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Mapping tool to help manage forests, combat climate change

As a tool to identify areas for reforestation, watershed management as well as for the crafting mining policies, the Department of Environment and Natural Resources (DENR) created a national environment and natural resources geospatial mapping tool.

In a news briefing in Malacañang, Environment Secretary Maria Antonia Yulo-Loyzaga said the National Natural Resource Geospatial Database Office (GDO) was organized after her first meeting with President Marcos Jr. following her appointment where environment officials made a recommendation on how to manage natural resources by establishing a physical baseline.

Yulo-Loyzaga said the geospatial database will use satellite imagery and other tools to process the available natural resources to account for, value and manage properly.

Through the database office, the DENR could account for and determine the country's river basins, watersheds, and forests.

"So, what this will do for us is it will allow us to identify the priority in terms of forestation, reforestation, or where the water systems and infrastructure should be placed in order to reach the most populations in need," Yulo-Loyzaga explained.

"[Besides] forest and water, we're looking also at land management. [We have to check if there are] foreshore leases that are not being used for the purpose they were established for. If they [could be used for other] purpose. And of course, our mineral resources [which were already being mapped], but we are now looking at the situation of the mineral resources given certain other data," she explained partly in Filipino.

Besides these uses, the database office could also aid the government in climate change mitigation and carbon dioxide sequestration from the atmosphere, according to the environment chief.

It would also be essential in flood management and soil erosion control, as well as in initiating and sus-

taining existing community-based livelihoods as a way of managing the country's forest.

"So there is a social and economic component as well [different from the] actual standing forest," Yulo-Loyzaga said. She added that by using certain software, they can anticipate how much carbon can be sequestered given the various species present in different forest covers.

Yulo-Loyzaga said they were able to establish the geospatial database office without any additional DENR budget by just making use of the available resources in the DENR for the fiscal year.

Currently, the DENR is looking to build more capacity and acquire the satellite imageries, processing and software that it needs in order to continue doing its work.

The DENR is collaborating with the Philippine Space Agency on the use and procurement of the satellite images to be used and processed by GDO, Yulo-Loyzaga said.

"Because we have a Philippine Space Agency, [we can use what they have]. So, at this point, the GDO has no extra outlay, basically [only the manpower who will operate was provided a] budget," she added.



Conserve water now

PAGASA: Angat Dam drops below 180-meter minimum operating level

By ELLALYN DE VERA-RUIZ

Water at Angat Dam fell below its minimum operating level of 180 meters on Saturday, July 8, based on the monitoring of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA).

In its dam information issued at 6 a.m., PAGASA said

Angat Dam's water level was down to 179.99 meters on July 8, from 180.45 meters on July 7.

Its current state is now below its 180-meter minimum operating level, and way below its 212-meter normal-high water level during the rainy season.

On Friday, July 7, the National Water Resources Board (NWRB) said it will reduce the allocation from Angat Dam if

water falls below the minimum operating level.

"If the dam's water level decreases below the minimum operating level of 180 meters, the Metropolitan Waterworks and Sewerage System will revert to its regular allocation of 48 cubic meters per second (cms) of water until the end of July from the current allocation of 50 cms," NWRB said in a statement. ▶ 5

Conserve water now ◀

"[Meanwhile,] the National Irrigation Administration (NIA) will have an allocation of up to 20 cms until the end of July. NIA has a current water allocation of up to 28.5 cms this month," it added.

Authorities have been calling on the public to take part actively in efforts to conserve water resources to mitigate the impacts of El Niño, a climate phenomenon that causes drier and warmer conditions in the country.

The NWRB suggested some water-saving techniques that can significantly help lessen the impacts of the El Niño, such as rainwater harvesting, reducing consumption, fixing leaks as soon as they are discovered, and optimizing irrigation systems.

PAGASA confirmed the presence of "weak" El Niño conditions over the equatorial Pacific early this month, with widespread effects on the country expected as early as October.

However, the likelihood that the El Niño will become a "moderate to strong" event has increased between the end of 2023 and early 2024.

Farmers told to intensify planting

With the current situation, the Department of Agriculture (DA) said farmers should ramp up their agricultural production before the effects of El Niño sets in.

In a memorandum dated July 6, Agriculture Undersecretary for Rice Program Leocadio S. Sebastian directed the regional field offices and DA-affiliated agencies involved in farmer assistance to deliver fertilizer and seed assistance on a timely basis.

Citing the state weather bureau's advisory, he said the effects of El



ANGAT WATER LEVEL – Children swim at Angat Dam in Barangay San Lorenzo, Norzagaray, Bulacan on Thursday, July 6, 2023. Angat Dam is now below the minimum operating level, the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) said on Saturday, July 8, 2023. (Noel B. Pabalate)

Niño would be apparent as early as the fourth quarter of 2023. He noted that there will be favorable rice-growing conditions in the coming months with normal to above-normal amounts of rainfall but fewer occurrences of typhoons.

"By ramping up our production during the rainy season, we can mitigate the impact of the El Niño that is expected during the dry season cropping," Sebastian said.

He ordered regional executive directors (REDs) of Regions 1 to 13 and the CAR Field Office, the heads of the Philippine Rice Research Institute, the National Irrigation Administration, the Philippine Center for Postharvest Development and

Mechanization and the Agricultural Training Institute to fast-track the provision of agricultural inputs and other interventions, such as seeds, fertilizers, biofertilizers, soil ameliorants, irrigation.

