

VOL.1 No. 01 • September 2021

FLOW

FOR THE LOVE OF WATERSHEDS

A Quarterly Water & Environment Journal Published by Million Trees Foundation Inc.



**Five Years of AMTC and the
Million Trees Foundation, Inc.**

MANAGING OUR WATER SUPPLY

Over 1.3 Million Connections



PROTECTING OUR WATER SOURCES

Over Half A Million Trees Planted



Maynilad

Higit sa tubig ang aming serbisyo

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Our Cover

On the cover is the top view of La Mesa watershed, now slowly regaining its forest cover. It hosts the La Mesa Dam and Reservoir supplying much of the water to Metro Manila.



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Publisher's Note



MELANDREW T. VELASCO
MTFI President & Executive Director



In this maiden issue, FLOW presents the accomplishments of the Annual Million Tree Challenge (AMTC), the watershed rehabilitation program of the Metropolitan Waterworks and Sewerage System since it was launched in 2017 by MWSS Administrator now Chairman Gen. Reynaldo V. Velasco. Having been one of the think tank and primary movers of the AMTC, I am extremely elated on how far this project has come a long way in planting millions of trees and in protecting seven critical watersheds that are sources of potable water to Metro Manila and its environs.

Let a Million Trees Grow and Bloom

“Every man should plant a tree, have a child, and write a book. These all live on after us, insuring a measure of immortality.”

The above quote and words of wisdom are greatly attributed to the Talmud and Jose Martí, Cuban revolutionary and poet.

In all candor and humility, I have already achieved those three prescriptions of having a full life on earth at 56: planted hundreds or even thousands of trees; sired four lovely and wonderful children with my wife Tess; and, written and published over 40 books over the last two decades.

Planting and loving trees have always been part of my existence. In fact, I love hugging trees. Whenever I have the opportunity, I always hug big trees whenever I travel or go for a leisurely walk here in the Philippines and while on visits to foreign lands.

I always regard trees as healthy beings which help and absorb our ailments, problems and emotional baggages.

In Japan, there is a health practice called forest bathing, or *shinrin-yoku*. *Shinrin* in Japanese means “forest,” and *yoku* means “bath.” So *shinrin-yoku* means bathing in the forest atmosphere, or taking in the forest through our senses.

It is not exercise, or hiking, or jogging. It is simply being one with nature, being connected with it through our senses of sight, hearing, taste, smell and touch. Much like a bridge, *Shinrin-yoku* bridges the gap between us and the natural world.

Welcome to FLOW Magazine!

The idea to publish another magazine in the mold of the Water & Environment Journal has always been in the pipeline after WEJ was put on hold after decades of publishing it with the Philippine Water Works Association (PWWA). The creation and eventual registration of the Million Tree Foundation, Inc. (MTFI) at the Securities and Exchange Commission provided the impetus needed to push through with the magazine.

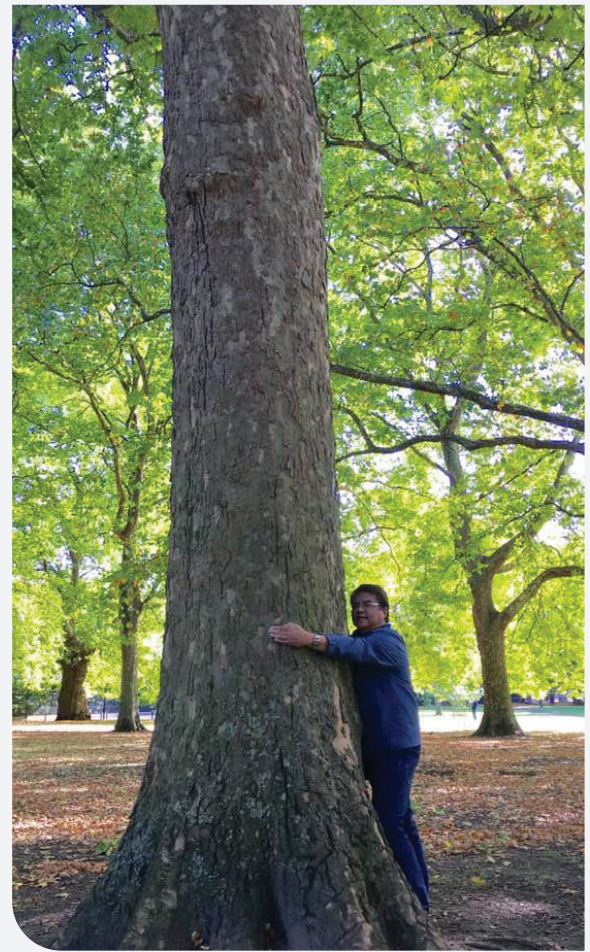
FLOW—For the Love of Watersheds— was suggested by MFTI trustee and MTFI Creative Director Michelle C. Manuel as the magazine’s name. Flow is simply defined as the action or fact of moving along in a steady, continuous stream and is often associated with water.

When one thinks of water, one is reminded that this precious resource, with its depleting supply, could turn into a crisis and cause “water stress”. One way of preventing this is to take care of the watersheds. FLOW magazine will endeavor to provide the necessary data, information and latest developments in watershed management to encourage more stakeholders to participate in the rehabilitation of these watersheds. In this maiden issue, FLOW presents the accomplishments of the Annual Million Tree Challenge (AMTC), the watershed rehabilitation program of the Metropolitan Waterworks and Sewerage System since it was launched in 2017 by MWSS Administrator now Chairman Gen. Reynaldo V. Velasco. Having been one of the think tank and primary movers of the AMTC, I am extremely elated on how far this project has come a long way in planting millions of trees and in protecting seven critical watersheds that are sources of potable water to Metro Manila and its environs.

Along with this AMTC 5-year accomplishment report, FLOW features on the awardees of the AMTC—the participating partners—who have immensely contributed to the achievement of the AMTC target of one million trees planted every year.

The magazine also devotes pages for AMTC’s institutional partners namely: Maynilad Water Services, Inc., Manila Water Company, Inc., and San Miguel Corporation. Since each of these private entities have their respective programs on environment protection, these are included in the articles. Highlighting the many untold stories of civic organizations and their endeavors to promote environment awareness and protection, FLOW features the JCI Senate Green Link project, the Philippine Bamboo Industry Development Council (PBIDC), and the Rotary District 3780. To bring it home when addressing deforestation and watershed rehabilitation, FLOW has articles on the reforestation efforts of WWF in Ipo Dam in a heartwarming piece by written by WWF Project Manager Paolo Pagaduan as well as Fr. Ben Beltran’s Mga Anak ni Inang Daigdig as the group plants bamboo trees along the Marikina River. Bamboo is known to help mitigate soil erosion and improve soil quality.

While this maiden issue highlights the Annual Million Tree Challenge, it also focuses attention on the publisher of this magazine Million Tree Foundation, Inc. (MFTI). A new partner of the AMTC, MFTI plans to widen the scope of the watershed rehabilitation project. Learn about its vision, mission, objectives and programs from the pages of the magazine. Read about the MFTI nursery that is being built at the MWSS compound. This nursery is a major component of the watershed rehabilitation program. There are still no regular sections in the magazine yet.



MTV hugs a tree at Royal Hyde Park in London.

Planting and loving trees have always been part of my existence. In fact, I love hugging trees. Whenever I have the opportunity, I always hug big trees whenever I travel or go for a leisurely walk here in the Philippines and while on visits to foreign lands.

But we intend to come up with regular sections in the next quarterly issues to bring to our readers the latest technology and trends on tree-planting, watershed protection and management and related industries. As we look forward to more issues of FLOW, we thank you dear readers, our MFTI institutional partners and AMTC partner stakeholders for loving the trees and protecting the watersheds.

Let’s all keep our energies flowing for the love of watersheds and Mother Earth.



ANNUAL MILLION TREE CHALLENGE

ONE MILLION TREES YEARLY FOR SEVEN WATERSHEDS:
FOR CLEANER WATER AND ENVIRONMENT

UMIRAY • ANGAT • IPO • LA MESA • MARIKINA
LAGUNA LAKE • MANILA BAY

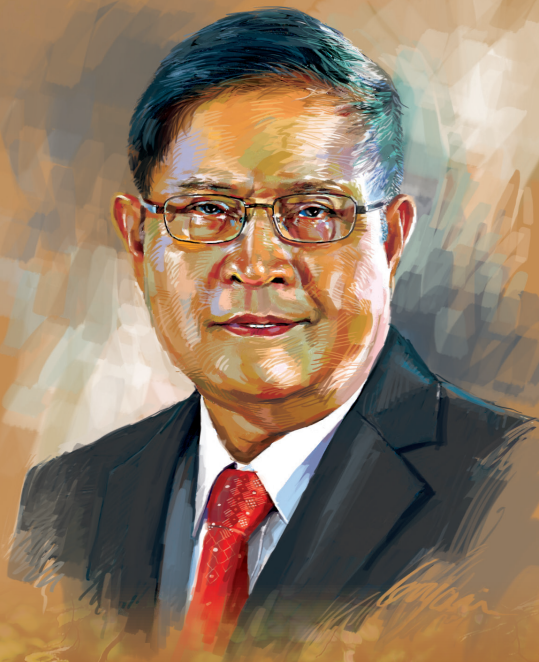


A SPECIAL PROJECT OF
MWSS AND DENR



IN PARTNERSHIP WITH





Gen. Reynaldo V. Velasco (Ret)
MWSS CHAIRMAN &
ADMINISTRATOR
CHAIRMAN EMERITUS, MTFI



This magazine is a welcome addition to the already existing journals on environment protection. While it is a magazine that aims to increase awareness on the need to take care of the environment, it will focus more on watershed protection and management.

Ensuring AMTC Sustainability

Allow me to congratulate the Million Trees Foundation, Inc. (MTFI) for coming up with the FLOW magazine.

The acronym FLOW which means For the Love of Watershed captures the very essence of what we at the MWSS have been advocating for these past five years through our Annual Million Tree Challenge.

I am confident that the Annual Million Tree Challenge that I initiated will be sustained with the establishment of the MTFI and the publication of this magazine. It is my hope that more watersheds will benefit from its tree-planting and reforestation programs, which are among the watershed management strategies of the Foundation.

The invaluable support from the concessionaires of MWSS--Manila Water, Maynilad and Luzon Clean Water Development Corporation—has contributed much to the success of AMTC even as each concessionaire also have their respective reforestation programs.

This magazine is a welcome addition to the already existing journals on environment protection. While it is a magazine that aims to increase awareness on the need to take care of the environment, it will focus more on watershed protection and management. I am an advocate for an integrated watershed management plan as the watersheds' environmental conditions directly impinge on the quality and amount of potable water supply.

Watersheds are not only crucial in the provision of water for agricultural, domestic and industrial purposes. They also serve as habitats to diverse plant and animal species; and play other ecological functions such as flood mitigation. Illegal logging, grazing and mining are some of the human activities that have adversely affected the state of our country's watersheds. Despite the growing awareness of environmental protection among Filipinos, much still needs to be done to raise that awareness to the ideal level.

For us at the water agency that services the Greater Manila area, the critical state of the seven watersheds-- Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina including Manila Bay—that are beneficiaries of the AMTC is a cause for worry because it greatly affects the water supply in the country's busiest economic center.

But we are making headway to achieve water security. Our progress can be gleaned from the increased population being served. To further improve this, we have embarked on water infrastructure projects.

According to the 2020 Asian Water Development Outlook, in terms of urban water security the Philippines scored 16.8 out of 20, one of the three best performers in the ASEAN region. Urban Water Security measures the extent countries provide safely managed and affordable water and sanitation services for their urban communities to sustainably achieve desired outcomes. In the same report, the Philippines recorded the highest National Water Security score increase from 2013 to 2020 among ASEAN member states.

More can be done to improve the performance of the water industry sector. Better watershed management will definitely be a key. FLOW magazine will provide the information, updates and latest technological advances necessary for this.

Here's hoping for its success. Mabuhay!

The AMTC

FIVE-YEAR

Accomplishment Report

Four years after its maiden launch, AMTC is now on its way to surpassing its targets. To be specific, over four million trees have already been planted in the identified denuded areas of these watersheds, while about 9,509.375 hectares of Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina including Manila Bay have already been reforested because of the project.

The AMTC (Annual Million Tree Challenge) is a five-year watershed rehabilitation program of the MWSS which aims to restore the health of seven critical watersheds that are crucial in supplying water to Metro Manila and neighboring provinces. The project also supports the National Greening Program of the government under the Department of Environment and Natural Resources to increase the country's forest cover that is continually threatened by deforestation. Deforestation causes soil erosion and decreasing groundwater resource, among others and these have affected many watersheds in the country.

It was on 23 June 2017 when multipartite stakeholders gathered at the Ipo Dam watershed and for the kick-off ceremony of the Annual Million Tree Challenge. The activity ushered in the 140th founding anniversary celebration of the Metropolitan Waterworks and Sewerage System (MWSS).

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hectares of Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina including Manila Bay have already been reforested because of the project.

“One of the remarkable accomplishments of AMTC is increasing the forest cover of Ipo Watershed from 43 percent in 2017 to 81 percent in 2020,” Velasco said, adding that “sustainable nurturing of sapling trees planted take three years to maintain and sustain.”

Scorecard

Statistics from the MWSS Watershed Management Division, headed by Mr. Roman Corpuz, showed that participating agencies pledged to plant 1,508,000 saplings during the first year of AMTC. The pledges were from MWSS-RO, MWSS-CO, Manila Water, Maynilad, DENR NCR, DENR III, DENR IVA, Bantay Kalikasan, WWF (World Wildlife Fund) Philippines, UP Mountaineers, PWWA (Philippine Water Works Association), DepEd, and Angat Hyrdo Power. Actual trees planted totalled 1,337,800. Although Rotary Club District 3780 did not commit on the number of trees to be planted, it was able to plant 2,500 trees.



In 2018, the pledges reached 1,675,000 trees of which 1,027,467 were planted. Aside from the previously mentioned participating agencies, there were new project partners: JCI Senate Philippines, LGU of Gen. Nakar, Quezon, LLDA (Laguna Lake Development Authority), and U.P. Beta Sigma. During the year, there were participating agencies that planted more than the number of trees they committed namely Maynilad, DENR NCR, DENR III, UP Mountaineers, and JCI Senate Philippines. The local government unit of Gen. Nakar, Quezon and LLDA had no pledges but planted 11,835 and 22,590 trees, respectively.

In 2019, a total of 1,132,917 trees were planted out of 1,199,200 pledges. AMTC also gained new partners during the year: Luzon Clean Water Development Corporation, Mga Anak ni Inang Daigdig, and Bambuhay Social Enterprise bringing the number of participating agencies to 20. Manila Water, Maynilad, DENR NCR, DENR III, Bantay Kalikasan, WWF Philippines, LLDA, and Napocor planted more trees than they committed for the year.

Planting of one million trees for 2020 was not realized with government restrictions on movement to contain the transmission of the CoVid 19 disease as other project partners postponed their tree-planting activities. Pledges from nine participating agencies totalled only 212,000 for the year but actual trees planted reached 633,442. The participating agencies were MWSS-CO, MWSS-RO, Manila Water, Maynilad, Luzon Clean Water Development Corporation, DENR III, LGU-Gen. Nakar, Quezon, Bantay Kalikasan, and WWF Philippines.

Despite this, in its latest report dated 2 September 2021, the Watershed Management Division stated that the total number of saplings from 2017-2020 reached 4,131,626 still more than the cumulative target of four million in four years.

“We have planted more than 4 million trees in the span of four years, including this time of pandemic. This year, despite COVID-19, we are targeting to meet another one million so we can surpass the five million trees target,” Melandrew Velasco, executive director of Million Trees Foundation Inc. (MTFI), said.

For the period 2017-2020, DENR III planted the most number of seedlings at 1,817,678. The other top performers in terms of number of seedlings planted were DENR NCR (371,055), DENR IV-A (352, 165), Manila Water (346,000), Maynilad (309,120), and WWF Philippines (211,100).

