

09 June 2023 Friday



DENR

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STRATEGIC COMMUNICATION AND INITIATIVES SERVICE



SM celebrates World Environment Day with DENR

SM celebrated World Environment Day together with the Department of Environment and Natural Resources (DENR) with a pledge of support and a meeting on 'Blazing New Trails and Building a Shared Future with DENR's Strategic Partners'. Led by DENR Secretary Maria Antonia Loyzaga, the private sector underscored the importance of working together towards a sustainable future, and highlighted their initiatives towards safeguarding the country's environment and natural resources.

SM Prime Holdings, led by its sustainability champion Mr. Hans Sy, has long put in place initiatives to ensure the company's operations are sustainable and environmentally friendly.

SM Supermalls Senior Vice President for Operations Bien Mateo said, "As we celebrate World Environment Day, on behalf of the SM family, you have our commitment that we will continue to embrace sustainability in everything we do as a company to protect the environment for the future generation of Filipinos." As one of DENR's strategic partners, Mr. Mateo highlighted SM's initiatives on energy conservation, solid waste reduction, and water conservation, among others.

To contribute to energy efficiency, SM uses LED lights in all its properties and maintains 50% of its electricity supply from renewable sources. Likewise, SM's 17 malls with solar power installations were able to generate 20.165 megawatts of peak energy. SM has supported Earth Hour for the last 15 years, and its participation



The Department of Environment and Natural Resources (DENR) celebrates World Environment Day with the support of its many private sector partners, including SM Supermalls. From L-R: Makilala Mining Head of Information Management Judy Rola, Makilala Mining Head of Mining Patrique Jane Duran, San Miguel Corporation Project Manager Jimmy Lu, Marubeni Philippines President Shimoda Shigeru, DENR Secretary Maria Antonia Loyzaga, Holcim Philippines President Horio Adrian, SM Supermalls Senior Vice President for Operations Bien Mateo, DMCI Mining President Tuli Das Reyes, Best Inc. Senior Vice President Jan Vincent Mercado, and Plastic Credit Exchange Founder Nanette Medved-Po.

freshwater sources for non-potable use. In the past year, SM recycled 3.58 million cubic meters of water and reuses this for daily operations such as its cooling systems, toilet flushing, cleaning, and grounds upkeep.

SM has also implemented green designs in its buildings, and its water catchment basins in 23 malls (each the size of about 3-5 Olympic size pools) help prevent flooding in surrounding communities.

To enable clean and sustainable transportation, SM promotes a bike-friendly environment and recently celebrated World Bicycle Day with a community bike ride gathering 1,800 cyclists at SM By the Bay and select SM malls; bike safety clinics for kids; and a monthlong bike fair offering incentives and discounts to bikers nationwide. SM pioneered in-mall electric vehicle charging stations - 34 e-vehicle chargers in 28 malls - the highest number in any location to date.

Mr. Mateo added that SM's partnerships with the DENR and various stakeholders to pursue environmental stewardship and disaster resilience are resolute and year-round.

"We can do no less with the active participation and leadership of Mr. Hans Sy in the United Nations International Strategy for Disaster Reduction (UNISDR), ARISE, and National Resilience Council guiding us on the importance of going beyond complying with the United Nations Sendai Framework for Disaster Risk Reduction."

For more on SM Prime Holdings' sustainability program, visit <https://www.smprime.com/sustainability-overview/> and <https://www.sminvestments.com/sustainability/>



Cyclists celebrate World Bicycle Day at SM City Clark.



Students drop off their recyclables at the Trash to Cash Recycling Market in SM City Bicutan.



For years, SM has coastal, river, and community clean up drives nationwide.

in the Global Lights Switch Off has resulted in conserved energy equivalent to CO2 emissions from over 400,000 individual smartphones charged.

SM's solid waste management initiatives have helped divert trash from ending up in landfills and large bodies of water. These include its flagship program, Trash to Cash Recycling Market, which has collected more than 1 million recyclables a year; the daily collection of solid waste in 14 malls in partnership with Friends of HOPE; electronic waste

collection booths in Cyberzone and designated mall areas; and regular coastal and community clean up drives.

As part of this year's Philippine Environment Month celebration, SM mounted Coastal Clean Up activities around World Oceans Day last June 8, in partnership with the DENR, Local Government Units (LGUs), and schools. Nearly 1,500 volunteers joined nationwide.

In its effort to conserve water resources, SM malls recycle water to help lessen the dependence on



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THE PHILIPPINE STAR

metro

EDITOR: DULCE A. SANCHEZ

FRIDAY | JUNE 9, 2023

Government workers, members of non-government organizations and volunteers conduct a cleanup activity in Manila Bay to mark World Oceans Day yesterday. EDD GUMERAN

Manila Bay cleanup marks World Oceans Day

The Department of Environment and Natural Resources will determine the sources of garbage recovered during a cleanup in Manila Bay as part of World Oceans Day commemoration, DENR Secretary Maria Antonia Yulo-Loyzaga said yesterday.

"We will conduct an audit to find out the sources of this trash. The reason that we need to do that is we can prevent the garbage from reaching the ocean, rather than picking it up," Loyzaga said.

At least 1,000 people participated in the Manila Bay cleanup where sacks of plastic bottles, woods, metals, Styrofoam, clothes and face masks were retrieved.

"We are concerned with our plastic pollution, our marine litter in general. We are hoping that cleanup activities will help us in managing the quality of oceans," Loyzaga said. "Solid waste has reached our oceans. We need to secure our oceans and our future here on the land as well."

Environment Undersecretary

Jonas Leones expressed alarm over the increasing threat of microplastics.

"Microplastics do not only end up in water, microplastics also mix with the air. We don't have equipment to recover these waste," Leones said.

The garbage recovered during the coastal cleanup will be brought to the San Mateo landfill in Rizal. Loyzaga said under Republic Act 11898, also known as the Extended Producer Responsibility (EPR) Act, large-scale companies should establish a mechanism for the recovery of their plastic

packaging. The Philippines was cited as the third largest contributor to ocean plastic, with approximately 0.75 million metric tons of plastic ending up in the seas and other waterways annually. With the EPR law, corporations with total assets of over P100 million are required to recover a certain percentage of their plastic packaging waste, or else pay fines.

The DENR chief said companies should be responsible for allocating resources to support the collection, recovery, transportation, processing,

recycling, and disposal of plastic packaging waste in environmentally-sound ways.

The EPR law sets incremental targets that should be fulfilled yearly until 2030.

For 2023, obliged companies must recover 20 percent of their plastic footprint from the year before.

Fines ranging from P5 million to P20 million will be imposed for failure to comply with the law and meet the target recovery rates of the EPR, Loyzaga said. - Bella Cariaso



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Manila Standard

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WORLD OCEAN DAY CLEANUP.

Volunteers conduct a clean-up drive along the shore of Dolomite Beach in Manila Bay to celebrate World Ocean Day on Thursday. The UN reiterated that this year's World Oceans Day aims to generate a new wave of excitement toward cherishing and protecting the ocean.

