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Headline: Existential challenge posed by climate change

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AS entire neighborhoods in the National Capital Region (NCR) were being inundated by flood water, President Rodrigo Duterte issued a strong appeal to developed countries to “lead in deep and drastic cuts in carbon emission. They must act now, or it will be too late,” the President said in his message at the plenary session of the 37th Association of Southeast Asian Nations summit. “Or if I may add,” he said, “it is too late.”

These words of doom are not misplaced. While the recent typhoons that plowed through the country cannot be blamed solely on climate change, the frequency and destructiveness of storms are influenced by climate change.

President Duterte called out the developed countries for being “those most responsible for this existential challenge that we face today.” The Philippines is one of the countries most affected.

It is ironic that countries and corners of the earth that have relatively little — in some cases almost zero — contribution to climate change are faced with climate change-induced challenges to which there seem to be no solution. Reuters, in a Nov. 10, 2020 article, reported about the “shocking” pace of the melting of glaciers in the Qilian Mountains in the Tibetan Plateau in Northwest China. The some 3,000 glaciers in this mountain range store tens of billions of cubic meters of water in solid form, China Daily reports.

The glaciers are the source of water of millions of people and vast fields of agricultural land in a place with a climate otherwise too dry for agricultural production. The water from the Laohugou glacier No. 12 — the largest glacier in the Qilian mountains — and other glaciers in the area “irrigates the Hexi Corridor and was fundamental in the development of oasis cities along the Northern Silk Road,” according to Greenpeace, which adds that the Laohugou glacier retreated by an average of 13.1 meters a year from 2006 to 2018 (July 4, 2018 post).

Laohugou is being closely monitored by researchers. They have noted that “run-off is about double what it was 60 years ago,” leading to increased flooding during spring. There is a fear that once the melting has peaked — expected to happen in about a decade from now — “snow melt would sharply decrease due to the smaller, fewer glaciers,” Shen Yongping of the China Academy of Sciences told Reuters, warning of a possible water crisis. The changes observed here “reflect melting trends in other parts of the Tibetan Plateau, the source of the Yangtze and other great Asian rivers.”

There are no people living in the vicinity of the glaciers, yet they are melting at elevated speed due to higher air temperatures caused by man-made global warming and black carbon. Black carbon is “formed by the incomplete burning of fossil fuels, biofuels and biomass” (Renee Cho, March 22, 2016). Black carbon is harmful to human health and the environment and “is the second largest contributor to climate change after CO₂.”

It “darkens the surface of snow and ice, reducing their albedo (the reflecting power of a surface), warming the snow, and hastening melting,” Cho explains.

If it is hard to imagine that snowfall and glaciers in some remote, uninhabited mountain peak in the Tibetan Plateau could determine the future fate of millions of people and hundreds of thousands of hectares of farm land; it's even harder to understand why we should be concerned about Greenland's ice cap.

Sure, Greenland (population of about 56,000) was never more mysterious than when Smilla Jaspersen pursued justice across a frozen sea off Greenland's West Coast in Peter Høeg's *Miss Smilla's Sense of Snow*. The novel was published in 1992. This was before global warming had started to impact on Greenland's ice sheet. This ice sheet's "relatively stable behavior collapsed in the mid-1990s, and the decades since have been marked by a rapid and accelerating increase in ice loss," Twila Moon and colleagues conclude in "Rapid Reconfiguration of the Greenland Ice Sheet Coastal Margin" (Oct. 27, 2020).

The authors remind us that this "ice sheet mass loss influences sea level in all coastal areas around the world." Coastal and low-lying communities far away from Greenland will experience their own "reconfiguration" as sea levels rise, the result of this rapid melting, just as communities that are relying on glaciers as source of water are facing future existential challenges, to borrow President Duterte's term.

Is it too late, as the President so ominously declared? After the inundation of areas around the NCR, almost the entire province of Cagayan Valley got flooded. Catanduanes was devastated a few days prior by Typhoon "Rolly." Thousands of homes and billions of pesos worth of infrastructure and agriculture have been destroyed across Luzon within a few days. This is the new normal, a real and not fictional existential challenge.