"The timely delivery of the inputs will support the favorable growing conditions this wet season, boosting overall productivity and cushioning the adverse effects of El Niño during the dry season," the memorandum said.

It is worth noting that even if PAGASA said that El Niño is now in the country, its effects on farms would not be felt right away and would take some time to reach those in non-irrigated areas.

As such, PAGASA predicted normal to above-normal rainfall for the months of June through September, but below-normal rainfall for the months of October through December.

Sebastian said the agriculture department is now identifying the areas that would be affected by El Niño, a cyclical phenomenon, which means areas affected during the 2016 and 2019 El Niño are likely to be affected again.

"Areas to be affected by El Niño during the dry season can plant crops like corn and mungbean, which require less water," the DA said. (With a report from Jel Santos)



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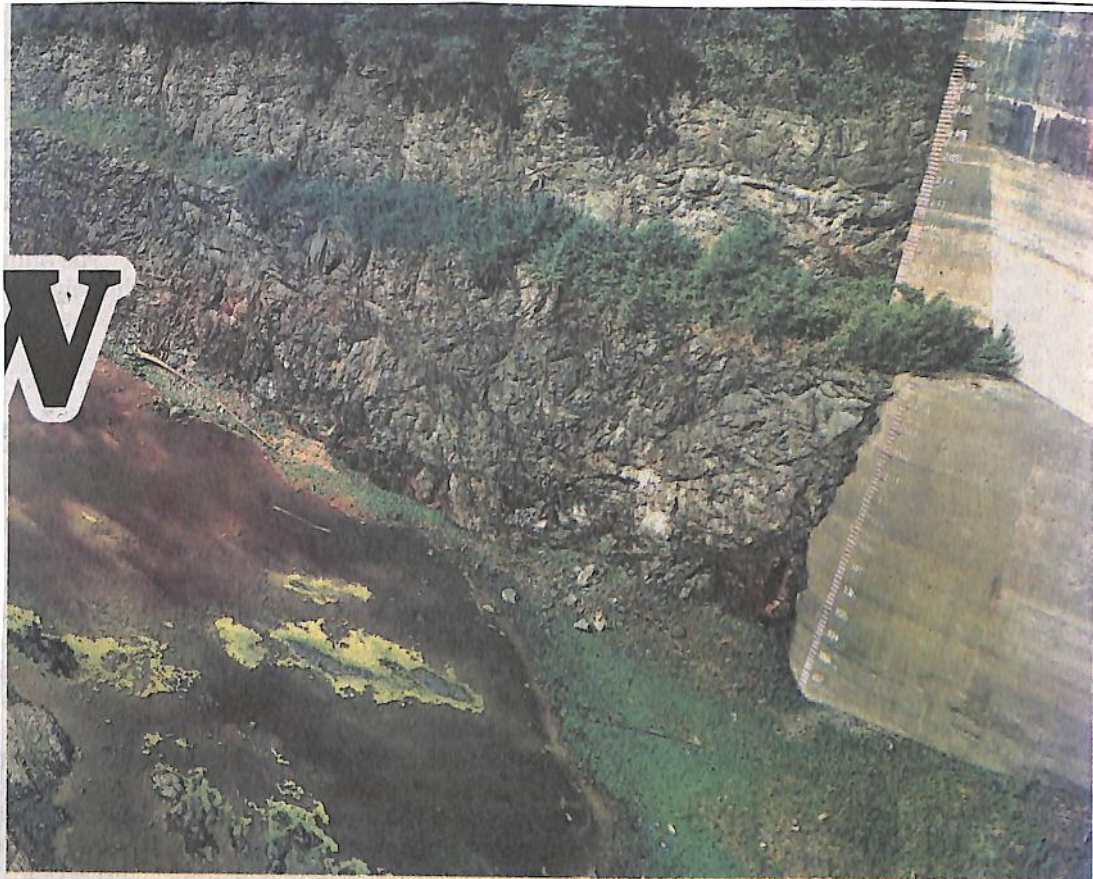
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GOING, GOING... — Water at Angat Dam is shown reaching the minimum operating level of 180 meters in this photo taken in Barangay San Lorenzo, Norzagaray, Bulacan, on July 6, 2023. As of Saturday morning, July 8, 2023, the water level has further dipped to 179.99 meters. (Noel B. Pabalate)



Angat Dam now below minimum operating level



Angat below minimum operating level

The water level at Angat Dam fell to below the minimum operating level of 180 meters on Saturday morning, setting off adjustments in supply priorities. **A3**

By **Dempsey Reyes**
and **Meg J. Adonis**
@Team_Inquirer

The water level at Angat Dam has fallen below the minimum operating level of 180 meters, the Philippine Atmospheric, Geophysical and Astronomical Services Administration (Pagasa) said on Saturday.

From 180.45 m on Friday, the water level was down to 179.99 m when monitored on Saturday morning.

The latest mark is already way below the normal high water level of 210 m and closer to the critical level of 160 m that was last recorded in June 2019.

With the reservoir level expected to further drop due to dry spells caused by the El Niño phenomenon, the National Water Resources Board (NWRB) said it would reduce the water allocation for the National Capital Region and the National

Irrigation Administration until the end of July, at the very least.

Located in Norzagaray, Bulacan, Angat Dam supplies 98 percent of the potable water in Metro Manila through the Metropolitan Waterworks and Sewerage System (MWSS). It also powers a hydroelectric plant and irrigates about 28,000 hectares of farmland in the provinces of Bulacan and Pampanga.