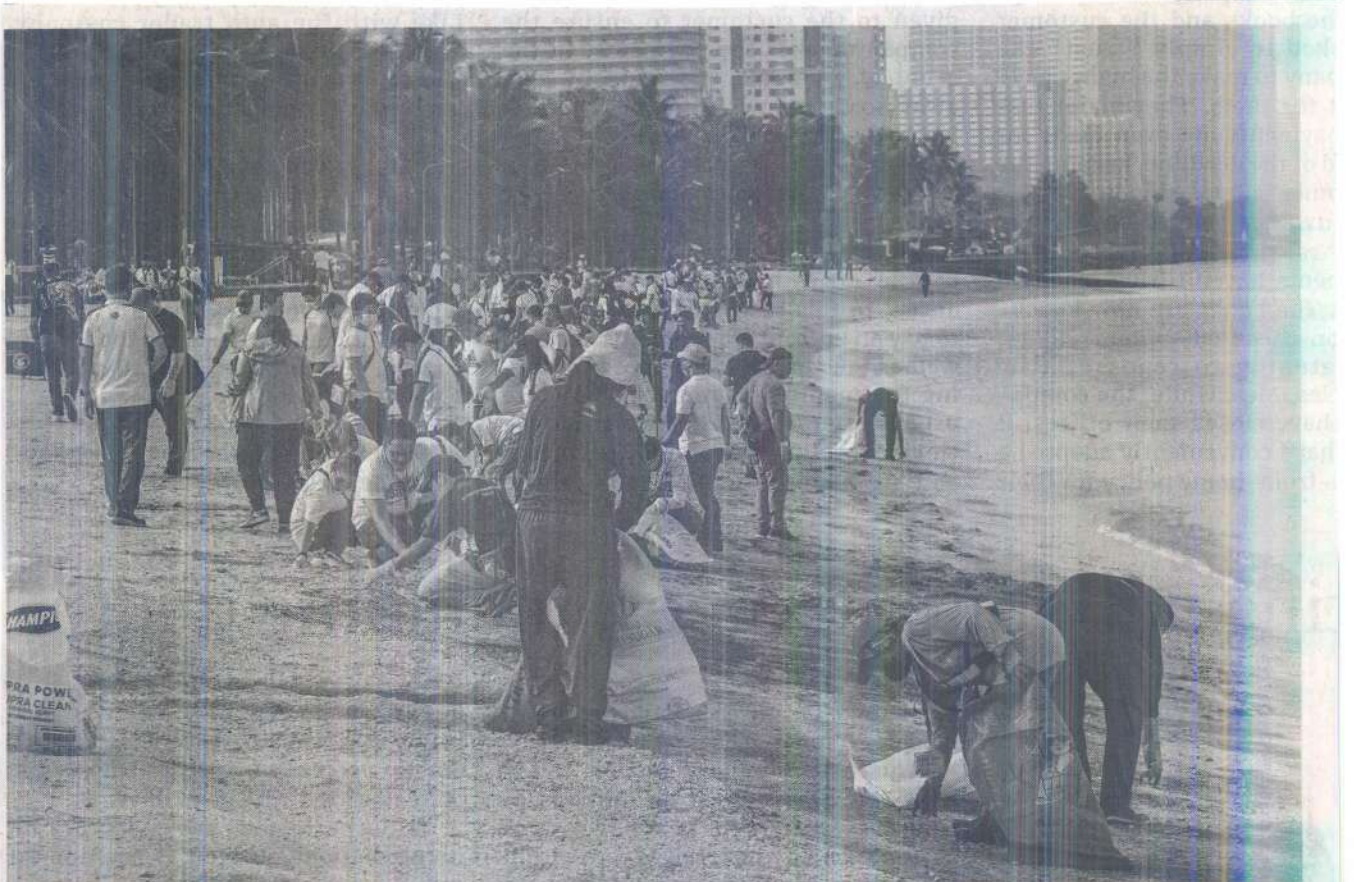
Norman Cruz



MANILA BAY CLEANUP DRIVE

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DOLOMITE CLEANUP — Volunteers mark United Nations World Ocean Day 2023 with a cleanup drive on Dolomite Beach in Manila Bay on June 8, 2023. Theme of the event is 'Planet Ocean: Tides are Changing.' (Juan Carlo de Vela)



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Editorial

Space technology as a tool for development

LAST Monday, a rocket was launched at Cape Canaveral in Florida on a resupply mission to the International Space Station. The rocket was also carrying two of the Philippines newest cube satellites, or CubeSats, that will eventually be deployed on an orbit 400 kilometers above the Earth.

The CubeSats, Maya-5 and Maya-6, developed by a group of nanosatellite engineering students from the University of the Philippines, are equipped with camera, image classification and storage systems.

A CubeSat is a square-shaped miniature satellite about the size of a Rubik's cube. It can be used to conduct science experiments or take measurements in space.

Maya-5 and Maya-6, like their four predecessors, are basically learning tools for the future corps of space technology scientists the Philippines is assembling.

Before 2019, the country didn't have a cohesive space program. The few government agencies that were doing space-related work did not coordinate with each other; there was no unified policy to guide them.

Most Filipinos also had the romantic notion that space science only involved rocket ships and astronauts setting foot on the Moon. They never thought that it played a key role in assessing agricultural production or climate conditions, or bringing live global TV coverage to their homes.

In 2016, the first Filipino-designed and -built microsatellite, Diwata-1, was released into orbit from the International Space Station. It was a milestone that drew attention to the need for an agency to spearhead the country's space development efforts.

On Aug. 8, 2019, then-president Rodrigo Duterte signed a law creating the Philippine Space Agency (PhilSA).

For now the agency is focused on developing micro and nanosatellites, but its long-term goal is for the country to develop the capability to launch rockets into space.

Latecomer, but fast learner

Fortunato de la Peña, Duterte's Science secretary, said the Philippines may be a latecomer in space technology development, but it has already won the admiration of other countries such as Japan for being a fast learner and making great strides in less than a decade.

Last year, President Ferdinand Marcos Jr. commended PhilSA for building the biggest Philippine-made satellite to date, the Multispectral Unit for Land Assessment, or Mula. The satellite, which is due for launch in 2025, will have a number of functions, ranging from detecting air and water quality to determining abundant fishing grounds.

The PhilSA is also mandated to encourage the commercial exploitation of the country's space capabilities. That may already be happening.

In 2020, the Philippines' first commercial spaceflight company, Orbital Exploration Technologies (OrbitX), announced that it is developing green low-cost launch vehicles.

OrbitX founder Dexter P. Baño Jr. said the Haribon SLS-1, a suborbital two-stage rocket, will be powered by renewable kerosene derived from waste plastics.

Haribon SLS-1 could carry payloads of up to 200 kilograms, and has a target launch date of 2023-2024.

Another giant leap for Philippine space technology was made on January 23, when the European Commission signed an agreement with the European Space Agency to build a national Copernicus data center in the country.

Copernicus is the European Union's Earth observation program aimed at "boosting smart, clean and secure links in digital, energy and transport sectors and to strengthen health, education and research systems across the world."

Already, PhilSA has proved its worth, providing satellite images to help authorities in containing the oil spill from a tanker that sank off Oriental Mindoro in February.

The agency processed the images of the areas affected by the oil spill for the Philippine Coast Guard and the Department of Environment and Natural Resources. The images also helped the University of the Philippines' Marine Science Institute develop trajectory models for the spill.

A PhilSA research specialist acknowledged the need for better coordination in using and interpreting satellite images. "The field of space [technology] is very new to the Philippines," the researcher said. "In PhilSA, it's mainly our job. But for other agencies, I suppose it's a small percentage of their operations."

