3 Social sustainability and global climate change

A new challenge for social work

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Introduction

Maintaining social sustainability in the context of global climate change is among the most pressing challenges facing contemporary societies in the Asia-Pacific Rim. These societies are increasingly being confronted with a host of changes in the physical environment, ranging from natural disasters, rising air and water temperatures, rising sea levels and ocean acidification, prolonged droughts and scarcity of fresh water in some regions, and extensive flooding in other regions. All of these changes are contributing to the wholesale destruction of natural ecosystems on land and sea. They also have profound social implications, threatening human health and well-being, destabilizing assets, coping capacities, and response infrastructures, and substantially increasing the number of socially, economically, and psychologically vulnerable individuals and communities. Moreover, these impacts will not affect everyone equally, leading to new social inequities with significant social justice implications.

In this chapter, we summarize the human impacts of global climate change with a focus on the sustainability of individuals, families, and communities. We then address strategies for promoting sustainability in the face of two specific impacts: population displacement and disaster response and recovery. These strategies adhere to a three-tier model of climate change impact and response, and include microlevel interventions designed to prevent and mitigate behavioral and mental health impacts; mezzo-level interventions to prevent and mitigate social conflict within families and communities; and macro-level policies and programs designed to build and support individual, family, and community resilience, assets, and action.

Global climate change and sustainability

Climate-related changes in the physical and social landscape are largely due to human-induced emissions resulting from the burning of fossil fuels (coal, oil, and gas), with important contributions from the clearing of forests, agricultural practices, and other activities (Karl, Melillo, & Peterson, 2009, p. 9). The future climate will depend on warming caused by past anthropogenic emissions, as

well as future anthropogenic emissions and natural climate variability (Intergovernmental Panel on Climate Change [IPCC], 2014). The global mean surface temperature change for the period 2016–2035 will likely be in the range 0.3–0.7°C. By the end of the 21st century, average surface temperatures worldwide are projected to increase by 1.5–4.8°C (IPCC, 2013). Average sea levels during this period are projected to increase by 0.26–0.82 m. In many midlatitude and subtropical dry regions, the mean precipitation will likely decrease, while in many midlatitude wet regions, the mean precipitation will likely increase. Extreme precipitation events over most of the midlatitude land masses and over wet tropical regions will very likely become more intense and more frequent. Different models have forecast a decrease in ocean pH levels between 0.06 and 0.32 (IPCC, 2014).

The Asia-Pacific region is considered to be among the most vulnerable to the impacts of global climate change. People in coastal regions of Asia, particularly those living in cities, could face some of the worst effects of global climate change. Hundreds of millions of people are likely to lose their homes as flooding, famine, and rising sea levels sweep the region. A mean sea level rise will contribute to upward trends in extreme coastal high-water levels, thereby inundating low-lying areas and developing nations such as Tuvalu, Fiji, the Solomon Islands, the Marshall Islands, and the Maldives. Asia accounts for seven of the world's ten countries most vulnerable to rising sea levels: Bangladesh, China, India, Indonesia, Japan, the Philippines, and Vietnam (Wheeler, 2011). Rising sea levels are also expected to cause increased rates of coastal erosion, leading to a decline in mangroves, salt marshes, and seagrass beds, and saltwater intrusion into coastal freshwater swamps and marshes. Widespread damage to coral reefs correlated with episodes of high sea surface temperature has been reported in recent decades, and there is high confidence that damage to reefs will increase during the 21st century as a result of both warming and ocean acidification. Natural disasters will occur with greater frequency and severity.

Climate change is expected to adversely affect the sustainable development capabilities of most Asian developing countries by aggravating pressures on natural resources and the environment. The loss of terrestrial and inland water ecosystems and associated biodiversity will adversely impact economic activity throughout the region. Increases in floods and droughts will exacerbate rural poverty in parts of Asia as a result of negative impacts on the rice crop and resulting increases in food prices and the cost of living. The IPCC report also notes the risk of loss of livelihoods and income due to insufficient access to drinking and irrigation water, particularly for farmers and pastoralists with minimal capital in semi-arid regions, and the risk of loss of marine and coastal ecosystems, biodiversity, and the ecosystem goods, functions, and services they provide for coastal livelihoods, especially for fishing communities (IPCC, 2014).