Service interruptions

With the water line now below the minimum operating level, priority will be given to Metro Manila households over other uses, such as irrigation and power generation.

Even then, MWSS concessionaire Maynilad Water Services Inc. is bracing for water service interruptions.

Water volume coming from Angat to MWSS is being reduced from 52 cubic meters per

second (CMS)—or about 4.177 million liters per day (equivalent to around 1,600 Olympic-sized swimming pools)—to 48 CMS.

MWSS earlier notified households to prepare for supply interruptions that could last up to nine hours a day, particularly within the Maynilad concession area, starting July 12 at the earliest.

Maynilad spokesperson Jennifer Rufo said the company would report next week on the specific impact of the reduced water allocation to its customers.

NWRB Executive Director Sevillano David Jr. said decreasing the allocation now would be crucial to conserve enough water for the needs of Greater Metro Manila up to the latter part of the year, when the impact of El Niño is expected to be at its worst.

Water coming from Angat flows to the La Mesa and Ipo

Dams to help deliver supply to Metro Manila and nearby provinces through water concessionaires Maynilad and Manila Water Co. Inc.

Maynilad currently operates in 17 cities and municipalities across the west zone of the Greater Metro Manila area, serving at least 9.5 million customers.

Manila Water update

On the part of Manila Water, corporate communications head Jeric Sevilla explained that the company's augmentation sources "are still sufficient to bridge supply deficit should allocation still be reduced."

When water allocation is reduced, Sevilla said, Manila Water draws 110 MLD from Laguna Lake through the company's Cardona water treatment plant. Deep wells may also supply an additional 115 MLD.

"We also continue with our

activities toward system readiness, operational adjustments and [nonrevenue water] management to still help ensure that our customers will continue to experience 24/7 supply despite the challenges posed by El Niño," Sevilla told the Inquirer, adding that Manila Water would issue an advisory in the event of service interruptions.

Manila Water currently serves 7.6 million residents across the east zone.

Meanwhile, Energy Undersecretary Rowena Guevara said the Department of Energy was closely monitoring water levels at major hydroelectric power plants, including the 218-megawatt Angat plant.

Guevara warned that power generated from these facilities may drop by up to 75 percent in December, raising the possibility of power interruptions in areas dependent on hydro power plants for electricity. **INQ**



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Angat level dips further

Now below
minimum
operational
level

By RAMON EFREN LAZARO
and ROMINA CABRERA

MALOLOS CITY - As the nation continues to sizzle due to El Niño, water level at the Angat Dam has receded below the minimum operating level, prompting authorities to announce cuts in water allocation for irrigation and Metro Manila users.

Records from the Bulacan provincial disaster risk reduction management office showed water elevation of the dam at 179.94 meters as of 8 a.m. on July 8, against 180.41-meter water level the day before. The minimum operating level is 180 meters.

Sevillo David Jr., executive director of the National Water Resources Board (NWRB), said the drop in the water level of the dam below the 180-meter

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mark would require modification of water allocation, as agreed upon by the board.

"The Board decided to modify the allocation if the level of Angat Dam falls below the minimum operating level of 180 meters. For MWSS (Metropolitan Waterworks and Sewerage System), 48 cubic meters per second (CMS), NIA (National Irrigation Administration) up to 20 CMS until the end of July. This allocation will still be reviewed based on the development of the level of the dam," David said in a text message. Allocation for Metro Manila concessionaires Maynilad Water Services Inc. and Manila Water Co. Inc. was at 50 CMS. For irrigation, the water allocation was 28.5 CMS.

Earlier, David said that as protocol, Metro Manila would be given priority in water supply if the Angat water level falls below 180 meters.

With Angat Dam's elevation now below minimum operating level, some 25,000 hectares of rice lands in Bulacan and Pampanga are at risk of getting smaller water allocation for irrigation.

On June 16, the NWRB approved 40 CMS water allocation for Bulacan and Pampanga farmlands.

With the specter of smaller allocation for irrigation, farmers are worried about its effect on crops this planting season.

The NWRB said farmers need to seek clearance should they decide to install shallow

tube wells to augment their irrigation supply, David said.

The NWRB has already notified the MWSS, NIA and the two water concessionaires of the possible water allocation reduction even before Angat Dam's water level dipped below the normal operating level.

"This is immediate. We issued an advisory the other day to stakeholders, particularly our operators, including MWSS and NIA. Once the level dropped below 180 meters, the new schedule of allocation of 48 CMS and 20 CMS became effective," he said over radio dzBB.

David noted that further allocation cuts or a return to normal allocation would depend on weather conditions, as the NWRB wants to avoid similar situations like in 2019 when Angat Dam's level dipped to less than 160 meters.

"That's why while it's still early, we make adjustments in allocation in order to preserve and maintain our current supply of water in reserve like the one at Angat Dam," he explained.

He added the onset of El Niño has made water conservation more urgent. "Our target is to keep our current supply so we'll be prepared for El Niño before the end of the year. During El Niño, we can have enough supply for the needs of our countrymen," he said.

The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) earlier issued the same call as the country faces a severe dry spell.

PAGASA said the impact of El Niño would be felt by December this year until next year.



Photo taken July 6 shows Angat Dam where the water elevation has receded to 179.94 meters as of 8 a.m. yesterday against 180.41 meters the day before. The minimum operating level is 180 meters.

