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A coal-burning power plant releases huge amounts of carbon dioxide into the atmosphere in the city of Baotou, in China's Inner Mongolia Autonomous Region. Scientists at University of California, Irvine, and Princeton University estimate that existing power plants around the world will spew out more than 300 billion more tons of carbon dioxide over their lifetimes. REUTERS/WWW.NATUREWORLDNEWS.COM

A coal-burning power plant releases huge amounts of carbon dioxide into the atmosphere in the city of Baotou, in China's Inner Mongolia Autonomous Region. Scientists at University of California, Irvine, and Princeton University estimate that existing power plants around the world will spew out more than 300 billion more tons of carbon dioxide over their lifetimes. REUTERS/WWW.NATUREWORLDNEWS.COM

French President François Hollande's state visit a few days ago to the Philippines—one of the countries most vulnerable to climate change will have a strong historic gesture to environmentalists and a world traumatized by devastating climate impact.

As host to this year's United Nations Conference of Parties (COP 21), France is determined to bring about a binding and fair global climate agreement in order to limit global warming to 2 degrees Celsius over pre-Industrial Revolution levels. His visit to this typhoon-ravaged country is thus a testament to his determination.

Hollande's commitment was recently stressed when Nicolas Hulot, France's special envoy for the protection of the planet, arrived in Manila to finalize state visit arrangements. Hollande's explicit goal: France would argue for an ambitious target of a 40-percent reduction in greenhouse gases by 2030 and of 60 percent by 2040 (from 1990 levels).

That target was the main question that hung over negotiations in Lima, Peru, last December at COP 20: How can countries reduce emissions enough to collectively limit global temperature to avoid the worst impact of climate change?

Paris conference

The response, the result of UN efforts over the last 20 years, is forthcoming this year in Paris.

For the Philippines particularly, the response is crucially important. Our country must annually cope with intensifying typhoons, storm surges, extreme rainfalls and droughts that often trigger other calamities, like landslides and large-scale agricultural destruction.

Unfortunately, our vulnerability does not stop there. It is immensely complicated by our burgeoning population, growing at an annual rate of 1.90 percent. Of 105 million Filipinos today, some 60 percent live in storm-wracked coastal regions. And a swelling population has caused a steady migration to overcrowded cities or hinterlands, creating more waste and pollution as well as watershed destruction and deforestation.

The country's food security is also being undermined. According to the 2013 World Food Insecurity Report of the Food and Agriculture Organization of the United Nations, 15.6 million Filipinos were undernourished from 2011 to 2013.

From 2010-2012, the Philippines had the fifth highest food inadequacy at 54 percent, behind Cambodia (27.1 percent), Myanmar (29.5), Laos (38.3) and Timor Leste (46.1).

There is, to be sure, a global decline in food security. Oceans absorb 24 million tons of greenhouse gas emissions annually, degrading marine ecosystems and depleting global fish stocks. An estimated 85 percent of global fish stocks are overexploited, depleted, fully exploited or in recovery from exploitation.

Biodiversity loss

Biodiversity loss is also quickly increasing. The world is losing a thousand species each year. By midcentury, as many as 30 percent, even 50 percent, of all species will likely be heading toward extinction.

The wholesale destruction of our natural habitats in land and water has gone on daily through the last 150 years, with the inexorable and often invisible, rapid process of ecological decay resulting from excessive carbon accumulation.

As arable lands diminish, as soil degradation spreads and as extreme weather becomes more recurrent, the Filipino's food security diminishes. Filipinos therefore have a significant if not overwhelming stake in the outcome of COP 21.

Comprehensive agreement

What we can expect—with France, the United States and China leading the charge—is a comprehensive climate agreement based on the Durban Platform formulated in 2011. That platform essentially enhanced

—"as a matter of urgency"

—global action for mitigation, adaptation, finance, technology development and transfer, support and capacity-building, and transparency of action.

Does this mean that the coming Paris summit is practically a done deal? Hardly. The road to Paris remains an extremely rocky one and the outcome of COP 21 hangs in the balance.

The road has been partly paved with the sea-change move of China and the United States, the two largest polluters, announcing mutual plans to reduce their emissions. Though the announcement has catalyzed the Lima negotiations and brightened the prospect of success at Paris, the US-Sino commitments are nonbinding and not far-reaching enough to bring emission levels down to a safe level.