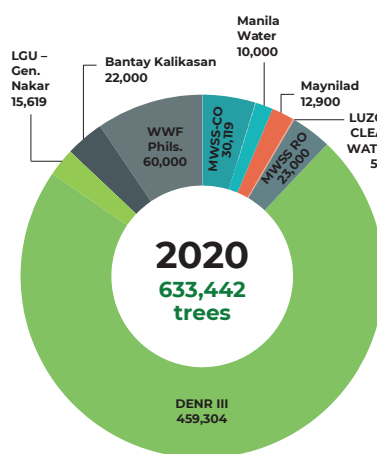
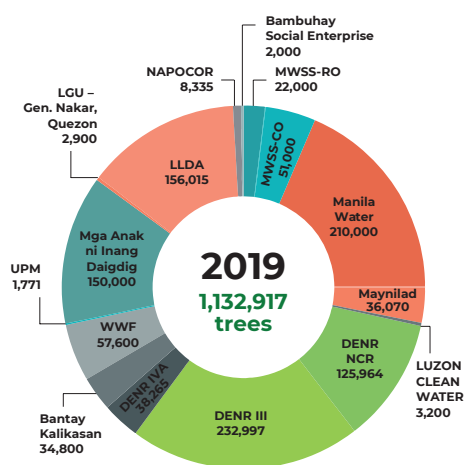
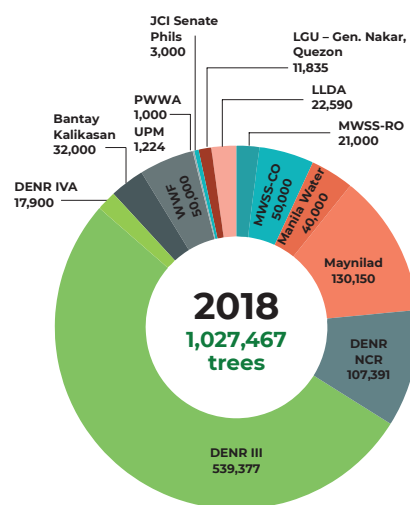
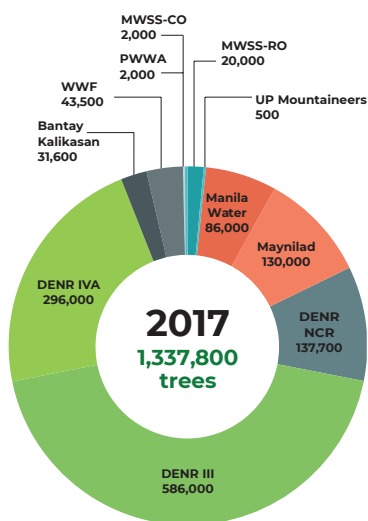
For the same period, statistics on seedlings planted by other participating partners are: ALKFI-BK (120,400), Anak ng Inang Daigdig (150,000), Bambuhay Social Enterprise (2,000), JCI Senate Philippines (3,000), LCWDC (3,700), LLDA (178,605), LGU-Gen. Nakar, Quezon (30,354), MWSS-RO (86,000), MWSS-CO

(133,119), Napocor (8,335) PWWA (3,000), Rotary Club District 3780 (2,500), and UP Mountaineers (3,495).

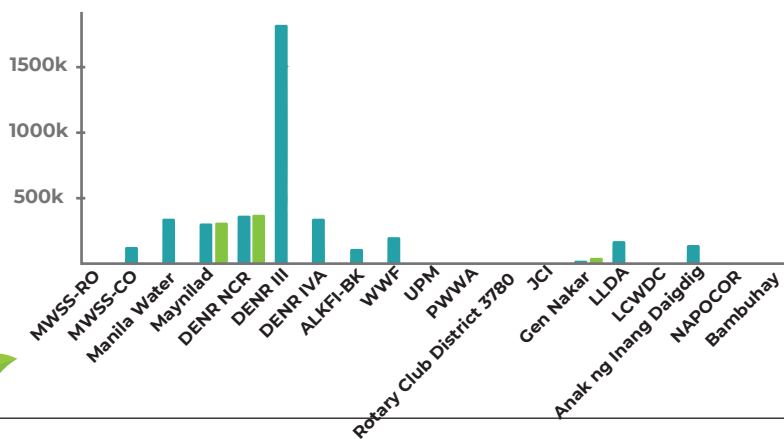
Through the AMTC, Ipo-Angat watershed reforested area was 5,035.19 hectares; La Mesa, 1,723.39; Laguna Lake-Manila Bay, 670.965; Kaliwa-Umiray, 150.84; and Upper Marikina, 1,928.99.

The statistics are regularly updated as soon as reports from partner agencies are submitted.

During AMTC's pledging session in February this year, 12 participating agencies committed 819,200 seedlings for the year.



4,131,626
MILLION
from 2017-2020





Sustaining AMTC

To ensure the continuity of the AMTC and expand its coverage throughout the country, advocacy stakeholders of the project have organized the MTFI, now the official NGO partner organization of MWSS and the Department of Environment and Natural Resources (DENR).

MTFI will actively help in the implementation of AMTC collaborating with individuals, groups, government and other private organizations here and overseas to address watershed management concerns.

Aside from MAID (Mga Anak ni Inang Daigdig), other institutional partners of MTFI include San Miguel Corporation President and CEO Ramon S. Ang, Manila Water President and CEO Enrique K. Razon, Maynilad President Ramoncito S. Fernandez and Prime Infra.

“The Million Trees Foundation Incorporated was primarily created to support the Annual Million Trees Challenge of MWSS. So basically, it is to help protect the seven watersheds areas, namely La Mesa, Ipo, Angat, Umiray, Laguna Lake, Marikina, and even Manila Bay. These watershed areas supply water to the metropolis and its environs,” the MTFI chief said. “So we would like to continue this noble advocacy of planting million trees every year – a noble project started in 2017 by MWSS Administrator Reynaldo Velasco targeting the planting of one million trees a year for five years until 2022. So we would like to pursue that. The Million Trees Foundation will be here as a complementary organization for MWSS’ AMTC project,” he added

This year signifies a new beginning for the AMTC for whatever strides AMTC has achieved to improve the conditions of the watersheds will be carried and improved on by MFTI to generate a sustainable watershed management program.



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MELANDREW T. VELASCO
MTFI Executive Director





★ AWARDS & RECOGNITION ★

14 SEPTEMBER 2021

CHAMPION OF TREES

- Luzon Clean Water Development Corporation
- Philippine Water Works Association, Inc.
- Rotary International District 3780
- UP Beta Sigma International
- Boy Scout of the Philippines
- JCI Senate Philippines
- Million Tree Foundation, Inc.
- MWSS Regulatory Office
- Maynilad Water Services, Inc.
- Manila Water Company, Inc.
- DENR Region 3 – PENRO Bulacan
- DENR Region 4 A – PENRO Rizal
- DENR National Capital Region
- Laguna Lake Development Authority (LLDA)
- Municipality of General Nakar, Quezon
- ABS CBN Lingkod Kapamilya Foundation, Inc.
– Bantay Kalikasan (ALKFI – BK)
- World Wide Fund for Nature
– Philippines (WWF Philippines)
- UP Mountaineers, Inc.
- Mga Anak ni Inang Daigdig, Inc.

KAMPEON NG TUBIG

REGINA PAZ L. LOPEZ
Former Managing Director, ALKFI

ROY A. CIMATU
Secretary, DENR

PLTGEN REYNALDO V. VELASCO
Chairman, Board of Trustees and Concurrent
OIC Administrator, MWSS

ELISEO R. RUZOL
Municipal Mayor, General Nakar,
Quezon and Chairperson, GNSIAD PMG

Forester EMMANUEL A. UMALI
Department Manager, Watershed Management
Department, National Power Corporation

Forester FRANCISCO E. MILLA, JR.,
CESO III Regional Executive Director,
DENR Region 5

SPECIAL PLAQUE OF APPRECIATION

MELANDREW T. VELASCO
President & CEO, MTFI



DENR gives 100% support to AMTC

by JULIE ANN PASTRANA

Mandated to protect and restore the quality of our environment, the Department of Environment and Natural Resources (DENR) is also fully committed to the Annual Million Trees Challenge (AMTC), a project launched by Metropolitan Waterworks and Sewerage System (MWSS) Chairman and Acting Administrator Reynaldo V. Velasco.

For this year alone, the DENR, through two of its regional offices, pledged to plant nearly 400,000 trees as part of the AMTC project.

Launched in February 2017, AMTC is a five-year program that aims to restore the health of seven watersheds supplying water to Metro Manila and neighbouring provinces.

The project particularly targets to plant one million trees per year from 2017 to 2022 in areas surrounding these watersheds. These watersheds are Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina.

Also included in the list of AMTC is Manila Bay, which is currently undergoing rehabilitation under the direct supervision of the DENR.

This program is a response to President Rodrigo Duterte's socio-economic development agenda, the Philippine Development Plan (PDP) 2017-2022, which focuses areas on biodiversity conservation and convergence/complementation of resources.

It is also in line with the National Greening Program, which is being implemented by the DENR, the principal government agency accountable for the conservation management, development, and proper use of the country's environment and natural resources, specifically forest and grazing lands, mineral resources, including those in reservation and watershed areas.

For this year alone, the DENR, through two of its regional offices, pledged to plant nearly 400,000 trees as part of the AMTC project.



DENR National Capital Region received a certificate and plaque from the MWSS in recognition of its significant role and active participation in the successful implementation of its Annual Million Tree Challenge (AMTC) project. The certificate and plaque was awarded by PDDG Reynaldo V. Velasco (Ret.), MWSS Board of Trustee Chairman and Lt. Gen. Emmanuel B. Salamat (Ret.), MWSS Administrator/Vice Chairman MWSS Board of Trustee to DENR National Capital Region Regional Executive Director Jacqueline A. Caancan, in a ceremony held on 01 October 2019, at the MWSS head office in Diliman, Quezon City.

DENR and AMTC through the years

Meanwhile, the DENR's commitment to AMTC has started as soon as the project was launched. In 2017, Environment Secretary Roy Cimatu met with top officials of DENR, MWSS and its concessionaires, Maynilad Water Services Inc. and Manila Water Company Inc., in an executive conference to show his agency's commitment of support to AMTC.

"I would like to thank and commend MWSS Administrator Velasco for his commitment and advocacy in helping DENR in our mandate to preserve and conserve our environment through this Annual Million Tree Challenge," he said during the meeting.

"I am very much honored to become a part of this project. DENR will include this under its National Greening Program (NGP) in the next five years and will make the protection of the identified six watersheds as top priorities," he added.

To be specific, MWSS is mandated to provide an uninterrupted and continuous supply of potable water in Metro Manila and nearby areas. The agency particularly taps raw water from the critical watersheds of the Southern Sierra Madre Mountains (i.e., Umiray, Angat, Ipo, La Mesa, and Laguna de Bay), with Angat Dam as its primary source.

"Recognizing the importance of watersheds in supporting the water supply of Metro Manila and adjoining provinces, MWSS needs to come up with an integrated approach toward sustainable management and protection of the watersheds," Velasco said earlier when referring to the AMTC project.

Based on the audit report of DENR, over four million trees have already been planted in the identified denuded areas of the watersheds as part of the AMTC. Likewise, about 9,509.375 hectares of watersheds involving Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina including Manila Bay have been reforested.

This means that four years after its launch, AMTC targets, thanks to its institutional partners like DENR, have already been surpassed.

Increasing the forest cover of Ipo Watershed from 43 percent in 2017 to 81 percent in 2020 is one of the remarkable accomplishments of AMTC, according to Velasco.

Meanwhile, throughout the country, the DENR has identified 143 critical watersheds. It is also important to note that the forest cover in the country has already dwindled significantly by 328,682 hectares (ha) from 7,168,400 hectares in 2003 to 6,839,718 hectares in 2010. This is an annual forest cover loss of 46,954 hectares.

FOREST COVERAGE OF IPO WATERSHED

2017
43%



2020
81%

Manila Bay,

THE NEW Boracay



Speaking of Manila Bay, the area, which is one of the areas benefitting from the AMTC, is now on its way to recovery, thanks to the efforts of DENR.

To pave way for the rehabilitation of Manila Bay, one of the most polluted coastal waters in the Philippines, Cimatu crafted a set of strategies. First, he got rid of the garbage in its coastline, then he approved the beach nourishment plan in the area.

Last year, albeit the project became controversial, the DENR vouched for the structural integrity and soundness of the Manila Bay beach nourishment project, citing initial assessments conducted by its experts.

“The dolomite overlay will not be totally washed out because we have installed engineering interventions in the perimeter of the sand,” DENR Undersecretary for Policy, Planning and International Affairs Jonas Leones said.

According to Leones, two sand-filled geotubes with a diameter of two meters were installed to mitigate soil erosion, prevent storm damage and provide stability to the project, and that the use of geotextile tube system is more economical than the traditional method of constructing a breakwater.



Environment Secretary Roy A. Cimatu on Wednesday met with Chief Justice Diosdado M. Peralta and five other justices of the Supreme Court to discuss the ongoing efforts to rehabilitate the historic Manila Bay. Image: DENR Official Facebook Page

DENR Undersecretary and Spokesperson Benny D. Antiporda said the DENR’s pool of experts—including marine scientists, biologists and geologists—are working on the project, and the agency welcomes a third party to conduct an audit.

He also said that of the P389 million allotted for the entire Manila Bay rehabilitation project, only 6 percent or P28 million was spent for the dolomite overlay.

This, while other issues such as planting of mangrove, protection of the ecosystem and biodiversity, fishing areas, and improvement of water quality are all being addressed simultaneously by the DENR and its partner agencies, Antiporda further said.

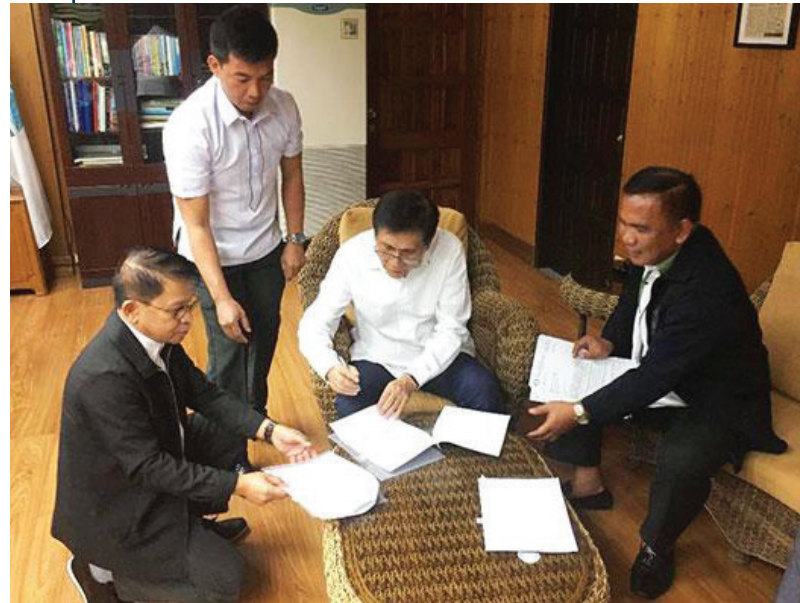
Saving *the* Watersheds

In 2019, the DENR has forged a partnership with National Irrigation Administration (NIA) for the purpose of effective management and development of the watersheds in the country. The deal was signed by Cimatú and NIA Administrator Ricardo R. Visaya.

The Memorandum of Agreement (MOA) between the two agencies provides that in coordination with DENR and Forest Management Bureau (FMB), NIA shall identify and recommend priority watersheds and reservations supporting irrigation projects which require immediate rehabilitation and development.

In collaboration with the DENR and other concerned agencies and instrumentalities, NIA shall also secure appropriate environment clearances and permits from the DENR or its field offices as necessary for the protection of watersheds and reservations.

As part of the partnership, and by the virtue of the DENR Memorandum Circular (DMC) No. 2008-05, the guidelines in the preparation of Integrated Watershed Management Plans (IWMP) and programs of all watersheds in the Philippines, regardless of their classification, size, use, and administrative jurisdiction, was issued.



In this regard, there is a need to establish and delineate the respective responsibilities of the DENR and NIA over watersheds and reservations, for purposes of effective management and development of programs and projects toward the sustainable existence of irrigation systems within the said areas.

Similarly, the concept of Watershed Ecosystem Management (WEM) from ridge to reef approach, including vulnerability assessment, must be harmonized and adopted.



NIA Administrator Ricardo R Visaya (Middle Left) and DENR Secretary Roy A. Cimatú during the signing of the Memorandum of Agreement (MOA) on watershed management at DENR Central Office, Diliman, Quezon City, together with some NIA and DENR staff and personnel.



From Seven to 142 Critical Watersheds

To ensure the sustainability of the AMTC project and to replicate its success in other areas, the Million Trees Foundation, Inc. (MTFI) was formed, and the organization is now here to support government efforts to save the country's critical watersheds areas.

MTFI is now the main institutional partner of MWSS when it comes to the implementation of the AMTC, which will culminate in 2022.



