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**DENIR**

**IN THE NEWS**

Strategic Communication and Initiative Service



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FLEEING TAAL VOLCANO'S ERUPTION

# RESCUERS OF WILDLIFE SPECIES ASKED TO TURN OVER ANIMALS TO DENR

By **Jhesset O. Enano**  
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The Department of Environment and Natural Resources (DENR) is calling on the public to turn over any rescued wildlife species that may have fled from the Taal Volcano Protected Landscape following the volcano's eruption last week.

The animals, which may include endemic and endangered species, could have migrated to nearby communities after Taal began spewing ash and steam, the DENR said on Saturday.

Assistant Environment Secretary Ricardo Calderon, head of the DENR's Biodiversity Management Bureau (DENR-BMB), said anyone who might have encountered

or rescued animals could turn them over to the DENR field offices in Batangas and Cavite provinces.

### Ready to receive animals

"The DENR field offices in Batangas—Calaca and Lipa—are ready to receive these animals once they are rescued," Calderon said in a statement.

He said the agency had teams from the field offices who were helping rescue animals in the peripheries of the volcano.

The DENR also reminded the public not to keep the wild animals as pets, or slaughter them for food in case of food shortage, as these acts are against the law.

Taal Volcano was declared a protected landscape in 1996

to protect and conserve its "ecological, biological, scientific, educational and recreational features."

In an earlier interview, Calderon said there were more than 50 endemic bird species living in the volcano area.

"We are on the lookout [for them]. Some may have survived, flown out, and looked for another habitat," he said.

Last week, a rufous hornbill (*Buceros hydrocorax*), which was believed to have fled from the Taal area, was turned over to the DENR-BMB. The bird, locally known as "kalaw", was reportedly rescued in Cavite.

While it was found "generally healthy," it remains at the Wildlife Rescue Center in Quezon City for rehabilitation.

"Once the bird recovers, it

can be released in [Taal] once everything is settled, or in the Calabarzon area where their species are widespread," Calderon said.

### Rescue operation

Several groups and individuals, including animal rights advocates, mobilized last week after news spread that many animals, including pets, were left behind on Volcano Island and within the danger zone, following the sudden forced evacuation of thousands living near Taal.

But rescuing the animals—mostly of horses, cattle and carabaos—is taking time because of Taal's unpredictable state and the difficulty of getting large barges to access the lake surrounding the island. INQ



## Govt calls on public to turn over rescued wildlife to authorities

**T**HE Department of Environment and Natural Resources (DENR) has reiterated its appeal to the public to help rescue and protect wildlife species fleeing the wrath of Taal Volcano in Batangas province.

Endangered and endemic animals within the Taal Volcano Protected Landscape (TVPL) have migrated to communities after the country's second-most active volcano started spewing lava and huge plume of ash last week, triggering the mass evacuation of thousands of people from the area.

Environment Undersecretary Benny Antiporda advised the public to immediately turn over to authorities any wildlife species they see or unintentionally capture so these animals can be brought to wildlife rehabilitation centers for proper care.

"We are appealing to the members of the public to rescue and turn over to the DENR any wildlife species within the vicinity of Taal Volcano to ensure their safety," Antiporda said.

Antiporda made the appeal after he received a rescued rufous hornbill on behalf of the DENR from Cavite Educators Lions Club member and Bacoor City resident Flor Locson, who suspected the bird she rescued came from TVPL.

Rufous hornbill (*Buceros hydrocorax*), locally known as *kalaw*, is a large species of hornbill found only in the Philippines. Its species is listed in the Red List of the International Union for Conservation of Nature as vulnerable species, which means the bird is near threatened.

Antiporda, who is also the first vice district governor of Lions Club International District 301-A2, said the government would need everyone's help in saving the wildlife species affected by the volcanic eruption.

"We in the government cannot do this alone," Antiporda pointed out. "We need the help of the Filipino people to save the wildlife species near the Taal Volcano vicinity."

The DENR official also reminded people "not to keep the endangered species as pets or eat them in case of food shortage as it

is against the law."

Environment Assistant Secretary and concurrent Biodiversity Management Bureau (BMB) Director Ricardo Calderon said rescued wildlife may be turned over to the DENR field offices in Batangas, as well as in Cavite province.

"The DENR field offices in Batangas—Calaca and Lipa—are ready to receive these animals once they are rescued," Calderon said.

"We have teams from the field offices on-site that are helping in rescuing the animals in the peripheries of the area," he added.

Apart from wildlife species, Calderon said the BMB also helps in rescuing the companion and domesticated animals that are either turned over to the owners or the local government units in the area.

As to the rescued rufous hornbill, Calderon said that upon initial checkup and assessment, the bird was "generally healthy despite being stressed."

The hornbill is currently at the BMB's Wildlife Rescue Center in Quezon City, where it will be rehabilitated before releasing it to the wild.

"Once the bird recovers, it can be released in the same area [TVPL] once everything is settled or in the Calabarzon area where their species are widespread," Calderon explained.

TVPL was established by virtue of Proclamation 906 in 1996, pursuant to the National Integrated Protected Areas System Act, or NIPAS Act of 1992.

It was established to protect and conserve the ecological, biological, scientific, educational and recreational features of the area and, at the same time, provide sustainable livelihood opportunities to the tenured migrants without necessarily defacing the natural features of the area.

Jonathan L. Mayuga



# ACB head: Animals should be rescued, shelters should be set up

By LYN RESURRECCION

**S**CENES of pets, work and other animals being rescued by their owners, or those which unfortunately died as a result of having been buried in tons of ash spewed by Taal Volcano since it erupted on January 12 are in the news and social-media platforms. This, as more hazardous eruptions are expected that may put the lives of people and animals in more danger.

Such sights break the hearts of pet lovers, children and even ordinary people who are concerned with the animal welfare.

Asean Centre for Biodiversity (ACB) Executive Director Theresa Mundita Lim said affected animals should be "rescued, subjected to proper physical examination and shelters should be set up."

"There should be shelters to be set up for affected animals, as well. As with

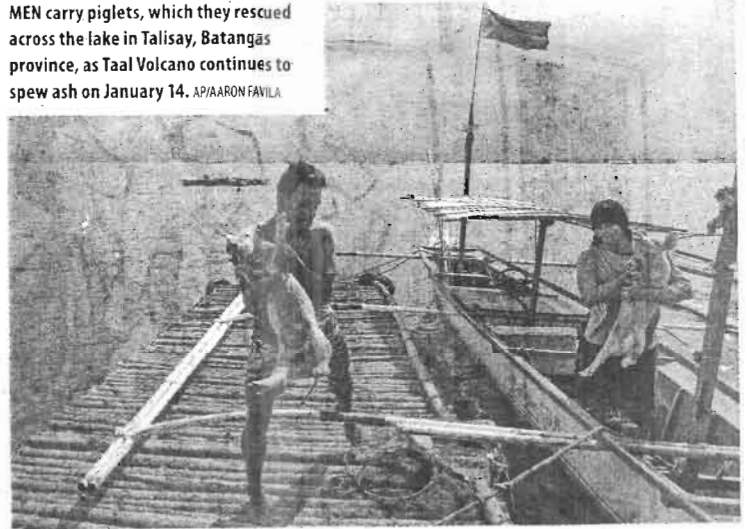
people, they can be affected by silicosis brought about by inhaling 'ash' from Taal, leading to pulmonary diseases," Lim told the BUSINESSMIRROR in an interview through the Messenger on Tuesday.

"They should be rescued, subjected to proper physical examination by qualified veterinarians and rehabilitated," she added.

If they are wild animals, the wildlife expert said, "they may be released later after rehabilitation, in adjacent areas that are part of their natural habitat but less affected by volcanic activity."

Asked on initial assessment on the damage on wildlife, and other plants and animals caused by Taal Volcano's eruption, the former head of Biodiversity Management Bureau of the Department of Environment and Natural Resources said: "I presume the DENR-BMB for wild fauna and the DA-BAI [Department of Agriculture-Bureau of Animal Industry] for domestic animals

MEN carry piglets, which they rescued across the lake in Talisay, Batangas province, as Taal Volcano continues to spew ash on January 14. AP/AARON FAVILA



should already be initiating this by this time, together with animal welfare and wildlife conservation groups, and other

civic organizations concerned."

She added: "We, at ACB, having our headquarters within Calabarzon, are

ready to support activities that will look into the impact of such natural disasters on the biodiversity [including wild species of flora and fauna] in the area, and how these impacts can be mitigated or reduced."

In a news release on Wednesday, Lim commended the recent pronouncements of the DENR and other concerned groups in saving stranded animals and wildlife in affected areas, noting the necessity for the enforcement of an evacuation plan for animals during emergencies.

The ACB executive director said emergencies like this provide the region valuable insights and learnings that will help each Asean member-state develop better measures that take into account biodiversity and nature-based solutions in disaster management.

She added that these lessons would enhance the existing *Asean Disaster Management Reference Handbook* that

serves as an initial source of information for individuals preparing for disaster risk reduction activities or immediate deployment to Asean member-states.