Another physical impact of climate change in the Asia-Pacific region likely to impact sustainability is increased exposure to more severe natural disasters. For instance, Bangladesh has had 70 climate-related natural disasters in the past 10 years. Such events disrupt physical, social, and communication infrastructures,

diminish coping resources and social supports, drain or deplete household assets, and pose temporary and long-term threats to physical and mental health and safety (Caruana, 2010; Moser & Satterthwaite, 2010; Wells, Springgate, Lizaola, Jones, & Plough, 2013). Across the globe, economic losses from natural disasters rose from $50 billion each year in the 1980s to just under $200 billion each year in the last decade. Total reported losses from disasters were estimated at $3.8 trillion in this period with 74% due to extreme weather (Munich Re, 2013; World Bank, 2013).

Global climate change will also result in profound changes in human morbidity and mortality throughout the Asia-Pacific region, changes that also have implications for individual, family, and community sustainability. These changes include:

- Increased heat-related morbidity and mortality in adults, associated with **rising ambient temperatures** (Basu, 2009).
- Increased risk of diarrheal disease and cholera due to increased ambient temperatures and heavy precipitation and drought events (Zhang, Bi, Sun, & Hiller, 2012).
- Increased risk of **vector-borne diseases**, including malaria, dengue fever, West Nile virus, Chikungunya, Lyme disease, Rocky Mountain spotted fever, plague, hantavirus pulmonary syndrome, and Chagas disease due to increased **temperatures and precipitation** (Banu, Hu, Guo, Hurst, & Tong, 2014).
- **Impaired physical development (stunting)** related to undernutrition associated with drought (Hagos, Kunde, Mariam, Woldehanna, & Lindtjørn, 2014), flooding (Rodriguez-Llanes, Shishir Ranjan-Dash, Mukhopadhyay, & Guha-Sapir, 2016), and ocean acidification.
- Increased risk of **physical trauma, malnutrition, and infectious and psychiatric diseases** associated with **displacement** (Lustig et al., 2004; Toole & Waldman, 1993).
- Increased prevalence and severity of **asthma** due to a rise in **air pollutants**, including ozone and elevated pollen counts (Kim, Lim, & Kim, 2014).

Children will be especially vulnerable to these health impacts due to their immature physiology and metabolism, incomplete development, higher exposure to air, food, and water per unit body weight, and dependence on caregivers (Sheffield & Landrigan, 2011). It has been estimated that 88% of the existing global burden of disease attributable to climate change occurs in children under five years of age (Zhang, Bi, & Hiller, 2007). Children in the world's poorest countries are most affected by climate change (Haines, Kovats, Campbell-Lendrum, & Corcalan, 2010).

Finally, global climate change is already a major contributor to the massive displacement of populations. Disasters, increased droughts, desertification, sea level rises, the disruption of seasonal weather patterns such as monsoons, and civil conflicts resulting from the depletion of natural resources have produced a new group of ecological or climate refugees who are forced to migrate due to

sudden or long-term changes to their local environment that compromise their well-being or livelihood (Myers, 1993). In just two years, 2010 and 2011, 42 million people in the Asia-Pacific region were displaced due to disasters caused by climate change. Large parts of cities, such as Ho Chi Minh City, Jakarta, Manila, and Bangkok, are at risk of flooding and water scarcity challenges as saltwater intrusion contaminates freshwater supplies. Moreover, the number of people at risk in Asian coastal cities could rise from 300 million in 2015 to 410 million by 2025 (Asia Pacific Foundation of Canada, 2016). There are five "hot spots" in the Pacific that are likely to become source areas for climate change-related migrants: (a) urban areas; (b) urban atolls; (c) nonurban atolls; (d) coastal, delta, and riverine communities; and (e) communities prone to drought (United Nations Economic and Social Commission for Asia and the Pacific, 2014). While displacement is most likely to occur within countries, international migration, especially from island states, is also underway and is likely to increase, especially as low- and middle-income nations in particular lack the resources for relocation and resettlement of their own citizens. Whether internal or transnational, these population shifts will have significant implications for the Asia-Pacific region, straining infrastructure capacities and economic resources and creating new social challenges associated with changing community demographics (IPCC, 2014).