MICHAEL VARGAS


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ANGAT WATER NOW BELOW MINIMUM LEVEL

THE reservoir level at Angat Dam, the major source of water for Metro Manila and surrounding provinces, fell below the minimum operating level Saturday morning, data from the Philippine Atmospheric, Geophysical and Astronomical Services Administration showed.

PAGASA said that as of 6 a.m. Saturday, the water level at Angat Dam dropped to 179.99 meters from 180.45 meters a day earlier. It was also more than 20 meters below the normal high water level of 210 meters.

This forced the National Water Resources Board to cut the raw water allocation for Metropolitan Waterworks and Sewerage System's two concessionaires to 48 cubic meters per second effective July 8.

Maynilad Water Services Inc. corporate communications head Jennifer Rufo told TeleRadyo Serbisyo the reduction would particularly affect the west zone concession.



A man rests on an island inside Angat Dam where water level dropped to 179.99 meters Saturday morning, below its minimum operating level of 180 meters.



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Saving Siargao, island paradise battling environmental woes



TAKTAK Falls in the municipality of Sta. Monica, Siargao Island



CORREGIDOR Island in the municipality of Dapa



MANGROVE view deck in Del Carmen



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BY JONATHAN L. MAYUGA
Photos from DENR-Caraga Siplas

SIARGAO Island is tagged as an island paradise besides being the surfing capital of the Philippines. It is one of the country's tourism magnets.

But it was devastated by Typhoon Odette (international code Rai) in 2021 which worsened the crippling economic impact brought by closure of tourist attractions when community quarantine was imposed during the Covid-19 pandemic.

Today, the island in northeastern coast of Mindanao, while it is trying to rise from the ashes of the twin pandemic and typhoon damage, is experiencing environmental degradation.

DENR projects

THE Department of Environment and Natural Resources launched the DENR Services on Wheels and Project Transform on Siargao Island on June 23.

Project Transform, or the Transdisciplinary Approach for Resilience and Environmental Sustainability through Multistakeholder Engagement, is the integrated resilience and sustainability program of the DENR that engages the whole of society in implementing programs to alleviate poverty, enhance community resilience and promote public-private partnerships.

Meanwhile, the DENR Services on Wheels aims to bring the department closer to the people of Siargao, allowing them to access services, such as getting environmental compliance certificates (ECCs) and other environment permits for tourism-related establishments.

During the event, Environment Secretary Maria Antonia Yulo-Loyzaga highlighted the important role of local government units (LGUs) in achieving climate and disaster resilience.

She said the DENR is looking forward to working with the provincial government and other partners in crafting the proposed Siargao Development Masterplan and in facilitating investments in nature-based and gray-green solutions through multi-stakeholder partnerships.

The DENR visiting Siargao was no coincidence. It targeted Siargao as part of its continuing campaign in beach tourism areas after the successful Boracay environmental project during the Duterte administration in 2018.

Environmental degradation

SIARGAO is already starting to suffer environmental degradation similar to other beach tourism areas like Boracay, officials of the DENR admitted.

While the situation is manageable, the rampant violation of environmental laws, including encroachment in supposedly "No Build Zones" in beachfront and coastal areas, is starting to affect its water quality.

This started when squatters started to occupy coastal areas, particularly in the town of Dapa, where water quality was observed to fall below the DENR standard.

At least 100 families are reportedly living in makeshift homes along the coastal areas in Dapa, with no proper hygiene and sanitation.

Meanwhile, a total of 916 tourism-related establishments on the island have no environmental compliance certificate. This is about 83 percent of the 1,108 recorded resorts and restaurants that cater to tourists on Siargao.

Most of the businesses have been operating in General Luna town, Dapa, and a few in Burgos, Del Carmen, Sta. Monica, Pilar and San Benito.

Poor water quality

DENR Undersecretary Jonas R. Leones, for Policy, Planning and International Affairs, said water quality in some areas on the island has fallen below DENR water quality standard.

"We are afraid that if this continues, it will deteriorate like what happened in El Nido, or worse, in Boracay," he told the BUSINESSMIRROR on July 4.

Among El Nido's and Boracay's environmental concerns were deterioration of water quality due to untreated effluents and improper waste management.

To address the problem, he said the DENR is mounting a massive campaign on the island, targeting erring establishments that violate environmental laws.

The DENR has started issuing notices of violation to owners of resorts and restaurants with no ECC, "like what we did in Boracay," Leones said.

Similarly, violators of various environmental laws like the Clean Water Act would be compelled to comply with the requirements of the law to prevent Siargao's water from becoming "another Boracay" before its massive rehabilitation under the Duterte administration.

Leones explained that the problem started when the DENR closed its satellite office on the island several years back as part of the government's rationalization plan.

"We made the mistake to close the satellite office there. Now we are correcting it by re-establishing an office, probably in Dapa," he said.

Illegal settlers

SAMUEL MALAYAO, Protected Area Superintendent of Siargao Island Protected Landscape and Seascape (Siplas), said they are closely working with concerned local officials to relocate more than 100 illegal settlers from Dapa.

"[We are] looking for an area for the relocation," he said, adding that decent housing will be provided with the help and support of concerned LGUs.

"Their stay in the area is illegal. After Typhoon Odette, we have already



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posted 'No Build Zone' billboards but we could not strictly enforce the law because the people have nowhere else to go," Malayao explained.