"We hope we can create the optimum conditions to promote natural regeneration and ecosystem restoration to recover lost biodiversity and biodiversity-based livelihoods that will translate to resiliency and adaptability in the country, within the Asean region, and for the people of Asean," she said.

The ACB is an intergovernmental organization created by Asean member-states to facilitate cooperation and coordination among member-states, as well as with regional and international organizations on conserving and sustainably using biodiversity aside from promoting fair and equitable sharing of benefits from utilizing this natural resource.



TITLE:

## DENR to set up offices for eight protected areas in Cagayan Valley

BY JONATHAN L. MAYUGA

[@jonlmayuga](#)

**E**IGHT protected areas in the Cagayan Valley region (Region 2) will soon have its own Protected Area Management Office (PAMO) as mandated by the Republic Act 11038, or the Expanded-National Integrated Protected Areas System Act.

The move aims to boost the protected areas management, and biodiversity conservation and protection in the region.

Regional Executive Director for the Cagayan Valley Region Antonio A. Abawag said the eight PAMOs are for the legislated protected areas, namely: Batanes Protected Landscapes and Seascapes; Palau Island Protected Landscape and Seascape; Peñablanca Protected Landscape and Seascape in Cagayan, Tumauni Watershed Natural Park; Northern Sierra Madre Natural Park in Isabela; Casecnan Protected Landscape, Salinas Natural Monument; and Bangan Hill Natural Park in Nueva Vizcaya. These areas cover almost 800,000 hectares.

The DENR will also hire technical personnel to ensure the day-to-day operation of the office.

In June 2018, President Duterte signed into law RA 11038 which amended RA 7586 otherwise known as the National Integrated Protected Areas System Act of 1992.

The amendatory law mandated the creation of a PAMO to be headed by a permanent protected area superintendent "who shall supervise the day-to-day management, protection and administration of the protected area.

It also orders the provision of a sufficient number of support staff to assist in the management of the area.

During the meeting with DENR key officials in Region 2, Abawag instructed field officials having jurisdiction of the said protected areas to facilitate the construction of office buildings for the operationalization of the PAMO.



# Diseases can wipe out endangered species, tribes

**O**LD Fausto Novelozo exhaled from his worn clay pipe, the sweet scent of wild tobacco enveloping the hut.

"It was sickness that drove us down from the mountains. Measles we got from Tagalog visitors. Half our village of 200 died. The survivors moved here to be closer to civilization. Now we constantly need medicine," he said.

*Punong Tribo* (Tribal Chief) Novelozo of a Mindoro tribe called the Taw'buid for years, but this writer never asked why his people set up Tamisan Uno and Dos, two tribal communities, by the foothills of the Iglit-Baco Natural Park in Mindoro.

In their tongue, Taw'buid means "people from above" because they historically inhabited the island's mountainous interior.

Thanking him for his time, we left the community provisions—coffee, sugar, salt and a small bag of medicine.

When imagining threats to biodiversity, wildfires, logging, poaching and other visual activities are top-of-mind. But sometimes, the smallest beings do the most damage.

Disease is a major killer of isolated tribes. In July of 1837, an American steamboat called the *Saint Peter* infected the Mandan, a North American tribe of about 2000, with smallpox. Three months later, only 23 were left alive.

"Isolated communities are especially vulnerable to diseases from the outside world because immune responses have yet to be developed," said medical anthropologist Dr. Gideon Lasco. "Limited access to health care and fear of hospitals also keeps them from seeking treatment."

The Taw'buid are just one of many groups that the Tamaraw Conservation Program (TCP) works with in their 40-year-old bid to save the tamaraw (*Bubalus mindorensis*), a well-known but critically endangered buffalo found only in the Philippines.

Like native tribes, the tamaraw is highly vulnerable to disease.

## Decimated by rinderpest

ONCE, tamaraw grazed by the thousands. An estimated 10,000 inhabited Mindoro at the turn of the century.

As now, Mindoro then had prime-pastureland—so good that ranchers imported thousands of cattle to the island.

As grazing competition for the lowlands increased, ranchers started herding their cattle up mountains—the same ones occupied by tamaraw.

In the 1930s, an outbreak of rinderpest took place. A deadly virus which kills 90 percent of what it infects, rinderpest laid waste not just to the population of farmed



**TAW'BUID Punong Tribo** (Tribal Chief) Fausto Novelozo, 66, is inside his modest hut in Tamisan Dos, at the foothills of the Mounts Iglit-Baco Natural Park in Occidental Mindoro. Taw'buid is the most numerous of Mindoro's eight ethnolinguistic groups. The son of the previous chief, he lived in Cavite for several years before returning to lead his tribe. An excellent conservation ally, he actively convinces other tribes folk to stop setting up traps for tamaraw. GREGG YAMUNAN/BPIFIN

cattle, but to wild tamaraw, as well.

By 1969, tamaraw numbers were estimated to have dropped under 100, prompting the International Union for the Conservation of Nature (IUCN) to declare the species as critically endangered—just one step above extinction.

Decades of conservation—led by the TCP, Biodiversity Management Bureau of the Department of Environment and Natural Resources, the DENR itself, Mounts Iglit-Baco Natural Park (MIBNP) and a host of allies, including the Biodiversity Finance Initiative (Biofin) of the United Nations Development Programme, Mindoro Biodiversity Conservation Foundation Inc., D'Aboville Foundation, Global Wildlife Conservation, World Wide Fund for Nature, Far Eastern University and Eco Explorations—have helped tamaraw numbers recover to around 600, confined to four isolated areas in Mindoro.

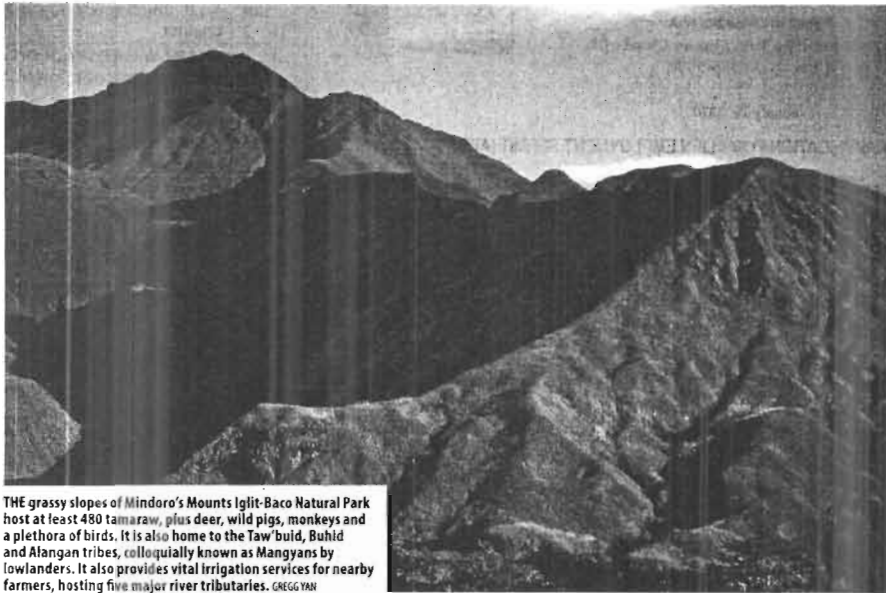
All are vulnerable to disease. "Bovine tuberculosis, rabies, mosep and anthrax can enter Mindoro if we're not careful," explained Dr. Mikko Angelo Reyes, a Mindoro-based veterinarian.

"The key is biosecurity, the prevention of disease through quarantine, inoculation and immunization. We should ensure that at the very least, animals entering the island are checked for sickness. We should also establish and respect buffer zones around protected areas, which are often rung by farms and livestock," Reyes added.

The MIBNP, a former game refuge turned into a protected area, spans 106,655 hectares. It is home to the Philippine brown deer (*Rusa marianna*),



TITLE: **DISEASES CAN WIP OUT...**



THE grassy slopes of Mindoro's Mounts Iglit-Baco Natural Park host at least 480 tamaraw, plus deer, wild pigs, monkeys and a plethora of birds. It is also home to the Taw'buid, Buhid and Alangan tribes, colloquially known as Mangyans by lowlanders. It also provides vital irrigation services for nearby farmers, hosting five major river tributaries. GREGG YAN



TAMARAW (*Bubalus mindorensis*) are endemic forest buffalo on the island of Mindoro in the Philippines. Numbering only about 600, they are considered critically endangered by the IUCN. Adults stand a meter at the shoulder and weigh around 300 kilograms. Lobbyists are pushing for it to become the country's national land animal. GREGG YAN



TAMARAW Conservation Program rangers Ed Bata and Ronnie Estrella inside the Iglit-Baco Natural Park. Underfunded and lacking tenure, they comprise some of the bravest and most dedicated conservation outdoorsmen in the Philippines. GREGG YAN/BIOPHIL

Oliver's warty pig (*Sus oliveri*) plus many other rare and endangered species.

It also hosts 480 of the world's 600 remaining tamaraw.

It is currently surrounded by 3,000 cattle belonging to 30 ranchers.

In case a disease breaks out, one of the original conservation strategies has to keep a separate breeding population in a safe zone, where the Tamaraw Gene Pool Program comes in.