We are excited that over the next five, 10 years, this Million Trees Foundation nursery will be a center of activity for AMTC and in other areas, and we look forward that we will have more stakeholder and institutional partners to support this noble advocacy of protecting the watersheds, not only in the seven critical watershed areas but in other 142 critical watershed areas in the Philippines.

MELANDREW T. VELASCO
Executive Director, MTFi

Cimatu earlier estimated that there are 142 critical watersheds in the Philippines that need immediate protection and rehabilitation, and MTFI is now up for the challenge of saving not just the seven critical watersheds within the National Capital Region (NCR) and nearby areas but also those in other parts of the country.

As a start, MTFI is now building a five-hectare tree seedling nursery that will serve as a production and support arm of AMTC.

Melandrew Velasco, executive director of MTFI, said the nursery will provide optimum growing conditions to germinated seeds of tree species that will be transplanted in denuded areas within the critical watersheds in the country.

He also said the construction works for the organization's five-hectare tree seedling nursery has already started.

"We are excited that over the next five, 10 years, this Million Trees Foundation nursery will be a center of activity for AMTC and in other areas, and we look forward that we will have more stakeholder and institutional partners to support this noble advocacy of protecting the watersheds, not only in the seven critical watershed areas but in other 142 critical watershed areas in the Philippines," Velasco said.



For better Watershed management

by GIRLIE P. CANLAS

Sharing the passion for environment protection and inspired by the success of the Annual Million Tree Challenge (AMTC) project, civic-minded professionals decided to group together and continue the noble objectives of the project. They formed a non-stock and non-profit organization named Million Trees Foundation, Inc. (MTFI). On 16 March 2021, the Million Trees Foundation, Inc. was given juridical personality with the approval of its Constitution and By-laws and the grant of its Certificate of Incorporation by the Securities and Exchange Commission.

At the helm of MTFI is its Executive Director, author and publisher Melandrew T. Velasco, himself a member of several civic organizations like the Rotary Club and the JCI Senate Philippines, among others.

According to Velasco, the idea to organize MTFI was seeded by the success of the Annual Million Tree Challenge launched on 18 February 2017 by then Metropolitan Waterworks and Sewerage System (MWSS) Administrator PLt Gen. Reynaldo V. Velasco (ret.).

AMTC is a five-year watershed rehabilitation project to benefit seven critical watersheds that greatly impact on the water supply of Metro Manila and neighboring provinces which are in the jurisdiction of the MWSS. These watersheds are Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina including Manila

Bay. It involves planting of one million trees yearly in these watersheds. It is noteworthy that after four years and despite the challenge posed by the pandemic, the project is on track with over four million trees planted since 2017. When the project ends in 2022, it is expected that at least five million trees have already been planted by MWSS and its project partners.

The key objective of MTFI is to ensure the Annual Million Trees Challenge (AMTC) is sustained even beyond its five-year project duration.

It envisions a healthy natural environment that will complement government programs to achieve sustainable economic development. It aims to promote and enhance the value of shared responsibility in protecting and conserving the quality of environment and natural resources through tree-planting.



MTFI envisions a healthy natural environment that will complement government programs to achieve sustainable economic development. It aims to promote and enhance the value of shared responsibility in protecting and conserving the quality of environment and natural resources through tree-planting.

OBJECTIVES



The preservation and restoration of the ecosystem functions of watersheds nationwide aside from Angat, Ipo, La Mesa, Laguna Lake, Marikina and Umiray watersheds that are central to Metro Manila's source of potable water.



Conduct tree-planting activities to address erosion and forest denudation as means to mitigate flooding in collaboration with other organizations.



Engage in awareness campaign in support of the government's tree-planting/reforestation program and CSR environment projects of private corporations to include livelihood projects.



Establish a data bank to serve as depository of all statistics relevant to the activities of the Foundation. These statistics will include number of saplings planted, reforested areas, and forest area; and identify degraded forest needing restoration, among others.



Introduce automation and modern technology in tree-planting to fast-track achievement of tree-planting goals and sustainability

Programs

One of MTFI's programs is to rehabilitate other watersheds following the framework used in the rehabilitation of La Mesa dam. The River Basin Control Office of the DENR has identified 142 critical watersheds in the country. In a PIDS discussion paper (series no. 2004-24) authors Herminia Francisco and Agnes Rola wrote that several criteria define what constitute a critical watershed. According to them, the most important criterion is that of "being the support that the watershed provides to downstream communities such as irrigation water users, domestic water consumers, hydroelectric companies, or combinations thereof." Being a water supply support system makes it urgent to rehabilitate these watersheds.

Another program is to generate modules on tree-planting. These modules will not only teach the process of transplanting tree seedlings. These will also teach the communities the importance of trees to many living things and how the communities can inspire others to appreciate and enjoy trees.

MTFI also intends to encourage private corporations to adopt a specific area in a watershed for tree-planting and nurture planted saplings, as well as provide livelihood opportunities for indigent people and others to be tapped for maintaining their respective areas.

It will strengthen partnership with the private sector, educational institutions and people's organizations to ensure nurturing of planted saplings.

As part of its programs, MTFI will network with international foundations and entities focused on watershed management and planting of trees.

Other programs include the preparation of the five-year terminal report on the Annual Million Tree Challenge through publication and video documentary, among others; the production of multi-media platform materials on tree-planting and its benefits to the environment for mass distribution; and the publication of the bi-monthly/quarterly FLOW magazine.





Ylang-ylang



Narra tree in full bloom. Photo source: homegardeningph.wordpress.com

Among its strategies is to utilize drones for tree-planting especially in Rizal/Wawa watershed. The use of drones will mean more seeds planted compared to the traditional way of planting trees. The use of this technology has been very successful in many countries like Australia, South Africa and New Zealand. This is especially useful in very steep terrain.

It is also advocating for the planting of bamboos along river banks. It supports the bamboo reforestation project of Fr. Beltran's Mga Anak ni Inang Daigdig in the Marikina watershed. Bamboo roots absorb excess water, help cut soil losses, and minimize soil erosion and landslides.

Aside from planting bamboos, MTFI is advocating for the propagation of narra (*Pterocarpus indicus*) and ylang ylang (*Cananga odorata*). MTFI recognizes the urgent need to augment the dwindling narra tree population in the country. Not only do narra trees contribute to the ecosystem, they also provide livelihood to many. They serve as windbreak for crops and help stabilize the soil. Their trunks provide hardwood popular for furniture and other woodworks. They are also sources of charcoal briquette and paper pulp. Their flowers are significant sources of nectar which can be useful

for the beekeeping industry. Aside from these benefits, narra trees are sources of traditional medicine and herbal supplement. They are also ornamental and provide shade from the sun and can be a good input for ecotourism.

Another tree that is being pushed by MTFI for tree-planting activities is the ylang-ylang. Also called perfume tree its flowers are used to make several types of essential oil. It is used as an important ingredient for perfumes and scents in soaps, shampoos and body oils. Not many people know that in the 1800s, the Philippines was a major supplier of essential oil to perfume manufacturing countries including France where the big names of the perfume industry are found. A supporter of ylang-ylang propagation is Lingayen Mayor Leopoldo Bataoil. The ylang-ylang industry in Pangasinan has been eyed by investors. An increase in the ylang-ylang population is not only beneficial to the environment but also to smallholder farmers.

Livelihood Projects

While stewardship and being responsible for the watersheds is the main advocacy of the Foundation, it also seeks to provide livelihood opportunities, particularly to communities in the areas where tree-planting activities are conducted. These livelihood opportunities include take care of reforested areas following the template of Bantay Kalikasan and the development of industries such as wood carving.



MOA with MWSS

Collaboration is a key part in pursuing MTFI's objectives. Thus, it has forged a Memorandum of Agreement with MWSS.

As provided for in the MOA, MWSS recognizes MTFI as a non-government partner organization in the implementation of the AMTC. The water agency shall assign and designate five hectares in the MWSS property as site for a plant nursery free of charge. It is the responsibility of MTFI to select plant species for plant sites, undertake propagation research and updates on reforestation or rehabilitation methodologies in compliance with DENR policies. Likewise, the Foundation shall be responsible in providing necessary assistance in seed sourcing and in allocating and identifying possible sites for planting taking into account the vulnerability assessment and watershed management plans.

With the provision by MWSS of an area for a plant nursery free of charge, it is the task of MTFI to provide for the necessary equipment to be used in the plant nursery including payment of utilities; and manpower for the plant nursery.

The MOA also stipulated that MTFI shall provide available support to help ensure the successful and continuous implementation of the AMTC.



Wood carving projects of the Dumagat tribe.

As provided for in the MOA, MWSS recognizes MTFI as a non-government partner organization in the implementation of the AMTC. The water agency shall assign and designate five hectares in the MWSS property as site for a plant nursery free of charge. It is the responsibility of MTFI to select plant species for plant sites, undertake propagation research and updates on reforestation or rehabilitation methodologies in compliance with DENR policies.

As provided for in the MOA, a Core Group composed of representatives from MWSS, MTFI and other partner individuals, groups or organizations shall be created which shall meet regularly to monitor and evaluate activities undertaken pursuant to the MOA. Regular visits for monitoring purposes of designated project sites shall be conducted by the Core Group.



MOU signing between MTFI and JCI Senate Philippines and PJSF

MOU with JCI Senate Philippines/PJSF

Aside from inking an agreement with MWSS, MTFI forged a Memorandum of Understanding with JCI Senate Philippines and Philippine Jaycee Senate Foundation to lend support and participate in the watershed rehabilitation and enhancement initiatives within the watershed areas covered by the Annual Million Tree Challenge.

The five-year MOU provides that the MTFI shall assign and give access to the JCISP/PJSF areas inside the designated watershed for reforestation and rehabilitation purposes. The area to be assigned will cover from three to five hectares.

It will be the responsibility of the JCISP and the PJSF to secure funds to reforest and rehabilitate the assigned areas. The MOU also provides that the partner organizations JCISP and PJSF shall plant at least 1,000 “appropriate tree species” yearly during the term of the MOU, unless sooner terminated. JCISP and PJSF shall also be responsible for the regular maintenance of the planted seeds/saplings to ensure their survival. The partner organizations are expected to submit an accomplishment report on the project yearly to MTFI.



MTFI Chairman Emeritus Gen. Rey V. Velasco (Ret) during the MOU signing

Aside from assigning the areas to be reforested and rehabilitated by JCISP and PJSF, MTFI will provide the technical assistance to determine the number and type of the species to be produced or procured. It will also be responsible for the preparation of the designated areas prior to and after planting; and monitor and evaluate the project regularly, among others.

The accomplishments of the AMTC are noteworthy and with the establishment of MTFI, more can be done for the country’s watersheds and environment.

It starts with a NURSERY!



Government estimates showed that there are 142 critical watersheds in the Philippines that need immediate protection and rehabilitation, and Million Trees Foundation, Inc. (MTFI) is now up for the challenge of saving not just the seven critical watersheds within the National Capital Region (NCR) and nearby areas but also those in other parts of the country.

Melandrew Velasco, executive director of MTFI, the organization behind the massive tree planting project Annual Million Trees Challenge (AMTC), said in an interview that construction works for the organization's five-hectare tree seedling nursery has already started.

The MTFI nursery will serve as the production arm of AMTC as it expands its efforts nationwide. It will provide optimum growing conditions to germinated seeds of tree species that will be transplanted in denuded areas within the critical watersheds in the country.

Located inside the La Mesa Watershed, the area for the nursery was granted to MTFI by the Philippine government.

AMTC is a flagship project of Metropolitan Waterworks and Sewerage System (MWSS) Chairman and Acting Administrator Reynaldo Velasco that aims to rehabilitate and re-forest the seven critical watersheds in the region, namely Angat, Ipo, Kaliwa, La Mesa, Laguna Lake, Umiray, and Upper Marikina.

The project started in 2017 and had since become a multi-sectoral effort. The five-year initiative targets to plant one million trees per year in these watersheds.

Velasco explained that the nursery will serve as support and production arm of AMTC that will produce and supply the tree saplings needs of MTFI's institutional partners as they fulfill their commitment to this massive environmental initiative.

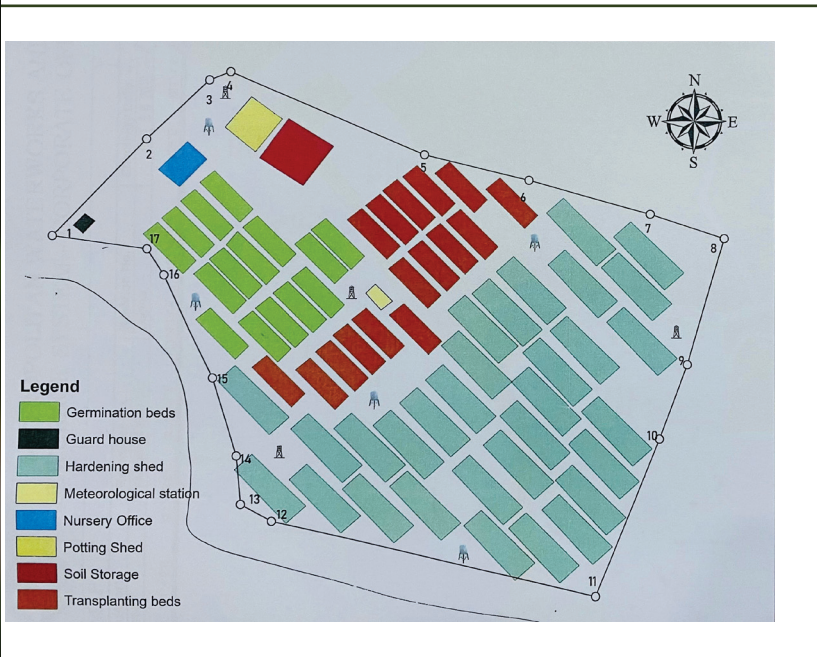
"This nursery is very important in helping the watersheds and planting of trees in terms of rehabilitating the seven critical watersheds areas," Velasco said.

"Tree-planting within the watersheds is critical because if there are no trees in the mountains, our water treatment plants would have to deal with a high amount of turbidity when it rains. This will help us ensure potable water for everyone," he added.

MTFI's plan to expand the efforts of AMTC nationwide was made and announce just in time as the Environment Secretary Roy Cimatu sounded the alarm over the need to immediately protect and rehabilitate more than 130 critical watersheds in the country.

Cimatu said that there is a need to minimize erosion and improve the water yield of these watersheds. Otherwise, they will not be capable of supplying fresh water that is safe for public consumption.

"Let us be constantly reminded that appropriate stewardship is needed for our watersheds for us to mitigate the impact of climate change," he said.



In the Philippines, there are 142 critical watersheds identified by the Department of Environment and Natural Resources (DENR). Of this, 130 “desperately” need rehabilitation because of the tree-cutting activities that took place in these areas over the years.

Cimatu said it will take some massive effort to save these watersheds and it will also require strict protection. He then proceeded to implement a policy of banning all logging activities in watersheds.

“How will we save our watersheds? We have to protect it. We should not cut any trees in the watershed,” he said. “If we have to add additional trees, we should plant them. And the trees that we plant should not be cut forever”.

Center of AMTC activities

Moving forward, Velasco said the MTFI nursery will be the center of all the programs and initiatives of AMTC, which the organization now intends to expand beyond the target of planting one million trees per year in seven critical watersheds in the region.

He shared that MTFI targets to maximize the five hectares granted to the organization by building an office, storage, and greenhouses in the area.

“We are given 15-year lease to protect, as part of the agreement to develop the MTFI nursery. We would also want to make this as center of activities — reforestation, training, seminars. We will also do international linkages here. We can also build environmental center where we can do research,” Velasco said.

“There is so much to be done, and we will not stop working. We are excited about the next five or ten years as we will see how this nursery becomes the center of activity for AMTC,” he added.

Initially, the MTFI nursery targets to produce 500,000 tree saplings. These should include trees like Narra, Ilang-ilang, and Bamboo, among others.

Velasco said he is confident about the success of the nursery, which is anchored on the achievements of AMTC over the last four years.

Four years after its maiden launch by MWSS Chairman Velasco in February 2017, AMTC now resulted in the planting of over four million trees in identified denuded areas of the aforementioned critical watersheds.

MWSS Chairman Reynaldo V. Velasco explained that the nursery will serve as support and production arm of AMTC that will produce and supply the tree saplings needs of MTFI’s institutional partners as they fulfill their commitment to this massive environmental initiative.



Initial inspection at MTFI Nursery

Proposed MTFI Nursery and Satellite Office



We are given 15-year lease to protect, as part of the agreement to develop the MTFI nursery. We would also want to make this as center of activities — reforestation, training, seminars. We will also do international linkages here. We can also build environmental center where we can do research.

