna	16,205	1,208	14,997		8,141	1,189	4,103		8,064		8,045	
Quezon	231,190	104,919	115,603	10,668	188,997	102,144	81,807	5,406	42,193	19	33,796	5,622
Rizal	22,642	8,803	13,745	94	21,024	8,803	12,221		1,616	2,775	1,524	94
Total	289,673	117,162	161,165		224,627	112,441	106,949	5,237	65,046	4,721	54,216	6,109

Source: 2005 Philippine Forestry Statistics

The low percentage of forest covers in the province are exposed to erosion, landslide and drought that are triggered by rainfall volume, vegetation type or land use, slope classification, soil type, presence of mining activities, distances of fault lines, presence of construction /extraction activities, presence of rivers and streams.





☑ Water Resources

Batangas Province has four major water bodies namely Batangas Bay, Balayan Bay, Tayabas Bay and Taal Lake.

Batangas Bay is a semi-closed body of water, bordered by the mainland municipalities of Bauan, San Pascual and Mabini. It also includes Verde Island in Batangas City and the municipality of Tingloy. The combined land area of five LGUs bordering the Batangas Bay is 453.8 square kilometers. The water surface area of Batangas Bay is estimated at 220 square kilometers and total coastline stretches to 92 kilometers. It also accommodates a variety of uses such as resettlement area along the shoreline water use rights like fisheries, heavy industries, recreation and shipping among the major ones. This includes power plants, oil refineries; the Batangas International Port portion of the Malampaya Gas Pipeline Exclusive Zone including the processing plants of natural gas from Malampaya located offshore of Palawan was piped in the sea bed of Batangas Bay up to the shoreline of Ilijan, Batangas City.



Photo: islandhoppinggeek.com

Port development especially in Batangas Bay has taken significant development which led to more intensified navigation and port-related activities.

Balayan Bay and Adjacent Bays (Nasugbu Bay, Talin Bay and Pagapas Bay) in Calatagan Peninsula are located in the western side of Batangas Province, northwest of Batangas Bay facing the West Philippine Sea. It has a total land area of 1,089.26 square kilometers and a coastline of 300 kilometers, and found therein is a mixture of uses such as fisheries, agriculture, a number of large and medium scale industries and tourism-related establishments.

Tayabas and Adjacent Bays (Sigayan Bay and Coloconto Bay) are shared by the provinces of Batangas and Quezon. Both are minor enclaves within Tayabas Bay which lies east of the municipality of San Juan, located at the southernmost part of the Province of Batangas and west of Lucena City and Padre Burgos in Quezon Province. The coastline of Tayabas Bay basically provides the venue for residential and recreational activities. It has a picturesque view of long white sandy beaches, coves and marine life cradled at the foot of mountains and hills that is suitable for all levels of tourism development. In consideration of this natural resources, the Laiya area (in San Juan, Batangas) and its surrounding environs on the southern tip has been identified as one of the tourism development precincts in the Tourism Master Plan for Batangas/ Taal/ Tagaytay area prepared for the Government of the Philippines through the Department of Tourism by the World Tourism Organization who acted as the executing agency for the United Nations Development Program (UNDP). The area has been identified as one of the main mass market tourism destination in the country.

Another major body of water in the province, is Taal Lake which is a freshwater body linked to Balayan Bay by Pansipit River. Taal Lake has an area of approximately 239 square kilometers and the lakeshore circumference is about 267 kilometers. Within the lake is a volcano island with an area of around 24 square kilometers.



The average depth of the Taal Lake is 60 meters; depth reaches to maximum of almost 200 meters. It is surrounded by 12 municipalities and two cities namely: Agoncillo, Alitagtag, Balete, Cuenca, Lipa City, Mataasnakahoy, Talisay, Tanauan City, Laurel, Malvar, San Nicolas, Lemery, Taal and Sta. Teresita. It is surrounded by eight rivers namely: Palico River, Obispo-Molino River, Dacanlao River, San Juan River, Calumpang River, Malaking Ilog River and Rosario River which serve as inflows and the Pansipit River as an outflow down to Balayan Bay.

Taal Lake was declared a Protected Landscape by Proclamation 906 issued on October 6, 1996. The lake harbors two of the most economically important freshwater species in the province, the freshwater sardines (tawilis) and the carangidh (maliputo). It is also a major production area for tilapia. The whole length of Pansipit River (this river connects the lake to Balayan Bay) is declared a fish sanctuary. The western part of the Volcano Island is likewise declared a fish sanctuary. Aside from fisheries, the lake is also a major tourist destination area for sight-seeing, boating, swimming, sailing, and water skiing.



Freshwater species found in Taal Lake Lake: (L-R) tawilis, maliputo, and tilapia
(Photos: inaturalist.org, fishfarming.com, goodcatchfish.com)

Aside from its different bodies of water, the province is also the domain of many river system and watersheds that supply the needs of the Batangueños and also of adjacent provinces like Laguna (see Water Resources Map).

☒ Watersheds

Batangas Province has extensive escarpments and ridges in which rivers flow to the sea. A river system consists of a main channel originating from higher elevations (i.e., headwater or source) and all the tributaries that flow into it.

There are five major river systems in Batangas Province, namely: Pansipit, Calumpang, Palico, Molino and Dacanlao rivers. Except for some tributaries of the Calumpang River, all the rivers have been tapped for irrigation purposes.

Moreover, there are also critical watersheds in the province that supports the National Irrigation System (NIS); the San Juan River Watershed and the Palico River Watershed. San Juan River Watershed covers the Pasig-Laguna de Bay area, and is shared by the constituents of Calamba, Laguna, Sto.Tomas, Tanauan City and Malvar, Batangas. Palico River Watershed on the other hand, covers the area of Tuy and Nasugbu, Batangas and is the only watershed in the province that has undergone watershed characterization and development of watershed management plan.

