

2024 Watershed Management Report

Our Approach

Watershed management is vital to the sustainability and resiliency of our operations. Degradation of watersheds leads to soil erosion, heavy sedimentation, water pollution, and other issues that directly affect the quality and availability of raw water. As more than 80% of our raw water comes from surface water, we prioritize the protection, rehabilitation, and conservation of watershed areas to ensure water security. The sustainable management of these watershed areas is in partnership with the Department of Environment and Natural Resources (DENR), Metropolitan Waterworks and Sewerage System (MWSS), local government units (LGU), local communities, indigenous people (IP), and other stakeholders.

Our efforts not only mitigate water supply risks but also contribute to biodiversity conservation and climate change mitigation. Additionally, we support the local and IP communities in these areas through the provision of alternative sustainable livelihood and community development programs.

There are three major programs for our watershed management. These are:

- Watershed protection,
- Reforestation and enrichment planting, and
- Community development

Our Impacts

- (-) Use of freshwater
- (-) Disruption of wildlife and tree cutting during construction of new facilities
- (+) Preservation or enhancement of watersheds and its ecosystem
- (+) Carbon sequestration
- (+) Support to local and IP communities

Highlights

195,727 hectares protected, preserving **60+** threatened species with **8** critically endangered, **13** endangered, **31** vulnerable, and **10** other threatened species.

131,051 trees planted and nurtured in **294** hectares in 2024

1.7 million trees nurtured in **3,434** hectares since 2006

Key watersheds of Manila Water

GRI 2016: 304-1, TNFD

Upper Marikina

Total area of the watershed:
29,505.8 hectares
Protected Area as a Protected
landscape (Presidential
Proclamation No. 296, 2011)



General Nakar

Composed of Kaliwa, Kanan, Umiray
and 13 minor watersheds
Total area of the watershed: 186,298 hectares
Kaliwa and Umiray watersheds as a
Forest Reserve (Presidential Proclamation
No. 573, 1969)



Ipo

Total area of the watershed:
6,600 hectares
Protected Area as a
Forest Reserve (Presidential
Proclamation No. 391 La
Mesa, 1968)



La Mesa

Total area of the watershed: 2,659
hectares
Protected Area as a Watershed
Reservation (Presidential
Proclamation No. 1336, 2007)



Nabaoy

Total area of the watershed:
2,375 hectares
Part of Northwest Panay Peninsula
Nature Park which is considered
as Protected Area under
RA7586 (NIPAS Act of 1992)



Luyang

Total area of the
watershed: 5,539 hectares



Pan-As Hayiban

Total area of the watershed:
5,067 hectares
Protected Area as a
Protected Landscape
(RA 7586: NIPAS Act of 1992
and RA 11038: Expanded
NIPAS Act of 2018)



Legend:

Community Development Watershed Protection Reforestation and Enrichment

Management Actions

GRI:2016: 304-3, 304-4

East Zone

Ipo Watershed



Funds the ongoing protection of the watershed, including patrols by 60 forest rangers ("Bantay Gubat") comprised of local community members and Dumagat indigenous people.



Supports forest landscape restoration, planted 80,000 trees across 200 hectares in 2024 in partnership with the City of San Jose Del Monte Yapak Tour Guides Inc., a People's Organization of Dumagat and local community members. This initiative is part of Manila Water's commitment to Metropolitan Waterworks and Sewerage System (MWSS) Annual Million Tree (AMTC).



Through the Manila Water Foundation's Water, Sanitation, and Hygiene (WASH) program, provided 30 family sanitation facilities in Sitio Sapang Munti, benefiting 500 residents.



Protected Threatened Species based on the International Union for Conservation on Nature (IUCN)¹ :

Critically endangered: Yakal saplungan (*Hopea plagata* (syn *H.odorata*))

Endangered: Apitong (*Dipterocarpus grandiflorus* (Blanco)), Kape (*Coffea arabica* Linn.), Narra (*Pterocarpus indicus* Willd.), Teak (*Tectona grandis*)

Vulnerable: Mahogany (*Swietenia macrophylla*), Paho (*Palaquium luzoniense* (Fern.- Vill.), Palosapis (*Anisoptera thurifera* Blume.), Sakat (*Terminalia nitens*), Takip-asin (*Macaranga grandifolia*)

Additional Protected Threatened Species based on DENR Department Administrative Order(DAO) 2017-11¹ :

Vulnerable: Bolong-eta (*Diospyros philosantha* Blanco), Kalantas (*Toona calantas* Merr. & Rolfe), Makaasim (*Syzygium nitidum* Benth), Malabayabas (*Tristanopsis decorticata* (Merr.), Pahutan (*Mangifera altissima* Blanco), Tanguile (*Shorea polysperma*)

¹ Threatened species that were recorded in Ipo and La Mesa watersheds during the Forest Carbon Accounting by Center for Conservation Innovations Philippines, Inc., Manila Water's partner in the project in 2023.