While all humans are impacted by climate change, these challenges disproportionately affect those of less economic privilege or social status (Mearns & Norton, 2010; Preston et al., 2014; World Bank, 2013). These groups include minorities, women, children, older adults, rural and urban poor, and individuals with a history of mental or behavioral health problems, as well as low-income and geographically vulnerable individual communities and entire nations. Disproportionate impacts include climate-related disruptions in subsistence-dependent ecosystems, employment and income, escalating food insecurity, and the destruction of homes and community infrastructure and institutions in low-income communities and nations (Leichenko & Silva, 2014). The poorest and most marginalized populations are especially vulnerable to high-intensity events like natural disasters. Therefore, climate and related environmental changes "have social justice implications that demand consideration" (Doherty & Clayton, 2011, p. 265).

Creating social responses to climate change

Social workers are well positioned to play a leading role in addressing the human impacts of environmental change in four major areas: (a) disaster preparedness and response; (b) population dislocation; (c) community-level organization and development aimed at strengthening the local and regional capacity to respond to the impacts of global environmental change, particularly in urban settings; and (d) mitigation, or targeted policy, advocacy, and practice engagement in efforts to address the underlying causes of environmental change. In this chapter, we focus on the first three of these four areas; the fourth is addressed in a separate publication (Kemp & Palinkas, 2015).

Disaster preparedness and response

Palinkas (2012, 2015) proposed a conceptual model of disaster impacts and response that identifies three levels or tiers of impacts of both natural and technological disasters: biopsychosocial impacts that are direct consequences of the destruction of the physical environment (Tier I); interpersonal impacts that are both direct consequences of the biopsychosocial impacts and mediators of the relationship between the biopsychosocial and intrapersonal impacts (Tier II); and intrapersonal or behavioral health impacts that are consequences of both the biopsychosocial and the interpersonal impacts (Tier III). These impacts are illustrated in Figure 3.1. Tier I impacts include damage to ecosystems and biodiversity, organization and management of cleanup activities, short-term and long-term economic and cultural impacts, impacts on services and infrastructure, health effects related to exposure to environmental hazards, and litigation related to compensation for damages. Tier II impacts include a reduction in the levels of social support, an increase in the levels of social conflict, and an increase in collective uncertainty about the future and long-term consequences of the disaster event. Tier III impacts include increases in the incidence of psychiatric disorders, drug and alcohol abuse and dependence, stress-related physical and mental health symptoms, domestic violence, and child behavioral problems. Although this model was designed to account for impacts of acute events such as disasters, it may also apply to longer-term changes in climate.

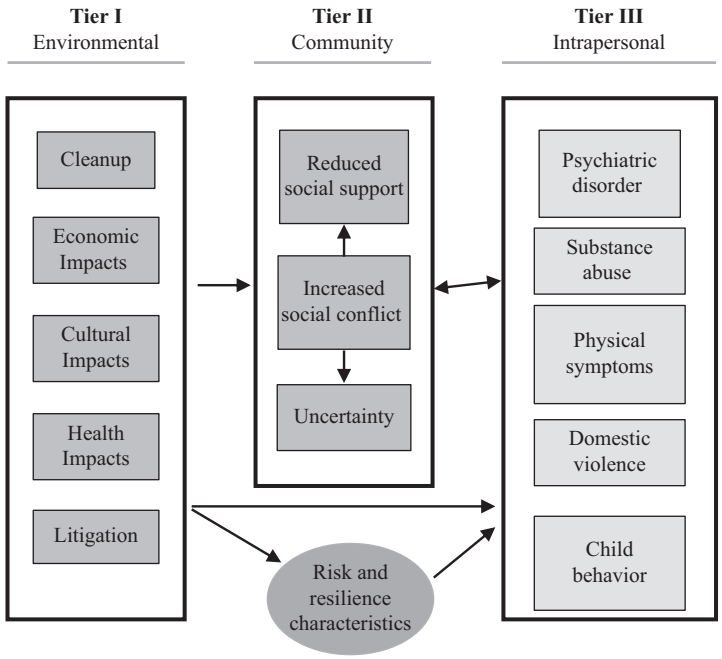

Figure 3.1 Three-tier model of prevention and mitigation of climate change human impacts.