The dream of sending a Filipino astronaut into space will always be there. For now, however, space science can serve the Philippines in myriad, more meaningful ways.

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Mayon on Alert Level 3

amid magmatic eruption

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3 SECTIONS, 32 PAGES P25 MM





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By **ROMINA CABRERA**
and **CET DEMATERA**

The Philippine Institute of Volcanology and Seismology (Phivolcs) has raised Alert Level 3 at Mayon Volcano as it undergoes a localized magmatic eruption.

Phivolcs yesterday said that this localized eruption is manifested by extrusion of lava in the crater summit as evidenced by the growing lava dome of the volcano. Alert Level 3 means there is relatively high unrest in the volcano and an increased tendency toward hazardous eruption.

"The overall monitoring parameters indicate that very slow extrusion of shallow degassed magma is ongoing and is incrementally increasing in rate; i.e., effusive magmatic eruption is taking place," Phivolcs said in an advisory.

"Mayon is exhibiting magmatic eruption of a summit lava dome, with increased chances of lava flows and hazardous PDCs (pyroclastic density currents) affecting the upper to middle slopes of the volcano and of potential explosive activity within weeks or even days," the state agency said.

Three PDC events were recorded Thursday morning on the Bonga (southeast) and Basud (east) Gullies, which lasted four to five minutes.

Mayon's alert level was raised from 1 to 2 last June 5, then from Alert

Level 2 to Level 3 yesterday.

A total of 267 rockfall events and two volcanic earthquakes were recorded from Monday to Thursday, compared to the 54 rockfall events in the from June 1 to 4, with 98 rockfall events recorded yesterday alone.

Paul Alanis, Phivolcs resident volcanologist at the Lignon Hill Observatory in Legazpi City, said that the rockfall events had duration of one minute to three minutes, and "transported lava debris within a kilometer range of the southern upper slopes."

Phivolcs recommended that the six-kilometer radius Permanent Danger Zone be evacuated due to the danger of PDCs, lava flows, rockfalls and other volcanic hazards.

The state agency said that the sulfur dioxide (SO₂) emission remained at baseline or background level.

Meanwhile, Phivolcs said that there is continuous degassing activity at the Taal volcano. "There was one volcanic earthquake and a volcanic tremor that has been ongoing since June 2 monitored at the volcano. It emitted sulfur dioxide flux of 5,718 tons per day, with voluminous emission of plumes of up to 2,400 meters tall," the agency said.

Despite the ongoing degassing activity, Phivolcs said that Taal will remain under Alert Level 1. Phivolcs recommended the strict prohibition of entry into the Taal Volcano island,

especially the main crater and Daang Kastila fissures, and occupancy and boating on Taal Lake.

'Gov't is ready'

President Marcos gave assurance that the government is prepared to assist areas that may be affected by the increased volcanic activity of Mayon and Taal volcanoes.

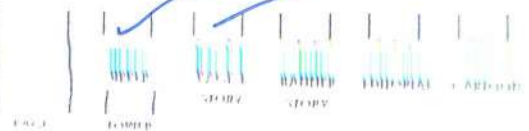
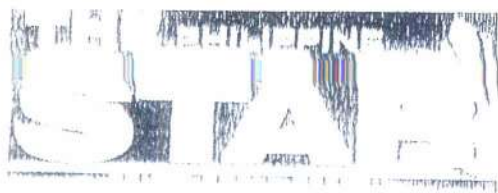
"We are ready. We have been doing that ever since. We watch it very closely, make sure that any of the communities that could be affected are evacuated and are given assistance while they are evacuated until the time that they can return to their homes. It's the same thing," the President said yesterday.

Marcos said the situation in Taal is not that precarious compared to that of the areas near Mayon Volcano. "Mayon is a little bit more advanced... lava has not come out of it. If the lava flow starts, that's when we really have a disaster," he said.

"Right now, what we are doing is preparing and moving people away from the area... hope it doesn't happen but, unfortunately, the science tells us that it may happen. The lid, or the cap, on top of the lava is slowly rising - not so slowly rising - and it may erupt. That is why we are watching closely," the Chief Executive said.

Stay alert

The Department of Health (DOH)



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yesterday advised residents living near Mayon Volcano to stay alert and be wary of sulfur dioxide, a colorless toxic gas that can affect both human and animal health and plant life.

The health department said nearby residents should avoid unnecessarily going out of their homes; close the doors and windows, wear face mask and protective gear for eyes and covering for the skin.

The DOH also cautioned the public on the effects of exposure to volcanic ash, which may cause a number of health problems. "Anyone who already suffers from problems such as bronchitis, emphysema, or asthma, should avoid exposure to volcanic ash," said the DOH.

It noted nose and throat irritation, coughing, bronchitis-like illness, discomfort while breathing, eye irritation, minor skin problems, injuries/death due to roof collapse or vehicular accident resulting from slippery roads and poor visibility as the ashfall's health effects.

Meanwhile, the Office of Civil Defense (OCD) has ordered for more preparedness measures yesterday as it coordinated with Phivolcs, Department of Environment and Natural Resources and the DOH.

OCD spokesman Assistant Secretary Raffy Alejandro said a memo has been issued ordering heightened monitoring and close coordination among local disaster response units

and support agencies. The OCD said concerned agencies and localities have also been told to prepare the public for possible evacuation if the situation worsens.

Notice to airmen

The Civil Aviation Authority of the Philippines (CAAP) is continuously updating its notices to airmen (NOTAM) informing pilots of flying aircraft at the current alert levels and associated risks related to the volcanic activities of Taal, Mayon and Kanlaon.

In Mayon, CAAP issued NOTAM B2003/23, advising airmen of the dangers of volcanic ash cloud rising up to 11,000 feet and drifting south to southeast with accompanying 338 rockfall events, according to Phivolcs.

In Taal, which is under low-level unrest, CAAP issued NOTAM B2000/23, advising flight operators to avoid flying close to the volcano's summit as airborne ash and ballistic fragments from sudden explosions may pose hazards to aircraft from surface up to 10,000 feet.

In Kanlaon under abnormal condition, CAAP issued NOTAM B1999/23 advising flights to avoid the volcano's summit due to the dangers of possible steam-driven or phreatic eruptions.