### Breeding tamaraw

IN 1982, the government tried to breed tamaraw, enlisting a team of local and international experts to capture 19 of the feisty buffalo.

Caught in ingenious pit traps, some were airlifted from the adjacent Aruyan-Malati critical habitat to a captive-breeding facility in Rival, inside the Iglit-Baco Natural Park.

However, despite best efforts, it failed to deliver and only one tamaraw, Kalibasib, survived beyond infancy.

Done differently, however,

the plan might work, said Ed Bata, TCP senior ranger and field operations officer.

"The animals we caught were too old to adapt to captivity. We also caught them from Aruyan-Malati instead of the Iglit-Baco Park, where the biggest animals thrive. If we start with younger stock and give the animals a larger area to occupy, they might just breed," Bata explained.

The gene pool zone currently houses only Kalibasib and various animals recovered from wildlife traders.

Bata is part of a team of 28 tamaraw rangers operating in the four remaining areas where tamaraw live. Around 15 are permanently stationed in the Iglit-Baco Park, where they work with MIBNP's separate team of park rangers.

These two ranger groups stand at the forefront of conservation.

### Rangers need help

TOGETHER, TCP and MIBNP rangers work toward off poachers, dismantle spring-loaded *balatik*

and deadly *silo* snare traps while discouraging the park's indigenous Taw'buid and Buhid tribes folk from engaging in slash-and-burn farming.

"It's no easy task since the tribes must feed their growing families," said TCP Head Neil Anthony del Mundo. "As their numbers swell, so do their requirements for space and food, which is why they're setting up more traps, even inside core zones. This is a challenge faced by all protected areas inhabited by people."

The life of a tamaraw ranger is fraught with difficulty—the risk is high, the pay is low.

TCP was created to bolster tamaraw conservation efforts in 1979 through Executive Order 544. However, it was setup as a special project instead of an office, so only its head is a regular employee with benefits.

In 2018, TCP was allotted P4.2 million for operations. In 2019, the budget was slashed to P3.3 million, 75 percent of which went to personnel

salaries, leaving little for operational and field expenses.

Despite the fact that most rangers have put in an average of 10 years' service and stay in the field a month at a time, none of them get benefits despite years of dangerous fieldwork.

"TCP must be institutionalized as an office to secure better pay, permanent tenure and government benefits for its hard-working rangers. Our tamaraw rangers go out against hunters armed with military-grade rifles. Communist rebels pass through the same places they patrol. Poisonous snakes, charging tamaraw, animal traps, dangerously swollen rivers...every time our boys go out on patrol, one foot's already in the grave," adds June Pineda, former TCP head and now the municipal environment and natural resources officer for San Jose, capital of Occidental Mindoro.

To gather much-needed resources for TCP and various protected areas nationwide, Biofin is helping raise funds via bank account donations to Metrobank account number 750-001-5620.

"A little help goes a long way. We ask fellow [Filipinos] to donate just a bit to save the tamaraw and the rangers to keep them alive and kicking," said Biofin Philippines Project Manager Anabelle Plantilla. "Through their efforts and sacrifice, they have managed to grow the tamaraw number from 100 to about 600."

Since its inception in 2012, Biofin has worked with both the public and private sectors to enhance protection for the country's biodiversity hot spots by helping secure funds to implement sound biodiversity programs.

Biofin helped organize the Biocamp, creating a network of allies for tamaraw conservation, while supporting the production of a documentary called "Suwag o Suko" that was launched in October 2019.

Biofin's second phase in the Philippines runs from 2018 to 2022 and includes the implementation of finance solutions to raise resources for the tamaraw and other endangered species through creative crowdfunding from corporations, government units, schools and individuals.

Back in the Iglit-Baco Park, a small man in a loincloth emerges from a field of upland corn.

"Help us. We need medicine," coughs Ben Mitra, a Taw'buid *fufu-ama* (elder), who years ago taught this writer to hunt lizards with a *gadun*, a tribal short-bow. He's aged visibly with his hair-speckled gray.

Our group, already returning to the lowlands, stops to dig out whatever medicine we have left.

"*Fadi-fadi*," he said in Taw'buid, accepting our goods. Thank you.

As we trek back down, we pray they'll be spared from disease and the fate of Old Fausto's now-abandoned forest village. **Gregg Yan**



## TAAL EVACUEES GRANTED ANIMAL-FEEDING TIME

EVACUEES from the danger zone around Taal Volcano will be allowed to return to their homes to feed their pet animals and livestock.

Col. Edwin Quilates, Batangas provin-

cial police chief, said the locked-down areas in the province were given three to four hours to tend to their pets and clear the volcanic ash carpeting their homes.

Quilates said residents of Agoncillo

town could return to their homes from 6 a.m. to 10 a.m. and those of Tanauan City from 5:30 a.m. to 8 a.m. on Sunday.

Last week, authorities locked down Agoncillo, Talisay, Laurel, Balete, San

Nicolas, Alitagtag, Taal, Malvar, Cuenca, Sta. Teresita, Lemery, portions of Marikina

> EvacueesA2



### ■ EVACUEES FROM A1

## TAAL EVACUEES GRANTED

na Kahoy, portions of Lipa City and portions of Tanauan, saying the areas were still too risky because of Taal's activity.

Quilates said evacuees who want to bring out their animals from the danger zone must find temporary shelters for them.

"They cannot transfer the livestock to their evacuation centers because it would take a lot of space. But they can visit the animals and feed them if window hours were provided to them by their respective areas," he said in an interview over DZBB radio.

Quilates added that security in the 14-kilometer danger zone had been intensified and entry was restricted.

He said a nongovernment organization forgot their relief goods in Tanauan, noting that he gave them three hours to retrieve the goods.

The Batangas Provincial Disaster Risk Reduction and Management Office said 33,103 families or 134,376 persons fled their homes.

They were brought to the neighboring towns of Calaca, Lian, Tuy, Balayan, Calatagan, Nasugbu, San Luis, San Pascual, Bauan, Mabini, Mataas na Kahoy,

Malvar, Sto. Tomas, Tanauan City, San Jose, Padre Garcia, Taysan, Ibaan, Rosario, Batangas City, Lipa City and even in neighboring provinces such as Tagaytay City, Amadeo and Alfonso in Cavite, Dolores in Quezon, and Calamba City and Alaminos in Laguna.

Relief continued to pour for the evacuees, according to Defense Secretary Delfin Lorenzana, who is also chairman of the National Disaster Risk Reduction and Management Council.

Countries that provided assistance include South Korea, Taiwan and China.

Lorenzana said most of the aid came from other local government units.

Seoul turned over \$200,000 to the Philippine Red Cross represented by its Chairman Sen. Richard Gordon. China donated relief packages when a Chinese Coast Guard vessel visited Manila last week.

Lorenzana did not say what form of assistance Taiwan provided.

The Department of Environment and Natural Resources

(DENR), meanwhile, reiterated its appeal to the public to help rescue wildlife fleeing the wrath of Taal.

Endangered and endemic animals have fled the Taal Volcano Protected Landscape (TVPL) after the volcano started spewing lava and ash last week.

In a statement over the weekend, DENR Undersecretary Benny Antiporda said the public must immediately turn over to authorities any animals they see or unintentionally.

Antiporda made the appeal after a rufous hornbill was turned over to him by Cavite Educators Lions Club member and Bacoor City resident Flor Locson, who suspected the bird came from TVPL.

The rufous hornbill (*Buceros hydrocorax*), locally known as *kalaw*, is found only in the Philippines. It is on the Red List of the International Union for Conservation of Nature as a vulnerable species, which means the bird is near threatened.

On Sunday the Philippine Institute of Volcanology and Seismology (Phivolcs) noted that there was a lull in Taal Volcano's activity.

"Activity in the main crater in the past 24 hours has been characterized by steady steam emission and infrequent weak explosions that generated white to dirty white ash plumes 500 to 1000 meters tall and dispersed ash southwest of the Main Crater. Sulfur dioxide emission was measured at an average of 1442 tonnes/day," Phivolcs said in its bulletin.

It added that 25 small volcanic earthquakes were detected, lower than the 32 the previous day.

"Such intense seismic activity likely signifies continuous magmatic intrusion beneath the Taal edifice, which may lead to further eruptive activity," the bulletin read.

Despite the downturn in volcanic activities, Phivolcs Volcano Monitoring and Eruption Prediction Division chief Mariton Bornas is not discounting a major explosion.

"The number of volcanic quakes are lower, but again, we are recording volcanic earthquakes — low frequency events — that are signs of magma itself. It is not like other earthquakes that merely break down rocks of magma," Bornas said in a press briefing on Sunday.

**DEMPSEY REYES, EIREENE  
JAIRIEE GOMEZ AND DIVINA  
NOYA JOY DELA CRUZ**





# Taal Volcano's protected area, unique biodiversity in peril

By JONATHAN L. MAYUGA [@jonlmayuga](https://twitter.com/jonlmayuga)

**T**HE eruption since January 12 of Taal Volcano, one of the world's smallest, has caused devastating impacts on surrounding communities, with tons of volcanic ash spewed that have covered entire villages and towns near it.

