



Strengthening the Social Response to the Human Impacts of Environmental Change

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GRAND CHALLENGES FOR SOCIAL WORK INITIATIVE

Working Paper No. 5

January 2015

Grand Challenge 10: *Strengthen social responses to environmental changes*

GRAND CHALLENGES FOR SOCIAL WORK INITIATIVE

The Grand Challenges for Social Work are designed to focus a world of thought and action on the most compelling and critical social issues of our day. Each grand challenge is a broad but discrete concept where social work expertise and leadership can be brought to bear on bold new ideas, scientific exploration and surprising innovations.

We invite you to review the following challenges with the goal of providing greater clarity, utility and meaning to this roadmap for lifting up the lives of individuals, families and communities struggling with the most fundamental requirements for social justice and human existence.

The Grand Challenges for Social Work include the following:

1. Maximize productive and meaningful activity throughout life
2. Ensure all youth get a good and healthy start
3. Reduce isolation and loneliness
4. Stop family violence
5. End homelessness
6. Create greater healthy equity
7. Safely reduce our incarcerated population
8. Strengthen financial security
9. End racial injustice
10. Strengthen social responses to environmental changes
11. Reverse extreme inequality
12. Harness digital technology for social good

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Strengthening the Social Response to the Human Impacts of Environmental Change

Susan P. Kemp and Lawrence A. Palinkas

The United States and other contemporary societies face unprecedented environmental challenges as a result of climate change and escalating urbanization, ranging from acute hazards (e.g., natural disasters) to chronic, slow-onset stressors (e.g., prolonged drought, rising urban pollution levels, intransigent urban spatial inequities). These challenges threaten human health and well-being; destabilize assets, coping capacities, and response infrastructures; and substantially increase the number of socially, economically, and psychologically vulnerable individuals and communities. They disproportionately affect populations of lower economic privilege or social status, disrupting employment and income, escalating food insecurity, and degrading the ecologically vulnerable, inadequately resourced locations where poor and marginalized groups often live. Environmental inequities are also social inequities, with significant social justice implications. Social work is positioned to play a key role in developing and implementing innovative strategies to anticipate, mitigate, and respond to the social and human dimensions of environmental challenges. Core areas for social work leadership include (1) local, national, and international disaster preparedness and response; (2) assistance to dislocated populations; (3) collaborative capacity building to mobilize and strengthen place-based, community-level resilience, assets, and action; and (4) advocacy to elevate public and policy attention to the social and human dimensions of environmental change.

Key words: Global climate change, urbanization, environmental justice, natural disasters, ecological refugees, population displacement, adaptation, mitigation, resilience, human impacts

Unprecedented environmental changes resulting from climate change and urbanization are among the most pressing challenges facing contemporary societies, including the United States. Environmental threats confronting U.S. communities span a continuum from acute hazards such as natural disasters, to chronic, slow-onset stressors such as prolonged drought, rising urban pollution levels, and intransigent urban spatial inequities. Given the close coupling of social and ecological systems (Keck & Sakdapolrak, 2013), these challenges have profound social implications that threaten human health and well-being; destabilize assets, coping capacities, and response infrastructures; and, in all likelihood, substantially increase the number of socially, economically, and psychologically vulnerable individuals and communities. In addition to increased exposure to more severe natural disasters such as Hurricane Sandy, many U.S. communities will be affected by population displacement and dispersal associated with longer

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term environmental changes. Escalating urbanization and related degradation of natural resources complicate these challenges and add additional concerns for America's cities, including rising social and economic inequality, increasing density, and infrastructure and services inadequately equipped to handle novel, multidimensional socio-environmental challenges. While global environmental changes affect all U.S. residents, they have disproportionate impacts on those of less economic privilege or social status. Such impacts include climate-related disruptions in employment and income, escalating food insecurity, and further degradation of the ecologically vulnerable, inadequately resourced locations where poor and marginalized groups often live. Environmental inequities are also social inequities, with significant social justice implications.