- With Rudy Santos, Rhodina Villanueva, Michael Punongbayan, Alexis Romero



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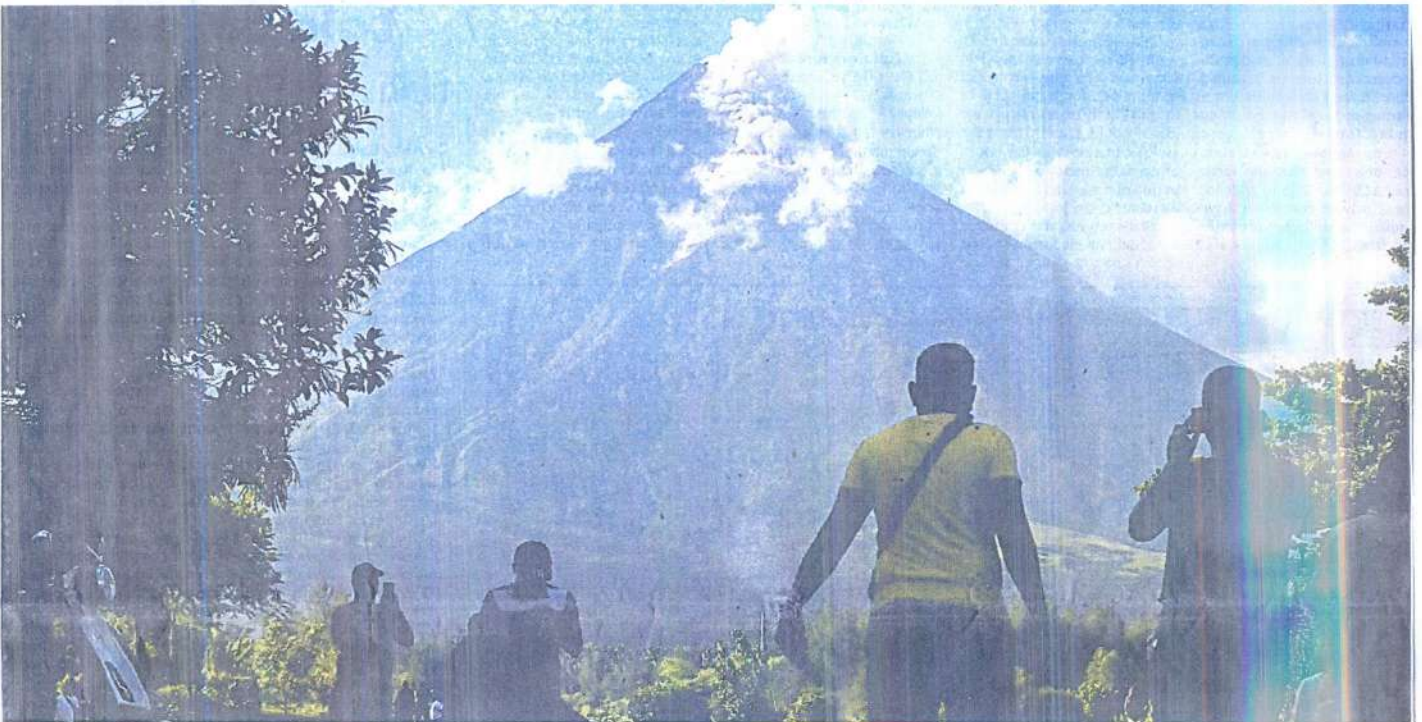
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MAYON ERUPTION LOOMS; EVACUATIONS ORDERED

STORY BY ABBY BOISER AND MA. APRIL MIER-MANJARES

The Philippine Institute of Volcanology and Seismology raises the alert status on the picturesque volcano to level 3, warning residents of 'increased chances of lava flows and potential explosive activity' within weeks or even days. **A2**



REAWAKENING Around 4:20 p.m. on Thursday, rocks are seen falling down the slopes of Mayon Volcano from the crater summit, in this shot taken at Barangay Busay in Daraga town, Albay province. The Philippine Institute of Volcanology and Seismology has raised the alert level and nearby villagers have been told to flee to safety. Mayon last erupted in January 2018. —MARK ALVIC ESPLANA



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'Hazardous' Mayon eruption looms; locals told to leave

FROM A1

By Abby Boiser and
Ma. April Mier-Manjares
@Team_Inquirer

The Philippine Institute of Volcanology and Seismology (Phivolcs) on Thursday warned that a "hazardous eruption" of Mayon Volcano could be weeks or days away, prompting the local government of Albay to order the mandatory evacuation of residents inside the 6-kilometer radius permanent danger zone.

Phivolcs said it observed three fast-moving avalanches of volcanic ash, rock and gases, known as pyroclastic density currents (PDCs), on Mayon's slopes on Thursday.

There are "increased chances of lava flows and hazardous PDCs ... and of potential explosive activity within weeks or even days," the agency said, raising the alert level from two to three on a scale of zero to five.

Phivolcs recorded a total of 267 rockfall events and two volcanic earthquakes from June 5 to June 8, more than the 54 rockfall events recorded from June 1 to June 4.

Paul Karson Alanis, resident volcanologist at the Phivolcs office in Legazpi City in Albay, said at least three rockfall events generated PDCs on Thursday morning.

"There are continuous rockfall events from the lava dome, the remnants of the 2018 eruption. This 11 a.m. (Thursday), the big rocks that were creeping down the slopes generated PDCs," Alanis said during an emergency meeting at the Albay capital.

Two ways

There can be two ways that the "hazardous eruption" may take place, said Phivolcs volcano monitoring head Maria Antonia Bornas.

First would be similar to the 2018 Mayon eruption in which rockfall events progressed into "significant magmatic eruptions with lava flow, lava fountaining and minor explosion events."

Mayon Volcano last erupted on Jan. 13, 2018, affecting thousands of families from the towns of Guinobatan, Camalig, Daraga, Bacacay, Malilipot and Sto. Domingo, and the cities of Ligao, Legazpi and Tabaco. The volcanic activity that lasted until March that year led to the declaration of a state of calamity in Albay.

The second one, which Bornas said was more likely to occur, would be an eruption consisting of a continuous lava flow.

"The dome will continue to grow and shed a short lava flow, some rockfall but just that," Bornas said.

In the latter scenario, the eruption would be similar to what happened in 2014 in which Mayon "very quietly"

withdrew lava flow.

President Marcos on Thursday said the government has been closely monitoring the volcanic activities both in Mayon and in Taal, assuring Filipinos that the government was on top of the situation.

Speaking to reporters after an event in Manila, the President noted that Mayon was already "advanced" in terms of volcanic activity.

"If the lava flow starts, that's when we really have a disaster," Mr. Marcos said.

Preparations

Phivolcs urged people residing within the permanent danger zone to immediately evacuate due to the danger of lava flows, rockfalls and other volcanic hazards.

The Office of Civil Defense (OCD) on Thursday afternoon said it conducted preparedness and coordination conferences with other concerned government agencies.

The OCD also reached out to local disaster units in Bicol Region and Calabarzon (Cavite, Laguna, Batangas, Rizal and Quezon) for possible evacuation once the situation worsens.

The Civil Aviation Authority of the Philippines also issued a notice barring planes from flying within 10,000 feet above the surface of Mayon.



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18,000 must leave

In Legazpi City, the provincial government of Albay ordered the mandatory evacuation of more than 18,000 residents inside the permanent danger zone.

Eugene Escobar, chief of the research division of the Albay Public Safety and Emergency Management Office (Apsemo), said the evacuation in the towns of Daraga, Malilipot and Camalig, and the cities of Ligao and Tabaco would start on Friday morning.

As of this month, Apsemo recorded 4,749 families, or 18,184 people, living in 14 villages inside the permanent danger zone.

Escobar said an additional 5,817 families, or 21,717 people, from the 7-kilometer radius would also be evacuated if the activity of the volcano escalates and the alert level is raised to 4, which means a hazardous eruption is imminent.

He added that of the province's P42-million quick response fund, P30 million would be allocated for the evacuation operation, which might not suffice the needs of the evacuees if Mayon's restiveness would take long.

Class dismissal

All human activities inside the danger zone would likewise be prohibited, including farming and recreational activities.

Camalig Mayor Carlos Irwin Baldo Jr. on Thursday ordered the early dismissal of classes in the villages of Tumpa, Quirangay and Cabangan, areas inside

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MAYON ALERT: EVACUATIONS ON AS ERUPTION LOOMS

FROM A2

the 6-km to 7-km radius of the volcano.

Baldo, in a statement, also ordered the suspension of quarrying activities within the 7-km radius.