Tens of thousands of people in Batangas have fled their homes for safety amid the threat of hazardous magmatic eruption, which similar activity in 1754 had changed the landscape of Batangas.

The successive eruptions and spewing of volcanic debris since January 12 has threatened not only people who were caught flat-footed by the sudden turn of events. It also devastated the unique ecosystems and the wildlife that thrives within.

## Unique volcano, unique lake

TAAL Volcano and Taal Lake form a unique landscape described as a lake within a volcano, within a lake.

Situated in Batangas province, Taal Volcano is at the heart of the Taal Lake, the third-largest lake in the Philippines, next to the Laguna de Bay and Lake Lanao.

Taal was identified as Decade Volcano by the International Association of Volcanology and Chemistry of the Earth's Interior for being "worthy of particular study in light of their history of large eruptions and proximity to populated areas."

## Protected area

THE volcano and the lake's surrounding landscape, form the Taal Volcano Protected Landscape (TVPL), a protected area under the National Integrated Protected Areas System (NIPAS) Act, which has a total of 62,292 hectares.

Formerly known as Taal Volcano Island National Park, the popular tourist site approximately 95 kilometers south of Manila, was declared a Protected Landscape under Presidential Proclamation 923 on November 19, 1996.

## A common treasure

TVPL's natural resources are shared by lakeshore barangays

from different towns in Batangas and Tagaytay City in Cavite.

Around the lake can be found fish cages and fish pens where tilapia and bangus are grown by communities.

The lake, being a tourist magnet, also employs fishermen who work as tour guides and offer boat rides to visitors.

As such, the TVPL continues to generate much-needed government revenues, and create jobs and livelihood opportunities for the towns of Talisay, Malvar, Tanauan, Laurel, Agoncillo, Santa Teresita, Cuenca, Alitagtag, Mataas na kahoy, Lipa City, Balete, San Nicolas, Lemery and Taal, all in the province of Batangas; and Tagaytay City in Cavite province.

## Conservation area

IT was classified as "Extremely High Urgent" for biodiversity conservation, based on the results of the National Biodiversity Conservation Priority Setting Project that was jointly undertaken by the Department of Environment and Natural Resources (DENR), through its Biodiversity Management Bureau (BMB), the University of the Philippines Center for Integrative and Development Studies, and Conservation International Philippines.

TVPL is one of the Key Biodiversity Areas (KBA) of the Philippines.

DENR Assistant Secretary Ricardo Calderon, also the concurrent BMB director, said they intend to conduct a rapid assessment of the damage wrought by the eruption as soon as possible.

The lake and its surrounding environment are home to many species of flora and fauna, a number of which are endemic or can be found only in the Philippines.

## Rich biodiversity

BEING a KBA, TVPL is rich in



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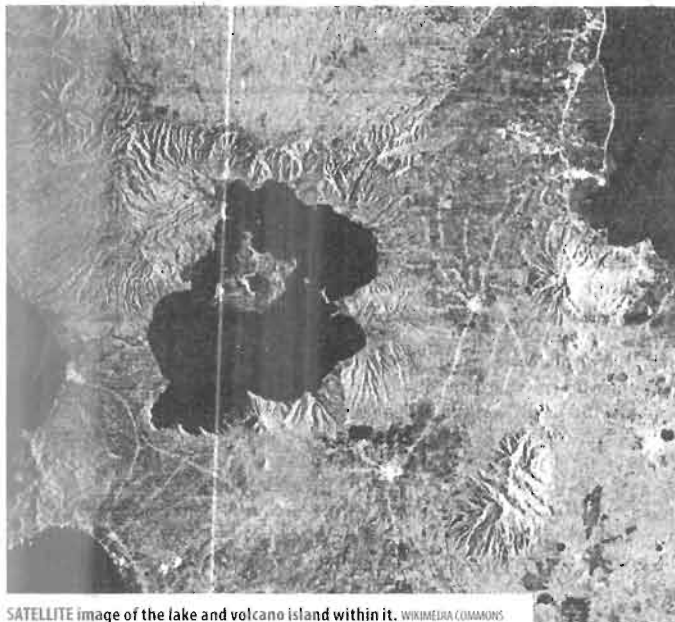
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RESIDENTS walk at their volcanic ash-covered village in Laurel, Batangas province, as Taal Volcano continues to spew ash on January 14. AP/ARON FAURA



SATELLITE image of the lake and volcano island within it. WIKIMEDIA COMMONS

biodiversity. Its Biological Profile, according to the DENR-BMB, states that wild faunal species found in the area consists of white and brown heron, crow and other common bird species.

Monitor lizard, different species of snakes and frogs also dominantly thrive in the area.

Moreover, the lake is home to different kind of fish species.

Common species found in the lake

are *tawilis*, *maliputo*, *tilapia*, *bangus*, *hito*, *dalag*, *biya* and *ayungin*.

The DENR-BMB believes that many floral and faunal species in the area have already perished.

To survive, animals must fly or swim across the lake where they are in danger of being captured by communities.

### Public appeal

DENR Undersecretary Benny D. Au-

tiporda on Thursday appealed to the public not to harm wildlife species fleeing Taal Volcano.

Antiporda made the appeal as he turned over to Calderon a hornbill that was rescued by a member of the Cavite Educators Lions Club. The hornbill is now under the care of the DENR's Wildlife Rescue and Research Center at the Ninoy Aquino Park in Quezon City.

Calderon said field personnel of the DENR are out to secure rescued wildlife but said so far, it appears that only one has, so far, been rescued.

He said it is likely that many species from the island have escaped and sought refuge to nearby habitats, but expressed fear that because of the eruption of the volcano, many could have perished as tons of ash have covered entire ecosystems within the protected area.

### Unique species

*TAWILIS* (*Sardinella tawilis*) is the only freshwater sardine known in the world. The *maliputo* that thrives in the lake, commonly known as the "giant trevally," is also a freshwater fish having adapted to the lake's water condition for centuries since the volcano's 1754 eruption.

These are the most valuable fish in the area that demands massive conservation.

Taal Lake is also home to a venomous sea snake (*Hydrophis semperi*),

the only freshwater sea snake in the country.

### Devastating impact

A FORESTRY expert, Calderon said volcanic eruptions can be very devastating.

What is happening in Taal Volcano's environment, he said, happened during Mount Mayon and Mount Pinatubo eruptions.

Director Ludy Wagan of the DENR's Forest Management Bureau (FMB) said volcanic debris, such as ash and lava, which usually contain sulfur dioxide, have an adverse impact and can affect vast tracts of forestland.

"They can definitely kill trees, shrubs, and grasslands," she said, adding that volcanic debris are minerals that can be toxic to plants and animals, as they are to humans.

### Worse is yet to come

EXPERTS believe the worst is yet to come to Taal-affected areas as the ongoing eruptions may turn violent as warned by volcano experts.

Currently, Taal Volcano is placed under Alert Level 4 but Director Renato Solidum of the Philippine Institute of Volcanology and Seismology maintains that magmatic hazardous eruption can happen anytime.

This means a more devastating impact on people and their surrounding environments, which may compel authorities to declare additional high-risk areas outside the 14-kilometer radius from the main crater of the volcano.

Along with it is the devastation of TVPL's rich biodiversity.

### Mount Pinatubo experience

LIKE what happened in Mount Pinatubo, a dormant volcano for more than 600 years before its eruption in 1991, its entire forest, river, caves and other ecosystems were destroyed as they were buried underneath tons of volcanic debris spewed by the volcano.

"It can completely destroy entire ecosystems and displace wildlife," he said.

As people in high-risk areas near Taal Volcano flee their homes, Calderon said many wildlife escape and seek refuge in nearby habitats.

However, what is worse, Calderon added, is that it would take time for biodiversity to recover, which usually starts with the natural regeneration of forests.

"On Mount Pinatubo, we can see that it took many years before wildlife was able to return and thrive," he said.



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# The Manila Times

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## Miners raising resources for Taal victims

**MANKAYAN, Benguet:** Representatives of small-scale mining groups in this town have sought the assistance of the municipal government to raise resources that will be the town's relief assistance to victims of the Taal Volcano eruption on January 12.

Mayor Frenzel Ayong over the weekend said local small-scale miners are really kind-hearted as had been evidenced by what they did in the past since he assumed office as the town's chief executive.

Previously, the pocket min-

ers assisted in the demolition of a building of the Lepanto National High School that was buried within the compound of Lepanto, a large-scale mining company, and also provided assistance in clearing of debris that buried a portion of a school in a *barangay* (village).

Ayong noted that the spirit of voluntarism and charity of the pocket miners were triggered by images showing the situation of the evacuees and the suffering of children caused by ashfalls in

affected communities in Batangas, Cavite and Rizal.

He called on other sectors interested to provide assistance to directly coordinate with the municipal government of Mankayan.

Ayong cited the small-scale miners for their efforts in raising resources for the Taal evacuees despite a government order temporarily stopping small-scale mining operations in the Cordillera Administrative Region and dislocating them from their jobs.

