

Time for lowly ‘kawayan’ to shine

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Rubison Macalalag, a father of four and a former tricycle driver before working for the Kanya-Kawayan supply facility in Nasugbu, Batangas, works on a huge bamboo pole for treatment and processing.

The bamboo, or *kawayan* in Filipino, is again put in the spotlight as a viable solution to the ever-increasing demand for a sustainable supply of raw materials.

Highly flexible and durable, the bamboo is sturdy giant grass species that have multiple uses.



A worker passes by a structure using bamboos in building an orphanage with an innovative bamboo-cement technology in Batangas. Photos from Base Bahay Foundation Inc.

Ecosystem services

Natural bamboo forests provide very important ecosystem services, including functioning as a carbon sink, produce oxygen, prevent soil erosion, regulate water in watersheds and act as natural water purifier.

The bamboo shoots, or culms, that just sprouted on the ground, locally called *labong*, is edible and is sometimes the main, if not a key ingredient in many Filipino dishes.

In the wild, the bamboo leaf is food to a variety of animals. Even in farms, it is fed to cattle and carabaos, and small ruminants. The base or the roots are known to provide shelter or home to monitor lizards and even snakes.



Workers harvest bamboo for the Kanya-Kawayan supply facility in Nasugbu, Batangas.

Construction material

Traditionally used for construction, its pole is perhaps the most economically important part of the towering bamboo.

A nipa hut is often constructed with bamboo poles. The poles are also used to make tables, chairs and other furniture.

Even in the construction of concrete structures, bamboo poles are used as support.

Lately, processed or engineered bamboo are becoming widely accepted in architectural and interior designs.

Greening with bamboo

Recognizing the importance of bamboo, the Department of Environment and Natural Resources (DENR) is stepping up its use of bamboo as planting material for reforestation activities.

Environment Secretary Roy Cimatu led the symbolic bamboo planting activity in the Cagayan River during the launch of the Cagayan River Restoration Project during the World Wetlands Day, on February 2.

The DENR consider the use of bamboo as planting material in riverbanks as a flood-prevention measure.

A total of 185 bamboo propagules of bayog, kawayan tinik, machiku, buddha belly, and Giant Bamboo species were planted in the 925-meter stretch of the riverbank along Barangay Bangag in Lal-lo town during the launch.

So far, 3,672 bamboo seedlings have been planted covering 18 hectares along the riverbank of Cagayan River.

Similarly, on February 17, with the launching of the Marikina River Restoration Project, the DENR chief highlighted the event with a bamboo-planting activity.

Enabling policy

The Executive Order 879, signed on May 14, 2010, by former President and Pampanga legislator Gloria Arroyo, created the Philippine Bamboo Industry Development Council.

It aims to promote the bamboo industry development, and direct the use of bamboo for at least 25 percent of the desk and other furniture requirements of public elementary and secondary schools.

It also mandates government agencies to prioritize the use of bamboo in furniture, fixtures and other construction requirements of government facilities.

Moreover, Section 3 of EO 879 mandates “the use of bamboo as planting material for at least 20 percent of the DENR’s annual reforestation and rehabilitation areas, especially in the provinces and towns which are engaged in or have the potential to engage in bamboo-based industries.”

Bamboo research facility

Base Bahay Foundation Inc. launched the Base Innovation Center (BIC) in Makati City on January 27 to highlights the potential of bamboo and other locally available indigenous materials through research and development. It will be for the benefit of the socialized housing sector.

The BIC is the first research and testing facility for sustainable and disaster-resilient construction technologies in the country.

Located in the foundation's Makati office, BIC houses a Universal Testing Machine, a Bamboo Wall Panel Reaction Frame, fabrication tables and a model house where new materials and building techniques are tested.

The launching of the BIC was a welcome development as the Philippines slowly recognizes bamboo as a workable alternative construction material that can help narrow the huge gap in the country's socialized and affordable housing sector.

Housing sector gap

During the virtual launch on January 27, Maricen Jalandoni, president and chairman of the Board of Trustees of the foundation, highlighted the lack of affordable, safe and secure, and quality housing in many developing countries, including the Philippines.

“In the Philippines alone, the housing gap is estimated at 6.8 million units from 2017 to 2022. This means that 6.8 million families in the country do not have access to safe and adequate homes,” she said.

She added that the pandemic that continues to affect the country made the need for safe and secure homes even more evident.

“Entire communities are left vulnerable and have no choice but to live in high-risk areas that offer little or no shelter during typhoons or storms. Many of them are subjected to other risks, such as health, safety and security,” she added.