Associated with each of these tiers of impacts are tiers of disaster preparedness and response. Programs and practices designed to build behavioral resilience in individuals, families, and communities may serve to prevent or reduce the incidence and magnitude of biopsychosocial impacts in the aftermath of a disaster. Over the past 10 years, community-based disaster management and participatory disaster planning have emerged as broad strategies for building such resilience (Pelling, 2007). As a further innovation warranting new empirical study, social work is uniquely positioned to integrate these broad approaches with more specific interventions that could be applied to disaster planning and prevention. Existing interventions such as the Strengthening Families Program (SFP) (Kumpfer, Molgaard, & Spoth, 1996), a family skills training program designed to increase resilience and reduce risk factors for behavioral, emotional, academic, and social problems in children aged 3–16, Coping with Work and Family Stress (Snow, Swan, & Wilton, 2002), a workplace preventive intervention designed to teach employees aged 18 and older how to deal with stressors at work and at home, and the Communities That Care (CTC) program (Hawkins & Catalano, 2002), a community-based manualized prevention intervention that mobilizes and empowers communities to adopt an evidence-based framework for the implementation of evidence-based practices (EBPs) to prevent adolescent substance use and other behavioral health problems, may serve as models for the development of interventions that build resilience in families and communities before a disaster strikes. Climate change-specific versions of these interventions could potentially address Tier II interpersonal and Tier III intrapersonal impacts simultaneously.

While these activities are intended to prevent adverse behavioral health impacts, there exist numerous evidence-based treatments (EBTs) for these impacts once they have occurred. Examples of such treatments include Trauma-Focused Cognitive-Behavioral Therapy (TF-CBT) (Cohen, Mannarino, & Deblinger, 2006), a 12-session individual or conjoint intervention that includes both child and parent, and is typically delivered in clinics, and Cognitive-Behavioral Intervention for Trauma in Schools (CBITS) (Jaycox, 2004), a 10-group session and 1–3 individual session interventions designed specifically for use in schools. These interventions have been found to be effective in improving post-traumatic stress disorder (PTSD) and other symptoms in children experiencing disaster (Cohen, Deblinger, Mannarino, & Steer, 2004; Kataoka et al., 2003; Stein et al., 2003). By reducing adverse intrapersonal health outcomes during the post-disaster period, treatments like TF-CBT and CBITS have the potential for addressing interpersonal Tier II impacts as well. Another intervention that has been increasingly used post-disaster is Psychological First Aid (PFA) (Forbes et al., 2011). PFA includes the provision of information, comfort, emotional support, and instrumental support to those exposed to an event, with assistance provided in a stepwise fashion tailored to the person's needs. PFA may also be used to address Tier I and Tier II impacts by serving as a form of risk assessment and referral to health services during a disaster and by providing social support and facilitating connections to social support networks (North & Pfefferbaum, 2013; Palinkas, 2015).