East Zone

La Mesa Watershed



Provides ongoing protection through foot patrols conducted by 50 forest protection officers, with Manila Water contributing half of the funding.



Planted 18,500 native trees across 44 hectares in 2024 as part of Manila Water's MWSS AMTC.



Planted 2,280 native trees at the La Mesa Ecopark with Manila Water employees and external partners. The La Mesa Ecopark has been under the management of MWF since 2024.



Conducted weeding of mahogany seedlings to control the spread of this non-native species.



Protected Threatened Species based on the IUCN^{1,2}:

Endangered: Teak (*Tectona grandis*), Narra (*Pterocarpus indicus*), Narra (red/prickly) (*Pterocarpus indicus forma echinatus*), Teak (*Tectona grandis*), Mahogany (big leaf) (*Swietenia macrophylla*)

Vulnerable: Magabuyo (*Celtis luzonica*), Hagupit/Is-is (*Ficus ulmifolia* Lam.), Mahogany (S) (*Swietenia macrophylla*), Palosapis (*Anisoptera thurifer*), Philippine Eagle-Owl (*Ketupa philippensis*), Ashy Thrush (*Geokichla cinerea*), Santol (*Sandoricum koetjape*)

Additional Protected Threatened Species based on DENR DAO 2017-11 and 2019-09^{1,2}:

Critically Endangered: Philippine Hanging Parrot (*Loriculus philippensis*)

Endangered: Beri/Bari (*Aquilaria malacensis* Lam.), Molave (*Vitex parviflora*)

Vulnerable: Kalantas (*Toona calantas* Merr.), Kamagong (*Diospyros discolor*), Lauan (*Shorea contorta*), Makaasim (*Syzygium nitidum* Benth), Lamio (*Dracontomelon edule*), Mangga Pahutan (*Mangifera altissima*), Kamagong (*Diospyros cf. philippinensis*), Kamagong (*Diospyros blancoi*), Bolong-eta (*Diospyros pilosanthera*), Ipil (*Intsia bijuga*), Rambutan (*Nephelium lappaceum*)

Other Threatened Species: Amugis (*Koordersiodendron pinnatum*), Pili (*Canarium ovatum*), Malasaging (*Aglaia edulis*), Anahaw (*Saribus rotundifolius*), Tokay gecko (*Gekko gekko*), Marbled crested lizard (*Bronchocela marmorata*), Luzon monitor lizard (*Varanus marmoratus*), Red-tailed green ratsnake (*Gonyosoma oxycephalum*), Northern Philippine Cobra (*Naja philippinensis*), Reticulated python (*Malayopython reticulatus*)

Biodiversity Value³:

Flora: Shannon Diversity (H) Index = 1.8184. High biodiversity value for it falls within the range of 1.5-3.5

Fauna: 29 bird families, 47 species

¹ Threatened species that were recorded in Ipo and La Mesa watersheds during the Forest Carbon Accounting by Center for Conservation Innovations Philippines, Inc., Manila Water's partner in the project in 2023.

² Source: Identifying Identifying High Conservation Values in the La Mesa Ecopark, Center for Conservation Innovations Philippines, Inc., 2024.