Sustainable housing technologies

The foundation, a pioneer in providing alternative building technologies for socialized housing, is promoting sustainable housing technologies and is making the much-needed push for the use of the lowly bamboo in the socialized-housing sector.

The BIC said the research of Base Bahay Head of Technology Luis Felipe Lopez Munoz bamboo construction technology will be conducted to provide Filipinos with more affordable and resistant solutions to housing.

“A key part of our commitment to promoting sustainable housing technologies is constant innovation,” he said in a taped video.

‘Bamboo’ partnerships

The foundation is partnering with Habitat for Humanity Philippines and the Hilti Foundation to optimize the bamboo construction technology and promote its widespread use in the country.

The partners are targeting to build 10,000 cement-bamboo houses by 2024, in response to the growing need for socialized housing in various disaster-prone areas in Luzon and Visayas.

In a statement, the foundation said that as of 2020, it has built over 800 houses, 10 communities, five supply facilities, and housed over 4,000 individuals across Luzon and Visayas.

“They’ve also trained over 100 Tesda [Technical Education and Skills Development Authority]-certified workers on masonry, carpentry, and in the application of cement bamboo technology in the country,” it added.

Research and development

Currently, the foundation has ongoing research projects with the De La Salle University which focuses on determining the strength and mechanical properties of various bamboo species.

Base Bahay General Manager Dr. Pablo Jorillo said the studies aim to guide the development of a local structural code for bamboo, aligned with the Philippine National Standard (PNS) 22157.

It is meant to institutionalize the use of bamboo in structural design, and the proposed International Organization for Standardization’s ISO 22156, which determines the specific testing procedures for bamboo culms, Jorillo said.

“As leaders in the field of sustainable housing technologies, we recognize that we play a pivotal role in ensuring that every Filipino has access to a home,” he added.

“Through the Base Innovation Center, we are looking to open more doors with our partners so that we may continue to provide Filipino families strong cement-bamboo structures for their homes, intensive research that will encourage innovation, and comprehensive technical training,” he pointed out.

Welcome development

Philippine Bamboo Foundation Inc. President Edgar Manda said the promotion of bamboo as planting material for the government's reforestation program and the establishment of a nongovernment research facility on bamboo in the Philippines is a welcome development.

In a telephone interview on January 30, Manda weighed in on the future of the Philippine bamboo industry and its use in reforestation and its potential positive impact on the environment.

He said that as a material for reforestation, bamboo has a huge impact in areas where there is deforestation.

"It will provide climate change impact, for example, on carbon sequestration. One hectare of bamboo can capture 600 tons of carbon dioxide per year," he said.

Moreover, it will also have positive economic impact, added.

The bamboo pole, he said, can be transformed into many products, it being a viable wood substitute.

Supply shortage, lack of direction

Unfortunately, he said the Philippines lack bamboo pole supply, hence, the need to establish bamboo plantations in commercial or industrial scales.

"We don't have a commercial or industrial plantation yet," Manda said, but added that there are known natural bamboo forests in Pangasinan.

The reason behind the stunted growth of the bamboo industry, or the evolution of bamboo as a commodity in the country, is the fact that the development of bamboo is not among the government's priorities.

Bamboo, he said, is not even considered a commodity. He said that like other economic commodities, bamboo should get the much-needed government support in terms of policy, programs, projects and budget.

Current initiatives on bamboo are unconsolidated, Manda said, expressing doubt that they will make a positive impact enough for the bamboo industry or the bamboo itself as a precious commodity to evolve.

Policy gap

Besides the DENR, he said the Departments of Science and Technology (DOST), and of Agriculture (DA) and other government agencies, including some local government units (LGUs) have their own bamboo initiatives, but are not interlinked or harmonized.

While there is already an enabling policy with the creation of the Philippine Bamboo Industry Development Council, such is not enough to realize the bamboo's full economic potential as the next-generation raw material and wood substitute, blaming the lack of needed policy direction.

Current DENR initiatives on bamboo, he said, need further study and planning.

On top of developing commercial or industrial level bamboo plantations, research and development, a comprehensive plan on how to establish bamboo communities who will make bamboo a way of life are needed.

Lagging behind its Southeast Asian and Asian neighbors, the Philippines, he said, has the potential to catch up as bamboo is part of the Filipinos' DNA.

But this means that the bamboo initiatives should not stop with just planting *kawayan*. There needs to be a comprehensive planning and program with dedicated people who will work on it to ensure the growth and development of the bamboo industry.

Afterall, it is time for the lowly *kawayan* to shine, he said.

Image credits: [Base Bahay Foundation Inc.](#)

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