Meanwhile, Guinobatan Mayor Paul Chino Garcia told the Inquirer that they would prioritize the 2,000 individuals living in two villages within their danger zones.

"The shelter and food are ready. The only thing they should do is follow so that [we] will attain the zero casualty [goal]," Garcia stressed.

Lovella Guarin, information officer of the Department of Agriculture in Bicol, said in an interview that they have already prepared the evacuation center for the animals owned by farmers at the Albay Breeding Center in Camalig town.

Pancho Mella, chief of pro-

vincial veterinary services, said about 10,000 animals would be evacuated from 42 villages in the danger zone.

Evacuation centers

Alvin Cuz, the disaster risk reduction and management coordinator of the Department of Education Albay division, said they already identified 39 schools that could be used as evacuation centers, but they would need temporary learning spaces and a shift to blended learning.

"If the schools will be used by the local government units, we need temporary learning spaces for the continuous learning of the students," Cuz noted.

OCD Bicol Director Claudio Yucot said they would coordinate with some colleges for their buildings to be used as additional evacuation centers.

—WITH REPORTS FROM NESTOR CORRALES, MICHAEL B. JAUCIAN, AFP AND INQUIRER RESEARCH INQ

PHILIPPINE NEWS PAPER

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OFFICE OF THE DEPUTY SECRETARY FOR ENVIRONMENTAL MANAGEMENT
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Hazardous Mayon eruption looms

By ELLALYN DE VERA-RUIZ and NIÑO LUCES

Albay orders
mandatory
evacuation
of residents
inside 6-km
danger zone

The alert status for Mayon Volcano was raised from level 2 to 3 on Thursday, June 8, due to "increased tendency toward a hazardous eruption," said the Philippine Institute of Volcanology and Seismology (Phivolcs).
In response, the Albay Public Safety and Emergency Management Office (APSEMO) ordered municipal and city governments to evacuate residents inside the six-kilometer Permanent Danger Zone (PDZ) of Mayon Volcano.
In raising the alert level to 3, Phivolcs said Mayon Volcano is now "exhibiting magmatic eruption of a summit lava dome, with increased chances of lava flows and hazardous



RESTIVE MAYON — Mayon Volcano spews white smoke as seen from Legazpi City on Thursday, June 8, 2023. Hundreds of families living around Mayon are expected to be moved to safer areas after the Philippine Institute of Volcanology and Seismology raised the alert level from 2 to 3. (Arren Christian Ventura via AFP)

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Hazardous Mayon eruption looms



pyroclastic density currents (PDCs) affecting the upper to middle slopes of the volcano and of potential explosive activity within weeks or even days."

Residents within the six-kilometer radius of the permanent danger zone should be evacuated due to the risk of PDCs, lava flows,

rockfalls and other volcanic hazards, according to Phivolcs.

It also advised increased vigilance against pyroclastic density currents, lahars, and sediment-laden stream flows along channels draining the edifice.

Evacuation starts today

Eugene Escobar, APSEMO research division chief, said the evacuation of 2,640 families or 10,578 individuals living inside the PDZ starts this morning, June 9.

"We will do it systematically. It is safe to say that we still have enough time to do the evacuation tomorrow," Escobar said on Thursday.

The APSEMO said 89 individuals in the PDZ in Camalig need to be evacuated.

In Daraga, 336 individuals will be evacuated from Barangays Matnog and Salvacion.

Ligao City has 132 individuals from Barangay Baligang; 1,866 families or 7,226 individuals in Barangays Calbayog, Canaway, and San Roque in Malilipot and 378 families or 1,434 individuals from Barangays Magapo, Mariroc, and Buang in Tabaco City.

These evacuees will be brought to evacuation centers identified by the LGUs.

Classes in all levels were suspended in barangays in the PDZ.

Escobar said they are ready to evacuate residents living in a seven-km PDZ if the alert level is stretched to four.

"Worst case, that means Alert Level 4, we will extend the evacuation to the seven-kilometer danger zone. That would be additional 4,416 families or 16,298 individuals," Escobar said.

Meanwhile, during the emergency preparedness and response meeting of the Albay PDRRMC on Thursday, Phivolcs resident volcanologist Dr. Paul Alanis said Mayon may have a major eruption like in 2018 or a small phreatic eruption similar to 2014.

'Increasing unrest'

"Since the alert level status was raised from Alert Level 1 to Alert Level 2 on June 5, 2023, repeated collapse of the growing summit dome of Mayon Volcano has generated an increasing number and volume of rockfall events," Phivolcs said in a bulletin issued at 12 p.m.

Phivolcs recorded 267 rockfall events and two volcanic earthquakes between June 5 and June 8, from 54 rockfall events between June 1 and June 4.

"These events had durations of one to three minutes and transported lava debris within a kilometer's range of the southern upper slopes. The volume of discrete rockfall events increased on June 3 based on the seismic record, signaling an increase in the rate of dome growth," it pointed out.

Phivolcs also observed three PDC events on the Bonga and Basud Gullies at 6:18 a.m., 9:53 a.m., and 11 a.m. on Thursday.

"The PDCs lasted four to five minutes based on the seismic record and emplaced within a kilometer of the summit crater," it said.

Meanwhile, sulfur dioxide emission remains at baseline or background levels.

Phivolcs pointed out that the overall monitoring parameters indicate that "very slow extrusion of shallow degassed magma is ongoing and is incrementally increasing in rate; i.e., effusive magmatic eruption is taking place."

Ashes noted in some areas around Mayon

Alanis had earlier said traces of ash were reported in some areas in Daraga town and Legazpi City.

This was caused by continuing rockfall events at the crater of Mayon Volcano, he said.

"Ito po ay dala ng patuloy na rockfall events. 'Yung mga bato ay nababasag, napipino, at hanggang sa ito liparin ng hangin sa mga lugar na yan (This is due to the continuing rockfall events. The rocks are crushed to fine pieces until they are blown by the wind)," Alanis said.

He reminded residents that they should not be alarmed by these ash traces since they are not caused by phreatic eruption or an eruption.

In an advisory, Phivolcs said thin brownish ash from the rockfalls drifted generally to the south.

A netizen, Mark Masbate Manlangit, posted in his Facebook account that an ashfall was observed in Camalig town at around 8 a.m.

Harold Bembenuto, barangay chairman of Padang, Legazpi City, said they have set up checkpoints at the six-kilometer PDZ to ensure there are no human activities in the restricted area.

He said the barangay council and the Barangay Disaster Risk Reduction and Management Council (BDRRMC) have constant communication with disaster agencies to ensure the safety of residents.



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Climate change, diet change

World Environment Day (June 5) came and went with little fuss and frenzy hereabouts. People were monitoring two typhoons threatening to enter the Philippine Area of Responsibility, a term one now hears—all 12 syllables of it—in street corners, homes, and hovels, and one begins to wonder when Filipinos began to be so meteorologically inclined.

Thanks to broadcast media that now allot more air time on weather concerns, we've become amateur weather forecasters ourselves, spewing out meteorological jargon both in Filipino and English—*habagat*, intertropical convergence zone, *manaka-nakang pagulan*, *pagkulong*, *at pagkidlat*, etc. Television's weathermen became celebrities in their own right, starting with the late Amado Pineda of the Philippine Atmospheric, Geophysical, and Astronomical Services Administration and GMA 7, and later Nathaniel "Mang Tani" Cruz of the same network.