"Of course, we cannot just remove them from the area without providing a decent relocation site. Slowly, we will remove the informal settlers. But not all of them are residents of Dapa. When we talked to the mayor [Elizabeth T. Matugas], she said she could not provide relocation because not all are residents of Dapa. Only residents of Dapa can get relocation provided by the municipality," he added.

He noted that some informal settlers are professional squatters who rent out their "space" to students studying in the town of Dapa.

DENR Caraga Executive Director Nonito Tamayo said besides a decent relocation, the DENR is looking at enrolling the informal settler families in a DENR program like community-based forest management.

He noted that as part of the rehabilitation of Siargao, the DENR's Sawmills on Wheels of the DENR was set in motion.

Recovered or confiscated logs will be used as construction materials for the relocation of informal-settler families, who will voluntarily move away from so-called danger zones, or No Build Zones, such as coastal areas or beach fronts.

Ridge-to-reef beauty

DESPITE the problem brought about by the violation of environmental laws on Siargao, the island with its beautiful white sand beaches, is still considered a tourist magnet.

This is precisely the reason why the DENR launched Project Transform and Services on Wheels on the island, Tamayo said.

"Siargao is a beautiful island. It is the country's surfing capital and it will continue to attract tourists because of its beauty," Tamayo told the BUSINESSMIRROR on July 3.

The beauty of Siargao is overwhelming. "It is beautiful, from ridge to reef," Tamayo said, citing its lush forest vegetation, the pristine water flowing down from the mountains down through streams, rivers, all the way to the coastal areas.

Indeed, Siargao Island boasts of several well-known tourist spots that are frequented by visitors whenever they are on the island. These include waterfalls, lagoons, and rivers.

Some of the popular ecotourism sites of Siplas are Corregidor Island in Dapa, Duku Island in General Luna, Maasin River in Pilar, Magkahuyong Falls in Socorro, Magpungko Rock Formation in Pilar, Mangrove View Deck in Del Carmen, Naked Island in General Luna, Osmeña Wetland in Dapa, Pacifico White Beach in San Isidro, Poneas Lake in San Benito, Sohoton Cove in Socorro, Somyot Cave in Burgos, Sugba Lagoon in Del Carmen, and Taktak Falls in Sta. Monica.

Protected landscape and seascape

BESIDES being a popular tourist spot, Siargao is a Protected Area under the National Integrated Protected Areas System (Nipas) Act.

By virtue of Presidential Proclamation 902 by then President Ramos, it is categorized and established as Siargao Island Protected Landscape and Seascape on October 10, 1996.

It covers a total of 278,914.131 hectares of landscape and seascape straddling nine municipalities in Surigao del Norte, namely, Burgos, Dapa, Del Carmen, General Luna, Pilar, San Benito, San Isidro, Sta. Monica and Socorro.

Key biodiversity area

ACCORDING to the DENR, out of the 10 Key Biodiversity Areas (KBAs) in the Caraga Region, which has a total area of 835,648 hectares, Siplas comprises 33.4 percent and it com-

poses 21.7 percent of the total area of all Mindanao KBAs (3.843 million hectares).

Siargao has been acknowledged for its high endemism.

It is home to 21 mammal species of which 14 are endemic to the Philippines, 85 bird species of which 55 species (65 percent) are endemic to the country, and nine endemic species of frogs.

There are eight species of seagrasses around Siplas, almost half of all species found in the Philippines and Southeast Asian region, and 59 species of seaweeds representing 37 percent of the total number of benthic seaweeds recorded in the Philippines, the DENR reported.

Some 106 species of fish were also recorded from a single reef, 38 genera of corals and 137 species of mollusks.

Sharks, dugongs, two species of marine turtles—the Hawksbill turtle and green turtle—and saltwater crocodiles are just some of the treasured wildlife that can be found on Siargao Island.

Ensuring Siargao's resilience

ACCORDING to Leones, the purpose of launching Project Transform and DENR Services on Wheels on Siargao is to ensure the resilience of the island in the face of the worst impacts of climate change.

"Hopefully, we can bring in all stakeholders like the Department of Tourism, local government, all sectors of society," he said, echoing the call of the DENR chief for all sectors "to work together and identify high-priority areas, understand the root causes of vulnerability and identify and invest in appropriate environmental protection, climate change adaptation, and mitigation and disaster risk reduction strategies."

"Hopefully, with the launch of Project Transform, we can finally craft the Siargao Development Masterplan," Leones added.



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TOILING AWAY In this photo taken in April, a salt farmer at Barangay Amalbalan in Dasol, Pangasinan, carries "kaing" (woven bamboo baskets) filled with salt, which is kept at a stockroom before being sold at the local market. Hundreds of Dasol residents rely on the town's salt industry for their livelihood. —PHOTOS BY WILLETTE G. LOMISAO

By Yolanda Sotelo
@yzsotelo

DASOL, PANGASINAN— Every day before sunrise, Glomle Baldonado, 42, would start working in a salt farm at Bobonot village in this western Pangasinan town by filling 30 *banigan* (salt beds) with briny water from the *bandeña*, the pond where seawater has been stocked for days, making it concentrated and ready for turning into rock salt.

Baldonado would fill each *banigan* with 2-3 centimeters of water before returning home, leaving the scorching sun to work its magic.

He would then return at 2 p.m. to push the *arpil* (salt crystals) down to the beds to hasten evaporation. An hour later, the salt beds would have turned snow white, ready to be harvested.