There is growing recognition of the need for greater attention to the health and psychosocial impacts of climate change and related environmental challenges. Still, much remains to be done to develop and implement practical, effective, evidence-based, equitable, and durable strategies for anticipating, mitigating, and responding to the human dimensions of global environmental threats. As stated in the National Association of Social Workers' (NASW) Code of Ethics (2013, preamble, paragraph one), "fundamental to social work is attention to the environmental forces that create, contribute to, and address problems in living." The person-in-environment perspective has consistently been a central feature of social work theory and practice (Kemp, Whittaker, & Tracy, 2007, Saleebey, 2004). "Since the profession's earliest formal beginning, social workers have understood that where people live profoundly influences how they live, with important implications for equity and social justice" (Kemp, 2011, p. 1200). Furthermore, the current engagement of social workers in refugee resettlement, disaster response, environmental justice, and community development efforts positions the profession for research and intervention leadership in these domains. Recognition of the physical environment's critical role in social and economic sustainability and human well-being is rapidly growing among social workers (International Federation of Social Workers, 2012). Robust attention to the environmental dimensions of social work's person-in-environment mandate will be central to the profession's efforts to attract new, diverse, and innovative groups to join in seeking social justice for all, particularly those made vulnerable by environmental change. Nonetheless, the complexity and urgency of the challenge demand more assertive, forward-thinking, comprehensive, and innovative responses than social work has demonstrated to this point.

Thus, strengthening the social response to the human impacts of global environmental change is a grand challenge for social work. This position paper details the scope of the problem, introduces a plan for addressing the problem, identifies activities and outcomes that can be achieved in a decade, highlights an interdisciplinary approach to these achievements, and emphasizes the importance of transformative solutions, within and beyond the field.

ESCALATING ENVIRONMENTAL RISK

The degradation of the physical environment is one of the most significant problems facing the world today. Human impacts on the environment include increased atmospheric carbon dioxide, air and water pollution, soil contamination and destabilization, and technological disasters such

as oil spills and chemical contamination of drinking water. Drawing on published results of leading modeling groups around the world, the fifth report of the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change [IPCC]) forecasts an increase in world average temperature by 2100 within the range of 1.5 to 5.8°C (2013). Sea levels during this period are projected to increase in the range of 0.26 to 0.98m, thereby inundating low-lying areas and developing nations such as Tuvalu, Fiji, the Solomon Islands, the Marshall Islands, the Maldives, and some of the Lesser Antilles (IPCC, 2013). Extreme precipitation events over most of the mid-latitude land masses and wet tropical regions will very likely become increasingly intense and frequent by the end of this century as global mean surface temperature increases (IPCC, 2013). For instance, Bangladesh has had 70 climate-related natural disasters in the past 10 years. Conversely, mean precipitation will likely decrease in many mid-latitude and subtropical dry regions, leading to drought conditions, increased risk of wildfires, and rising water insecurity (Pawar, 2013). A significant decline in ocean pH levels during this period may lead to a dramatic reduction in marine life as a food source (IPCC, 2013).

Environmental change in the United States

The United States is by no means immune from these challenges. In the Southeast, for instance, average annual temperatures are projected to increase by 4 to 9 °F by 2080 according to the U.S. Global Change Research Program [USGCRP] (Karl, Melillo, & Peterson, 2009). Storm surge and sea-level rise will likely affect coastal communities and ecosystems. However, precipitation in Florida will likely decrease, leading to prolonged drought conditions. Projected changes in surface water runoff to the coast and groundwater recharge will likely allow saltwater to intrude and mix with shallow aquifers in some coastal areas of the Southeast, particularly in Florida and Louisiana (Karl, Melillo, & Peterson, 2009). Decreased water availability will challenge future growth and the quality of life of residents in the region. Higher temperatures and more frequent heat waves will likely increase heat stress, respiratory illnesses, and heat-related deaths (Karl, Melillo, & Peterson, 2009). Though the number of cold-related deaths is projected to decrease, net climate-related mortality will likely increase. Declining soil moisture, water scarcity, and increasing temperatures will likely stress agricultural crops. Sustained temperatures between 90 and 100 °F can significantly affect cattle. Severe droughts, such as the water shortage that affected Texas in 2011, may lead to the premature slaughtering of cattle (Karl, Melillo, & Peterson, 2009). In the Southwest, the report notes that warming has already contributed to decreases in spring snowpack and Colorado River flows, which are an important source of water for the region. Future warming is projected to produce more severe droughts in the region, with further reductions in water supplies (Karl, Melillo, & Peterson, 2009). Future water scarcity will be compounded by the region's rapid population growth, which is the highest in the nation (Karl, Melillo, & Peterson, 2009). Warming temperatures will likely make it more difficult for the Southwest's rapidly growing cities to meet air quality standards (Karl, Melillo, & Peterson, 2009). For example, over 90% of California's population lives in areas that violate state air quality standards for ground-level ozone or small particles, with air pollutants causing an estimated 8,800 deaths and over \$1 billion in health-care costs every year (USGCRP, 2009). Warmer temperatures are expected to