However, the evidence supporting the use of these interventions in both short-term and long-term disaster recovery and addressing the psychosocial impacts of other manifestations of climate change is limited. Research is needed to evaluate the effectiveness of existing EBPs in these contexts. Given the robust evidence of socioeconomic and cultural differences in both the vulnerability to the impacts of climate change in general and to the impacts and responses to disasters and disaster-related interventions in particular (Norris, 1992; Palinkas, 2012), an important cross-cutting dimension in these efforts will be contributions to adapting interventions to ensure they are responsive to both structured inequities and cultural and ethnic differences. Research is also needed to develop an evidence-based strategy or strategies for the implementation of these interventions by social workers and other disaster responders. Moreover, behavioral mental health interventions are but one of many "interventions" that are essential in developing adequate responses to disasters. Particularly critical are community- and policy-level efforts to strengthen the "safety net" of response structures and actions that local and national governments might or might not have in place. In many low- and middle-income countries, a largely uncoordinated patchwork of in-country foundations and international nongovernmental organizations (NGOs) is often the only resource available to mount a sufficient disaster response and recovery effort. Social work knowledge and skills are relevant to building response capacity: for example, by training NGOs or federal or regional officials responsible for preserving the lives of disaster victims or helping to coordinate and integrate services provided by the government, private foundations, NGOs, and religious institutions.

Population dislocation

Social workers can begin to anticipate and address the needs of climate refugees in a tiered approach similar to that proposed for disaster preparedness and response. Tier I efforts would include services designed to assist with relocation and resettlement, either in countries of origin or in other countries less impacted by climate change. These efforts include designing and coordinating community support programs, advocating stronger refugee resettlement services, and providing assistance in locating housing and employment opportunities. Most importantly, social workers can serve as advocates for changes in policies that provide legal status and benefit entitlement as refugees to those forced to migrate for environmental reasons. At the present time,

> the international legal definition of the term 'refugee' also excludes those who move not as a result of persecution, but as a consequence of natural disasters (such as drought, floods, or earthquakes), environmental factors, or famine. They are excluded even though they may need international protection and assistance because their home country cannot or will not provide these things. The terms 'forced migrants' or 'forced displacement' are used to describe people in these circumstances.
>
> (Russell, 2002)

Tier II efforts would address the potential social conflicts arising from population movement of refugees in general, including cultural and ethnic differences and competition for limited resources and employment opportunities.

> From the moment of arrival, refugees may compete with local citizens for scarce resources such as water, food, housing, and medical services. Their presence increases the demands for education, health services, infrastructure such as water supply, sanitation, and transportation, and also in some cases, for natural resources such as grazing and firewood.
>
> (World Bank, 2013)

Conflict resolution, team-building activities, and efforts to reduce uncertainty among both migrating populations and host communities would be critical to reducing the potential for conflicts resulting from such impacts.

Tier III efforts would be focused on the delivery of EBPs designed to address the physical, mental, and behavioral health needs of climate refugees. Unfortunately, the use of evidence-based methods has yet to substantially affect the field of migration medicine (Pottie et al., 2011). The Canadian Collaboration on Immigrant and Refugee Health established a series of clinical guidelines for immigrant and refugee populations targeting infectious diseases, mental health and maltreatment, noncommunicable diseases, and women's health that could be easily adapted to working with climate refugee populations (Pottie et al., 2011).

Community sustainability

Social sustainability does not occur in isolation but is intimately linked to environmental and economic sustainability. It is assumed that the responsibility for, and benefits of, capacity building and empowerment, resilience building, social innovations and social enterprise, education, and advocacy are available to all members of society, and do not contribute to further disparities in climate change impacts. Because "understandings of, and responses to, climate change will be influenced by worldviews, cultures, and social identities" (Swim, Clayton, & Howard, 2011, p. 248), efforts to promote social sustainability must take into consideration existing patterns of knowledge, attitudes, and practices related to climate change causes and consequences, and foster the development of new sets of shared understandings, values, and expectations that fit the changing ecological realities.

Integral to climate change adaptation is the development of resilient communities (National Research Council, 2011). As with disaster preparedness and response, building social sustainability requires efforts at all three tiers of climate change impacts. Such an approach involves the use of microlevel interventions to promote individual well-being and prevent or treat the occurrence of mental and behavioral health problems that impede the capacity of individuals to participate in, and contribute to, social sustainability (Tier III); mezzo-level interventions designed to promote social inclusion and connectedness (Aldrich &

Meyer, 2015), enhance community and neighborhood social capital (Aldrich & Meyer, 2015) and social assets (Delgado & Humm-Delgado, 2013), minimize social conflict and fragmentation, meaningfully involve community residents and stakeholders in proactive planning and participatory development, and build environments that encourage social interaction and collaboration and integrate informal and formal support systems (Tier II); and macro-level interventions designed to foster social development and address underlying sociostructural vulnerabilities, including economic inequality and chronic poverty (Tier I).