MELANDREW T. VELASCO
Executive Director, MTFi



Ground Preparation for Nursery

Based on the audit report by DENR, as much as 9,509.375 hectares of areas surrounding these watersheds have already been reforested through the efforts of AMTC and its partners.

“One of the remarkable accomplishments of AMTC is increasing the forest cover of Ipo Watershed from 43 percent in 2017 to 81 percent in 2020,” the MWSS chief said, adding that *“sustainable nurturing of sapling trees planted take three years to maintain and sustain.”*

For 2021, the following AMTC partner stakeholders have pledged to plant more than one million trees. MWSS itself has pegged its target 140,000 trees, while MWSS-Regulatory Office (MWSS-RO) plans to plant as many as 23,000 trees.

Other AMTC partners like Manila Water Company Inc. targets to plant 23,000 trees, while Maynilad Water Services Inc. pledged to plant 20,000 trees. Bulacan Bulk Water, on the other hand, will plant 20,000 trees; DENR 3 (43,000 trees); DENR 4A-PENRO Rizal (350,000 trees); Laguna Lake Development Authority (LLDA) (100,000 trees); Camp Nakar Local Government Unit (LGU) (50,000 trees); ALKFI-BL (40,000 trees); WWF Philippines (60,000 trees); Boy Scout of the Philippines (50,000 trees); Bambuhay- Anak ni Inang Daigdig (60,000 trees); JCI Senate Philippines (2,000 trees); and, Rotary International District 3780 (5,000 trees).

“The support of our institutional partners are encouraging,” Velasco said. *“We look forward that our efforts will not be confined in the seven critical watersheds but the other watersheds in the entire country”.*

Sustaining AMTC

Proven to be a successful project, AMTC has the potential to save more watersheds in the country. Thus, MWSS and its partners decided to expand it beyond its original targets of planting five million trees throughout the entire duration of the project.

To do this, AMTC stakeholders have organized the MTFI, now the official non-profit organization partner of MWSS and DENR.

MTFI now actively helps in the implementation of AMTC, collaborating with individuals, groups, government, and other private organizations here and overseas to address watershed management concerns.

Among the initial institutional partners of MTFI include San Miguel Corporation (SMC) President and CEO Ramon S. Ang, Manila Water President and CEO Enrique K. Razon, and Maynilad President Ramoncito S. Fernandez.

Also, in May of this year, MTFI has signed a tripartite Memorandum of Understanding (MOU) with the JCI Senate Philippines (JCISP) and the Philippine Jaycee Senate Foundation (PJSF) in support of AMTC’s watershed rehabilitation and enhancement initiatives.

Among the provisions of the five-year MOU stipulates that JCISP and PJSF shall plant at least 2,000 appropriate indigenous tree species annually in areas that will be determined by DENR, MWSS and MTFI. Care and maintenance of the planted seedlings/saplings will be the responsibility of the JCISP and PJSF.

The JCISP and PJSF are involved in a 24/7 borderless, pro-environment initiatives and programs to help mitigate global warming and the effects of climate change through their flagship project “Greenlink” chaired by JCI Sen. Lia Seelin.

In the next few weeks, MTFI will soon launch its website to increase awareness of the need for environment protection in the Philippines through reforestation.

The website will enable stakeholders to choose among several MTFI programs to support thereby contribute to the noble task of protecting and developing the environment.



Planting Trees Can be One Tool to Fight Climate Change - If We Do it Right

Around the world, there is a major push to plant trees, but the process is much more complicated than it seems on the surface.

Haphazard tree planting can have unintended consequences.

To have a beneficial impact, the process requires extensive planning and preparation.

With a growing number of tree planting initiatives at regional to global scales, Karen Holl and Pedro Brancalion highlight in their latest research how planting trees is much more complicated than it seems. Here they share their findings, including guidelines to increase success of these ambitious efforts world-wide.

Planting trees is so satisfying. You dig a hole, put a tree seedling in the ground, fill the hole with soil, and voila, you have done something good for the planet and future generations. So it's not surprising that governments, businesses, conservation organisations and people everywhere are talking about planting trees – lots and lots of trees. But is it really that simple?

Unfortunately, no. Tree planting as a sole strategy is not the silver bullet to solve multiple environmental and social problems. Instead, well-planned tree planting incorporated amongst the toolbox of strategies to protect and increase forest cover can provide many benefits to people and the millions of other species that depend on forests. Haphazard tree planting can have unintended consequences and instead requires extensive planning and an ongoing commitment to achieve the desired outcomes.



A forest restoration project in Brazil's Atlantic Forest at the time of tree planting (left) and after two years. Image: The Applied Ecologist

In our latest paper in the Journal of Applied Ecology, we provide guidelines on how to direct the enthusiasm for large-scale tree planting in a way that maximizes the benefits.

1. ADDRESS THE UNDERLYING DRIVERS OF FOREST DEGRADATION.

At the same time as the number and scale of tree planting initiatives is exploding, large swaths of existing forest are being cut down, including old-growth forests that could never be replaced by tree plantations. It is extremely challenging to recreate a complex forest ecosystem and it takes decades to centuries for forests to recover. So the most important and effective way to increase forest cover is to prevent clearing in the first place. This means providing alternative sources of income for people who protect forest on their land, strengthening legal enforcement, and promoting supply chain interventions to curb deforestation.

2. INTEGRATE DECISION-MAKING ACROSS SCALES.

The innumerable tree planting initiatives range from those committed to planting a few trees in a school backyard to a trillion trees across the planet. These groups are motivated to plant trees for different reasons which often are not aligned and may even be in conflict.

For instance, to offset its greenhouse gas emissions, a global corporation provides funding for a conservation organisation to plant trees. The conservation organisation aims to provide habitat for endangered species but it does not own the land, therefore it uses the money to plant trees on farmers' land. The farmers, in turn, want to plant trees in areas that are not good for crops and plant species that provide benefits, such as fruit crops and erosion control. These different motivations for tree planting need to be coordinated and balanced as there are trade-offs.



Aligning decisions amongst a farmer, an international NGO and a restoration company about where to plant native trees on a cattle ranching farm in the Amazon. Image: Pedro Brancalion

3. TAILOR TREE PLANTING STRATEGIES TO CLEARLY STATED PROJECT GOALS AND PLAN, ADAPTIVELY MANAGE, AND EVALUATE SUCCESS OVER A SUFFICIENTLY LONG TIMEFRAME.

Given the many different motivations for tree planting it is important to agree upon goals at the outset and then think through a number of questions about how best to achieve those goals over time. For example, is it necessary to plant trees or will the forest recover on its own (which does happen in some cases)? If it is necessary to plant trees, what species are most likely to grow well at a given site and achieve project goals? Who will take care of the trees? How will we evaluate whether the project has been successful or whether corrective actions need to be taken? Since forests take a long time to recover, the new forest will also need to be monitored and managed for at least a few decades.

SOME OF MANY REASONS PEOPLE PLANT TREES

- Conserve Biodiversity
- Sequester Carbon
- Provide Shade
- Improve Water and Air Quality
- Increase green spaces in cities
- Comply with legal requirements
- Prevent Erosions
- Practice Agroforestry
- Earn Money from Timber, Wood Pulp, or other Products.



Different remote sensing approaches (airplane and drone Lidar scanning, orbital sensors, and machine learning) to monitor forest restoration. Image: Daniel Papa



4. FOCUS ON THE FOREST, NOT THE TREES. FORESTS INCLUDE MANY TYPES OF PLANTS BESIDES TREES, SUCH AS HERBS AND VINES, AS WELL BIRDS, MAMMALS, INSECTS, FUNGI, AND SO MUCH MORE.

These other species play important roles, such as dispersing seeds and pollinating plants. So it's not just about planting trees but about choosing a strategy that restores the whole forest ecosystem which is key to providing the full suite of ecosystem services that people expect from tree planting, such as pollination, erosion control, and water purification.

5. COORDINATE DIFFERENT LAND USES ACROSS THE LANDSCAPE. REGIONAL COORDINATION OF DIFFERENT LAND USES IS KEY TO SUCCESSFULLY BALANCING THE DIFFERENT GOALS OF TREE PLANTING EFFORTS.

For example, some areas will be protected and restored to provide biodiversity and carbon sequestration benefits whereas some land will need to be used for timber and wood pulp production. Subsistence farmers will need land for agroforestry or sustainable agricultural production. Achieving this balance is crucial to avoid displacing agricultural activities that may promote deforestation elsewhere.

6. INVOLVE ALL STAKEHOLDERS THROUGHOUT THE PROCESS.

Time and time again, top-down projects by international groups or national governments have failed because the planted trees are not maintained, farmers utilise the land for livestock grazing, or the land is re-cleared for agricultural purposes. For tree planting to be successful over the long-term, it is critical that stakeholders at multiple scales are involved in conversations from the beginning of the planning process through to project evaluation and management to ensure that everybody is on board and their needs are met.

Written by
Karen D. Holl, Professor of Environmental Studies, University of California, Santa Cruz

Pedro H. S. Brancalion, Professor of Tropical Forestry, Luiz de Queiroz College of Agriculture, University of São Paulo

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The views expressed in this article are those of the author alone and not the World Economic Forum.

Source: <https://www.weforum.org/agenda/2020/12/tree-planting-outcomes-climate-change-environment/>

TOKATOKA

PARA SA MALINIS NA ILOG



1 ✓

SUPORTAHAN
ANG MGA PROYECTO
NG MANILA WATER
SA INYONG KOMUNIDAD



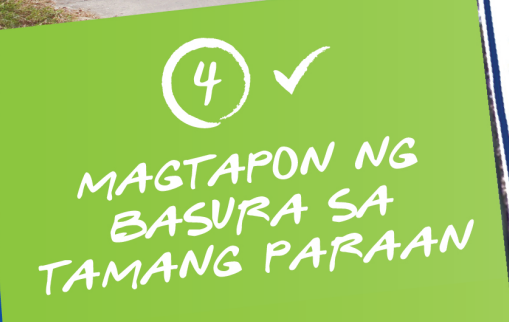
2 ✓

IPAKONEKTA
ANG INYONG BAHAY
SA SEWER LINE
NG MANILA WATER



3 ✓

IPA-DESLUDGE
O IPASIPSIP ANG
INYONG POSO NEGRO



4 ✓

MAGTAPON NG
BASURA SA
TAMANG PARAAN



IKAW ANO
ANG TOKA
MO?





Manila Water's Trees for Clean Water

by CAMILLE LOPEZ



When Covid-19 held the world at a standstill, the climate crisis did not stop for it. In fact, we endured its brunt as we faced typhoon after typhoons. Our watersheds' need for protection and rehabilitation didn't cease. It's a good thing that the Annual Million Tree Challenge (AMTC), a Metropolitan Waterworks and Sewerage System (MWSS) project, in collaboration with advocacy partners, carried on their pledge to plant trees despite the ongoing battle against the pandemic. A year later, these advocates are still gearing up for the fifth year, to complete the planting of more than five million trees by 2022.

One of these advocates is Manila Water Company, Inc., the east zone concessionaire of MWSS. Manila Water recognizes that *"climate change has significantly altered every aspect of the water space – a reality that nations continue to address along with challenges concerning increasing population and density in highly urbanized areas."*

"Competition in the space has been redefined by those who have access to this limited resource; communities, in their pursuit for growth, demand more to the expense of the environment's ability to replenish.

This has created a vicious cycle of development being impeded by the lack or absence of water supply to support development. The challenge for governments and service providers is striking the delicate balance between the provision of sufficient water supply for economic growth and social development and allowing the environment to naturally replenish the water sources to ensure sustainability. Such balance has highlighted the importance of proper wastewater treatment, which supports raw water supply replenishment in the environment," Manila Water said.

"Manila Water acknowledges the primary importance of water security, particularly during the onset of the water supply shortage in Metro Manila. The experience has underscored the key risks in relation to water security, and the company has taken measures to align its operations with the new realities it now faces. These measures support Manila Water's commitment to the United Nations Sustainable Development Goals (SDGs) on Clean Water and Sanitation," it added.

Manila Water Sustainability Framework



Helping Build Communities

Manila Water provides clean, reliable, and affordable water and wastewater services that contributes to provide public health and economic productivity of all individuals and reduce poverty and inequality. In the course of providing a lifeline service, Manila Water has to ensure that its people, assets and operations are reliable and resilient towards disasters, man-made and natural. Strength in business continuity provisioning translates into the minimization of impacts to customers and the strengthened resilience of communities being served.



Protecting the Environment

Manila Water has a vital dependency on ecosystems services while it renders services to ecosystems. It ensures sustainable water sources through the rehabilitation, protection and enhancement of watersheds and water sources. At the end of the water value chain, the company undertakes wastewater management before returning wastewater back to the environment. The company contributes to climate change mitigation by avoiding emissions of greenhouse gases that would have formed in untreated wastewater.



Safeguarding Health and Safety

Manila Water ensures public health by delivering clean water and warrants public safety by continuously investing in water and wastewater infrastructure. The company meets the national standard for water quality to deliver potable water and provides sanitation services to ensure communities' health and safety. The company also has programs to ensure the occupational health and safety of employees and business partners.



Contributing to Local and National Economies

Manila Water is a key partner in economic growth. In expanding service coverage and providing customers with quality water and wastewater service, Manila Water invests heavily in essential infrastructure, creating jobs and opportunities with the organization and across the supply chain. Improved customer's health arising from water and wastewater services ensures individuals' optimal productivity, which fuels local and international economic growth and helps reduce poverty.



Developing Employees

Developing employees is at the very heart of sustainability in Manila Water. The company invests in developing its people who are equipped with necessary management and technical expertise and manifests the core values of Manila Water. This ensures that the company has a strong pool of competent talents to deliver excellent service to customers and fuel its growth aspirations.

Manila Water and AMTC Hand in Hand for Watershed Protection

Lead by then MWSS Administrator Reynaldo Velasco, the AMTC has been successful in meeting and even going beyond the target of planting 1 million trees per year. Though the organization was dealt with inconceivable challenge on the 4th year due to the widespread scourge of Covid-19, which was worsened by six typhoons and a super typhoon, they still managed to plant a total of 633,422 trees in 2020. Velasco remains hopeful and more enthusiastic than ever to achieve their goal.

These calamities made the importance of this mission much clearer; this was discussed during an AMTC meeting that was held on 22 February 2021. *“After seeing the impact of typhoons last year, let us increase our efforts and put the strength of our commitment behind the AMTC. Planting trees is more important now than ever. Forest loss in our critical watersheds is again substantial as our 2020 reforestation efforts fell short of the target. Reforestation plays a vital role in building a resilient ecosystem that can withstand pandemics, natural disasters, and climate change,”* Velasco said as he encouraged their partners.

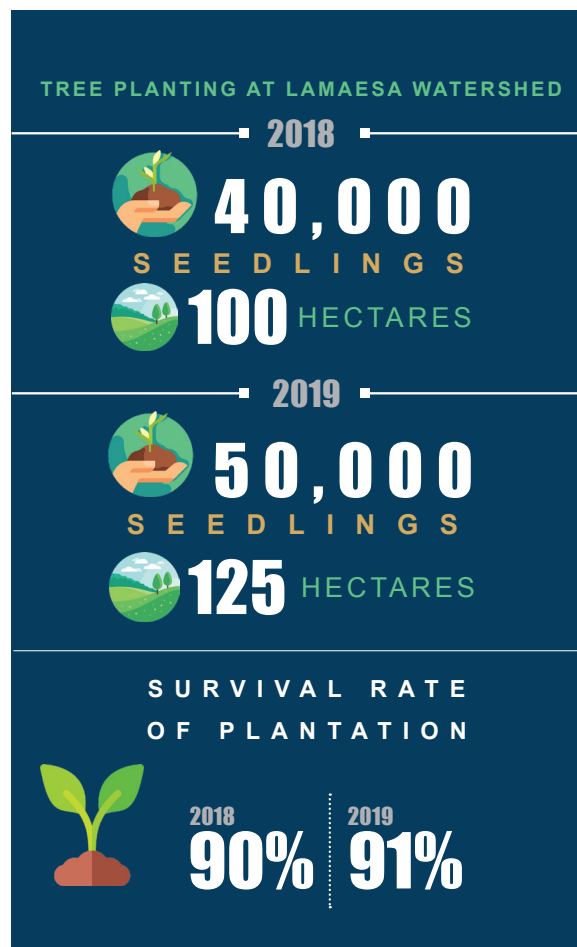




For AMTC's final year, partners and stakeholders have pledged to plant more than one million trees. Manila Water, for its part, committed to plant 70,000 trees under the AMTC program, while the company's President and CEO, Enrique K. Razon Jr. is one of the institutional partners for the Million Trees Foundation, Inc., the official implementing partner of MWSS for the massive tree-planting project.

