Typhoon Yolanda/Haiyan and Climate Justice

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ABSTRACT

The extreme weather events that the world is experiencing are consistent with the effects of anthropogenic climate change. The western North Pacific is the area of the world with the most intense tropical cyclones. Increased sea surface temperatures directly contribute to the wind speed of storms. The 2013 Typhoon Yolanda/Haiyan was the strongest tropical cyclone in recorded history to make landfall—causing more than 6000 deaths in the Philippines, mostly from storm surge. This event represents a climate injustice. On one hand, disaster prevention and preparedness were inadequate for impoverished populations in the Philippines who lived in poorly constructed housing. While the international community assisted with the response, recovery was hampered by inadequate and inequitable investment. On the other hand, climate change has been driven by the carbon emissions of industrialized states. Those who call for climate justice argue for more robust measures to control carbon emissions responsible for climate change and worsening global health security. As global citizens and as health professionals, we examine the implications for all of us as moral actors. (*Disaster Med Public Health Preparedness.* 2014;8:432-435)

Key Words: climate change, tropical storm, vulnerable populations, communication

WHAT IS CLIMATE JUSTICE?

Those who suffer from climate change are not responsible for producing it. The Climate Change Vulnerability Index identifies the 10 nation-states most vulnerable to climate change as Bangladesh, Guinea-Bissau, Sierra Leone, Haiti, South Sudan, Nigeria, the Democratic Republic of the Congo, Cambodia, the Philippines, and Ethiopia.[1] Ten others have produced more than 70% of the total carbon dioxide (CO_2) responsible for climate change: in descending order, they are the United States, Russia, China, Germany, the United Kingdom, Japan, India, France, Canada, and Poland. The United States alone has produced more than 25% of the total.[2] While China recently surpassed the United States as the largest emitter of CO_2,[3] the per capita emissions of Americans continue to be 2.8 times that of the Chinese.[4]

In addition, within nation-states, the poor are more vulnerable to the adverse effects of climate change. Climate justice is the "vision to dissolve and alleviate the unequal burdens created by climate change."[5] Of necessity, climate justice must take place at all levels of social organization: "personal, community, national, regional, global, and planetary."[6] Climate justice places the onus of responsibility on those who live and participate in energy-intensive economies and benefit from their outputs. While social movements may foster the cultural, social, political, and economic changes needed, enforcement of climate justice requires a stronger and unified legal framework than what currently exists.[7,8]

Extreme Weather Event Disasters

The damage wrought by gradual changes in average climate conditions is being eclipsed by extreme weather events.[9] Climate scientists have been careful not to attribute any particular extreme event to climate change, noting the role of statistical variability. However, approximately half the analyses of 12 extreme weather events of 2012 identified a contributory role of anthropogenic climate change.[10] In March 2014, World Meteorological Organization Secretary-General Michel Jarraud announced:

> "[M]any of the extreme events of 2013 were consistent with what we would expect as a result of human-induced climate change. We saw heavier precipitation, more intense heat, and more damage from storm surges and coastal flooding as a result of sea level rise – as Typhoon Haiyan so tragically demonstrated in the Philippines."[11]

Tropical cyclones draw their energy from the heat at the ocean surface. A Massachusetts Institute of Technology simulation model predicts that the frequency and intensity of tropical cyclones will increase in this century, especially in the western

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North Pacific.[12] In addition, sea level rise combined with diminished sediment deposits and subsidence from extraction of groundwater, oil, and gas will lead to increased flooding from tropical cyclones.[13]

Typhoon Yolanda/Haiyan

On November 8, 2013, Typhoon Haiyan, locally named Yolanda, made its first landfall over Samar. The storm had winds of 190 to 195 mph (305-314 km/h), the most powerful tropical cyclone in recorded history to make landfall,[14] resulting in a storm surge in Tacloban City, Leyte, Philippines, and surrounding coastal communities.[15]

The storm surge of more than 6 meters was close to the highest recorded in the modern history of East Asia, inundating Tacloban, most of which lies at less than 5 meters in elevation.[16] The water came inland for hundreds of meters. Evacuees had been directed to storm shelters located on the coastline, such as the domed sports stadium in Tacloban, which could weather high winds. The roof of the arena survived the winds, but many drowned inside or were trampled in the rush toward higher seats within. Drowning in the storm surge caused the majority of deaths, which was consistent with the historical experience with tropical cyclones.

The Toll From the Storm

As of March 14, 2014, the Republic of the Philippines National Disaster Risk Reduction and Management Council officially reported that Typhoon Yolanda/Haiyan had caused 6268 deaths and 28 689 injuries. Another 1061were reported as missing. More than 4 million persons from nearly 900 000 families were displaced, but the vast majority did not go to evacuation centers. More than 1.1 million houses were damaged, of which over 550 000 were totally destroyed.[17] Based on estimates, the typhoon caused $10 billion in economic losses, which is equivalent to 4% of the Philippines' yearly gross domestic product.[18]

Disasters and Vulnerable Populations

Who becomes a casualty in disasters is a function of social forces. The Philippines is a nation with severe economic inequalities: the assets of the 25 richest people equal the income of the 73 808 000 poorest.[19] In 2012, the Ibon Foundation noted that the payments on public debt were more than twice that spent on education, health, and housing combined. Furthermore, housing and community development were allotted just 0.4% of the national budget, one of the lowest levels of public spending in Asia.[20] Ironically, funds flowing from the Philippines for debt repayment dwarfed the international typhoon aid.[21]