But we have yet to go beyond being weather watchers and storm chasers in this typhoon-battered archipelago. Bigger than the subject of weather (stormy, rainy, sunny, warm, etc.) is climate, which is "the average weather in a given area over a longer period of time." For the World Meteorological Organization, "the classical period used for describing a climate is 30 years."

The extreme and sudden weather changes now plaguing us have to do with climate change, the worrisome global phenomenon of our own making, unless you are a denialist who believe in an inexorable cosmic upheaval. Are we simply preparing for tomorrow's typhoon—with grab bag and all—but not for climate changes in the next decade? Is doing something to avert the doomsday scenarios beyond our capabilities?

Scientists of different persuasions have exposed the crimes committed in the name of progress against planet Earth and its at-



HUMAN FACE

MA. CERES P. DOYO

mosphere, as well as the personal sins of apathy, neglect, greed, and selfishness that have ruined the natural order of things and resulted in global warming and climate change. To each her/his own scientific expertise, but everything, when taken as a whole, can make the difference. We beat our breasts for being a throwaway society. We bring reusable bags and do small acts of love for Mother Nature.

But scientists, bless them, who now warn us about what we eat that cause harm to the environment, have yet to get our full attention. For how is our diet related to Earth's ruin? More bluntly, how does the food industry that brings food to our tables wreak havoc on our planet? There is a lot on the subject online. But a scientist among us, Dr. Teodoro C. Mendoza of the Institute of Crop Science of the College of Agriculture and Food Sciences of the University of the Philippines Los Baños, has written a paper for the International Journal of Agricultural Technology (2023). The title: "Transforming meat-based to plant-based diet is addressing food security and climate crisis in this millennium: A review" (<http://ijat-aatsea.com>).

It is a long, scientific read but the abstract can give you enough about where you are in the battle. Mendoza, a crop scientist, starts



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by saying that world leaders at the 2022 77th United Nations General Assembly considered climate change "as the most challenging concern of this century. It is the aim of this paper to present how 50 percent reduction in global greenhouse gas emission by 2030 and net zero emissions by 2050 can be achieved to avoid a 1.5 degree centigrade rise in global temperature and its twin effects of global food shortage and hunger." In other words, it can be done.

"Transforming meat-based to plant-centric diet by reducing meat intake is the way forward. Meat is a very 'resource use intensive' food. It takes 75 times more energy to produce meat than corn, four to five times more water than rice, about eight to ten times more land for one person to be nourished." Mendoza calls for drastic change. "The 3.5 billion pastures and meadows that are used for grazing ruminant animals can be freed, and 56 percent of the 1.2 billion grains produced annually and fed to animals ... and 90 percent of all soybeans fed to animals can be used directly as human food. This implies that we do not need to increase food production by 60 percent or more when the population in 2050 reaches about 9.1 billion or more.

"Animals are the main cause of deforestation [which is] the main cause of biodiversity loss, soil erosion/land degradation, loss of watershed led to disrupted hydrologic cycle, diminishing the supply of fresh/clean water in rural areas ... Protein-based meat production is very inefficient, resource-use wise. Meat production requires lots of land, water, nutrients, and energy ... About 350 million tons of meat is consumed yearly, which requires slaughtering of 80 billion animals per year," Mendoza says in his paper.

The greenhouse gas emission from these animals is staggering, a huge problem in itself. Think about it.

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EDITORIAL

Climate change challenge

THE Philippines is once more at the front door of the rainy season, which puts into sharp focus yet again the challenge of climate change in this basically agricultural economy of 114 million people.

President Ferdinand Marcos Jr. himself has underlined that "Developed countries have a moral obligation to support adaptation and mitigation efforts of the most vulnerable countries through technology transfer, capacity building, and climate financing, this to address loss and damage, and to achieve necessary breakthroughs for climate action at a global scale."

His statement was contained in his call last month for unity among 10 ASEAN member states at their 42nd Summit Plenary Session in urging developed countries to fulfill their longstanding commitments to the Paris Agreement.

Sans doubt, the climate crisis poses an existential threat to the world, especially to unguarded countries like the Philippines, and the President was on track in urging the commonality of ASEAN states in tackling these shared challenges.

"Although developing countries such as the Philippines only account for less than one percent of global emissions, our countries bear

“The climate crisis indeed poses an existential threat to the world, especially to unguarded countries like the Philippines.”

the brunt of the devastating impacts of climate change," President Marcos said.

Weather authorities have said there is a 60 percent chance for a transition from ENSO-neutral to El Niño during May-July 2023, and this will increase to about 70 percent in June-August and

80 percent between July and September.

The El Niño-Southern Oscillation is a recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean.

The Geneva-based World Meteorological Organization has described the build-up of greenhouse gases in the atmosphere during the 20th century as resulting "from the growing use of energy and expansion of the global economy."

In 2009, the Philippine Congress passed the Climate Change Act which created the CCC to develop policies and coordinate government programs on climate change.

The CCC in turn developed the National Climate Change Action Plan that serves as a road map for all climate change programs in the Philippines.

In 2021, the Philippines committed to reduce 75 percent of its emissions by 2030 and quickly scale up efforts to adapt to a changing climate, setting itself one of the most ambitious targets among Southeast Asian countries.

Weather experts have underlined that changes due to the variability and intensity of rainfall in the country and increased temperatures will affect food security and the safety of the population.

Multiple indices rank the Philippines, where impacts of climate change are immense, as one of the countries most affected by extreme climate events.



World warming at record 0.2 C per decade

PARIS: Record-high greenhouse gas emissions and diminishing air pollution have caused an unparalleled acceleration in global warming, 50 top scientists warned Thursday in a sweeping climate science update.

From 2013 to 2022, "human-induced warming has been increasing at an unprecedented rate of over 0.2 degrees Celsius per decade," they reported in a peer-reviewed study aimed at policymakers.

Average annual emissions over the same period hit an all-time high of 54 billion tonnes of CO2 or its equivalent in other gases — about 1,700 tonnes every second.

World leaders will be confronted with the new data at the critical COP28 climate summit later this year in Dubai, where a "Global Stocktake" at the UN talks will assess progress toward the 2015 Paris Agreement's temperature goals.

The findings would appear to close the door on capping global warming under the Paris treaty's more ambitious 1.5 C target, long identified as a guard rail for a relatively climate-safe world, albeit one still roiled by severe impacts.

"Even though we are not yet at 1.5 C warming, the carbon budget" — the amount of greenhouse gases

humanity can emit without exceeding that limit — "will likely be exhausted in only a few years," said lead author Piers Forster, a physics professor at the University of Leeds.

That budget has shrunk by half since the UN's climate science advisory body, the Intergovernmental Panel on Climate Change (IPCC), gathered data for its most recent benchmark report in 2021, according to the Forster and colleagues, many of whom were core IPCC contributors.

Unintended consequences

To have even a coin-toss chance of staying under the 1.5 C threshold, emissions of carbon dioxide, methane and other drivers of warming generated mostly by burning fossil fuels must not exceed 250 billion tonnes (Gt), they reported.

Bettering the odds to two-thirds or four-fifths would reduce that carbon allowance to only 150 Gt and 100 Gt, respectively — a two- or three-year lifeline at the current rate of emissions.

Keeping the Paris temperature targets in play would require slashing CO2 pollution at least 40

percent by 2030, and eliminating it entirely by mid-century, the IPCC has calculated.