**DEXTER A SEE**



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GAYA ng inaasahan natin, dumarami na ang mga nagkakasakit sa mga evacuee na nakakalat sa mahigit 300 evacuation center kaugnay ng pagputok ng Bulkang Taal.

Ayon sa Department of Health, nasa 50-60 porsyento ng 2,342 na nagpapakonsulta ang may problema at kahirapan sa paghinga.

Bunsod ito ng mga abo at asupre na ibinubuga ng bulkan araw-araw.

Umaalimbukay rin ang mga abo na nauna nang ibinuga ng bulkan at nakakalat sa mga kalsada at iba pang mga lugar sa pagdaan ng mga sasakyan at pagtama ng mga malalakas na hangin.

Kabilang din sa mga sakit ang hypertension, diarrhea o pagtatae, skin infection o galis, lagnat at pangangati ng mata.

Magkagayunman, ipinahayag ng DOH na nakakalat ang mga tao nito upang tugunan ang problema sa kalusugan ng mga evacuee.

### GAMOT, TAO SAPAT

Ayon sa DOH, samasamang kumikilos ang mga health worker mula sa CALABARZON o Cavite, Laguna, Batangas, Rizal at Quezon para ayudahan ang mga evacuee.

May sapat din umangong suplay ng gamot na inihanda at ginagamit na ng mga health worker at maging sa mga ospital na roon itinatakbo ang mga nakikita nilang dapat na maitakbo sa ospital.

Umaabot na umano sa P9 milyon ang halaga ng supplies at tulong na nalpaabot ng ahen-sya sa mga evacuee.

Napag-alamang nasa 70,000 katao ang mga evacuee na nagmula sa Batangas, Cavite at Laguna.

Ang masasabi lang natin sa mga evacuee, kapag may naramdaman silang mga kakai-ba sa kanilang kalusugan, dapat silang magpapakonsulta kaagad para maagapan ang mga problema.

Mahirap magkasakit ng nakahahawa sa evacuation center at isa ito sa dapat na isipin ng mga may karamdaman.

Basta magtiwala lang sila sa pamahalaan, at sa iba pang mga tumutulong, na hindi sila pababayaang.

### PERMANENT DANGER ZONE

Ang isa sa mga pi-



NI BENNY ANTIPORDA

## EVACUEES NAGKAKASAKIT NA AT REHABILITASYON

nakakritikal na usapin ngayon sa pagputok ng Bulkang Taal ang idedeklarang permanent danger zone.

Sa loob ng permanent danger zone, ganap na ipagbabawal ang pagtatayo ng mga bahay, pabrika at iba pa.

Ganito ang pinaiiral sa lahat ng mga lugar na may bulkan, gaya ng Mayon Volcano sa Albay na may permanent danger zone na 6 kilometro mula sa sentro ng bulkan at 7 kilometro sa southeast na parte nito.

Nauugnay ang permanent danger zone, hindi lang sa inaabot ng mga abo, asupre at lava ng Bulkang Taal kundi maging ang mga inaabot ng mga bitak ng lupa mula sa bulkan.

Anak ng tokwa, may mga bitak ng lupa mula sa bulkan na umaabot sa 14 kilometro patungo sa mga bayan ng Lemery, Agoncillo, Talisay at San Nicolas.

Kung ganito katindi ang mga bitak na maaaring madagdagan pa habang gumagalaw ang ilalim ng mga bayan sa paligid ng bulkan, hindi malayong aabot sa 14 kilometro ang sakop ng permanent danger zone.

### PHIVOLCS, DENR

Matapos madeklara na stop na ang pagputok ng bulkan, tiyak na magpa-partner ang Philippine Institute of Volcanology and Seismology at Department of Environment and Natural Resources, kasama ang mga local government unit sa pag-aaral sa kalagayan ng mga lupain sa paligid ng bulkan.

Dito magmumula ang pagtukoy sa idedeklarang sakop ng permanent danger zones.

Matutulad ba sa sukatan sa Mayon Volcano ang ihahayag na permanent danger zone sa Taal Volcano?

Paano ang mga paligid ng mga napakahabang bitak ng lupa na umaabot nga sa 14 kilometro?

Paano ang sanga ng mga bitak na ito?

Ang sigurado, magkakaroon din ng permanent danger zone sa mga bitak ng lupa.

### MAGTULUNGAN ANG LAHAT

Tiyak na magkakaroon ng rehabilitasyon para sa lahat ng lugar at biktima ng Bulkang Taal.

Kabilang sa mga rehabilitation program ang pagtatayo ng mga housing project para sa mga biktimang ganap na maalis sa kanilang lugar dahil sa permanent danger zone.

Mayroon ding itatayong programa para sa negosyo at iba pang anyo ng hanapbuhay.

Ang isang katanungan ay kung mapayagan ang mga mangingisda na mangisda pa rin sa lawa ng Taal.

Ipagpalagay nang malilinis na kalikasan ang lawa mula sa mga abo, asupre at iba pang kemikal na itinapon sa lawa ng bulkan, papayagan pa bang magtayo ng mga fish cage at mangisda ang mga mangingisda?

Isa pang tanong ang nauukol sa agrikultura na maaaring gawin sa loob ng permanent danger zone.

Papayagan ba ang pagtatanim ng palay, gulay at iba pa sa panaan at paligid ng bulkan na sakop ng permanent danger zone?

Alalahaning paghupa ng bulkan, maaaring dayuhin pa rin ang bulkan at maaaring may pupunta pa nga sa kaldera o bunganga nito.

Nagaganap ito sa Bulkang Pinatubo na inaakyat ng mga turista ang kaldera o bunganga nito at pinapayagan ito ng mga lokal na pamahalaan.

May naliligo pa nga sa bunganga ng bulkan.

Well, kung anoman ang mga mapagpapasyahan sa mga rehabilitation program, ang isang halagang usapin ay ang pagtutulungan ng lahat para makaiwas sa mga disgrasya at maging permanente na rin ang mga ligtas na kalagayan para sa lahat, evacuee man o turista.

Anomang reaksyon o reklamo, maaaring iparating sa 0922840-3333 o i-email sa bantiporda@yahoo.com.



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LOCAL CHAPTER OF TAYO ANG KALIKASAN

**MINDORO TOWN, DENR TO STEP UP EFFORTS VS SINGLE-USE PLASTICS**

**By Madonna T. Virola**  
@mvirolaINQ

CITY OF CALAPAN—Single-use plastics are no longer welcome in the town of San Jose in Occidental Mindoro after its officials signed a memorandum of agreement (MOA) with the Department of Environment and Natural Resources (DENR) Mimaropa (Mindoro, Marinduque, Romblon and Palawan) region to

intensify environment protection efforts and establish the municipality as a local chapter of Tayo Ang Kalikasan (TAK).

**Communities as partners**

In a statement emailed to the Inquirer, the DENR said, "As local chapter of TAK, San Jose shall strengthen through an ordinance it previously issued, waste segregation at source and prohibition of disposable or single-use plastics, such as plastic bags, utensils,

cups, straws and stirrers."

These steps aim to reduce the volume of plastic waste that eventually pollutes portions of the town's treasured bodies of water, the Mangarin Bay and the Pandurucan River.

**Top waste collected**

TAK is the DENR's campaign that engages communities as partners in addressing environmental issues and challenges.

El Nido in Palawan and Puer-

to Galera in Oriental Mindoro were also launched as TAK local chapters to improve solid waste management amid the islands' ongoing rehabilitation.

Data from river and coastal cleanup efforts in March for World Water Day and September (International Coastal Cleanup) last year show that plastics and plastic debris were still among the top waste collected in Mangarin and Pandurucan.

These do not include the

plastic waste in the 24-25 tons of trash generated by the town everyday.

**Duties**

"We are often reminded by Secretary Roy Cimatu that environment protection is not only the duty of the DENR or the LGU (local government unit). It is everybody's responsibility to take care of nature," DENR-Mimaropa Executive Director Henry Adornado said.

After the MOA signing on Jan. 10, close to 130 residents and leaders of villages, partner agencies, the academe and nongovernment organizations joined in the capacity building and stakeholders forum conducted by the municipal government.

"We are with the DENR in conserving the environment. It is part of our duties as mayor, barangay captain or councilor," San Jose Mayor Romulo Festin said. INQ



REGIONS

## Last batch of trash returned to Korea

CAGAYAN DE ORO CITY—Environmental groups on Sunday called on other countries to recycle their waste as the government shipped back more than 5,000 tons of mostly plastic trash to South Korea. Chinkie Peliño-Golle, executive director of Davao City-based Idis, stressed the need to plug loopholes that allow waste traders to dump plastic and electronic waste in Mindanao. —STORY BY JIGGER J. JERUSALEM

# Last batch of imported trash returned to SoKor

Cargo left Tagoloan, Misamis Oriental province, on Sunday for Pyeongtaek City

By Jigger J. Jerusalem  
@InqNational

CAGAYAN DE ORO CITY—Environment groups renewed their call for foreign countries to recycle their own waste as the government shipped back to South Korea the remaining 5,177 metric tons of mostly plastic trash from that country of origin.

Placed in 60 containers, the hazardous cargo was loaded onto an international ship that left the Mindanao Container Terminal support in Tagoloan town, Misamis Oriental province, on Sunday for Pyeongtaek City in South Korea.