³ Source: Integrated Watershed Management Plan for the La Mesa Watershed Reservation for 25 Years

East Zone


General Nakar

(Kaliwa, Kanan, Umiray, and 13 minor watersheds)

Manila Water provides half of the funding for the General Nakar Sustainable Integrated Area Development (GNSIAD) Project for the management of General Nakar watersheds. The Project is in partnership with the General Nakar LGU, MWSS, and Maynilad. The following are the 2024 accomplishments:

-  Protected the entire Kaliwa, Kanan, Umiray, and 13 minor watersheds through patrols conducted by 51 forest protection officers and 2 Biniang Watershed Guards.
-  Planted 26,021 native forest and fruit trees in 36.50 hectares.
-  Assisted Indigenous Peoples (IPs) and non-IP communities with community development, WASH, and alternative sustainable livelihood programs.
-  Provided scholarships to 18 underprivileged students, including members of indigenous groups residing in the watersheds. These students are pursuing degrees in Agriculture, Environmental Science, and Biology.
-  Improved solid waste management through the establishment of Materials Recovery Facilities and providing vehicles for collecting recyclables and waste.
-  Conducted Information, Education, and Communication (IEC) campaigns for communities and schools on environmental protection, watershed conservation, and climate change.

Protected Threatened Species based on IUCN⁴:

-  **Endangered:** Dalindingan (*Hopea foxworthyi*), Dao (*Dracontamelon dao*), Molave (*Vitex parviflora*), Narra (*Pterocarpus indicus*), Tiaong (*Shorea ovata*)
- Vulnerable:** Apitong (*Dipterocarpus grandifloras*), Almaciga (*Agathis philippinensis*), Malabayabas (*Tristanopsis decorticata*), Nato (*Palaquium luzoniense*), Cordillera ground-warbler (*Robsonius rabori*)





Additional Protected Threatened Species based on DENR DAO 2017-11⁴:

- Critically Endangered:** Alupag (*Dimocarpus longan*), Kamagong (*Diospyros bicolor*), Red Lauan (*Shorea negrosensis*), Tanguile (*Shorea polysperma*), White Lauan (*Shorea contorta*), Makaasim (*Syzygium nitidum Benth.*)
- Endangered:** Batikuling (*Litsea leytensis*), Jade vine (*Strongylodon macrobotrys*), Tayabak (*Strongylodon macrobotrys*)
- Vulnerable:** Pahutan (*Mangifera altissima*), Bolong-eta (*Diospyros philosanthra Blanco*), Balobo (*Diplodiscus paniculatus*), Kalantas (*Toona calantas*)

Biodiversity Value⁵:

- Flora:** Shannon Diversity (H') = 4.71. Very High Diversity
- Fauna:** Shannon Diversity = 2.795. Moderate Diversity

Upper Marikina

-  Through the People's Organization Tulungan sa Kabuhayan ng Calawis, Inc (TSKC), we conducted the protection through regular patrolling and maintenance of the 93,750 trees planted on 150 hectares.
-  Constructed 10 meters x 150 meters fire line in fire-prone areas and repaired the patrol base
-  The DENR Validation showed that the trees planted have a 90% survival rate. TSKC replanted 14,063 trees in 2024 to replace the trees.
-  A total of 24 beneficiaries/workers (11 – IPs and 13 non-IPs) of TSKC were provided with green jobs.

⁴ Threatened species were inventoried during the foot patrolling in General Nakar Watershed

⁵ Source: New Centennial Water Source - Kaliwa Dam Project Environmental Impact Statement (EIS) Link: https://emb.gov.ph/wp-content/uploads/2019/08/Kaliwa-Dam_EIS.pdf

Non- East Zone

Nabaoy Watershed (Boracay Water)



Planted 250 Tabao, and Baslayan seedlings, which were brought from Nabaoy Forest Farmers Development Association (NAFFDA), as part of the adopted 40 hectares in Nabaoy Watershed.

Luyang Watershed (Cebu Water)



Planted 2,000 Mabolo and Mahogany seedlings together with stakeholders

Pan As Hayiban Watershed (Calbayog Water)



Planted 625 Cacao, Coffee, Toog, Guyabano, Caiomito & Pili trees in the adopted 1.25 hectares per year. This is in partnership with DENR, the Protected Area Management Office, Calbayog City Water District, and the Calbayog LGU

Laguna Water

Management Action:



Planted 1,025 katmon, santol, atis, guyabano, marang, rambutan, and cacao in Silang, Cavite for groundwater recharge in partnership with Sta, Rosa City LGU

