Climate Change, El Niño, and the Resilience Challenge

Keynote Address of Usec. Emmanuel M. de Guzman
Commissioner, Climate Change Commission

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Climate change and trends

Throughout this week, the French Embassy in Manila, supported by the Philippine Climate Change Commission, is hosting a series of forums, film showings, exhibits, and cultural events to raise public awareness on climate change and the coming world conference in Paris on the issue, called "COP21: The Road to Paris Starts in Manila." To appreciate more why climate change is the defining issue of our time, you may wish to participate in any of the event's activities taking place in Metro Manila until Sunday.

As you may be aware of, the 21st Conference of Parties or COP21 will gather heads of states and government representatives in France this December in a crucial attempt to come up with a legally binding agreement for reducing greenhouse gas emissions to limit the global temperature rise to 2 degrees Celsius above pre-industrial levels. This attempt must succeed if we truly care for our common home, planet Earth, and for all of humanity.

It is unequivocal: our climate system is warming, changing unprecedentedly over decades and to millennia. Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. The atmosphere and ocean have warmed up, the amounts of snow and ice have diminished, and sea level has risen. Human influence on the changing climate is crystal clear, as recent anthropogenic emissions of greenhouse gases since pre-industrial era are the highest in history. [1]

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[1] IPCC 5AR: Anthropogenic greenhouse gas (GHG) emissions since the pre-industrial era have driven large increases in the atmospheric concentrations of carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) (Figure SPM.1c). Between 1750 and 2011, cumulative anthropogenic CO_2 emissions to the atmosphere were 2040 ± 310 $GtCO_2$. About 40% of these emissions have remained in the atmosphere (880 ± 35 $GtCO_2$); the rest was removed from the atmosphere and stored on land (in plants and soils) and in the ocean. The ocean has absorbed about 30% of the emitted anthropogenic CO_2, causing ocean acidification. About half of the anthropogenic CO_2 emissions between 1750 and 2011 have occurred in the last 40 years (*high confidence*). Total anthropogenic GHG emissions have continued to increase over 1970 to 2010 with larger absolute increases between 2000 and 2010, despite a growing number of climate change mitigation policies. Anthropogenic GHG emissions in 2010 have reached 49 ± 4.5 $GtCO_2$-eq/yr [3]. Emissions of CO_2 from fossil fuel combustion and industrial processes contributed about 78% of the total GHG emissions increase from 1970 to 2010, with a similar percentage contribution for the increase during the period 2000 to 2010 (*high confidence*) (Figure SPM.2). Globally, economic and population growth continued to be the most important drivers of increases in CO_2 emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to the previous three decades, while the contribution of economic growth has risen sharply. Increased use of coal has reversed the long-standing trend of gradual decarbonization (i.e., reducing the carbon intensity of energy) of the world's energy supply (*high confidence*).

In recent decades, the changing climate marked by a decrease in cold temperature and an increase in warm temperature extremes, an increase in high sea level rise and an increase in heavy and severe rainfalls, has caused enormous damage and losses to the natural environment and human society on all continents and across the oceans.

Over the past decade, disasters from natural hazards have exacted a heavy toll. Globally, over 700 000 people lost their lives, over 1.8 million were injured, and more than 24 million were made homeless as a result of recorded disasters.[2] Overall, almost 1.7 billion people were affected by disasters in various ways. The total economic loss was more than US$ 1.4 trillion. In addition, between 2008 and 2012, 144 million were displaced by disasters.

Events of hydrometeorological origin trigger the large majority of disasters. Between 2005 and 2014 alone, 83 per cent of recorded disasters, 39 per cent of recorded deaths, and 95 per cent of the recorded total affected population were linked to climate, weather and water-related hazards, such as tropical cyclones, storms, floods, droughts, heat waves, cold waves, and wildfires.

Yet, with the world having a business-as-usual attitude, the worst is yet to come.

Global mean temperatures across land and ocean surfaces continued to set new record high since 2011, consistent with rising levels of greenhouse gases in the atmosphere. The year 2014 was nominally the warmest on record, with global mean temperatures 0.61 °C above the 1961-1990 reference period average. But the year 2015 is continuing on a similar track, with temperatures for the period January to July at 0.70 °C above the long-term average. And the month of August proved to be the warmest on record, .74°C above the average for the 1961-1990, and 0.88°C above the 20th century average. This was the sixth month in 2015 that has broken its monthly temperature record (February, March, May, June, July, and August). The average temperature across global land and ocean surfaces from January through August was 0.72°C above the 1961-1990 average, and 0.84°C above the 20th century average. This was the highest for January-August in the 1880-2015 record, according to NOAA.

Alarmingly, Artic ice has dwindled further into its fourth lowest level on record. The National Snow and Ice Data Center (NSIDC) has issued a preliminary announcement that Arctic sea ice reached its minimum for 2015 on September 11, and this was lowest in the satellite record, 4.41 million square kilometers. Sea ice extent ranked behind 2012 (lowest), 2007 (second lowest), and 2011 (third lowest). Meanwhile, in the Antarctic, sea ice extent is average, in contrast to recent years when Antarctic winter extents reached record high levels.

Response to climate change must be a collective action at the national and global scales, because most GHGs accumulate over time and mix globally, and emissions by any individual, community, company or country affect others. Effective mitigation will not be achieved if individual emitters advance their own interests independently. Cooperative responses, including international cooperation, are therefore required to effectively mitigate GHG emissions and address other climate change issues.