### 'Just conclusion'

"The reshipment of the falsely declared waste back to South Korea affirms our nation's resolve to bring this dumping controversy to its just conclusion," said district collector John Simon of the Bureau of Customs Region 10.

"To stop this incident from happening again, I add my voice to the growing clamor to upgrade and strengthen our legal defense against waste dumping, including ratifying the Basel Ban Amendment," Simon added.



I add my voice to the growing clamor to upgrade and strengthen our legal defense against waste dumping

**John Simon**

District Collector, Bureau of Customs Region 10

"This dumping controversy and similar dumping incidents have reinforced the urgency of ratifying the Basel Ban Amendment and revising current regulations that permit waste imports into the country under the guise of recycling," said Chinkie Peliño-Golle, executive director of Davao City-based Interfacing Development Interventions for Sustainability.

"We need to plug the regulatory loopholes that waste traders are taking advantage of, turning our country, particularly Mindanao, into a convenient dumping site for plastic, electronic and other hazardous wastes," Golle added.

"Such wastes should be recycled, treated or disposed of in the country where such wastes were generated, instead of being dumped in poor countries like the Philippines," said Aileen Lucero, EcoWaste Coalition national coordinator.

### Ecological solutions

"While we pursue ecological solutions to our domestic garbage woes, we must tell South Korea and other countries to deal with their own wastes at home and stop exporting them to the Philippines and other Asian countries," Lucero added.

"Korean waste should be managed in Korea and not

dumped in the Philippines or anywhere else. This experience should nudge both countries to promptly ratify the Basel Ban Amendment," said Joe DiGangi of the Senior Science and Technical Advisory of the International Pollutants Elimination Network.

The groups reiterated the need for the national government to ban waste importation from all countries to cover all types of waste including household and plastic waste, as the Basel Ban Amendment is focused mainly on hazardous waste shipments from developed countries to developing ones.

The groups insisted that the ratification of the Basel Ban Amendment and the ban on waste importation would be the best legal protection of the Philippines against illegal waste traffic.

"For the protection of public health, for environmental justice, and for the preservation of the national dignity against the dehumanizing and polluting impacts of global waste trade, we call upon our leaders to ratify the Basel Ban Amendment and to impose a waste import ban without delay," the groups said. INQ



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RETURN TO SENDER Environment activists urge the government to call for a ban on all types of waste importation as the remaining 5,177 metric tons of waste from South Korea are shipped back to the country of origin. —PHOTO COURTESY OF ECOWASTE COALITION



## Better life for Bacoor ISF

The anxiety of informal settlers' families (ISF) affected by the proposed 420-hectare reclamation projects was relieved after Bacoor City Mayor Lani Mercado-Revilla's assurance of an in-city relocation plus employment prioritization during the development.

During the public hearing on the proposed development led by the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) last 9 January, Revilla vowed the affected ISFs and fishermen, living in danger zone along the city's coast, would be relocated in a better place.

Revilla's assurance came in spite of the overwhelming support by Bacoor City residents to the proposed reclamation projects.

"Your city government, and I as your Mayor, truly understand the concerns, fears and uncertainty felt by some of our city's residents, particularly those directly impacted by the changes resulting from this issue," Revilla said.

"I give a firm commitment that we would give them better housing," she stressed.

Her commitment was also in compliance with President Rodrigo Duterte's directive of "no demolition without relocation."

Fortunately for the affected ISF, the city government has committed in-city relocation –meaning they will be resettled within Bacoor City.

"We are readying resettlement sites, here in Bacoor, for the concerned ISF and fishermen. This is one of a few reclamation projects in the country with an in-city relocation component," Revilla said.

According to Revilla, one of the resettlement sites being readied is a property in Molino II that would be called "Ciudad Kaunlaran," where medium-rise buildings will be constructed with basic facilities and livelihood support programs.

### Inclusive progress

Providing in-city relocation is not common in transferring ISF, who, as evidenced by previous incidents, tend to return to their original places after being relocated outside their localities to far provinces due to lack of livelihood.

"We want you to enjoy progress. We want progress for the entire Bacoor and I mean that from the bottom of my heart," Revilla said.

The city government vowed to bring to the resettlement sites the "Institutionalized Alagang Ate Lani" program, which includes various forms of social services, including job fairs and free livelihood skills training.

Among the courses included in the skills training are Beadwork, Beauty Care, Bread and Pastry Production, Cake Decoration, Candle Making, Commercial Baking, Cookery, Dressmaking NCII, Floral Arrangement, Food and Beverage Services, Hairdressing, and Massage Therapy.

Likewise, Revilla said properties in Barangay Alima would be developed into a Fisherman's Village for the resettlement of affected fishermen living along the coastlines of Bacoor, allowing them to continue plying their trade. A wharf with berthing facility will also be constructed for their use.

Revilla said the interest of the affected stakeholders would be protected since they would participate in the planning of the resettlement package under the community-based initiative approach of the National Housing Authority (NHA).

### Overwhelming support

The Bacoor City government is the proponent of the reclamation projects, namely Bacoor Reclamation and Development Project (BRDP), consisting of a total of 320-hectare islands, and the Diamond Reclamation and Development Project (DRDP) consisting of one 100-hectare island via Public-Private Partnership under the PPP Code of Bacoor.

Barangay leaders of the city threw their support behind the city government's move. Last 5 January, the Liga ng mga Barangay (LnB) of Bacoor passed resolution No. 01-series of 2020, expressing support for the proposed reclamation projects in the city.

Among others, the resolution signed by LnB President Reynaldo Palabrica, noted that the project "has a concrete plan for all informal settler families (that) may be affected, like decent housing as relocation site within the city and being priority for employment in all job opportunities which will be created by the project."

The city's youth leaders earlier expressed their solidarity with the city government in pushing for the development projects through a letter dated 11 November 2019, signed by Sangguniang Kabataan (SK) Federation President Mac Raven Espiritu and addressed to DENR Secretary Roy Cimatu.

The SK leaders said the projects would not only boost the city's economy without compromising the environment but also "provide our fellow Bacoorenos who have been legally or illegally settling at the 20 meters easement from the shores of the Manila Bay, within the jurisdiction of the city a better living situation through its relocation program."





#### Manila Bay clean-up boost

Apart from assuring the ISF, the city government also hopes to integrate in the projects a most effective approach to the long-term clean-up of Manila Bay as mandated by a Supreme Court's (SC) mandamus, with its program for relocation and resettlement of ISF living along the 10 coastal barangays.

In 2008, the SC issued a continuing mandamus, directing the DENR and several other government agencies to clean up, rehabilitate, and preserve Manila Bay, and restore and maintain its waters to make them fit for swimming, skin-diving, and other forms of contact recreation.

Specifically, for the DENR, the Court ordered the full implementation of its Operational Plan for the Manila Bay Coastal Strategy, which includes the reduction of illegal settlers, establishments and structures along coastlines and prevent future occupation of these shorelines.

During the project presentation, it was revealed that as part of the establishment of the Fisherman's Wharf along Sinaguelasan coast, the local government would also develop and preserve the city's 40-hectare mangroves plantation that plays an important part in the health of the ecosystem.

The city government also noted that studies conducted on the proposed reclamation projects show they pose no significant adverse impact on the surrounding waters and adjacent land areas.



**Reclamation issue** A resident airs his concern on the proposed reclamation project along Bacoor's coast during a public hearing conducted by Mayor Lani Revilla.



## Bamboo sustainability could be biggest draw; regulations pose a hurdle

THE BAMBOO industry is well-positioned to become an alternative building material with a growing niche because of its sustainability, and very little capital and time needed for farmers who intend to grow the crop, a former agriculture department official said.

"The market is big, so *para sa akin, kailangan lang 'yung produkto natin i-place kung saan mong niche gusto* (the product can fill any niche you want)," former Agriculture undersecretary for policy and planning Segfredo R. Serrano told *BusinessWorld* in an interview.

There are 62 species of bamboo has 62 species, 21 of which are endemic to the Philippines. Bamboo grows three to six inches per day and takes two to three years to reach harvestable height. Bamboo eventually regenerates, eliminating the need to replant. Its main applications include furniture, building materials, and agricultural use in fishpens.

Mr. Serrano said demand for organic materials is also increasing, providing an opportunity for growers. It can substitute for wood.

"There is species of bamboo for virtually every purpose. Construction, composites," Mr. Serrano said, noting that bamboo is underexploited.

Philippine Institute for Development Studies (PIDS) Research Fellow Roehlano M. Briones said bamboo could be an

export product if proper regulation is in place.

"If we can solve the regulation issue, *malaki ang* potential (the potential is large)," he said in a text message.

He cited permits to cut bamboo as a possible hurdle to the sector's growth.

The Department of Environment and Natural Resources (DENR) requires bamboo farmers to obtain a cutting permit under the Revised Forestry Administrative Order No. 11, dated Sept. 14, 1970. Its regional offices issue the permits. Bamboo inside tree plantations and private land covered by title or tax declarations are exempt from having to obtain permits.