One well-tested community-based intervention designed to foster individual, family, and community sustainability and resilience is asset building, a social development strategy aimed at reducing economic inequality around the world (Sherraden, 2014). The human ability to absorb economic shocks associated with environmental changes depends largely on the household asset base. Environmental disasters often lead to partial or total loss of household assets and reduced potential for income generation, resulting in low coping capacity and further vulnerability (De la Fuente, 2007; World Bank, 2008). However, despite the increasing attention being given to asset accumulation as a risk mitigation strategy, there are few empirical studies on asset-based strategies for the purpose of climate adaptation (Moser & Satterthwaite, 2010).

Case study: Typhoon Haiyan and sustainability in the Philippines

The University of Southern California (USC) Humanitarian Mission was developed in response to the devastation caused by Typhoon Haiyan. Also known as Typhoon Yolanda, it is reported to be the deadliest Philippine typhoon on record. Just weeks after the central Philippines was hit by a 7.2 magnitude earthquake, the even more destructive Category 5 typhoon ravaged the southern islands of Leyte and Samar on 8 November 2013. According to the Philippine National Disaster Risk Reduction and Management Council, 6,183 were reported dead, and hundreds of individuals were reported missing. UN officials reported that 16 million people were affected by the typhoon and about 4.1 million people were displaced. More than 1.5 million of these individuals were under the age of five.

The USC Humanitarian Mission to the Philippines was inspired by the traditional Philippine concept of ***Bayanihan*,** the Tagalog/Filipino word for "collective spirit." It also refers to the traditional collaborative method of building communities and moving houses. The Mission members were faculty members and staff from the USC School of Social Work. Each member of the Mission was personally and professionally committed to helping rebuild stronger communities in typhoon-ravaged areas by strengthening the knowledge, skills, and recovery capacity of existing "in-country" organizations, institutions, and Philippine-based NGOs.

A fact-finding trip was made by USC team members to Tacloban and Samar (the hardest hit areas) to interview local residents, NGOs, community-based organizations, and governmental institutions, using local guides, to observe

firsthand the current situation and needs, the support systems in place, and the existing gaps in services. Public schools not completely destroyed by the typhoon were used as evacuation centers. Classes in these schools did not resume for more than two months after the typhoon. The USC visited two tent schools operated by UNICEF. The elementary school conducted classes for Grades 1–3 in the morning and Grades 4–6 in the afternoon. The day care program operated throughout the day. Caregivers were not equipped to deal with emotional and psychosocial issues. They were victims and not getting the support they needed. Caregivers and teachers expressed the need for training and more intensive psychosocial support for themselves and for the students.

Other support services operating in the region at the time included professors and students from the University of the Philippines, who conducted psychosocial debriefings of elementary-aged children in a house made into makeshift classrooms. This group of volunteers expressed a strong interest in partnering/collaborating and getting technical support and training to address the long-term needs of the patients, students, and the immediate community. Services were also provided by the Buddhist Tzu Chi Foundation, a Taiwanese NGO completely manned by volunteers. The Foundation initiated the local "cash for work" program in which local residents were hired to clear their communities of debris, especially that blocking roads, thereby significantly jump-starting trade, commerce, and relief efforts in the area. The organization gave out 500 pesos a day to about 300,000 individuals, providing local residents with a means of livelihood.