But Manila Water's tree-planting efforts don't end here. In cooperation with ABS-CBN Lingkod Kapamilya Foundation, Inc. – Bantay Kalikasan, the company has also continued its own tree-planting efforts last year despite the pandemic. In September of 2020, a few months after strict lockdowns has been lifted, Manila Water and Bantay Kalikasan planted a total of 10,000 high quality seedlings, covering 25 hectares of La Mesa Watershed, comprising of different indigenous forest trees species.

Manila Water, for its part, committed to plant 70,000 trees under the AMTC program, while the company's chairman, Enrique K. Razon Jr., is one of the institutional partners for the Million Trees Foundation, Inc., the official implementing partner of MWSS for the massive tree-planting project.



Part of this enrichment activity is ensuring the high survival rate of the previous established plantation. La Mesa Watershed team is conducting plantation maintenance activities which are the ring weeding, replanting and fertilizer application. In 2018 alone, 40,000 seedlings were already planted across 100 hectares, while 50,000 seedlings were planted across 125 hectares in 2019. The survival rate of the previous years' plantation is quite high, landing at 91 percent and 90 percent for 2018 and 2019, respectively.

With a project budget of P8.96 million, Manila Water, in collaboration with Fostering People's Empower, Education and Enterprise (FPE3), have also planted a total of 160,000 seedlings covering 256 hectares of Upper Marikina River Basin Protected Landscape – Tayabasan Sub-Watershed for the duration of September 2019 to November 2020. The project has a survival rate of 87 percent as validated through an inspection with the Department of Environment and Natural Resources (DENR).





Advocating for Clean Water

A lot of people are surprised, if not mad, when they hear or read announcement of water service interruptions after a heavy rain or typhoon. It's common for people to think that heavy rain means more water supply. Unfortunately, it is not as simple as that. When concessionaires provide water to communities, it goes through a rigorous treatment process to make sure the water is safe to use or even drink. Water's turbidity or muddiness makes that process more difficult. This is where the trees come in.

The leaves and branches of trees intercept rainfall, reducing its erosive energy and slowing the movement of rainwater. Root growth and plant litter improve soil structure and enhance infiltration of rainfall, reducing surface runoff. Stiff stems of trees and shrubs resist and slow out-of-bank streamflow. Plant debris protects exposed soil and roots bind soil particles to resist erosion and stabilize slopes.

Vegetation and plant debris slow surface runoff encouraging sediment and sediment-bound contaminants to settle before entering surface water. Root growth and plant residue improve soil structure which enhance infiltration of dissolved contaminants. Once in the soil, contaminants can be immobilized and transformed by soil microbes or taken up by vegetation. Groundwater flowing through the root zone is also filtered by these processes. Additionally, trees can trap windblown dust before it makes contact to the water in the dam, thus making the treatment of water more efficient.

Long before the AMTC, Manila Water has been already been actively advocating for clean water. Manila Water have been working on the reforestation through the project Adopt-a-Watershed.



Of Planting Trees, Serving the Community & Coming Full Circle

by MADELAINE B. MIRAFLORE

Planting trees in vital watersheds ensures the sustainability of limited water resources. It prevents soil erosion that affects raw water quality and offers a long-term solution to the flooding cycle during the rainy season.

When the Metropolitan Waterworks and Sewerage System (MWSS) began their Annual Million Tree Challenge (AMTC) in 2017, West Zone concessionaire Maynilad Water Services, Inc. (Maynilad) supported the endeavor from the get-go.

Over four million trees have been planted since and MWSS, including their advocates, are doing their part to meet the five million mark by 2022.



Watersheds Protection

“Watersheds are an essential part of the system that allows for the continued provision of water supply for millions of people. Reforestation activities have to continue so we can reverse the effects of denudation and ensure water sustainability.”

RAMONCITO S. FERNANDEZ
Maynilad President & CEO

Maynilad manages the water and wastewater services for 17 cities and municipalities in the West concession area. They are one of the country’s stalwart advocates for environmental stewardship, pursuing projects to address the rehabilitation of watersheds that replenish our water resources.

Even before the AMTC, Maynilad already had watershed rehabilitation programs in place. One of these is “Plant for Life”, which they started in 2007 and has seen almost 800,000 indigenous trees planted in the Ipo watershed alone. This program involves the tapping of volunteers to plant Narra, Acacia, Amisan, and Cupang saplings, among other native tree species, to help cover the denuded portions of Ipo watershed.

They didn’t stop there. Maynilad also extended its “Plant for Life” program to the planting of mangrove propagules along the coastal areas of Cavite. Since 2013, they have managed to plant more than 208,000 propagules, helping to improve water quality in the Manila Bay.

The company has likewise been taking more active steps to ensure the continued health of all planted trees, resulting in an average 80% survival rate over the past three years.

“Watersheds are an essential part of the system that allows for the continued provision of water supply for millions of people. Reforestation activities have to continue so we can reverse the effects of denudation and ensure water sustainability,” said Maynilad President and CEO Ramoncito S. Fernandez.



The AMTC Promise

On AMTC's first year, Maynilad planted 130,000 saplings and pledged 130,000 more the following year. And in 2019, Maynilad adopted 35 hectares of land to reforest in Mt. Balagbag, Rizal—one of the most heavily deforested areas of the Ipo watershed.

For these activities, Maynilad taps volunteers among its employees, as well as from the residents of nearby communities and the personnel of private and public organizations. The help of these environment-conscious individuals is essential to attaining steep targets on number of trees to be planted. *“Reforestation is an important part of watershed management initiatives that keep our water resources sustainable. We thank all like-minded organizations who send volunteers to help us in this endeavor,”* said Fernandez.

Maynilad raises the ante of reforestation efforts, year after year. In 2020 alone, the company planted 12,900 tree saplings and mangrove propagules at the Ipo watershed and the coastal areas of Cavite—i.e., 1,500 mangrove propagules along the Manila Bay coastline of Kawit, Cavite; and 11,400 tree saplings over 28.5 hectares of the Ipo and La Mesa watersheds.

The watersheds in Angat, Ipo and La Mesa are among the major ones in the country, as these supply the water needs of some 15 million residents of Metro Manila and nearby provinces. To date, Maynilad's reforestation efforts at the Ipo watershed has already covered a total of 383.8 hectares.

For AMTC this year, Maynilad accepted the challenge to plant 20,000 native trees over 50 hectares of the Ipo and La Mesa watersheds. It has initially planted a total of 10,000 saplings covering an area of 25 hectares at the Ipo watershed. To help them achieve this feat, Maynilad partnered with GMA Network Inc.'s *“Kapuso ng Kalikasan”*, which adopted a one-hectare site at Mt. Balagbag where 400 trees were planted. TELUS Philippines Inc., Metro Pacific Investments Corporation, and Light Rail Manila Corporation have also already committed to adopt planting areas at the Ipo watershed. Meanwhile, several media partners have also adopted half a hectare at the La Mesa watershed.

The water company acknowledges that none of their tree-planting endeavors would have been possible without the help of volunteers and “Plant for Life” partners, including the MWSS, the Department of Environment and Natural Resources, local government units, and some private organizations.

WATER at its CORE



We in Maynilad have made it our mission to improve the living conditions of our customers through better water access. Hence, we keep investing in the infrastructure enhancements needed to connect new customers and boost service levels for existing ones.

RAMONCITO S. FERNANDEZ
Maynilad President & CEO

Amid its pursuit for environmental protection, Maynilad never loses sight of their core objective—providing safe, affordable and sustainable water solutions to the Filipino people.

Maynilad's piped-in water supply meets the Department of Health's Philippine National Standards for Drinking Water. Customers are provided with affordable water that is safe and fit for consumption and daily use.

"We in Maynilad have made it our mission to improve the living conditions of our customers through better water access. Hence, we keep investing in the infrastructure enhancements needed to connect new customers and boost service levels for existing ones," Fernandez shared.

The West Zone concessionaire provides water to almost 1.5 million service connections, or around 9.8 million customers. At present, 95 percent of this customer base enjoys 24-hour water supply, up from only 46 percent in 2007. In their area of responsibility in the Western half of the Greater Manila Area, 94 percent of residents are connected to their system.

With 35 pumping stations, 32 water reservoirs, and 29 in-line boosters across their service area as of June 30, 2021, Maynilad's 7,733-kilometer water distribution system is the longest ISO-certified facility of its kind in the Philippines.

A stellar leader in their field, Maynilad has made a mark in their service delivery and environmental advocacies. But that's not the rest of it.

Serving the Community

by MADELAINE B. MIRAFLOR



Maynilad has taken steps to ensure that besides providing much-needed water to their customers, they also pursue projects that benefit marginalized communities in their concession area. In fact, their Corporate Social Responsibility (CSR) initiatives have received accolades, both locally and internationally.

At the 10th Annual Global Corporate Social Responsibility Summit and Awards in 2018 held in Lombok, Indonesia, Maynilad received a Gold Award for the Best Community Program category for their water-for-the-poor programs Samahang Tubig Maynilad (STM) and Pag-asa sa Patubig Partnership. The following year, the company also received from the same award-giving body a Platinum Award under the “Best Community Program” Category for its water-centric social enterprise initiatives. These programs helped to address the water and sanitation needs of informal settler communities and gave them access to safe, affordable water.

Also in 2019, Maynilad received a Gold Award for Innovation in Energy and Sustainability for its “Green Badge: Uniform Upcycling Program” from the Asia-Pacific Stevie Awards. It also bagged two Silver Stevies for its CSR campaigns, “Team Ginhawash: Leaving No One Behind for Water and Sanitation” and “Hope in Water Partnerships: Making the Poor a Priority” from the Stevie Awards - International Business Awards.

“We have always believed that having clean water is a basic human right, so we implement these CSR programs to promote access to potable water, health, and resource conservation. We are humbled and grateful for this recognition from the Global CSR Awards and Stevie Awards,” said Fernandez.

The company consistently advocates for water access for the less fortunate. It has implemented various programs toward achieving this end, such as the granting of a subsidy for “lifeline” customers (those consuming 10 cubic meters or below per month), discounts for senior citizens, and rate downgrades for public institutions.

Not only that, Maynilad has been sustaining livelihood programs for urban poor communities during the pandemic. They have tapped into STM communities in Tondo, Manila, and Riverview, Quezon City to produce “pandemic essentials” such as soaps, disinfectants, and face masks.

Maynilad arranged for livelihood seminars and skill training to help these communities develop sustainably, and the resulting pandemic essentials were purchased by the company for COVID-19 relief initiatives and other donation drives. This helped alleviate the economic crunch felt by urban poor communities because of the pandemic.



“*Ngayong apektado ng lockdown ang trabaho ng marami sa amin at binaha pa kami noong Typhoon Ulysses, malaking bagay na kumikita kami. Nakatulong’yung pag-alalay sa amin ng Maynilad na gumawa ng mga produkto na mas kailangan ngayong pandemic,*” said STM-Riverview officer Josie Nilo.

Another Maynilad CSR initiative is the “*Sining Ipo*”, which started in 2014 and involved training the Dumagats of Ipo watershed in the art of sculpture-making using driftwood. This program offered an alternative source of livelihood for the Dumagats and also discouraged the old “*slash-and-burn*” activities of the tribe. More recently, these artisans were also taught to make household items (such as laptop holders, clocks and lamps) from driftwood to expand their product line. Proceeds from the sale of their pieces fund the education of Ipo Dumagat scholars.



West Zone concessionaire Maynilad Water Services, Inc. (Maynilad) provided hydration support for COVID-19 frontliners—the health workers and on-ground checkpoint personnel—on duty to provide vital services during the Enhanced Community Quarantine.

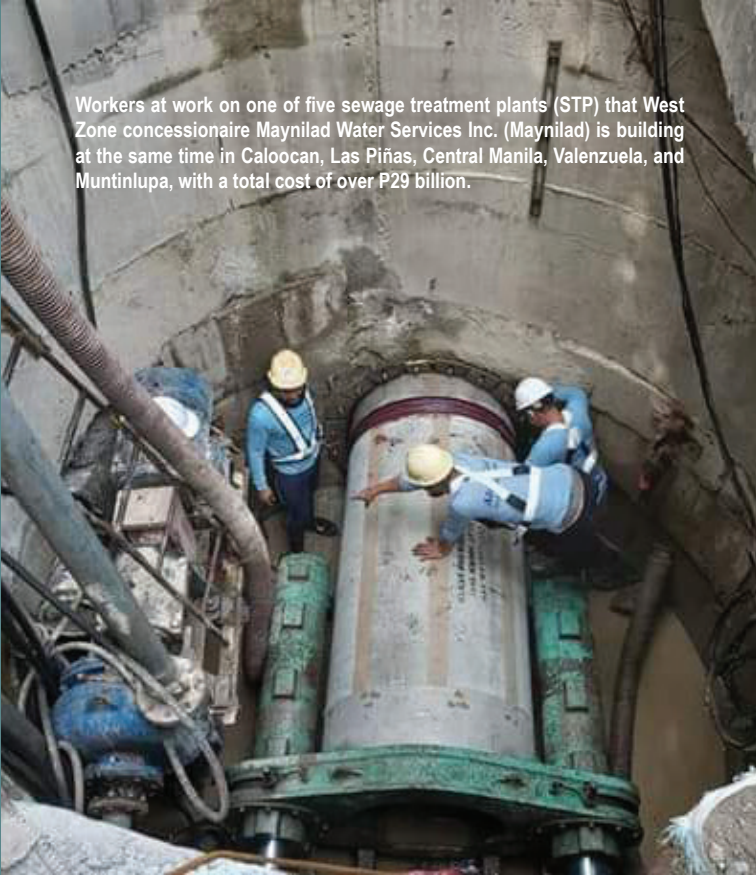


West Zone concessionaire Maynilad Water Services, Inc. (Maynilad) intensified its handwashing campaign through donations of handwash stations and soaps to several local government units and public schools.



FVR holds a traditional sungka, made by the ethnic group Dumagats, as a token of appreciation during the 2018 Carriedo Cup, a golf tournament hosted by Maynilad, as part of the 140th-year celebration of Metropolitan Waterworks and Sewerage System (MWSS) held at Camp Aguinaldo. In the photo are MWSS Administrator Rey Velasco, Maynilad President Ramoncito S. Fernandez, WEJ publisher Melandrew T. Velasco, Maynilad AVP Anette de Ocampo and golfer Mel Bergado.

Workers at work on one of five sewage treatment plants (STP) that West Zone concessionaire Maynilad Water Services Inc. (Maynilad) is building at the same time in Caloocan, Las Piñas, Central Manila, Valenzuela, and Muntinlupa, with a total cost of over P29 billion.



Even as our infrastructure projects bring potable water to more West Zone communities, it also helps to keep the economy going through the creation of jobs. We are committed to continue generating employment opportunities through our service improvement projects, notwithstanding the effects of the pandemic on our operations.

RAMONCITO S. FERNANDEZ
Maynilad President & CEO



Maynilad's environmental management program encompasses not only tree planting but also the preventing the pollution of waterways and bodies of water.

Despite quarantine restrictions, Maynilad is in the process of having several sewage treatment plants (STP) constructed simultaneously in Caloocan, Las Piñas, Central Manila, Valenzuela, and Muntinlupa with a total cost of over ₱29 billion.

"These projects are part of our commitment to protect the environment by making sure effluents meet legal standards. On top of these, we also spend much more on projects to provide clean and potable water to our more than 9 million customers," Fernandez said, noting that the company currently maintains and operates 22 wastewater treatment facilities, which help to lessen pollution load in water bodies, consequently reducing the incidence of water-borne diseases.

Although the current situation made it more difficult to facilitate these projects, Fernandez said that pandemic or not, the work of a water concessionaire never stops as its service is basic to its customers.

Since 2007, Maynilad has generated over 350,000 jobs through infrastructure projects and sustained operations. These jobs, which include those generated by contractors and suppliers that Maynilad commissioned, were required to meet the company's ₱109-billion worth of capital expenditure projects from 2007 to 2020.

"Even as our infrastructure projects bring potable water to more West Zone communities, it also helps to keep the economy going through the creation of jobs. We are committed to continue generating employment opportunities through our service improvement projects, notwithstanding the effects of the pandemic on our operations," Fernandez remarked.

Maynilad, which is part of Metro Pacific Investments group, is the largest private water concessionaire in the Philippines in terms of customer base.