His wife Lea, 31, would help as a *kariador* (scraper or sweeper), and together they would use makeshift rakes to shove the still wet rock salt to the *banigan's* corner, forming mounds of the sparkling rock salt they call *barara*.

Baldonado would gather the crystal-like salt into a *kaing* (woven bamboo basket) before taking it to a makeshift stockroom near the highway. Just as the sun began to set, work for the day would be done for the couple, and other *asindero* (salt farmworkers).

"It's backbreaking work," Baldonado, who only reached high school, said of the "job" he has been doing since his youth.

But he said he liked it, enjoying the wonder of seeing sea water turn into salt.

'Neglected'

Baldonado is one of hundreds of Dasol residents who rely on the town's salt industry for their livelihood. Dasol has about 10,000 *banigan* in eight villages that produce 18,000 metric tons of rock salt a year.

Dasol takes pride in this product, with local officials saying local rock salt is of the best quality and sold for P450 to P500 per sack of five cans (14.6 liters) each, at farm gates.

But the production is just a drop in the bucket of what the country needs, which was "neglected" for decades, resulting in dependence on importation since the 1990s, according to industry players.

The Bureau of Fisheries and Aquatic Resources (BFAR) said it would need investments in programs and projects for the local salt industry to regain its status and help lessen the country's dependence on imports.

Citing Philippine Statistics Authority (PSA) data, BFAR says the country imports 550,000 MT of salt yearly, which translates to about 92 to 93 percent of the country's requirements.

The country's salt needs are estimated to increase by 7 to 8 percent a year because of the increasing population and demand for the commodity.

Salt has 14,000 uses in food manufacturing, chemicals, meals, textiles and pharmaceuticals.

"If you see sodium as an ingredient, then it has salt. We cannot live without it, but despite being a necessary commodity and a food security issue, salt production was long neglected in the country," Gerard Khonghun, president of the Philippine Association of Salt Industry Network (PhilASIN), said during a dialogue with salt farmers in March.

Family affair

Salt growing is almost always a family affair, with the husband, wife and their children working together.



AGE-DEFYING LABOR Marcela Cereza, 86, is the oldest salt farmworker in Dasol that produces 18,000 metric tons of rock salt a year. Key industry players lament that local salt production has been neglected by the government.

Baldonado was a worker for his late father, who was the *tercera* worker of the salt farm.

When his father died, he inherited the position as *tercera*, a Spanish word meaning "third." In salt farm lingo, it means the worker gets a third of the total daily harvest as his share, leaving the rest to the farm owner.

No government agency was overseeing the industry until the Department of Agriculture (DA)-BFAR was tasked with revitalizing it, just two years ago.

Salt farmworkers said that while they were engaged in the grueling work, the job paid almost nothing.

A *tercera* worker tending 25 *banigan* could have a share worth P131,250 for six months work, including the two months that they are not paid for preparing the farm.

This translates to P21,250 a month in earnings, or about P10,937 each for the husband and the wife. If the wife does not work, the *tercera* worker hires workers and pays them with his share of the harvest.

The farm owner gets two-thirds of the harvest and pays for taxes and expenses for

the salt beds' maintenance. The salt farmworkers lamented that they were beyond the radar of the government for support.

Farmers get support for seeds, fertilizers and even machinery, while fishermen receive boats and gear, but they get nothing, they said.

At the height of the COVID-19 pandemic, salt farmers did not receive any kind of support or *ayuda* (aid) that farmers and fishermen received, said Jose Valenzuela, a member of the Dasol Salt Makers Association, during the dialogue.

"Our struggle begins with salt production, and it gets worse when there are no buyers," Valenzuela said.

Plagued by major challenges and getting no government intervention, the salt industry faces a possible shortage of workers in the future.

Baldonado said if he could help it, he would rather have his children acquire enough education so they could find year-long employment with better pay, and not half-year jobs with minimal income.

Annabel Briz, 37, a daughter of *tercera* parents, said she was sending her two children to a state university because she did not want them to go through the same hardship she went through.

Briz herself used to cook rock salt to turn into into a fine and very white powder.

Another young worker, Jether Mariano, 23, has been supporting his college education by

working at the salt farm owned by an uncle, whenever he had no school work.

'Verge of death'

PhilASIN president Khonghun, during the First Salt Congress held in November last year, shared a grim scenario: the country's salt industry is on the "verge of death."

This is because of a lack of government support or recognition of the importance of salt, despite its being an important basic commodity.

If nothing is done, by 2030, when the country would need 1.3 million MT, at least 96 percent of salt supplied in the Philippines would be imported, he said.

PSA data showed that at present, the Philippines imports 70 percent of the local salt requirement from Australia (446,000 MT) and 20 percent (87,000 MT) from China.

The sad situation is far from the country's salt industry before, when it was almost self-sufficient and production was at its peak in the 1970s.

Dr. Paulo Cenas, former vice president for research and extension of the Pangasinan State University, said several factors contributed to the declining yield and the eventual massive importation of salt.

He said some salt workers would rather have their children veer away from the labor-intensive and low-paying industry. Also, salt farmers are displaced when the foreshore lease agreements issued by the government expire.

Intervention

Then there's the depreciation of facilities, with salt makers having nowhere to turn for help, as even the government is seemingly unaware of the situation.

Cenas said there were no salt farms developed in the last three or four decades, and the existing ones were taken over by urbanization and converted into commercial or housing areas. At present, there are only around 2,000 hectares of salt farms in the Philippines, and

these lack management, equipment and technology.