[2] Disasters recorded in EM-DAT between 2005 and 2014

Climate change impact on the PHL

For the country, current climate projections has shown a number of change for 2035 and 2065. There have been observations of an increase in days when temperature is greater than 35 degrees celsius, a decrease in the number of dry days, and an increase in extreme rainfall in the country. There has also been an observable trend of increase in higher annual average temperature if global emissions do not decrease in the upcoming years. These recent observations have never been seen in the past 140 years. Worse, our current climate is witnessing as series of extreme events like Typhoon Haiyan or Yolanda, impacting adversely on the lives, health and well-being of Filipino families and communities, as well as our environment and economy. The continued trend of a warming world certainly augurs ill for the socio-economic future of the country.

Strong El Niño is present and further strengthens

El Nino is a phenomenon causing unusually warm ocean surface temperatures increasing by up to 4 degrees celsius in the central and eastern equatorial pacific, which the country periodically experience. El Niños occur every two to seven years in varying intensity. Climate change, based on studies, could double the frequency of extreme El Nino events. Eastern equatorial pacific warms faster than the surrounding regions with the influence of greenhouse warming making it easier to maximize sea surface temperatures.

According to PAGASA, the ongoing El Niño may prove to be among the four strongest since 1950 and even surpass that experienced in 1997-98. It is also predicted that the current El Niño may further strengthen and will likely persist until the second quarter of 2016.

The adverse impacts of El Nino include below normal rainfall that could lead to dry spell and drought in most parts of the country until the first quarter of 2016. Warmer than normal air temperatures are also likely to be felt. As of September 30, drought likely prevails in Isabela, Quezon and Camarines Norte in Luzon, while dry condition to dry spell likely prevails in the provinces of Tarlac and Cavite in Luzon; Northern and Western Samar in the Visayas; and Davao del Sur, Davao Oriental, North Cotabato, and Sarangani in Mindanao. Consensus of climate models show that the recently occurring 2015-2016 El Nino event is potentially

El Nino impacts on the country's natural resources and economic sectors, including agriculture and fisheries, water, forestry, health, and tourism. A diminishing water supply leads to water shortage and possible rationing. It could also worsen coral bleeching and affect our fisheries and tourism sectors.

In the 1997-98 El Nino crisis, our GDP growth rate declined in the second quarter of 1998 to 1.2% compared to 5.6% in the previous year, a record low since 1992.

Todays strong El Nino is expected to drag the country's agriculture output by as much as 22%, consequently inflating food prices and rendering farmers jobless. These could ultimately dampen domestic consumption, the primary growth engine of the Philippine economy.

In 1997-1998, it triggered 70 pockets of forest fires in Palawan and also caused malaria and dengue outbreaks at its outset.

Government Action

Recently, in response to the current El Nino, the El Nino Task Force created in 1997 was revived to lead efforts to mitigate the impacts of climate change, including monitoring and developing interventions. NEDA is now spearheading the task force and has already crafted a Roadmap to Address the Impact of El Nino or RAIN. It includes crop and/or work substitution programs, the introduction of the Conditional Cash Transfer Program and programs that could help the affected agriculture-dependent households who do not have other sources. They are also building irrigation canals for better irrigation systems when the rain comes.

In addition, PAGASA has also been closely monitoring the oceanic temperatures through the El Nino Watch and has been posting new information on their website every month. Other measures that the government has undertaken to mitigate the effects of El Nino are cloud seeding to lower temperatures and the creation of the Food Security Council consisting of various government agencies, including the Bangko Sentral, NFA, PAGASA.

Challenge for Resilience

Climate change is a threat to sustainable development. Nonetheless, there are many opportunities to link mitigation, adaptation and the pursuit of other societal objectives through integrated responses. Successful implementation relies on relevant tools, suitable governance structures and enhanced capacity to respond.

Adaptation can reduce the risks of climate change impacts, but there are limits to its effectiveness, especially with greater magnitudes and rates of climate change. Taking a longer-term perspective, in the context of sustainable development, increases the likelihood that more immediate adaptation actions will also enhance future options and preparedness.

Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales and can be enhanced through integrated responses that link adaptation and mitigation with other societal objectives.

The international community this year has adopted a comprehensive strategy for reducing disaster risk and building resilience towards achieving sustainable development. Last March in Japan, 178 countries have adopted the Sendai Framework for Disaster Risk Reduction. Recently in New York, the global community adopted the new Sustainable Development Goals that succeeds the Millenium Development Goals have been adopted. These are beackons of hope. The challenge before us is to implement these new frameworks in a way the delivers their desired benefits to the local communities.

The private sector plays an important role in the processes for adaptation and mitigation. It can work hand-in-hand with the public sector in financing mitigation and both benefit from cooperation.

The government has been cooperating with the private sector in promoting climate resilient investments. We have been involving them in multi-stakeholder dialogues to promote the mainstreaming of disaster risk reduction, climate change adaptation and mitigation. The private business sector should see beyond profit and opt for resilience building. Disaster risk reduction and business continuity planning are key to resilient investment and sustainable development.

Since disasters can strike at any time, businesses are encouraged to have a Business Continuity Plan. A BCP is an outline to help businesses recover and continue operations after a disaster. According to an APEC study of the Great East Japan Earthquake earthquake and Thailand floods in 2011, well-prepared businesses play a key role in reducing national and regional economic impacts of the disasters.

'The time has come to redefine development and change the course of the world from irreversible self-destruction. Climate Change is a problem which can no longer be left to a future generation,' this messsage from Pope Francis conveys how vital our current role is in addressing the problem of *climate change*. We are challenged to do our part in mitigation, adaptation and resilience building. We must do what we can in the earliest possible time, do not put off until tomorrow, what can be done right now.

The COP 21 in Paris this December is a critical juncture in history. It is an opportunity to seize climate change and arrest its detrimental impacts on human society. It is the moment of truth and a chance to say that indeed there is hope for a better and brighter future for us, for our children, and for our children's children.

Thank you.