The outcome of the fact-finding trip led to further understanding of the long-term post-disaster needs and lack of consistent knowledge and skills. It helped the team develop more realistic and culturally informed modifications to the training, which would need to be provided in several phases over the next several years. Invitations were extended to NGOs, institutions, private foundations, and governmental organizations for a two-day training workshop on different topics with the goal of building participants' knowledge and skills in the recovery and community-rebuilding process. The capacity-building training included the following topics in one-hour-long presentations with interactive planning, participant discussion, and practice activities infused throughout:

- Overview of the Phases of Disaster Response and Recovery
- The Post-Disaster Needs of the Elderly
- Orphans of the Storm and International Adoptions
- Child Trafficking – Increased Risks for Child Victims
- Building School Wellness Centers After Disasters
- The Spectrum of Human Psychosocial Services Post Disaster and the Core Concepts of Psychological First Aid
- Compassion Fatigue, Responder Trauma, and the Importance of Self-Care
- Collective Impact and Social Innovation
- Planning for the Future Phases of Disaster / Developing New Partnerships / Working in Small Groups

Our original invitation was to 20 individuals, but in a matter of a few days, 104 RSVPs were received. Eighty participants registered for each day of the event. Participants commented positively on the rare opportunity to work with individuals with differing points of view and from diverse geographic and socioeconomic backgrounds. They also noted the lack of an integrated local, regional, and national process and infrastructure for disaster response and recovery. Larger, more established institutions and organizations expressed strong interest in continued collaboration and consultation with USC. USC team members also held meetings with USC alumni involved in social responsibility and corporate giving programs who revealed a strong commitment to supporting future USC humanitarian efforts. The feedback provided by participants showed positive responses to the training as well as further requests for more knowledge, technical support, and specific intervention skill building.

In February 2014, the Undersecretary of the Federal Department of Education of the Philippine Islands asked Dr. Wong and Professor Villaverde for their assistance in creating a training program that would help build a new infrastructure of disaster response and recovery for the country. Schools were the focal point of services and response and recovery efforts. The work with the Department of Education (DepED) was to train social workers, counselors, teachers, psychologists, and other "in-country" professionals in specific evidence-based and evidence-informed interventions, including Psychological First Aid/Listen Protect Connect (PFA/LPC), Support for Students Exposed to Trauma (SSET), Healing After Trauma Skills (HATS), and CBITS, which could be used with children and adult survivors. There were also discussions about how to build wellness centers in schools. Dr. Wong and Professor Villaverde were involved in the planning for the training with the DepED, requested for December 2014 during the typhoon's anniversary period. Planning meetings were held in May in Manila to refine the training topics to reflect the cultural sensitivity and current resources in the 17 regions and 81 provinces. In 2016, Drs. Wong and Villaverde returned to the Philippines to conduct a similar training program with members of the Philippines Peace Corps.

Conclusion

There is a need for social work leadership in three sets of activities related to global climate change: (a) individual-, group-, and community-level interventions to facilitate emotional expression and collective dialogue, enhance self- and collective efficacy, and foster effective mitigation and adaptation behaviors; (b) efforts to promote the understanding of, and response to, the large-scale psychosocial impacts resulting from regional environmental degradation, scarcity of resources, increased intergroup conflicts, forced migrations, loss of homeland, and threats to cultural practices impacting the health and relationships of the earth's most vulnerable individuals and communities; and (c) addressing factors contributing to the social and economic disparities of climate change impacts (Doherty & Clayton, 2011). Building sustainable lives affected by global climate

change will require the implementation of microlevel interventions designed to foster resilience and the ability to cope with environmental changes, mezzo-level interventions designed to build support networks and manage conflict within social groups resulting from the unequal distribution of impacts, and macro-level interventions designed to foster social development in a changing ecological setting. Building sustainable societies will require the development of cultures or sets of shared understandings with the causes and consequences of environmental degradation associated with values and expectations that fit the changing ecological reality.

While the science of disaster response, refugee resettlement, resilience building, and the prevention of, and adaptation to, environmental change has made substantial advances in the past decade, the translation of effective, evidence-based interventions, policies, and programs requires additional efforts aimed at developing a new subdiscipline of "ecosocial work." Such a development requires an understanding of the barriers and facilitators entailed in reorienting tested social, community, and behavioral strategies to address environmental challenges, the development and evaluation of new interventions, and the development of evidence-based strategies to facilitate the implementation, scaling up, and sustainment of these interventions.

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