The United States promised only a reduction of 28 percent by 2025 while China agreed to slow its CO2 emissions around 2030 and then increase the share of nonfossil fuels in its energy portfolio to "around" 20 percent by 2030.

'Business as usual' bias

But major barriers—political, economic and social—lie ahead. Let me just cite the obvious. One is that, as both atmospheric carbon dioxide (CO2) and climate change are accelerating, nations cling to a “business as usual” (BAU) bias.

Last year, the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) raised the threat of climate change to an entirely new level. Among its most troubling conclusions: Atmospheric concentrations of CO2, methane and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years.

Citing the effects in real time, the report pointed out melting sea ice and thawing permafrost in the Arctic, dying coral reefs, heat waves, weather anomalies and megadisasters.

These extreme weather events—killer heat waves in Europe, wildfires in Australia, deadly floods in the Indian subcontinent and supertyphoons in Asia—take a disproportionate toll on the poorest communities and poorest countries in the world.

Global emissions in 2014 rose to some 36.7 billion tons. Global carbon emissions estimated 91 percent of that came from fossil fuels and cement production, with 9 percent from land-use change and loss of carbon stores. CO2 emissions came primarily from coal and oil-operated electricity generation, the largest single source, and the use of fossil fuels to transport people and goods.

Gross Philippine carbon emissions in 2010 was 0.24 percent of the global total. For comparison, neighboring countries registered 0.64 percent for Malaysia, 0.04 percent for Singapore, 0.88 percent for Thailand and 0.45 percent for Vietnam.

The largest polluters, accounting for 65 to 70 percent of emissions worldwide in 2014 were China (23.43 percent), United States (14.69), India (5.7), Russia (4.8), Brazil (4.17), Japan (3.61), Indonesia (2.31), Germany (2.23), Korea (1.75), Canada (1.57) and Iran (1.57).

Addiction to coal

A second barrier is the world’s addiction to “cheap” coal and fossil fuels. Coal’s low pricing is an illusion since health risks, widespread respiratory ailments and damage caused by pollution to the environment are not factored in its price.

This illusion continues to be embraced by many of our energy policymakers and industrial leaders, the majority of whom operate under BAU bias. Continuing construction of coal- and bunker oil-fired power plants is evidence that our policymakers are still deeply enamored of fossil fuels in spite of scientific findings, including those by Germanwatch Climate Risk Index, that the Philippines is taking the worst brunt of a climate going haywire.

A third barrier reinforces that illusion. The International Energy Agency estimates that there are some $400 billion in annual subsidies devoted to fossil fuels. This is a staggering amount of subsidies, distorting not only the market but erecting a virtual roadblock that discourages the move to renewable energy.

Perhaps, the largest barrier is the prospect of adaptation at an international level. Developing countries, laying the crisis of global warming at the foot of the industrial nations, are raising financial issues. Should wealthier countries fund poorer countries? This is a question which undermined the Kyoto protocol and generated considerable criticism over the last 20 years.

Currently, the European Union (EU) is convinced that “If these financial answers do not emerge, there will be no agreement in Paris.” It is also this EU sentiment that is helping to drive intense French maneuvers for COP 21 to succeed.

Alarming trajectory

The alarming trajectory to a warming of 3 degrees Celsius to 5 degrees Celsius, emphasized by the last IPCC report, has driven the major powers to facilitate consensus and to allow a unanimous adoption of a legally binding agreement to achieve the 2 degrees Celsius cap on global warming at this year's Paris summit.

The holistic approach toward this cap begins with intended nationally determined contributions (INDCs). These quantify economy-wide emissions targets for 2020.

Hence, developing countries like the Philippines are voluntarily taking nationally appropriate mitigation actions (Namas) that integrate social, economic and environmental priorities into their climate change efforts. Namas activities range from local actions to sweeping national policies made possible through international financial, technology and capacity-building support.

Next, the Philippines must initiate or intensify domestic preparations for our INDCs. These contributions should be in line with our national development objectives and, at the same time, must clearly help reduce carbon emissions below business as usual by 2020.