Yolanda/Haiyan devastated the poorest areas of the Philippines.[22] In Tacloban, the provincial capital of Leyte, an estimated one-third of the population were squatters; most of them lived on the disaster-prone coastline. Much of the population lived in crowded, poorly constructed housing with no sewage systems.[23] In the days after the storm, a breakdown of law and order was observed as people struggled to find food, water, and shelter—a preview to future "acute-on-chronic crises brought about by rapid unsustainable urbanization, extreme climate change and severity of natural disasters, major biodiversity crises and 'emergencies of scarcity.'"[24]

Local Response to Climate Change Disasters

In 2009, The Philippines passed the Climate Change Act to streamline the government response to climate change, including a focus on preparedness.[25] The need to consult with local government and communities was recognized as a key element.[26] However, months after Yolanda/Haiyan, authorities continued to mistrust input from local communities and made decisions in a top-down manner.[27] In spite of the fact that the Philippines is one of Asia's fastest growing economies, growing by 7.2% in 2013,[28] the national government claimed that it lacked funds to assist typhoon survivors. The owners of land formerly occupied by squatters had fenced off the area, although the squatters simply walked over the fencing.[29] In response to the lack of help from the national government, thousands of typhoon survivors have formed the "People Surge," an organization that seeks financial assistance for the victims and opposes the "no-build zone" policy in coastal areas.[30]

Many of the poorest communities in Southeast Asia are coastal and dependent on fishing and other marine resources for their livelihood as well as their own nutrition. Having no-build zone policies prohibits resettling of the coastline and leads to a loss of livelihood for these communities. By a factor of two, the economic consequence of the loss of livelihood is a more serious outcome of coastal degradation than is the loss of assets, including houses.[31]

Adaptation to climate change can reduce casualties. Between the time that Cyclone Bohla caused 225 000 to 500 000 deaths in 1970 and Cyclone Sidr caused 3300 deaths in 2007, Bangladesh built sea mounds to protect the coast from storm surges, as well as cyclone shelters and earth mounds to where people could escape rising waters. By 2007, improved forecasting and a robust cell phone network served to warn the populace of danger.[32,33] There are limits to adaptation, however. Unless sea level rise is reversed, 17% of the land will be under water, and 18 million Bangladeshis may be displaced by 2050.[34]

Yolanda/Haiyan, Disaster Risk Reduction, and Climate Justice

Yolanda/Haiyan made landfall 3 days before the opening (November 11, 2013) of 19th United Nations Framework

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Convention on Climate Change (UNFCCC) Conference of Parties (COP 19) in Warsaw, Poland, at which Naderev Saño served as the Philippines' chief negotiator. In Warsaw, Saño fasted in solidarity with Filipinos struggling to find food and to draw support for an international mechanism for losses and damages. Saño noted,

> "The U[nited] S[tates], accounting for at least one-fourth of cumulative emissions, has a huge responsibility, a moral responsibility, to tackle climate change, not just to address it domestically, but also to be able to provide support for developing countries, for us to adapt, and also for us to, in earnest, contribute towards addressing this problem with our own mitigation actions."[35]

After touring typhoon-devastated Tacloban in December 2013, US Secretary of State John Kerry essentially agreed, calling climate change "perhaps the world's most fearsome weapon of mass destruction" and suggesting that "some countries, including the United States, contribute more to the problem…we have an obligation to contribute more to the solution."[36]

We are starting to arrive at a common understanding that not only disaster response,[7] but also disaster risk reduction will require a concerted effort by the global community. The Second UN World Conference on Disaster Reduction in Kobe, Japan, in 2005, had resulted in the Hyogo Framework for Action 2005 to 2015. The framework recognizes climate change as a major driver of disaster risk and urges a focus on risk reduction measures and the incorporation of climate risk into decision-making.[37] However, such efforts fall within the realm of adaptation. While these measures may diminish casualties, serious efforts to prevent future disasters depend on curbing emissions. Burkle asserts that climate justice needs a more robust legal framework, nothing short of a global treaty along the lines of the International Health Regulations. Such a treaty would obligate nation-states to collaborate on disaster prevention and preparedness … and less on response alone. As the scientific understanding of the role of anthropogenic climate change in disasters becomes more evident, it also becomes clearer that only the enforcement mechanisms of a treaty will obligate the industrialized states to curb their emissions.[38]

CONCLUSION

The role of climate change in future disasters looms heavily. The example of Typhoon Yolanda/Haiyan raises questions of responsibility, from individual through global levels. Developing countries, mired in debt, struggle to adapt to prevent casualties from disasters wrought by climate change. While developed nations willingly assisted in the immediate response after Yolanda/Haiyan, they displayed an equal reluctance to fund a loss and damage mechanism under the UNFCCC. When Saño suggested that we have a moral responsibility to tackle climate change, how do those words translate operationally? As global citizens, we have an ethical and moral responsibility to minimize our individual carbon footprints and work toward economies that use less energy.[39] As citizens of nation-states, we must advocate for our respective governments to agree to limits on emissions. As health professionals, we must call for an international treaty for disaster risk reduction and management that obligates nation-states to reduce emissions. The World Conference on Disaster Risk Reduction is scheduled to take place in Sendai, Japan, in 2015, and planning is underway for the post-2015 framework.[40] We must fund loss and damage for events that continue to devastate vulnerable populations worldwide. As human beings concerned with climate justice, we must move resources from where they are to where they are not.

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