"While the demand is increasing, the salt farms are not improving," he said.

Even in Dasol, there have been no additional salt farms developed in the past decades, said Mayor Rizalde Bernal.

The Pangasinan provincial government, however, is helping increase salt production by operating a 473-ha salt farm at Barangay Zaragoza in Bolinao town.

The farm has been idle since February 2021 after the Department of Environment and Natural Resources (DENR) revoked the private operator's foreshore lease contract that expired in 2002. The area used to be the country's largest salt producer, contributing up to 25,000 MT a year to the country's total salt production.

In December last year, Gov. Ramon Guico III signed a memorandum of agreement with the DENR for the "interim management" of the area for salt production and other related activities, such as *bangus* (milkfish) production.

The national government, through the DA and the BFAR, and the private sector have also started working side by side to try to prevent the industry's total collapse.

The BFAR is tasked with helping revitalize the industry, allocating P100 million in 2021 as a budget for projects to revitalize the industry, especially in its main production areas in the Ilocos, Western Visayas and Zamboanga Peninsula regions. This year, the government allocated an additional P100 million to expand the scope of the project to include Central Luzon, Calabarzon, Mimaropa and Central Visayas regions.

BFAR Director Demosthenes Escoto said Ilocos, which has vast potential for salt-making, got a big slice of the budget, which it used to train fisherfolk from the provinces of Ilocos Norte, Ilocos Sur, La Union and Pangasinan on producing salt.



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'Govt ready for El Niño impact on economy'

THE government is ready for the negative effects of the El Niño phenomenon on the economy, the National Economic and Development Authority (NEDA) assured the public on Saturday.

Speaking at the Saturday News Forum in Quezon City, NEDA Undersecretary Rosemarie Edillon said, however, that the impact of the long-dry spell this year, particularly on inflation, was not expected to be significant but might be felt starting in 2024.

"Its impact really depends on how well we prepare for it. The people already know how to deal with it with help from government agencies," she said.

Edillon gave the assurance even as temperatures continue to soar, with the Philippine Atmospheric Geophysical Astronomical Services Administration (Pagasa) projecting that the heat index could reach as high as 40 degrees Celsius and water levels in dams threatening to dry up in the absence of rain.

Angat in Norzagaray, Bulacan, a major source of water supply in Metro Manila and of hydroelectric power plants, recorded 179.99 meters on Saturday, dropping further from its low normal of 180 meters. Its high normal is 210 meters, according to Pagasa.

San Roque Dam in Pangasinan, the largest in the country, also registered a drop to 236.85 meters from 237 meters on Friday. Its high normal is 280 meters.

Edillon said, however, that the reduction of the allocation for irrigation water in favor of residential use at Angat Dam

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■ ECONOMY FROM A1

Govt ready for El Niño

would help ease the effects of the El Niño.

She said that the planting season had ended, eliminating the need for irrigation water at this point.

Frequent rainfall is experienced nationwide, and it should be taken advantage of, such as by accelerating the completion of small impounding water projects, Edillon said.

"So, again, it is not expected to occur this year. But if there's an impact for next year, that really depends on how we're able to prepare this year," she said.

The NEDA official said that financial assistance would also come once it was needed.

"As we see it, preparations are going well. The actions of the government seem to be going well," she said.

President Ferdinand Marcos Jr. has ordered government agencies to prepare for the possible impact of El Niño, ensure "protocol-based and scientific" long-term solutions, and come up with a campaign to generate public awareness of water and energy conservation.

For one, the Department of Agriculture is mapping out the areas that could be negatively affected by the dry spell, while the Department of Social Welfare and Development has stockpiled food and non-food items, ready to be augmented by local government units.

Full impact

Pagasa said the country has yet to feel the full effects of El Niño, which is likely to persist until the first quarter of 2024.

It said that El Niño increases the likelihood of below-normal rainfall conditions, which could result in dry spells and droughts in some areas of the country.

The bureau predicts that 36 provinces "will potentially experience dry spells" or below-normal rainfall conditions for three consecutive months, starting December, mostly in the Ilocos, Cagayan, Central Luzon, Calabarzon (Cavite, Laguna, Batangas, Rizal and Quezon) and Mimaropa (Mindoro, Marinduque, Romblon and Palawan) regions, Metro Manila, and Spratly Islands, all in Luzon; and the provinces of Antique, Guimaras,

Iloilo and Leyte in the Visayas.

Soaring temperatures

Meanwhile, Pagasa warned that the heat index in Metro Manila could reach as high as 40 C and warned the public to take the necessary precautions, such as keeping covered when under the sun and drinking lots of water.

The heat index, as defined by Pagasa, is what the temperature feels like to the human body when relative humidity is combined with air temperature.

The state weather bureau said some areas in Central Luzon, Ilocos Region, Cagayan and Tuguegarao City are also likely to have high temperatures, especially in Tuguegarao, where a maximum of 36 C has been recorded.

**CATHERINE S. VALENTE
AND CLAIRE MONDARES**



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An environmental challenge for solar power companies

JULY 4, 2023 was the hottest ever in the history of the world when it reached 17 degrees Celsius for the first time since recording of temperatures in the northern hemisphere began in 1884. Such high temperatures are likely here in the Philippines too. The climate is changing for the worse as the temperature is increasing, and the continuous illegal cutting of trees is making it worse.