Ironically, one of the big climate success stories of the last decade has inadvertently hastened the pace of global warming, the new data reveal.

A gradual drop in the use of coal — significantly more carbon intensive than oil or gas — to produce power has slowed the increase in carbon emissions.

But it has also reduced the air pollution that shields Earth from the full force of the Sun's rays.

Particle pollution from all sources dampens warming by about half-a-degree Celsius, which means — at least in the short term — more of that heat will reach the planet's surface as the air becomes cleaner.

Published in the peer-reviewed journal Earth System Science Data, the new study is the first in a series of periodic assessments that will help fill the gaps between IPCC reports, released on average every six years since 1988.

Deadly heat

"An annual update of key indicators of global change is critical in helping the international community

and countries to keep the urgency of addressing the climate change crisis at the top of the agenda," said co-author and scientist Maisa Rojas Corradi, who is also the environment minister of Chile.

Co-author Valerie Masson-Delmotte, a co-chairman of the 2021 IPCC report, said the new data should be a "wake-up call" ahead of the COP28 summit, even if there is evidence that the increase in greenhouse gases has slowed.

"The pace and scale of climate action is not sufficient to limit the escalation of climate related risks," she said.

Researchers also reported a startling rise in temperature increases over land areas — excluding oceans — since 2000.

"Land average annual maximum temperatures have warmed by more than half a degree Celsius in the last ten years (1.72 C above pre-industrial conditions) compared to the first decade of the millennium (1.22 C)," the study reported.

Longer and more intense heat waves will pose a life-and-death threat in the coming decades across large swathes of South and Southeast Asia, along with areas straddling the equator in Africa and Latin America, recent research has shown. **AFP**



06-09-23

Protect oceans, marine ecosystems – DFA chief

By JOSEPH PEDRAJAS

Foreign Affairs Secretary Enrique Manalo called on the public to recognize the urgency to protect the oceans and reaffirm the commitment to preserve it as he believes the world could secure a future where the bounties of the oceans are accessible to all.

In his message at the commemoration of the World Ocean Day,

Manalo expressed concern for the Philippines, considering that it is an archipelago at risk of threats from ocean degradation. He laid out various efforts that the country is taking to address such issues.

“Understanding the fragile balance of our marine ecosystems and the significant role they play, the Philippines exerted all efforts toward finalizing an international legally binding agreement for the

conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ Agreement),” Manalo said. “Moreover, the Philippines reaffirms its dedication to the United Nations Ocean Decade—a global initiative that aims to catalyze transformative action for the sustainable use and conservation of the world’s oceans.”

In fact, he also said, the country championed the crucial steps toward

a legally binding global agreement to end plastic pollution after joining like-minded countries to fight marine plastic pollution.

Manalo said he is proud to lead the DFA in the celebration of World Oceans Day as it “serves as a reminder of the invaluable role our oceans play in sustaining life on Earth and reinforces the urgent need to safeguard and preserve their health and vitality for future generations.”



PGMPI eyes partners in extraction of rare earth elements in PH

A CONSORTIUM of institutional investors from South Korea and the Philippine General Minerals Project Inc. are actively exploring opportunities for collaboration and partnership for the sustainable extraction of critical minerals and rare earth elements in the Philippines.

PGMPI president and chief executive Antonio Parlade Jr. said the business consortium Busan Equity Partners led by Yonsung Lee and the firm he founded had made several significant discussions and steps towards a potential private-public-partnership with the South Korean investors, aligning with the Korean government's requirements for strategic metals.

BEP officials visited the country in April, days after South Korean President Yoon Suk Yeol expressed intention to source critical mineral requirements from the Philippines and Indonesia, aiming to reduce their reliance on China by at least 50 percent.

"These metals are of utmost significance and importance to South Korea's highly industrialized sectors, including prominent manufacturing giants such as Samsung, Hyundai, and POSCO, thus highlighting the urgency of the Philippine government's response on the matter," said Parlade, a retired military general.

BEP officials, accompanied by PGMI executives, met on different dates with Trade Secretary Alfredo Pascual Jr. and Board of Investments vice chairman Ceferino Rodolfo, Development Bank of the Philippines director Maria Lourdes Arcenas and president and chief executive Michael de Jesus.

The DTI and BOI expressed optimism about the project and pledged to coordinate with counterparts for the Philippines-South Korea Joint Commission on Trade and Economic Cooperation with the Ministry of Trade, Industry and Energy to facilitate future collaborations with PGMPI.



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LGUs, firms offered loans to boost water production

By LOUISE MAUREEN SIMEON

The state-run Development Bank of the Philippines (DBP) is offering loan assistance to water firms and local government units to help boost supply amid the looming El Niño phenomenon.

In a statement, DBP president and CEO Michael de Jesus said the bank is willing to provide credit assistance to water districts, utility firms and LGUs to expand production capacity and explore additional water sources, noting that the onset of El Niño is expected in the next months and the over 90 percent chance that it might persist until the first quarter of 2024.

While early projection showed that the El Niño this year would be weak to moderate, the government has been employing preparatory activities to mitigate its potential impact.

The Philippine Atmospheric, Geophysical and Astronomical Services Administration already said the phenomenon might cause below-normal rainfall conditions and may entail dry spells and droughts in some areas of the country.

For DBP, De Jesus said funding assis-

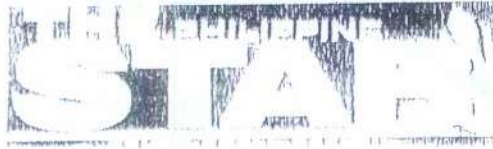
tance from the bank would be channeled under its pioneering Water for Every Resident (WATER) Program, which is designed to support projects that would provide affordable water supply at the community level.

"We are one with the call to ensure a protocol-based and science-driven approach to address the possible impact of the El Niño phenomena in the short-term and the demand for reliable and potable water supply in the long-term," he added.

To date, the DBP WATER program contributed P20.3 billion to the required investment of the water supply subsector, which is estimated at P511 billion over a 10-year period.

De Jesus noted that the bank would continue to support the objectives of the Philippine Water Supply and Sanitation Master Plan amid the challenges of urbanization, rapid population increase and dwindling freshwater sources.

DBP is the eighth largest bank in the country in terms of assets. It provides credit support to four strategic sectors of the economy – infrastructure and logistics, MSME, environment, and social services and community development.



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06-09-23

DAU

Chedeng intensifies into typhoon

By ROMINA CABRERA

Tropical cyclone Chedeng intensified into a typhoon yesterday afternoon, but it is still not seen to directly bring heavy rainfall although it may enhance the southwest monsoon or *habagat*.

The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) said that Chedeng (international name Guchol) could further intensify and reach peak intensity by tomorrow.

Chedeng will remain far from the Philippine landmass and is not forecast to make landfall.

Chedeng was monitored 935 kilometers east of Central Luzon as of 4 p.m. yesterday and is moving northwest at 15 km per hour. It was packing maximum sustained winds of 120 kph near the center and gustiness of up to 150 kph.

The hoisting of tropical cyclone wind signals is unlikely, but Chedeng may result in the enhancement of

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Chedeng

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the monsoon.

The timing and intensity of monsoon rains over the country may still change depending on the movement and intensity of Chedeng and its interaction with other weather systems.

The monsoon may bring gusty conditions over parts of Visayas, Palawan, Occidental Mindoro, Surigao del Norte, Dinagat Islands and Camiguin today.