Total Trees Planted

Business Unit	Watershed/Location	Years Covered	Hectares Reforested	Total Number of Trees Planted
East Zone	Ipo Watershed	2006-2024	1,078	459,868
East Zone	La Mesa Watershed	2008-2024	1,216	488,929
Manila Water Foundation	La Mesa Ecopark (part of La Mesa watershed)	2024	8	2,280
East Zone	Upper Marikina Watershed	2010-2024	907	566,813
East Zone	General Nakar Watershed	2018-2024	165	91,374
Boracay Water	Nabaoy Watershed	2013-2024	29	67,621
Clark Water	Clark	2014-2024	9	7,790
Laguna Water	Laguna	2014-2024	10	5,545
Calbayog Water	Pan As Hayiban Watershed	2021- 2024	5	2,500
Cebu Water	Luyang Watershed	2022 – 2024	5	4,500
Estate Water	Bataan	2023- 2024	1	400
	Total		3,434	1,697,620

Out of the 1.7 million planted since 2006, we planted 124,053 diverse species of trees in 291 hectares. We protected a total area of 195,727 in 2024.



Building a resilient watershed, one tree at a time

2024 Trees Planted

Business Unit	Watershed/ Location	Area Protected, hectares	Area Planted, hectares	Number of Trees planted	Species of planted trees
East Zone	Ipo Watershed	6,600 ⁶	200	80,000	Narra, Kupang, Tibig, Palosapis, Dungon, Malamangga, Palosapis, Hawili, Lauan
	La Mesa Watershed	2,659 ⁷	44.0	18,500	Yakal, Palosapis, Narra, Lago, Makaasim
	General Nakar Watershed	186,298 ⁸	36.50	26,021	Balobo, Batikuling, Kamagong, Katmon, Lipote, Narra, Agoho, Bagtikan, Bolala, Kuling Manok, Malabayabas, Malaruhad, Mayapis, Tiaong, Amamaho, Dudua, Lipoteng gubat, Tigutig, Tuai, Mahogany, Kawayang Tinik, Potat, Lanete, Makaasim, Santol, Yakal, Almaciga, Lauan, Lusikan
	Upper Marikina Watershed	150	-	-	
Boracay Water	Nabaoy Watershed	20	0.5	250	Tabao, Baslayan
Calbayog Water	Pan-as Hayiban Watershed	-	1.25	625	Cacao, Coffee, Toog, Guyabano, Caiomito, Pili
Cebu Water	Luyang Watershed	-	2.4	2,000	Mabolo, Mahogany
Clark Water	Clark STP	-	0.04	150	Ylang Ylang
Laguna Water	Laguna Lake	-	1.5	1,025	Katmon, Santol, Atis, Guyabano, Marang, Rambutan, Cacao
Estate Water	Anvaya Cove	-	0.5	200	Balitbitan, Banaba
Manila Water Foundation	La Mesa Ecopark	-	8	2,280	Antipolo, Bignai, Kupang, Narra, Yakal
Total		195,727	294.19	131,051	

⁶ Through Bantay Gubat⁷ Through Forest Patrol Officers⁸ Through SIAD Project of Gen. Nakar; Includes protection of Kaliwa, Kanan, Umiray and minor watersheds

Pasibol Tree Nurturing Program

Our Pasibol Puno ng Pag-asa Program is a company-wide, employee-driven initiative that fosters environmental stewardship. In its second year, the program engaged 427 employees and 846 partner volunteers in 14 tree-planting events. Together, we planted 8,500 trees in multiple watershed locations and weeded exotic mahogany seedlings in La Mesa Watershed in 2024, strengthening our commitment to tree nurturing and watershed care.



Boracay Highland to Ocean (H2O) Program



Boracay Water's holistic "Boracay H2O" (Boracay Highland to Ocean) program protects the environment by preserving water sources from the mountains of Nabaoy (Highland), through the Nabaoy River and watershed, down to the surrounding ocean reefs (Ocean). Partnering with public and private stakeholders, Boracay Water implements initiatives covering watershed and river management, wastewater and solid waste management (through the "Amot Amot Kita a Malimpyong Boracay" campaign – Let's do our share for a cleaner Boracay), coastal resource management, advocacy, and governance.

Annual Million Tree Challenge



The Annual Million Tree Challenge (AMTC), led by the MWSS, aims to rehabilitate six critical watersheds that supply water to MWSS service areas: La Mesa, Ipo, Angat, Umiray, Laguna Lake, and Upper Marikina.

Since 2017, we have contributed to the AMTC with over 660,000 trees planted and nurtured, with 18,500 trees planted in La Mesa and 80,000 in Ipo in 2024. This underscores our active participation and ongoing commitment to this initiative.