It is the concessionaire of the MWSS for the West Zone of the Greater Manila Area, which is composed of the cities of Manila (certain portions), Quezon City (certain portions), Makati (west of South Super Highway), Caloocan, Pasay, Parañaque, Las Piñas, Muntinlupa, Valenzuela, Navotas and Malabon all in Metro Manila; the cities of Cavite, Bacoor and Imus, and the towns of Kawit, Noveleta and Rosario, all in Cavite Province.



LIVELIHOOD DEVELOPMENT

Over 300 Dumagat families engaged
in Sining Ipo project



WASTEWATER TREATMENT

Over 154,000 cubic meters of
wastewater treated per day



Maynilad
Higit sa tubig ang aming serbisyo



**SAN MIGUEL
CORPORATION**

SMC'S ENVIRONMENT Protection initiatives

by GIRLIE P. CANLAS

Luzon Clean Water Development Corporation (LCWDC), a subsidiary of San Miguel Corporation is the third concessionaire of MWSS and manages the Bulacan Bulk Water Supply Project.

It is one of the partner agencies the Metropolitan Waterworks and Sewerage System (MWSS) in the Annual Million Trees Challenge (AMTC) project.

As project partner, Luzon Clean Water has planted trees and reforested portions of the Angat and Ipo Dam watersheds, two of the watersheds identified by MWSS that needed immediate rehabilitation and are beneficiaries of the AMTC.





Its involvement in the AMTC is just one of the CSR projects of LCWDC's parent company, San Miguel Corporation, aimed at promoting environment protection.

“Caring for the environment is key to mitigating the global problem of climate change,” RSA said.

Last month, SMC President and CEO Ramon S. Ang (RSA) announced that the conglomerate is interested in developing an 80-hectare mangrove plantation in Paombong, Bulacan. As many as 200,000 mangrove trees can be planted in the San Miguel-Paombong Plantation & Sanctuary. When SMC started its mangrove planting activity last year, 25,000 mangroves were planted on the coastal area of Hagonoy, Bulacan.

According to RSA the project is a major component of SMC's strategy to help solve flooding in Bulacan once and for all since mangroves are essential to protect against flooding.

SMC employee volunteers are set to plant 10,000 mangroves this month at the Bulakan Mangrove Ecopark, a 24.5 hectare mangrove area at Sitio Wawang Capiz, Barangay Taliptip which is maintained by the Bulakan LGU and SMC.



“Planting is just the first step. Making sure that these mangroves grow to adulthood is the bigger challenge and will involve the community, especially those that will benefit from it. In combination with our upcoming river dredging and cleanup projects in Bulacan and further emphasis on proper waste disposal, we can both safeguard the marine environment and address flooding in the province,” RSA said.

SMC’s tree-planting activities are conducted not only in Bulacan but in other parts of the country as well. Its subsidiaries have their respective CSR programs to promote environment protection.

Planting is just the first step. Making sure that these mangroves grow to adulthood is the bigger challenge and will involve the community, especially those that will benefit from it. In combination with our upcoming river dredging and cleanup projects in Bulacan and further emphasis on proper waste disposal, we can both safeguard the marine environment and address flooding in the province.

RAMON S. ANG
SMC Vice Chairman, President & CEO



SMC’s partner communities





SMBI President Roberto Huang kicks off Trees Brew Life tree planting activity.



A SMC subsidiary, SMC Global Power Holdings Corp has a program called Project 747 that aims to rehabilitate 2,800 hectares of upland forests and 1,204 hectares of mangrove forests in Albay, Bataan, Bulacan, Davao Occidental, Quezon, Negros Occidental, Pangasinan, and Zambales. Since its launch in 2019, a total of 1,994,988 seedlings and propagules have been planted over 620 hectares of land by end of 2020. Local farmer groups and fisher folk organizations are tapped to help identify the indigenous tree varieties to be planted in their respective areas.

Petron Corporation, another SMC subsidiary, has its Puno ng Buhay program that has adopted a total of 30 hectares of mangrove reforestation areas in Tacloban City, Leyte and Roxas City, Capiz. The corporation has planted over one

million trees and mangroves nationwide in support of the National Greening Program. It has a 10-year biodiversity conservation proposal for the Sarangani Bay Protected Seascape.

Under its Tree Brew Life program, San Miguel Brewery, Inc. has planted around one million trees for the last years. Planted were hardwood, mangrove and other fruit-bearing trees in Bacolod City; Tagoloan, Misamis Oriental; Sta. Rosa, Laguna; and Mandaue City.

Meanwhile, Ginebra San Miguel, Inc. through its Mangrove Project first started in 1996, is taking care of 40,000 full-grown trees across 12 hectares with company volunteers collaborating with community stakeholders. It has an ongoing two-hectare expansion in Bago City.

River System Clean-up

Aside from tree-planting and reforestation, SMC is also involved in coastal clean-up and river rehabilitation.

It is a partner of the Department of Environment and Natural Resources' Adopt-an-Estero Program aimed at rehabilitating and caring of rivers and esteros.

In 2019, SMC signed a Memorandum of Agreement with DENR adopting Tullahan-Tinajeros river system. The Tullahan-Tinajeros river system is part of the Malabon-Navotas-Tullahan-Tinajeros river system. The Malabon-Navotas-Tullahan-Tinajeros river system stretches 36.4 kilometers from La Mesa Dam in Quezon City to Manila Bay in Navotas City passing through Caloocan, Malabon and Valenzuela.

For the clean-up of the Tullahan-Tinajeros river system, SMC acquired new backhoes, cranes, dump trucks and other equipment to remove silt and sediments in the river system. It initially concentrated its clean-up activities in the 5.25 kilometer Sectors 1-3 that stretches from Manila Bay in Navotas to the Tinajeros Bridge in Malabon. With the approval by the Department of Public Works and Highways to include Sectors 4 and 5 stretching from Tinajeros Bridge to Potrero in the cities of Malabon and Valenzuela in the dredging plan, an additional of 6.3 kilometers has been included in SMC's clean-up.

Aside from cleaning the river system of solid waste, work will include increasing the depth and widening portions of the river.

“Sustainability has always been ingrained in our company culture and built into all aspects of our businesses, that is why we continuously invest on programs that preserve the environment and promote environmental stewardship among various stakeholders.”

RAMON S. ANG
SMC Vice Chairman, President & CEO

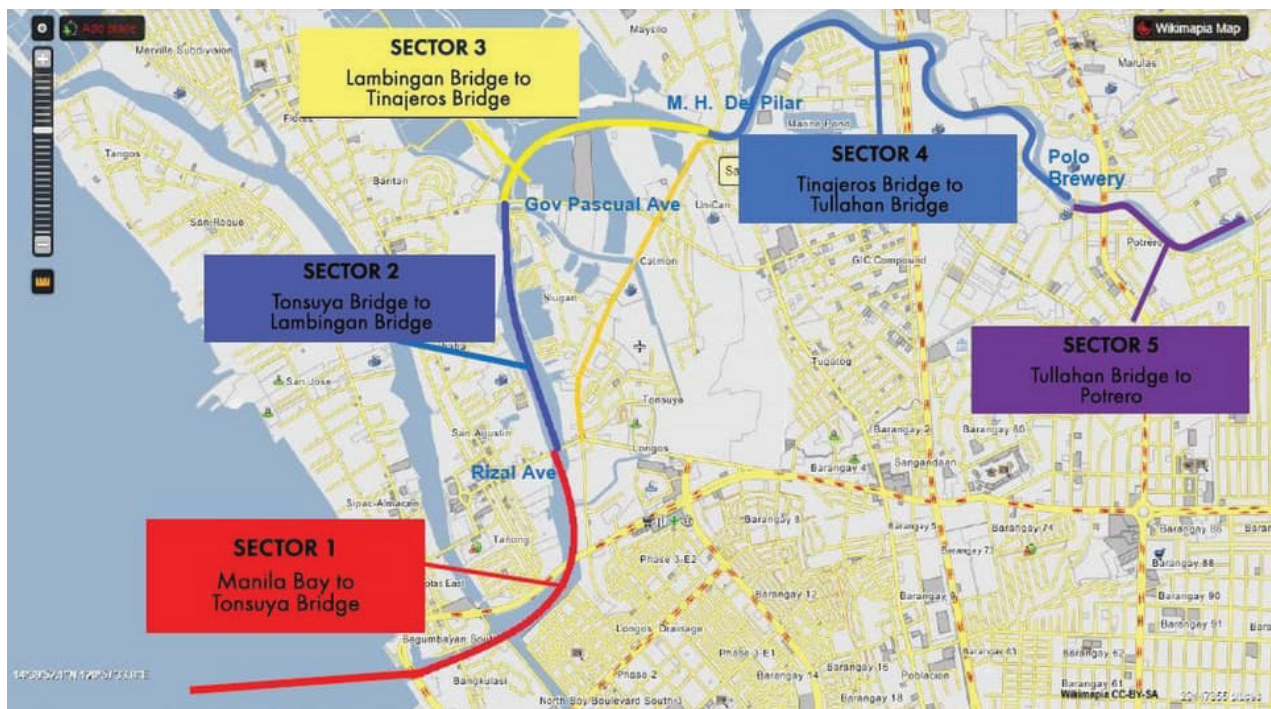
RSA inspects the dredging machines to be used for SMC's massive coastal clean-up and river rehabilitation projects



DREDGING AREA SECTORS

First phase - Sector 1 to 3 (Manila Bay to Tinajeros)

Second phase - Sector 4 to 5 (Tinajeros to Potrero)



The expanded Tullahan-Tinajeros river system clean-up operations of SMC.

The clean-up and dredging activities have greatly reduced flooding in Malabon and Navotas, both flood-prone areas. A total of 1 million cubic meters of garbage from the Navotas-Malabon section alone is expected to be dredged in two years.

SMC has tapped former Taliptip residents in the ongoing Tullahan-Tinajeros river system clean-up. The residents are graduates under the SMC-TESDA partnership skills training program.

“As we fast-track our dredging operations in the Tullahan River before the rainy season, we need more people to lend a helping hand and more equipment so we can expand coverage of the river cleanup in the coming months. The employment of our TESDA graduates in our Tullahan dredging operations will give them enough experience and competence to handle different kinds of heavy equipment while they earn income for their families,” RSA said.

According to him, more personnel are needed to operate existing and newly acquired dredging equipment.



Coastal clean-up in Brgy. Taliptip as part of SMC's reclamation in Bulacan.



The first batch of former Taliptip residents who trained under the joint SMC-TESDA training program

Flood Mitigation Project for Bulacan

Planting mangroves along the Bulacan coastlines is part of SMC's flood mitigation plan. Bulacan hosts the new Manila International Airport. Its construction is ongoing under SMC's Aero City franchise.

"We have studied the Bulacan flooding problem and our flood mitigation project has taken into consideration future improvements and future urban development in the areas adjacent to the airport," RSA said.

The comprehensive plan includes a river channel improvement program through cleaning, dredging, and widening of major tributaries in the Marilao-Meycauayan-Obando river system of Bulacan. These tributaries are the Alipit or Taliptip River, Sta. Maria River, and the Meycauayan River.

According to RSA the target for the Alipit River is to achieve a bottom width of 60 meters and a depth of 2.5 meters, mean sea level (MSL) throughout its 7.21-kilometer length. For the

Sta. Maria River, target is a bottom width of 90m, dredged depth of 5.0m MSL, and length of 0.50 km. While for the Meycauayan River, the target bottom width is 80m; dredged depth, 4.5m MSL, and length of 4.46 km.

Constant cleaning and dredging of these rivers that all lead to Manila Bay, he said, is essential as the mitigation of flooding and removal of trash and obstruction will also aid in the conservation of the marine ecosystem and traditional fishing grounds.

SMC also intends to dredge the Pasig River as part of its proposed Pasig River Expressway project to attain the river's optimum depth and ensure the constant flow of water.

"Sustainability has always been ingrained in our company culture and built into all aspects of our businesses, that is why we continuously invest on programs that preserve the environment and promote environmental stewardship among various stakeholders," RSA said.



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- Solar plants with BESS facilities in 10 locations nationwide **(operational by 2023)**
- 1,300-megawatt liquified natural gas (LNG) plant **(operational by 2024)**
- Hydroelectric power plants in Luzon



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SMC Sama-Sama sa Pagbangon



by **PAOLO B. PAGADUAN**
Project Manager
World Wide Fund for Nature-Philippines (WWF-PH)

WHY WWF-PH SUPPORTS AMTC?

Shared Values

Values can mean many things. As a noun, it can mean the things we believe as important, or one's principles. As a verb it can be used to refer to having a high opinion of someone. It may even be as simple as a number. All these definitions play a VALUABLE role in my story.

1,000,000

The first VALUE. No matter how we look at it, in our culture, a million is always a big number. Even when we place imaginary wagers, we often absent-mindedly bet a million, knowing it is a lot.

That is how big and seemingly impossible to reach a million is in our consciousness. But the story will go through several other VALUES before reaching that million and beyond. And back.

98%

The VALUE that started my journey, though, was 98%.

In 2016, Metro Manila still got about 98% of its raw water supply from the Angat-Ipo-La Mesa watersheds. We practically had all our eggs in one basket when it came to our freshwater supply. Surely, we would do everything to ensure that the source would be sustainable so we and the succeeding generations after us will continue to benefit from this bounty from nature. Right?

Yet, when we were approached by Roman "Omie" Corpuz, who was then working for one of the concessionaires, to investigate the Ipo Watershed, a different image was revealed. The most readily available materials on the watershed then were from the UP Mountaineers (UPM), Bantay Kalikasan(BK)and the concessionaires. The stories from my good friend, Fredd Ochavo, from the UPM, seemed to paint a bleak image. BK reports showed significant degradation of the forests and very little information about the people who live inside the watershed.





40%

From what we've gathered, it appears that the watershed only had about 40% forest cover left in 2012. Down from 75% just a couple of decades earlier. This was not apparent during our first visit to the community in 2016 where we entered the watershed via the Ipo Dam. We were greeted with green all the way from the gate and even to the community in Sapang Munti. Fortunately, I had an opportunity to see the watershed a few months earlier from the Mt. Balagbag side which was quite barren, to the point where trees have names since and were used as landmarks. That was how deforested the southwestern portions were, near the border of Rizal.

Our main contacts were the Bantay Gubat teams led by Kuya Manny Cruz, and the Tribal Leader, his brother, Kuya Mario Cruz (also known as Ikong Bunso), both from Dumagat tribes who call Ipo their Ancestral Domain. They were very helpful in gathering the data we needed and in planning what needs to be done not just for the forest but also for the people who live and call this place home.

They have a lot of experience with tree planting activities from corporate social responsibility (CSR) projects to the recent National Greening Program (NGP). But to them, it seemed like all that mattered to the sponsors were the number of trees planted.

Zero

When asked about the survival rates, the answer was not clear. At first, I thought this was because that was not part of their tasks as contractors for the NGP. Later, we found out that most of the earlier tree planting activities did just that— plant trees. Take a ton of pictures. Nothing more. That was the main data that was being counted: number of trees planted. It was as if it didn't matter if the trees survived or not, as long as the budget was spent and accounted for properly. Most projects didn't even have maps. This was quite understandable, particularly during the early days when we didn't have much access to digital mapping tools. We knew right then that this was something we had to work on. Reforestation is more than just planting trees. It would take a lot of maintenance, nurturing or "mothering" to make sure the trees planted survive and provide their full benefits.

3 DAYS

We started coordinating with the Department of Environment and Natural Resources (DENR) and the Metropolitan Waterworks and Sewerage System (MWSS) about our interest to work with them in rehabilitating the Ipo Watershed. We started the talks with the previous administration so when the changes came, it was quite a challenge. But one change I did appreciate, was the no-nonsense attitude of the new Administrator (now Chairman of the Board), PDDG Reynaldo V. Velasco (Ret.), Ph.D. His VALUES sort of ignited a flame to inspire quick and decisive actions. We were familiar with how things can move slowly, particularly with big bureaucracies. But when Gen. Velasco came in, he quickly showed that he meant business.



WWF President & CEO Joel Palma & WWF Project Manager Paolo Pagaduan with WWF-Philippines' pledge of commitment to the AMTC

In our first meeting with him, he made it a point that the required action be done by his staff within three days. And it worked! What usually took several weeks and several follow-ups, were all accomplished before the deadline. We met on a Tuesday. The work was finished by Thursday of the same week.

Under his administration, MWSS also considered the recommendation of the different stakeholders to have a dedicated unit to handle the Watershed. Before, it was just an additional duty for Atty. Zoilo Andin Jr., who was then Deputy Administrator for Administration and Support Services. Atty. Andin's was instrumental in getting the ball rolling for us. Eventually, during Administrator Velasco's watch, the Watershed Management Division was created, and they even got Omie Corpuz to lead the division.