The southwest monsoon is bringing scattered rainshowers over Palawan.

Metro Manila and the rest of the country may expect isolated rainshowers due to the monsoon and localized thunderstorms.

PAGASA warned of possible flash floods or landslides during heavy rains.



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JUNE 02, 2023

DENR ADMINISTRATIVE ORDER
No. 2023 - 08

SUBJECT : GUIDELINES ON THE ACTIVITIES REQUIRING THE ENVIRONMENTAL IMPACT ASSESSMENT AND CRITERIA EXEMPTING SOME ACTIVITIES FROM SECURING ENVIRONMENTAL COMPLIANCE CERTIFICATE DURING THE EXPLORATION STAGE OF A MINING PROJECT

Pursuant to the provisions of Republic Act (R.A.) No. 7942 otherwise known as the *Philippine Mining Act of 1995*, PD 1586 otherwise known as the *Environmental Impact Assessment System of 1978*, Department Administrative Order (DAO) No. 2010-21 re: *Providing for a Consolidated Department of Environment and Natural Resources Administrative Order for the Implementing Rules and Regulations of Republic Act No. 7942*, Otherwise Known as the *Philippine Mining Act of 1995*, DAO No. 2017-15 as amended by DAO No. 2022-12 re: *Amending Section 16.6 of DENR Administrative Order No. 2017-15, Guidelines on Public Participation Under the Philippine Environmental Impact Statement (EIS) System and other pertinent laws, rules and regulations, the following are hereby promulgated for the guidance and compliance of all concerned:*

SECTION 1. Basic Policy. It is the policy of the State to promote the rational exploration, development, utilization and conservation of the country's mineral resources and maintain a rational orderly balance between socio-economic growth and environmental protection.

SECTION 2. Objective. To provide guidance on the allowable activities exempted from securing an Environmental Compliance Certificate and those which require Environmental Impact Assessment during the exploration stage of a mining project, relevant to its implementation in the central, regional, and provincial levels.

SECTION 3. Scope and Coverage. This Order shall apply to all the activities conducted during the exploration stage of a mining operation.

SECTION 4. Definition of Terms. As used in this Order, the following terms shall be defined as:

4.1 **Environmental Compliance Certificate (ECC)** - is a document that may be issued after thorough review of the EIA Report. It certifies that the proposed project has complied with the requirements of the EIS System and that the proponent has committed to implement its approved Environmental Management Plan (EMP) to address the environmental impacts and to operate within the best environmental practice.

4.2 **Environmental Work Program (EWP)** - refers to the comprehensive and strategic environmental management plan to achieve the environmental management objectives, criteria and commitments including protection and rehabilitation of the disturbed environment during the exploration period.

4.3 **Exploration Stage** - refers to the mineral exploration phase involved during the search for mineral resources and determination of their existence, extent, quantity and quality and their feasibility to be mined for profit. Exploration stages include various successive geological assessments in order of increasing details namely prospecting and preliminary exploration, reconnaissance exploration, semi-detailed exploration, and detailed exploration.

4.4 **Multipartite Monitoring Team (MMT)** - an independent entity whose membership represents primarily the stakeholders/public that is intended to assist the DENR in monitoring environmental impacts and compliance with the Philippine EIS System requirements and other environmental laws as a third-party entity. The MMT scheme is intended to enhance participation and transparency at the post-ECC issuance stage of the EIA Process.

4.5 **Significant Impact** - impacts which damage the environment to the point that the environmental resource loses its capacity to sustain life or to continue functioning within baseline levels and efficiency. It refers to impact needing action through prevention, mitigation or other interventions to protect the environment from being harmed at levels that reduce its functionality for its users or dependent biota.

SECTION 5. Criteria of Activities Exempted from Securing ECC. Under PD 1151, a project or undertaking which significantly affects the quality of the environment shall prepare an environmental impact statement. In view hereof, mineral resources exploration as defined under the Philippine Mining Act is exempted from securing an ECC, provided, that:

- 5.1 There is no significant impact on flora and fauna;
- 5.2 There is no significant impact on the marine ecosystem;
- 5.3 There is no presence of endangered or threatened species in the exploration area;
- 5.4 There is no significant land disturbance;
- 5.5 The ore extracted shall not exceed two (2) metric tons to be used exclusively for assay or pilot test purposes;
- 5.6 There is no re-channeling of waterbodies;
- 5.7 There is no pollution generated in the conduct of mineral exploration;
- 5.8 There are no ecosystem services that will be affected;
- 5.9 There are no physical structure/s (e.g., permanent office buildings, staff/workers' house, laboratory, warehouse, etc.) for mining exploration that shall be constructed;
- 5.10 No access road shall be established; and
- 5.11 No significant earth-moving activities or site development in the project area.

The above criteria on the exemption to secure ECC for mineral resources exploration covers both metallic and non-metallic resources. Such exemptions are to be certified by the Regional Office of the Environmental Management Bureau.

SECTION 6. Activities during Mineral Exploration that Requires ECC and/or other Pertinent Permits. Certain allied activities during mineral exploration may result to environmental degradation which will require environmental protection measures and rehabilitation. Therefore, the following activities are required to secure an ECC and/or other pertinent permits (e.g. tree cutting permit, foreshore lease agreement) beyond the Environmental Work Program (EWP) required during the exploration period of a potential mining project:

- 6.1 Drilling operations with a footprint larger than one hundred square meters;
- 6.2 Building of structures such as roads, causeways, camps and stockyards;
- 6.3 Operation of heavy equipment with significant wastewater discharges and gaseous releases;

- 6.4 Any other activities and structures that are deemed to have a significant impact on the environment; and,
- 6.5 Ore sampling for assaying, metallurgical laboratory-bench-, and pilot-scale testing, and commercial purposes exceeding two metric tons of materials from a single location.

SECTION 7. Composition of Multipartite Monitoring Team (MMT). An MMT¹ shall be deputized by the Monitoring Trust Fund (MRF) Committee, as provided under Section 185 of DAO No. 2010-21, to serve as the monitoring arm of said Committee and shall be composed of the following relevant stakeholders:

- 7.1 Representative from Regional Office as Head;
- 7.2 Representative from Department Regional Office as Member;
- 7.3 Representative from the EMB Regional Office as Member;
- 7.4 Representative of the Contractor/Permit Holder as Member;
- 7.5 Representative from the affected community(ies) as Member;
- 7.6 Representative from the affected ICCs, if any, as Member; and
- 7.7 Representative from an environmental NGO.

The MMT is tasked to monitor the compliance of exploration permit holders to pertinent laws including those stated in this DAO. The MMT shall report to EMB Regional Offices who in turn shall determine the penalties for any violation that will be incurred by the exploration permit holder.

SECTION 7. Separability Clause. If any provision of this Order shall be held invalid or unconstitutional, the other portions or provisions hereof which are not affected shall continue in full force and effect.

SECTION 8. Repealing Clause. All Orders and other similar issuances inconsistent herewith are hereby revoked, amended, or modified accordingly.

SECTION 9. Effectivity. This Order shall take effect fifteen (15) days after its publication in a newspaper of general circulation and upon acknowledgment of the receipt of the copy thereof by the Office of the National Administrative Register (ONAR).

MARIA ANTONIA YULO LOYZAGA
Secretary



¹For coal mining, the composition of MMT will be based on DAO No. 2017-15