Determining our INDCs, which should be communicated to the United Nations Framework Convention on Climate Change (UNFCCC) by the first quarter of 2015 if possible, will require extensive cooperation and labor between key government agencies, the private sector, and our scientific and academic community. The work will include planning processes, assumptions and methodological approaches, quantifiable information with a given reference point, implementation time frames for scope and coverage, estimating and accounting for anthropogenic greenhouse gas emissions.

All this must be marshaled to show that Philippine INDCs are fair, equitable and ambitious enough—in light of our national circumstances—and how these contribute toward achieving the objective of the UNFCCC.

While climate mitigation and adaptation efforts are emerging in various places around the world, the extent of these efforts are insufficient to avoid significant potential water, food and energy insecurity as well political instability.

Proposed PH pledge post-2020

While we maintain a policy commitment to a strong increase of renewable and low carbon energy, as manifested by a range of Department of Energy measures bolstering our renewable-energy capacity, implementation is tilted toward coal and fossil fuels.

Surprisingly, however, there is the possibility that our expanding and targeted renewable-energy capacity may enable the Philippines to reach an emissions level of 13.2 GtCO2e (global total emissions) in 2020 and 14.8-15.1 GtCO2e in 2030. This means the Philippines may be able to meet its 2020 pledge.

Our pledge should include reforestation targets. While many countries focus their decarbonization plans on energy-related emissions, high-emission intensity could also result from emissions from other sectors. For example, with emissions from deforestation and land-use change taken into account, Indonesia is the most intensive emitter in the region.

In our calculations, we should note that the Philippine emissions more than doubled between 1990 and 2014. Absolute emissions also steeply increased in the early 1990s when economic growth

continued at a faster pace after the downfall of the Marcos regime.

The Philippines needs a far stronger Green Growth Strategy, a comprehensive policy package targeting all policy areas, including climate change. To meet emissions cut under our INDCs, we also need an Energy Development Strategy Action Plan that will reasonably quantify and control the total coal and fossil fuel consumption starting 2020.

3 elements

The pledge and post-2020 contribution of the Philippines should consist of three elements:

Overall reduction of CO2 emissions per unit of gross domestic product (GDP) by 30-35 percent by 2020 compared with the 2005 level.

Increase the share of nonfossil fuels in primary energy consumption to around 65 percent by 2020.

Increase reforestation coverage by at least two million hectares by 2020 from the 2005 levels.

This means we should develop definitive policies and identify targets to reduce energy consumption both in our macroeconomic plans and structural reforms. The targets should include specific sectors—power generation, air and land transportation, industrial and manufacturing, construction and buildings, agriculture and reforestation.

As a corollary, we should set new and increasingly higher efficiency standards for appliances, buildings and cars. In air-pollution control plans, we should also set targets in banning construction of new coal-fired power plants in order to decrease air pollution, phasing out existing fossil-fuel operated plants and limiting the use of such plants.

The proposed Philippine 2020 pledge will have some large uncertainties associated with its quantification. In general, the resulting emissions level of the intensity pledge depends critically on our country's future GDP growth. We should be careful, therefore, not to include nonenergy-related emissions, which are highly uncertain, in our pledge. The results of COP 21 will be crucial over the next 15 years.

From the well-studied data of periodic IPCC reports—if the international community goes on with its business as usual bias—by 2050 global temperature will reach the 2 degrees Celsius and Earth will be on its way to irreversible catastrophe.

Shift in thinking

Rapid carbon cuts are the only way to alter this trajectory. It is time, therefore, to start a sweeping shift in Philippine public and private thinking.

Certainly, our country is not significant emitter. But we too are bound by the overarching responsibility to protect our children and a future world from environmental harm and devastation.

"We have the technology to transition to a low-carbon economy and the pathways along which we can move toward that goal," IPCC's Rajendra Pachauri reminds world leaders. "We can make that transition without imposing an unacceptable burden on the global economy."

(Heherson T. Alvarez, a commissioner of the Climate Change Commission, was a member of the Philippine delegation to COP 20 in Lima, Peru. Currently chair of the Advisory Board of the Climate Institute based in Washington DC, he convened the First Asia-Pacific Conference on Climate Change in Manila in February 1995.)