In short, it appears that the watershed was given more VALUE.

5,000,000

This same attitude was clearly part of the reason to target the big numbers: one million per year for five years. Quite a big VALUE, particularly since we planned to plant less than 100,000 seedlings per year at the start of our project. But Administrator Velasco and his point person for the project, Melandrew Velasco, sold us on their vision and thus, the Annual Million Tree Challenge (AMTC) was born.

We knew that no institution had the resources to plant that number of trees per year on their own. But we quickly found out that there were more out there with the same interests. MWSS need not even provide all the resources needed to reach the target. In fact, among the government institutions involved, MWSS had a rather modest target for reforestation. That was not yet part of their big plans, then. The big guns came from DENR and the concessionaires, particularly from then DENR Regional Director for Region III, Francisco Milla, who pledged practically half of the target at the beginning of the challenge.

All contributions were appreciated— from corporations and Government Agencies to NGOs and even volunteer groups and individuals. The AMTC tallied all these activities within the watersheds that provide Metro Manila with water. I was honestly surprised that the target was reached after the first year. After five years, I am still in awe that together, we have averaged a million trees per year, despite the onset of the Pandemic last year.

Like the water cycle, we are back at the first VALUE. It is still a big number. But, it is no longer unreachable nor impossible. And like water, I hope this idea – this model – continues to flow. Adapted and replicated in other areas. And with the Million Trees Foundation, I see a million and more trees nurtured in the future.

MWSS did more than just tally the trees planted. They made sure to implement new standards and principles like maintenance, survival rates, exclusive use of native trees (for Ipo, at least), and digital mapping of the different projects all through new division. Recognition was also given to all partners no matter how big or small they may be. Thereby incorporating more sustainability VALUES in the guidelines.

Forests for Water

What started as a rather big, almost impossibly large number to achieve eventually became a reality. Not just for trees, but for water as well. Often, forests are valued for their role in Biodiversity, regulating our Climate, and more. But what is often unappreciated is the VALUE that forests play in ensuring we have freshwater all year round. That is why our project in the Ipo Watershed is called: Forests for Water.

Water does not come from our faucets. It comes from nature, and in the case of Metro Manila, the water, primarily comes from the Angat-Ipo-La Mesa watersheds. The sustainability of this system is heavily influenced by the status of the forests within the watersheds.

Traffic

Trees help to get more water into the ground by intercepting rainwater. Instead of just flowing over the land and turning into run-off or floodwaters (like taking the Skyway), forested areas help trap rainwater better than areas with little plant cover. The water is then absorbed by the ground and these waters gradually flow out into our streams and rivers later (like getting stuck at EDSA during rush hour). That is generally why our rivers still have flowing water even during the dry season. They also help reduce soil erosion by holding the soil together. Erosion leading to siltation dramatically decreases water quality. This is particularly significant when strong typhoons occur leading to water service disruptions in Metro Manila. These disruptions happen several times a year, ironically, when there is excess water due to bad weather.

Our project studied how much water can be replenished and how much erosion can be avoided when we rehabilitated degraded forests. For one of our project sites, we calculated this and came up with a VALUE.

1,000,000+ LITERS PER DAY

Together with the Dumagat partners in Ipo and with the support of our partners and in coordination with DENR and MWSS, we have rehabilitated over 400 hectares in the Ipo Watershed, and we intend to do more in the future. Particularly, in the 150 hectares that we have helped rehabilitate in the Sapang Munti sub-watershed in Ipo, we have calculated that we are well on our way to help replenish over a million liters per day (or 400,000,000 per year).

Imagine what we can do if we rehabilitate and maintain more areas!

Water is life

Like the water cycle, we are back at the first VALUE. It is still a big number. But, it is no longer unreachable nor impossible. And like water, I hope this idea – this model – continues to flow. Adapted and replicated in other areas. And with the Million Trees Foundation, I see a million and more trees nurtured in the future.

THE REAL GOOD GUYS

PH's Rotarians lend a helping hand to AMTC

Their hands may already seem full with the many humanitarian efforts they have been doing throughout the Philippines, but this didn't stop the members of Rotary International District 3780 (RI District 3780) from lending a helping hand to the Annual Million Trees Challenge (AMTC).

For this year, RC District 3780 stressed their commitment to the AMTC by pledging to plant 5,000 trees.

AMTC is a multi-sectoral project that was launched by Metropolitan Waterworks and Sewerage System (MWSS) Chairman and Acting Administrator Reynaldo V. Velasco in February 2017. It is a five-year initiative that targets to plant one million trees in areas surrounding the critical watersheds in the region every year until 2022.

RC District 3780, on the other hand, has about 2,100 members in Quezon City alone and more than 20,000 spread out among 10 RI Districts spread throughout the Philippines since the Rotary movement was introduced in Manila over a century ago.

Worldwide, Rotary is a global network of 1.2 million leaders and problem-solvers. Rotary has been established for more 100 years with the ultimate aim of solving real problems that the world face today.

Together, members use their passion, energy, and intelligence to take action on sustainable projects; promote peace; fight diseases; provide clean water, sanitation, and hygiene; save mothers and children; support education; and grow local economies.

In early 1919, Rotarian Roger Pinneo of Seattle, Washington, USA, traveled to the Philippines to try to organize a Rotary club in Manila. Leon J. Lambert, a Manila business leader helped Pinneo establish the club. Several months later, on 1 June 1919, the Rotary Club of Manila was chartered and became the first Rotary club in Asia.

During the virtual induction of the new set of officers of RC District 3780 led by RI District Gov. Edgardo N. Ayento on June 25, 2021, SMC President and CEO Ramon S. Ang lauded the Rotarians for their various humanitarian projects and encouraged everyone to continue taking on projects that will uplift the lives of the Filipinos.

Members of the Rotary Club of Manila, Philippines, pose for a photo in 1942. On 1 June 1919, it became the first Rotary club chartered in Asia. Photo source: Rotary International Twitter





According to Ang, an organization like the Rotary performs a key role in the economic recovery especially during the pandemic. This, since it has the network, the reach, and the capability, and the influence to make a big impact on the society.

Ang likewise urged the Rotarians to get vaccinated and encouraged their relatives, employees and their network of friends and communities to do the same.

“This is our best shot at protecting ourselves and our loves ones and rebuilding our economy,” said Ang.

“My message for you is to not lose hope, and continue working hard in making an impact that matters,” he added.

Ang was invited to be the events inspirational speaker by RC District 3780 to share his insights and outlook on the economy amid the pandemic.

According to him, Rotary’s motto “Service Above Self” speaks volume of how the Rotary organization continues to lead with purpose especially in difficult times.

“It is during these difficult times when new meaning and purpose are found. For SMC, what mattered most was helping society at large, not the plans, goals, or profits. It is serving others above self,” Ang said.

The Rotary-AMTC connection

Publisher and communications specialist Melandrew T. Velasco is also a Rotarian having been past President of the Rotary Club of Cubao West belonging to RI District 3780. He also happens to be the founding president and executive director of Million Trees Foundation Inc. (MTFI), which is a non-profit organization recently formed to ensure the continuity and expansion of AMTC beyond its original targets.

In 2017, Velasco also helped conceptualized AMTC, which is now on its fifth year of implementation and had since become a multi-sectoral effort from being just the project of one government agency, which is MWSS.

“The Million Trees Foundation Incorporated was primarily created to support the Annual Million Trees Challenge of MWSS. So basically, it is to help protect the seven watersheds areas, namely La Mesa, Ipo, Angat, Umiray, Laguna Lake, Marikina, and even Manila Bay. These watershed areas supply water to the metropolis and its environs,” Mel Velasco said in an interview.



PP Mel during the Rotary GoldenWheel Awards in 2013.



Our confidence level is anchored on the performance of the Annual Million Trees Challenge since 2017. As I have said, we have planted more than 4 million trees in the span of four years, including this time of pandemic. This year, despite COVID-19, we are targeting to meet another one million trees to be planted so we can surpass the five million trees target.

PP MELANDREW T. VELASCO
SILVER PRESIDENT, RC CUBAO WEST

“We would like to continue this noble advocacy of planting million trees every year – a noble project started in 2017 by MWSS Administrator Reynaldo Velasco targeting the planting of one million trees a year for five years until 2022. We would like to pursue that. The Million Trees Foundation will be here as a complementary organization for MWSS’ AMTC project,” he further said.

Over the next few years, Velasco said MTFI aims to preserve and restore the ecosystem functions of watersheds nationwide aside from the watershed beneficiaries of AMTC.

According to the River Basin Control Office of the Department of Environment and Natural Resources (DENR), there are 142 critical watersheds in the Philippines, and MTFI targets to help rehabilitate the forest areas surrounding these watersheds.

The rehabilitation of these watersheds will be patterned after the La Mesa dam rehabilitation project. Its objectives also include the conduct of tree-planting activities; awareness campaign in support of the government’s reforestation program and Corporate Social Responsibility (CSR) environment projects of private corporations; establishment of a data bank on statistics relevant to the foundation’s activities; and introduction of modern technology in tree-planting.

Just recently, the MWSS Board of Trustees has approved the memorandum of agreement (MOA) that will formalize MTFI as the official institutional partner for the AMTC.

Moving forward, MTFI will actively collaborate with individuals, groups, government and other private organizations here and overseas to address watershed management concerns.

Velasco said he is confident that the targets of AMTC will be met, thanks to the support of the programs stakeholders’ partners.



RI District 3780 Gov. Ed Ayento leads the bamboo tree planting in Rodriguez, Rizal where one of the watersheds are located.

“Our confidence level is anchored on the performance of the Annual Million Trees Challenge since 2017. As I have said, we have planted more than 4 million trees in the span of four years, including this time of pandemic. This year, despite COVID-19, we are targeting to meet another one million trees to be planted so we can surpass the five million trees target,” Velasco said.

“Now, it is important here, as far as our confidence level is concerned, is that the support is very encouraging from our institutional partners. So we will be expanding our network as I’ve said. We will be knocking on the doors of other institutional partners. MPIC [Metro Pacific Investments Corp.] Group of Companies, the Ayala Group of Companies, EKR [Enrique K. Razon] Group of Companies, San Miguel Group of Companies, these are our institutional partners. But other allied corporations can support, they have their own CSR, we will partner with them. And we are confident that they will support the Million Trees Foundation,” he further said.

In June last year, Velasco, who is also the widely known as the family biographer and historian of former President Fidel V. Ramos and his Ramos Peace and Development Foundation (RPDEV), was initially selected by the District Nominating Committee as RI District 3780 Governor Nominee. Eventually, it was his challenger who went on to become the district Governor for RY 2022-2023 following a district wide selection.

Velasco could have been the second Rotarian from Rotary Club Cubao West to be elected District Governor after 17 years. The first was the late Roberto “Bobby” Viray who served as District Governor for two terms from 2001 to 2003.

Known to be a visionary and a man of action, Velasco was the brainchild of the RI District 3780’s The Rotary Golden Wheel Awards which is now on its 9th year since it was launched in 2013. He is also the founding president of the Rotary Hearts Matters Foundation, Inc. along with the late ace heart surgeon Dr. Rommel Carino.

Aside from Rotary, Velasco is also a JCI Senator where he served in various capacities such The Outstanding Filipino (TOFIL) 2019 National Chairman, The Outstanding Physicians of the Philippines (TOFP) National Chairman, National Director, PR and Communications Director, among others.

Incidentally in his capacity as MTFI president and Executive Director, Velasco has tapped both the Rotary and the JCI Senate Philippines as among the partner stakeholders for the Annual Million Trees Challenge.



District 3780 Rotarians during Bamboo Tree Planting in Rodriguez, Rizal.

Saving the watersheds and environment

ONE BAMBOO tree at a time

by CAMILLE LOPEZ



Dubbed as the poor man's timber, when we think of bamboo, we are usually reminded of the simple provincial life with bahay kubo (nipa huts) and papag (bamboo bed) under the mango tree. But in the advent of the rising trend in functional, aesthetic minimalism, and worsening climate crisis, this humble local material has proven to be more than what it was known for.

From its meek origins, bamboo has shape-shifted into countless forms. From food to kitchen utensils, beauty and self-pampering products to spa essentials; construction materials to interior decors –bamboo is everywhere. Since sustainability is becoming in demand in the world, sustainability in design is now crucial.

The [bamboo's] supply chain was being constricted because there were not enough actors in the supply chain attending to primary processing that would enable a sufficient flow of raw materials. The Philippine Bamboo Industry Development Council (PBIDC) Director Mr. Rene "Butch" Madarang aims to change that.



other hand, was formed to ensure the continuity of the AMTC project as well as pave the way for its expansion nationwide.

Aside from its five-year target, MTFI is also advocating for the planting of bamboos along river banks; and Narra and Ylang-ylang (*Cananga odorata*) trees in the other areas. It also pushes for the massive planting of bamboos along riverbanks in Marikina and Laguna Lake, which is in line with the goals and programs of PBIDC.

Despite bamboo's potential, it has been overlooked for many years. According to Canopy International, a 2016 journal published by the Ecosystems Research and Development Bureau-DENR, the supply chain was being constricted because there were not enough actors in the supply chain attending to primary processing that would enable a sufficient flow of raw materials.

The Philippine Bamboo Industry Development Council (PBIDC) Director Mr. Rene "Butch" Madarang aims to change that.

The PBIDC is one of the institutional partners of Million Trees Foundation Inc. (MTFI), the organization behind the Annual Million Trees Challenge (AMTC), a 5-year program spearheaded by Metropolitan Waterworks and Sewerage System (MWSS) Chairman and Acting Administrator Reynaldo Velasco to promote water security and protection of the environment.

To be specific, AMTC targets to plant one million trees per year from 2017 to 2022 in areas surrounding the critical watersheds in the region. MTFI, on the





By 2040, the PBIDC projects that the Philippine Bamboo Industry would have stable and supportive policies. They are also looking into becoming self-sufficient in sustainable raw material resources, high capacity but affordable machinery and equipment as well as cost-effective technologies and production processes, and a stable institution shepherding the industry's growth and development. By then, they also aim to have established bamboo-based enterprises in rural areas and a stable and reliable local and foreign market.

PBIDC's vision

Since its creation in 2010, the PBIDC has been collaborating with the Department of Trade and Industry (DTI), Department of Environment and Natural Resources (DENR), Department of Agriculture (DA) Department of Education (DepEd), Department of Science and Technology (DOST), Department of Labor and Employment (DOLE) League of Municipalities of the Philippines, Non-Government Organizations and Private Industry Associations to utilize bamboo's untapped potential.

By 2040, the PBIDC projects that the Philippine Bamboo Industry would have stable and supportive policies. They are also looking into becoming self-sufficient in sustainable raw material resources which needs well trained manpower, high capacity but affordable machinery and equipment as well as cost-effective technologies and production processes, and a stable institution shepherding the industry's growth and development. By then, they also aim to have established bamboo-based enterprises in rural areas and a stable and reliable local and foreign market.

Steps are already being taken to make these projections happen. Senate Bill No. 1240, or the Philippine Bamboo Industry Development Act which appropriates P100 million annually for the Bamboo Industry Development Center has been approved by the Senate Committee on Trade, Commerce and Entrepreneurship in December of 2019 according to an article from Business World.

Bamboo Against Climate Crisis

Much has been said about bamboo's sustainability but what sets it apart from other sustainable or renewable materials? According to the Guinness World bamboo is the fastest growing plant on earth. Under optimal soil and climate conditions, certain bamboo species can grow up to 91 centimeter or 35 inches per day. Woody bamboos, depending on the species, can grow up to 30 meters tall and 20 centimeters in diameter which makes them a good source for raw materials.

In an analysis published in International Bamboo and Rattan Organization's website (INBAR) Bamboo was shown to be one of the most effective in carbon sequestration. Living bamboo stores a similar amount of carbon to tree plantations: from around 100 to 400 tons of carbon per hectare (/ha). Tree plantations store between 90 to 420 tons. It also produces 35 percent more oxygen compared to a tree that is equivalent its size.

Bamboo can be used for a number of durable products, including furniture, flooring, housing and pipes, and can replace emissions-intensive materials including timber, plastics, cement and metals. Interestingly, bamboo could also substitute high-carbon intensity energy, such as fossil fuel-based energy sources.

Another significant contribution of bamboo to the fight against climate change is the prevention of soil erosion. Based on research funded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD) the roots of giant bamboo

(*Dendrocalamus asper*) can efficiently absorb excess water and bind the soil together, thus reducing erosion.