The DENR also monitors the transport of bamboo. Shippers need to be able to provide a Certificate of Non-Timber Forest Products Origin (CNFPO) under DENR AO no. 59, issued Sept. 30, 1993, except for those planted inside titled and tax-declared land.

The Philippine Bamboo Industry Council (PBIC) is planning to convert 19,000 hectares of land, with 13,000 hectares located in the Western Visayas, to bamboo plantations this year. The Department of Trade (DTI) will be providing shared service facilities for processing bamboo.

Bamboo production and processing is entitled to tax incentives under the DTI's Strategic Investments Priorities Plan. —  
**Vincent Mariel P. Galang**



## The air we breathe

Never waste a good crisis. Use it to enable change for the better.

It is amusing to see so many people still using face masks a week after Taal's eruption. Metro Manila air quality was back to normal by Monday last week. That's the real reason why we should still use face masks.

Now that we have the people's attention about the health problems due to dirty air, let us move on beyond volcanic ashfall to the more mundane daily dirty air we breathe. Indeed, it was determined that the air in Metro Manila was

### DEMAND AND SUPPLY



**BOO CHANCO**

dirtier the day before the Taal Volcano eruption.

While it is true that air quality in some parts of Mega Manila was deadly at some point after the eruption, the fact remains that our air quality had long been a serious threat to our health. Without the drama of an exploding volcano, we just learned to take all that dirty air as a fact of life in our cities.

Scientists define air pollution as the presence of harmful chemicals in the air we breathe — chemicals with adverse effects on our health. All that bad air

is a result of what we normally do, such as fuel combustion from vehicles, heat and power generation due to oil and coal power plants, smoke from manufacturing factories and mines, waste incineration, etc.

Flipscience.ph point out that harmful chemicals, also known as pollutants, come in various forms. The largest group is called particulate matter (PM), which includes particles that comprise sulphates, nitrates, ammonia, sodium chloride, black carbon, mineral dust. The sizes of these pollutants can be measured in microns. A micron is a millionth of a meter: picture a meter-long thread divided into a million equal parts. That's how small a micron is.

"Particulate matter can be further classified according to their size, either as PM10 (less than 10 microns in diameter)

or PM2.5 (less than 2.5 microns in diameter). These particles can remain suspended in air and eventually be inhaled. When this happens, they pass through the airway and enter the bloodstream and make us sick.

"WHO imposed air quality guidelines to provide thresholds and limits for key air pollutants that may cause health complications. Based on the guidelines, WHO estimates that reducing the amount of particulate matter (PM10) to 20 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) annually would subsequently decrease air pollution-related mortality rates by 15 percent.

"For the smaller and more harmful variant, PM2.5, they imposed a standard of 10  $\mu\text{g}/\text{m}^3$  per annum...

"The Philippines' annual PM2.5 concentration rests at 18.4  $\mu\text{g}/\text{m}^3$ , according to the 2016 WHO report. This value is approximately 80 percent higher than the safe levels indicated by WHO."

The leading contributor to air pollution is vehicle emission. It contributes about 69 percent to Metro Manila's air pollution. I imagine with the worsening traffic situation, the contribution of vehicle emission to our overall air pollution level in Metro Manila has increased.

I remember once waking up to a Viber message from my friend Ed Yap warning me that "at the air monitoring public service project of Makati Rotary at Ayala Avenue corner Parkway, the realtime 24/7 reading 6:45am Wednesday - Poor! PM2.5 reading is 44.9 which is above WHO's 25. Use your face mask!"

Other than vehicles, the growing number of high-rise buildings and infrastructure traps air pollution on the ground instead of dispersing. This makes it deathly important to require property developers to plan for more open spaces so we can all breathe better.

A May 2018 report by the World Health Organization (WHO) indicates that there were around 45.3 deaths per 100,000 individuals due to air pollution. The Philippines ranks third on the highest cases of death due to air pollution, according to the WHO.

This is why Ed made it a project of Makati Rotary to put up an air quality monitoring project when he was the club president. It was launched during the club's 50th anniversary with the signing of a MOA between RCM and IJP.

The agreement provides RCM access to the technical expertise

of UP's Institute of Environmental Science and Meteorology (IESM). The academics are ensuring the sound operation of the system, including data collation, management, interpretation and dissemination, and development of website and mobile app software.

The system is using German made GRIMM EDM365C air and meteorological monitoring units capable of automatically and continuously measuring and recording airborne particulate levels for PM10, PM2.5 and PM 10-2.5. It is equipped with meteorological sensors to measure temperature, humidity, wind speed and direction. The PM2.5 sensors conform to US EPA standards.

The project is providing air readings from three strategically located stations. Two are owned by the club in Makati and Edsa, Project 7 in QC. The third is operated by the Lung Center in QC and its readings are fed into the system under a tie up with the club.

Air quality readings with precautionary health advice may be accessed 24/7 in real time through the project website or mobile app (Airtoday.ph). Bad air quality can be life threatening to people with asthma and other respiratory diseases.

But some of the monitoring stations are now malfunctioning, probably overwhelmed by the pollution being read. Ed said they may have to send back the equipment to Germany.

The equipment still working showed what the state of our air quality since the eruption. The critical period was before midnight of Sunday when PM10 readings reached 75 or 50 percent above WHO guideline. But from midnight till Monday afternoon, both PM 10 and 2.5 ranged from good to moderate.

It is probably because there were considerably less cars on the road last Monday and the prevailing winds blew ash away from Metro Manila.

The way it stands, we may really need those N95 face masks on a daily basis specially if we are mostly on the road battling with traffic. The danger from Taal's dust pollution is very temporary. The danger from our vehicle emissions is there to stay.

Boo Chanco's e-mail address is [bchanco@gmail.com](mailto:bchanco@gmail.com). Follow him on Twitter @boochanco

01-22-20

# New climate risks in the shadow of Taal eruption

The Taal eruption may reflect new risks. With accelerating climate change, more frequent eruptions may increase in the future, while the United States withdrawal from the Paris Agreement will accelerate climate risks in the coming years.

ON January 12, my wife and I were walking around Malate, close to Manila Bay. It was a beautiful, warm and sleepy Sunday afternoon. Little did we know about the turmoil that was bursting only 50 kilometers to the south in the Taal Volcano, which is located on Luzon island in the province of Batangas.

After two strong explosions in the volcanic area, far worse ensued in the evening as a continuous eruption generated a huge 10 to 15-kilometer-high steam-laden tephra column with frequent volcanic lightning that rained wet ashfall as far as Metro Manila.

In addition to the danger zone of almost half a million people, 25 million people live within 100 km of the volcano. The Alert Level 4 remains effective in the region, indicating that "a hazardous explosive eruption is possible within hours to days."

Taal may precipitate new kinds of risks.

## 'Geological' and 'weather-related' events

According to the *Global Climate Risk Index 2020*, long-term climate risk is relatively highest in Puerto Rico, Myanmar, Haiti and the Philippines, which have been identified as the most affected countries in the past two decades. The ranking is based only on weather-related events — storms, floods as well as temperature extremes and mass movements (heat and cold waves etc.).

The *Index* does not include "geological incidents," like earthquakes, volcanic eruptions or tsu-



DAN STEINBOCK

namis, which are not considered "relevant" for the purpose.

Intriguingly, in the past month alone, such geological incidents have hit several countries that top the list of weather-related events. Earthquakes registering a magnitude of 4.3 to 6.4 have shaken Puerto Rico, Myanmar, Pakistan, Nepal and Dominica, while the Philippines has also coped with Taal's eruption.

Countries that are most affected by climate change are quite familiar with geological events as well. Last December, after 15 years of recovery, the catastrophic Aceh tsunami and earthquake, which affected 14 countries and caused 280,000 lives, marked its 15th anniversary. A day after the Taal eruption, Haiti marked the 10th anniversary of the 2010 earthquake, which killed 300,000 people.

Of course, correlation does not mean causation. But what does it mean? While climate skeptics tend to understate the association between geological and weather-related events, climate alarmists overstate the correlation. The emerging scientific view may prove more nuanced, however.

## The forces of climate change — and the geosphere

Recently, the number of those

who do see "some kind" of correlation between climate change and volcanic activity has been on the rise. One of them is Bill McGuire, the accomplished emeritus professor of geophysical and climate hazards at University of California in Los Angeles (UCLA). In 2012, McGuire published *Waking the Giant*. As the subtitle suggests, he argues that a changing climate may "trigger earthquakes, tsunamis and volcanoes."

A warmer atmosphere may promote greater melting of the polar ice caps, thereby raising sea levels and increasing the risk of coastal flooding. Similarly, the thin layer of gases that hosts the weather and fosters global warming may interact with the solid Earth — the geosphere — in a way as to make climate change an even bigger threat.

Although causal links are challenging to verify, an increasing number of scientists share McGuire's views about the mechanics of the correlation between geological and weather-related events. In 2009, Chi-Ching Liu at Taipei's Academia Sinica provided evidence for a link between typhoons barreling across Taiwan and the timing of small earthquakes beneath the island. In their view, storms might act as safety valves, repeatedly short-circuiting the buildup of dangerous levels of strain that otherwise could eventually instigate large, destructive earthquakes.