This is a very serious situation since the threat of drought and low rainfall is likely. Water sources are becoming scarce, and a weak rainy season could mean a very poor planting season in Asia. The Philippines imports much of its rice, and for sure, Asia will produce much less, thus increasing the price. That is a challenge and a problem for the nation. Expensive rice causes unrest, hunger and unhappiness. Behind this hotter climate is the amount of carbon dioxide (CO₂) we have pumped into the atmosphere. Never before has so much CO₂ been produced by humans. We are continuously burning coal, gas and oil at unprecedented levels, and it is actually increasing, not diminishing, despite the global conferences trying to get nations to shift to renewable sources of energy production.

Energy companies are investing more in wind, solar and hydropower generation with solar panels, windmills, dams and geothermal plants. Much more has to be done, especially in the Philippines. To lower the CO₂ in the atmosphere and offset the disasters that are already here and yet to come, we can plant bushes and trees. We can stop the illegal cutting of trees that goes on with the connivance of some corrupt politicians and officials. They seem to have no patriotic love for Filipinos or the environment.

Since 1901, the forest cover has likely been 80 percent or more. After World War 2, the Philippine forests were widely devastated by greedy politicians making money from



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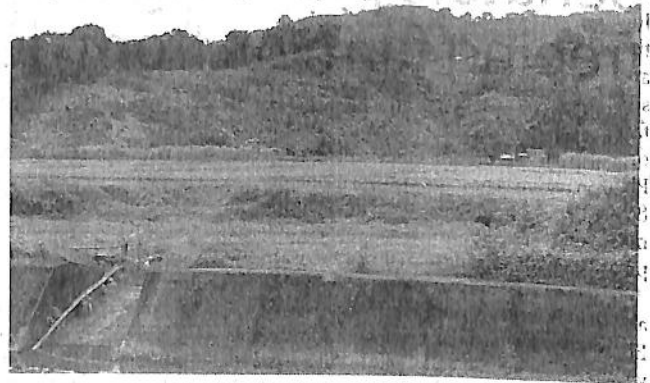
uncontrolled, non-stop logging to rebuild Manila but more for rebuilding Japan and Europe. Filipino billionaires were born. There are only 7 million hectares of rainforest left, or just 25 percent of the Philippines.

In 2010, the Philippines had 13.2 million hectares of natural forest, extending over 62 percent of its land area. In 2021, it lost 37,700 hectares of natural forest, equivalent to 22.5 MT of CO₂ emissions. The Philippine government must stop the destruction of forests and natural resources and protect the environmental protectors who are being murdered. Everyone must plant more trees.

AC Energy of the Ayala group of companies, owned by billionaire Jaime Zobel de Ayala, is building a solar power plant in San Marcelino, Zambales, with the construction of a 283-megawatt solar farm. A statement from AC Energy said the San Marcelino solar plant is one of the biggest in the Philippines.

AC Energy has subcontractors assigned to cut all the trees in a wide pathway over the hills and mountains for the transmission line. They are already building gigantic towers. Despite the contractual obligation to replant thousands of saplings to replace the mature trees that have been cut, AC Energy has allegedly failed to do so. Apparently, in some deal, they turned over a few thousand seedlings to the Department of Environment and Natural Resources in Cawag, Subic, for them to do the replanting.

The destroyed hilly landscape where the towers are to be built is bare and in danger of landslides. Allegedly, AC Energy has not successfully implemented a sustainable professional replanting project. Photos show the damaged landscape now being washed away by the rain, and nothing has been



■ Photo shows a site denuded by an AC Energy tower. PHOTO BY FR. SHAY CULLEN

replanted, environmental protectors and observers said.

This column contacted the AC Energy spokesman and sent photographs of the destroyed landscape to ask for a comment. The spokesman promised to get back to this column, but no one responded with information on replanting activities. A published statement from the Securities and Exchange Commission said AC Energy is spending \$293 million on its solar project and transmission lines, allegedly not complying with its moral and perhaps legal obligation to replant substantially, effectively, and continuously with constant monitoring during the rainy season.

AC Energy should care more for the environment. The solar project is supposed to save and protect the environment so that it can stop burning coal and plant trees to absorb the dangerous CO₂ that is causing global warming.

AC Energy should be held accountable to protect the Philippine environment and show concern for the people suffering from the searing heat.

The Aboitiz Corp. is also constructing a solar plant in Tabacuhan, Olongapo City, and building transmission lines in the same general area as AC Energy. Its cables were planned to pass close to the Preda Foundation's children's home, but through peaceful negotiation, Aboitiz

now agrees to relocate the tower further from the children's home, and the transmission lines will be at a safe distance since radiation from the high-power cables is said to be a danger that can cause cancer. That's why human dwellings cannot be constructed under such transmission lines. Aboitiz has also made promises to replant saplings (not seedlings, which don't usually survive). The Environmental Watch group will observe and even join the Aboitiz replanting project, a representative of Aboitiz Corp. said.

With fewer trees to absorb CO₂, the weather is hotter, and all will suffer. Life will be unbearable in cities and for outdoor workers. As you read this on Sunday, July 9, 2023, it will reach 35 C. Saturday would have been 36 C.

There will be thunderstorms, however. An average of 15 to 22 days of rain were expected this July, forecasters said. So expect it to continue and even get hotter. The new world record for the hottest day at 17.01 degrees on July 3 this year is likely to be repeated or surpassed.

But we can all call for a reduction in coal, oil and gas burning in power plants and support the expansion of renewable energy sources. Above all, they too must save the forests and plant more trees.