The research data has shown that Giant bamboo roots cuts soil losses by 75% or 22.66 tons/ha per year compared with 90.12 ton/ha per year in open area. Displaced soil particles are lessened by 80%, while a river near a giant bamboo plantation decreased water discharge by 85%. Lastly, it was observed that sediment yield, a major cause of siltation and flooding in lowland areas, decreased to 2 tons/ha per year in a giant bamboo plantation compared to 50 tons/ha per year in an open area.

Another significant contribution of bamboo to the fight against climate change is the prevention of soil erosion. Based on research funded by the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development of the Department of Science and Technology (DOST-PCAARRD) the roots of giant bamboo (*Dendrocalamus asper*) can efficiently absorb excess water and bind the soil together, thus reducing erosion.

From Poor Man's timber to Green Gold

The perception of bamboo has made 180 degrees turn. What was once perceived as a material for cheap furniture has made its way to the global market. The demand for it is rising fast as countries race towards achieving complete sustainability. According to a report from Future Market Insight the global bamboo products market was valued at US\$ 60 Bn in 2019, selling over 3 billion tons of merchandize.

In February of 2020, The Department of Agriculture Secretary William Dar declared bamboo as a high value crop to complement programs and projects of the PBIDC.

“With bamboo as a high-value crop, we can undertake various interventions that include research, processing and value-adding, and budgetary support,” he said.

Naturally, products of high value are heavily invested on, on the same year eight government agencies has implemented P441M-worth of projects related to the various aspects of meeting the roadmap's objectives of bamboo development. The Development Bank of the Philippines (DBP) has made P10B-worth of loans available for would-be bamboo farmers.

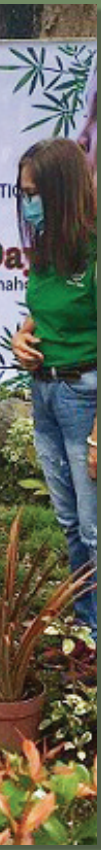


For 2021, the same agencies are implementing a total of P594M-worth of projects, while P10B-worth of DBP loans will be made available. For 2022, a total of P1.4B-worth of projects have been proposed for that budget cycle, and about P10B-worth of loans will be again made available. Our aim is to plant 23,671 hectares of bamboo nationwide for 2021 and 40,000 hectares for 2022.

Trade Secretary Ramon M. Lopez explained investing in developing a strong Philippine bamboo industry will be worth it because the bamboo has strong potential for business.

“By planting more bamboo trees to increase the supply of bamboo, we aim to create a source of livelihood for our people, bamboo can then support the requirements of our Micro, Small, and Medium Enterprises (MSMEs), particularly the producers of bamboo-based finished goods,” he said as he reiterated the many uses of bamboo-based materials and reengineered bamboo.





Manpower and Machinery

To realize its goal to provide a highly skilled manpower to further the bamboo initiative, the PBIDC entered an agreement with Technical Education and Skills Development Authority (TESDA). The training institution now offers a course in Bamboo Production NC II. The training protocols on bamboo production includes production of planting materials or bamboo seedlings, establishment of bamboo nursery, and plantation management.

A training workshop was also held for the Bamboo Nursery Staff of the Laguna Lake Development Authority (LLDA) in Calauan, Laguna, and Tanay, Rizal. It was supervised by the Philippine Bamboo Professionals Inc. PBIDC participated with the hands-on training activity

They have also Inaugurated DTI's Shared Service Facilities which aims to improve the competitiveness of MSMEs by providing them with machinery, equipment, tools, systems, accessories and other auxiliary items, skills and knowledge under a shared system. DTI CITE Bamboo Facilities have also been improved to serve the increasing need of the resurgent bamboo industry particularly with its training, coordination, and processing needs.



By planting more bamboo trees to increase the supply of bamboo, we aim to create a source of livelihood for our people, bamboo can then support the requirements of our Micro, Small, and Medium Enterprises (MSMEs), particularly the producers of bamboo-based finished goods.

RAMON M. LOPEZ
DTI SECRETARY

Land for the Bamboos

Other policies to support the bamboo industry has been implemented over the past few years which ensures contributions both from the government agencies and private partners. In September of 2020 the DENR has included bamboo in the Enhanced National Greening Program which aims to rehabilitate 1.2 million hectares of denuded forest lands by 2022.

The DENR's Mines and Geosciences Bureau has also given directive to mining companies to allot 20 percent of their mined-out areas to bamboo plantations; which is welcomed by private mining firms as expressed by Rocky Dimaculangan, vice president for corporate communications at Chamber of Mines of the Philippines (COMP) in a report from Manila Bulletin. To maximize the benefits of the program, the offset bamboo plantation area should not be covered by the existing Expanded National Greening Program (ENGP) or any projects of the DENR or any non-government organizations.

Government and Private Sector Collaborations

The local government of Manila pledged to provide land for bamboo planting. A report from the Philippine News Agency quoted Manila Mayor Francisco "Isko" Domagoso proclaiming his vision when it comes to the city's environment. This includes creating about 1,600 hectares of open green spaces in Manila for the city to be ecologically balanced and healthful. He said that that the initiative is to plant suitable species of bamboo in selected roads, areas, and other open spaces in Manila.

The PBIDC has collaborated with Pasig River Coordinating and Management Office (PRCMO), and Ecosystems Research and Development Bureau (ERDB) to plant bamboo and establish bamboo linear parks or mini-parks along the Pasig River tributaries to contribute with carbon sequestration in Metro Manila, starting with Estero de Pandacan as the first implementation site.

PBIDC also works with various civic society groups such as Mga Anak ni Inang Daigdig in partnership with the Million Trees Foundation. Since Bamboos are known to absorb excess water and help cut soil losses, they are pushing to cover 600 hectares of land along Marikina riverbanks to support reforestation projects.

MAID's Advocacy is Bigger than a Giant Bamboo

by SALLY LEE LORETO



**Dendrocalamus
Asper – we will
plant the Philippine
Giant Bamboo along
the river banks of
the Marikina River
and its tributaries
along the Marikina
Watershed in ideal
conditions, [its] poles
can reach up to 14
inches at the base.**

FR. BENIGNO P. BELTRAN

The whole country keeps a close eye on Marikina River whenever typhoons hit the country. Marikina have always been hit the hardest during typhoons, with Typhoon Ulysses being the latest one to ravage the city.

Damages are getting worse every year, and because of that Fr. Benigno Beltran and performance arts group Mga Anak ni Inang Daigdig (MAID) took the initiative to plant Philippine Giant Bamboos or Dendrocalamus Amper along the Marikina Watershed.

The bamboo species is endemic in the country and can grow up to 14 inches tall under favorable conditions.

“Dendrocalamus Asper – we will plant the Philippine Giant Bamboo along the river banks of the Marikina River and its tributaries along the Marikina Watershed... In ideal conditions, [its] poles can reach up to 14 inches at the base,” Fr. Betran said. Dendrocalamus Asper is the scientific name for giant bamboo, a species native to Southeast Asia.

MAID, which has been designated as “Ambassadors for Peace and Environment” by the Catholic Bishops’ Conference of the Philippines, was given 600 hectares in the Marikina Watershed to reforest with bamboo.

The group’s bamboo planting project contributes greatly to the Annual Million Tree Challenge (AMTC), a project spearheaded by Metropolitan Waterworks and Sewerage System (MWSS) along with other participating agencies, and seeks to save the critical watersheds in the country.

Fr. Beltran and MAID have been part of the project since its launch in 2017 where it managed to gather 1.4 million tree pledges for Ipo Dam. MAID, to be specific, have pledged 60,000 trees to be planted along Marikina Watershed this year as part of its commitments to AMTC.

Dangers of Deforestation



These water resources are threatened with wanton disregard for environmental conservation and protection. Deforestation has greatly affected our country's watersheds.

PDDG REYNALDO V. VELASCO
MWSS Chairman

To ensure the sustainability of the AMTC project and to replicate its success in other areas, the Million Trees Foundation, Inc. (MTFI) was formed, and the organization is now here to support government efforts to save the country's critical watersheds areas.

MTFI is now the main institutional partner of MWSS when it comes to the implementation of the AMTC, which will culminate in 2022.

Cimatu earlier estimated that there are 142 critical watersheds in the Philippines that need immediate protection and rehabilitation, and MTFI is now up for the challenge of saving not just the seven critical watersheds within the National Capital Region (NCR) and nearby areas but also those in other parts of the country.

As a start, MTFI is now building a five-hectare tree seedling nursery that will serve as a production and support arm of AMTC.

Melandrew Velasco, executive director of MTFI, said the nursery will provide optimum growing conditions to germinated seeds of tree species that will be transplanted in denuded areas within the critical watersheds in the country.

He also said the construction works for the organization's five-hectare tree seedling nursery has already started.

"We are excited that over the next five, 10 years, this Million Trees Foundation nursery will be a center of activity for AMTC and in other areas, and we look forward that we will have more stakeholder and institutional partners to support this noble advocacy of protecting the watersheds, not only in the seven critical watershed areas but in other 142 critical watershed areas in the Philippines," Velasco said.



Giant Advocacy



The primary reason to plant bamboo therefore is to mitigate the harm climate change will do since bamboo absorbs more carbon dioxide than trees. Another reason is to prevent erosion and flooding since the root system of bamboo can spread over a large area and can hold more water and keep the soil together.

FR. BENIGNO P. BELTRAN

Fr. Beltran said MAID's ultimate vision is to plant a billion bamboo by 2030, the year climate scientists say is the deadline for the human race to keep global warming down to 1.5 degrees. This, since after that, the devastation that climate change will wreak on the biosphere will become irreversible.

"The primary reason to plant bamboo therefore is to mitigate the harm climate change will do since bamboo absorbs more carbon dioxide than trees. Another reason is to prevent erosion and flooding since the root system of bamboo can spread over a large area and can hold more water and keep the soil together," Fr. Beltran said.

"The third reason is to create livelihood in the production of bamboo seedlings, in the planting and nurturing, in the processing of bamboo shoots, and in the production of engineered bamboo for furniture and construction materials. The planting of a billion bamboo all over the country is estimated to generate more than \$25 billion in gross revenues annually if bamboo factories can be set up for processing bamboo poles from a billion bamboo clumps," he added.

As part of this vision, Fr. Beltran said MAID targets to plant 1 million bamboo propagules in the Marikina Watershed while maintaining biodiversity.

MAID was founded in 1995 and registered with the SEC in 2000. It is governed by a Board of Trustees, and submits financial report to the BIR every April 15. It is audited by an external auditing company annually, and has been given a Certificate of Good Standing every year since.

Apart from performing the dances and rituals of the indigenous peoples in the Philippines and repertoire of a couple of hundred folk dances from the Philippines and from other countries, the dancers also engage in clean-up activities and the planting of indigenous trees.

In 2005, MAID signed an Memorandum of Understanding (MOU) with Sec. Angelo Reyes to reforest Mt. Ayaas, the highest peak in Montalban, Rizal, through the Adopt-a-Mountain Program. It was a difficult task for the dancers and hundreds of other volunteers to climb up the mountain carrying seedlings and planting them, only to find out afterwards that they were burned because of kaingin and charcoal-making by the illegal settlers in the area.

Taking it Phase by Phase

MAID has set high expectations for itself, but Fr. Beltran and his organizations members have already got it figured out.

In 2015, the DENR gave MAID 84 hectares for its bamboo reforestation efforts through the National Greening Program. This was later on augmented with 495 hectares in the Marikina Watershed, which included Mt. Ayaas.

However, Fr. Beltran said whenever a typhoon comes and the Marikina River near Wawa Dam overflows its banks, the seedling nurseries and newly-planted bamboo seedlings are washed away, including the homes of the illegal settlers organized to help in the reforestation efforts.

“Because of the series of massive flooding in the lowlands due to the series of supertyphoons bludgeoning the country, MAID decided to focus on the use of bamboo for riverbank stabilization and then plant bamboo in the available areas,

“To facilitate the planting of bamboo in the area, MAID is focusing now in using the systems perspective in approaching the problems cited above and the use of technology in the project,” he added.

Fr. Beltran then enumerated the phases of the project, which are the following:

1. PILOTING TECHNICAL SOLUTIONS.

This will be done in the 600 hectares given by the DENR to MAID, including the riverbanks within the area. The bamboo seedling nurseries washed away by the supertyphoon are being rebuilt. In the meantime, additional seedlings will be purchased from credible suppliers so that planting can continue. We will also continue in the beta-testing of the Bamboohay app which will include geotagging features so that donors can monitor the growth of their bamboo seedlings through Google Maps. Remote sensing technique provides valuable and up-to-date spatial information on natural resources and physical terrain parameters. Geographical Information System (GIS) with its capability of integration and analysis of spatial, aspatial, multi-layered information obtained in a wide variety of formats both from remote sensing and other conventional sources has proved to be an effective tool in planning for watershed development. GIS are a critical tool for watershed management, as they can be used to assess watershed conditions through modeling impacts of human activities, as well as to visualize the impacts of alternative management scenarios. These modeling and visualization capabilities are fundamental tools to understand the processes and dynamics that shape the physical, biological, and chemical environment of watersheds. There have been several advances in analytical models for watershed management. These include: system dynamic modeling, watershed simulation modeling, watershed decision-making systems, stakeholder analysis modeling. Watershed management models have embrace the rapid advances occurring in remote sensing and satellite technology, GIS, database management systems, error analysis, risk and reliability analysis, and data analytics and we will make use of these technologies to achieve the vision.

2. CREATING INITIAL NETWORK STRUCTURES:

The Bamboohay app is designed to facilitate collaboration and make more efficient the tracking of financial transactions through blockchain technology. The app will also contain the software that will enable the use of GIS data in tracking and monitoring progress in the bamboo reforestation area and all the river systems of Rizal.

3. DEFINING PROBLEMS IN THE PILOT AREA:

The protocols for the use of bamboo in stabilizing river banks been done by Forester Jun Santos and his team at the Urban and Biodiversity Research, Development and Extension Center using GIS data and focusing for the moment on the riverbanks along the 600 hectare area given to MAID. A 5-hectare area for use as staging area for its activities has been requested from the DENR, with the requisite permission from government agencies involved. The area will also be used for massive bamboo seedling nurturing, and a showroom for the bamboo production of barbecue sticks and chopsticks, activated charcoal, liquid organic fertilizer from condensed smoke from the charcoal kiln, and also a small factory for engineered bamboo.

4. RAISING FUNDS TO FINANCE THE PROJECT:

A telethon to raise funds for the pilot and for the project in general is currently scheduled to be held and crowdfunding will be done in social media platforms.

5. DOCUMENTATION, MONITORING AND EVALUATION:

Apart from the cadre of people living in the area who have been trained to nurture bamboo seedlings, plant them correctly and take care of them until they are viable, other personnel will be hired to do the documentation, monitoring and evaluation, which would include flying drones and data analytics. Plans are being made to organize the illegal settlers in the area into cooperatives to benefit from the project of planting bamboo and also coffee and cacao between the bamboo clumps.

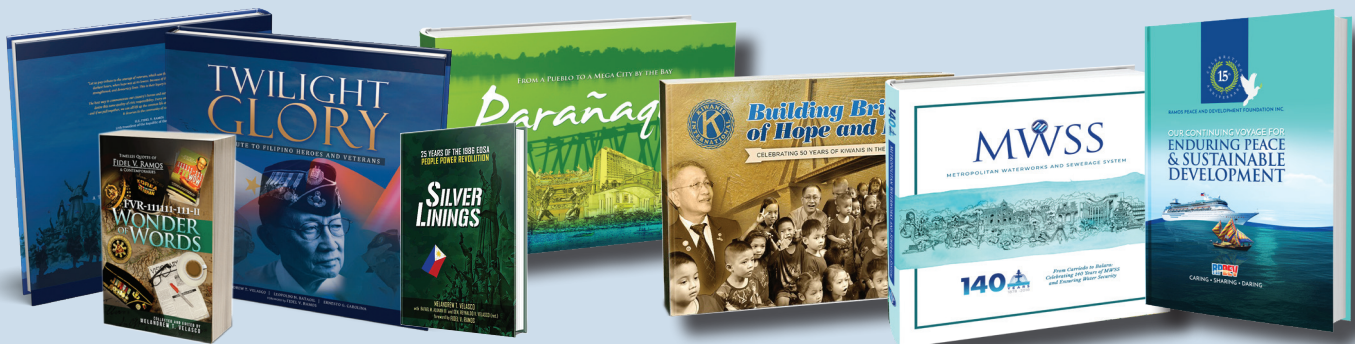


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