In a 2017 study on Iceland's eruptions some 5,500 to 4,500 years ago, Graeme Swindles and his team at UK's University of Leeds found that the number of eruptions dropped significantly as the climate cooled and ice expanded. Since it took a long time to grow ice masses, there was a time lag of 600 years between when glaciers advanced and volcanic activity diminished.

Nevertheless, even small changes in ice volume can affect volcanism. And if the temperature is going up fast, it takes less time to melt ice, which may translate to a far shorter time lag.

According to the World Meteorological Association, 2019

was the second-warmest year on record. Since the 1980s, each successive decade has been warmer than any preceding decade since 1850. Climate change is contributing to rising probability of more volcanic activity in areas of the world where glaciers and volcanoes interact.

And as the climate warms faster, eruptions are likely to get bigger.

## US withdrawal from Paris accord signals new risks

Despite rapidly rising climate risks, the struggle against climate change is about to enter a new and a more dangerous phase. In mid-2017, President Trump declared the US would withdraw from the Paris Agreement (PA), an international accord to address climate change over the 21st century.

Last November, the US began the official withdrawal procedure, which would likely take effect on or after Nov. 4, 2020 — interestingly, a day after the 2020 US presidential election.

Most Americans and, according to surveys, 80 percent of young people think the federal government should address climate change; they oppose the impending Trump withdrawal.

By the end of the century, the costs associated with unsustainable development, under high emissions scenarios, are projected in hundreds of billions of dollars per year (as reported by Climate Impacts and Risk Analysis, 2017) and up to 15.7 percent of the gross domestic product (2017 report by Hsiang and colleagues).

In brief, unsustainable climate change has unbearable costs. If the US exit materializes at the end of the ongoing year, global climate risks and associated adverse costs will increase accordingly.

Dr. Dan Steinbock is an internationally recognized strategist of the multipolar world and the founder of Difference Group. He has served at the India, China and America Institute (USA), Shanghai Institutes for International Studies (China) and the EU Center (Singapore). For more, see <https://www.differencegroup.net>

Countries Most Affected by Long-Term Climate Risk	Recent earthquakes/Volcanic Activity	
	Magnitude	Date
1. Puerto Rico	6.4	Jan 7 2020
2. Myanmar	4.3	Jan 14 2020
3. Haiti	3.1	Dec 18 2019
4. Philippines	4.6	Jan 17 2020
5. Pakistan	4.8	Jan 18 2020
6. Vietnam	4.8	Nov 27 2019
7. Bangladesh	4.3	Sep 3 2019
8. Thailand	4.5	Nov 29 2019
9. Nepal	4.2	Jan 12 2020
10. Dominica	3.3	Jan 13 2020

Sources: Long-term climate risk: 1999 to 2018, *Global Climate Risk Index 2020*; Recent earthquakes: Earthquake Report



# 2020 global risks involve the environment – WEF

By **LOUISE MAUREEN SIMEON**

For the first time in history, the world is worried about the environment.

In the latest Global Risk Report of the World Economic Forum (WEF), environmental issues topped the list of global risks in terms of likelihood and impact.

In terms of likelihood, the top five risks are extreme weather, climate action failure, natural disasters, biodiversity loss and man-made environmental disasters.

As for the impact, these included

climate action failure, weapons of mass destruction, biodiversity loss, extreme weather and water crises.

However, WEF also forecasted a year of increased domestic and international divisions as well as economic slowdown.

WEF president Borge Brende said WEF noted with grave concern the consequences of continued environmental degradation, including the record pace of species decline.

“Respondents to our Global Risks Perception Survey are also sounding

the alarm, ranking climate change and related environmental issues as the top five risks in terms of likelihood – the first time in the survey’s history that one category has occupied all five of the top spots,” Brende said.

“But despite the need to be more ambitious when it comes to climate action, the UN has warned that countries have veered off course when it comes to meeting

Turn to B2

## 2020 global... From B1

their commitments under the Paris Agreement on climate change,” he said.

The report noted that climate change is striking harder and more rapidly than many expected.

The last five years are on track to be the warmest on record, natural disasters are becoming more intense and more frequent, and last year witnessed unprecedented extreme weather throughout the world.

“Alarming, global temperatures are on track to increase by at least 3°C towards the end of the century—twice what climate experts have warned is the limit to avoid the most severe economic, social and environmental consequences,” it said.

“The near-term impacts of climate change add up to a planetary emergency that will include loss of life, social and geopolitical tensions and negative economic impacts,” the report said.

Further, WEF emphasized that more and more species are becoming extinct while oceans are getting warmer, stormier and more acidic, impacting the health of sensitive marine ecosystems such as coral reefs.

The Geneva-based organization also warned that crop yields will likely drop in many regions, undermining the ability to double food production by 2050 to meet rising demand. Water scarcity is likewise expected to increase.

“Because agriculture, livestock and deforestation produce nearly a quarter of global emissions, more efficient use of land is critical, it is also one of the best potential carbon sequestration options,” it said.

As a result, countries will face more potential points of contention as climate change reshapes the security of and access to historic common property resources, such as fishing waters.

Latest data showed that worldwide economic stress and damage from natural disasters last year amounted to \$165 billion, and 50 percent of that total was uninsured.

“Countries will also experience losses unequally, with the highest economic costs being felt by large economies, while risk of exposure, death and non-economic costs is higher in smaller, poorer economies,” the report said.

“Central banks increasingly see climate change as a systemic risk to the global capital market and recognize that non-action is not an option,” it said.

For the future of climate change mitigation, WEF noted that 2020 is a critical year.

It said that the year presents the first opportunity for nations to revise their national plans to tackle climate change as set out under the 2015 Paris Climate Agreement, and to close the gap between what they have pledged and what is needed.



## Lopez Group spearheads learning session on climate change for businesses

Amid the increasing global call for sustainability in business, Philippine enterprises may still be faced with challenges on how to transform their companies and concretely attain positive environmental and social impacts in their own respective operations.

In order to help Filipino companies toward attaining these, Lopez-owned First Gen Corp (FGEN) and its pure renewable energy arm, Energy Development Corp (EDC), spearheaded a workshop and seminar titled, "Climate Change and How to Address It Within Your Business" participated in by more than 50 representatives from 26 EDC partner companies and contestable energy

customers.

A highlight of the event was a talk by one of the world's most prominent experts on the environment and sustainability issues, Matthias Gelber, also deemed the "Greenest Person on the Planet" in a global online survey. He obtained a Master of Science degree in Environmental Science at Brunel University in the United Kingdom and co-founded Maleki GmbH, a German company specializing in high-performance, low-carbon footprint construction materials.

Gelber illustrated how it is possible for big scale companies to assess and reduce their own carbon footprints without compromising business perfor-

mance. The participants further engaged in a dialogue on how the private sector can help address climate change through simple but meaningful steps such as utilizing renewable energy and implementing other sustainability measures in everyday operations.

According to Oddy Velarde of Coca-Cola Beverages Philippines, the knowledge and best practices gained in the seminar will help them plan for future energy-related projects of the manufacturing company. "It's good to know that we can contribute to CO2 reduction at zero cost," he said.

"The workshop gave us learnings to reinforce our sustainability road map, to

place more focus on CO2 footprint and climate neutrality, said Knowles Philippines vice president and

managing director Joseph Emmanuel Liwag.

EDC is the Philippines' largest vertically integrated

geothermal developer, delivering 1,457.8 megawatts (MW) of clean and renewable energy to the country.



Representatives from EDC's contestable energy customers discuss climate change and how to address it within their business led by global environmental resources speaker Matthias Gelber.



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# 2019 second hottest year on record — WMO

By PIA LEE-BRAGO

The year 2019 has been the second hottest on record, the United Nations weather agency World Meteorological Organization (WMO) confirmed.

This confirmation was based on the consolidated data from the National Aeronautics and Space Administration Goddard Institute for Space Studies (NASA GISS), National Oceanic and Atmospheric Administration, Copernicus European Centre for Medium-Range Weather Forecasts and Japan Meteorological Agency.

According to the WMO, the average global temperature has risen by about 1.1°C since the pre-industrial era and ocean heat content is at a record level.

“On the current path of carbon dioxide emissions, we are heading towards a temperature increase of 3 to 5 degrees Celsius by the end of century,” said WMO Secretary-General Petteri Taalas.

WMO analysis showed the annual global temperature in 2019 was 1.1°C warmer

than in the period from 1850-1900, or the pre-industrial era.

Only 2016 was hotter, due to a very strong El Niño which causes warming, combined with long-term climate change.

The average temperatures for the past five years and 10 years, respectively, were the highest on record.

Since the 1980s, each decade has been warmer than the previous one: a trend the UN agency expects will continue due to the record level of greenhouse gases in the atmosphere.

WMO added that 2019 and the past decade also were characterized by retreating ice, record sea levels, increasing ocean heat and acidification, and extreme weather, all of which have “major impacts” on human health and the natural environment.

Taalas said the New Year began where 2019 left off.

“Unfortunately, we expect to see much extreme weather throughout 2020 and the coming decades, fuelled by record,” Taalas also said.