increase the frequency, intensity, and duration of conditions that are conducive to air pollution formation, further exacerbating air quality issues in the Southwest. These conditions threaten the health and well-being of people who suffer from respiratory ailments such as asthma and chronic obstructive pulmonary disease (Karl, Melillo, & Peterson, 2009; United States Environmental Protection Agency, 2014).

Urbanization

Escalating urbanization compounds environmental risks. The majority of the U.S. population is already urban dwelling; by 2050, 90% of Americans will live in cities (United Nations Environment Programme, 2014). As key sites of innovation and major loci of environmental risk (especially for the urban poor), cities are pivotal hubs in global sustainability. One third of the world's urban population, for example, lives in informal settlements located in environmentally marginal locations that lack basic services. Socioenvironmental pressures from shifting urban demographics include rising social and economic inequality, increasing density, and increased demand on infrastructure and services. Furthermore, urbanization frequently has devastating environmental impacts on natural ecologies, from air and water pollution and heat stress to significant loss of key ecological buffers such as coastal marshes (Tang, Engel, Pijanowski, & Lim, 2005; Uttawa, Bhuvandasa, & Aggarwal, 2012). Major coastal cities such as New York, Miami, Boston, and New Orleans are particularly vulnerable to climate change events (Pelling & Blackburn, 2014). Cities such as Detroit, which have suffered significant economic and environmental challenges related to deindustrialization and disinvestment, face different but equally profound vulnerabilities in the face of further environmental turbulence, such as deteriorating infrastructure and severely reduced social and safety services.

Rural impacts

The growth of cities is mirrored, in turn, by the “hollowing out” of rural communities, which are challenged by urban migration and by threats to rural livelihoods from acute weather events and longer-term climatic changes (Tschakert, Tutu, & Alcaro, 2013). Climate changes such as long-term drought and arctic warming and manmade disasters like oil spills disproportionately affect the livelihoods and landscapes of rural residents. Such changes undermine well-being, disrupt social networks, and deepen often unacknowledged disparities between rural and urban populations, including differentials in access to formal resources and supports. Rural indigenous communities, already persistently marginalized, are particularly vulnerable to negative health and mental health outcomes as a result of changes in their environments and ways of life (Cochran et al., 2013; Osofsky, Palinkas, & Galloway, 2010; Palinkas, 2009).

THE HUMAN IMPACTS OF GLOBAL ENVIRONMENTAL CHANGE

Population displacement

One of the most pronounced impacts of global climate change is the massive displacement of populations. Environmental or ecological refugees are people forced to migrate because of sudden or long-term changes to their local environment that compromise their well-being or

livelihood, such as increased droughts, desertification, sea-level rise, and the disruption of seasonal weather patterns such as monsoons (Myers, 1993). The Environmental Justice Foundation (EJF) claimed in 2009 that 500 million to 600 million people—nearly 10% of the world's population—are at risk of displacement from climate change. Around 26 million have already migrated elsewhere, a figure that the EJF predicts could grow to 150 million by 2050. Many countries in the Global South (e.g., Bangladesh, Kenya, Papua New Guinea, Somalia, Yemen, Ethiopia, Chad, Rwanda) could see large movements of people because of climate change (EJF, 2009). The United States will not only see increasing numbers of transnational climate refugees, but will increasingly be faced with internal displacement as people move from arid, hot, and fire-prone areas to those with more equable climates. Domestically and globally, already vulnerable and marginalized groups are most likely to be involuntarily displaced (Warner, Ehrhart, de Sherbinin, Adamo, & Onn, 2009). Whether internal or transnational, these population shifts will have significant implications for U.S. cities and regions, from strains on infrastructure capacities and economic resources to social challenges associated with changing community demographics (IPCC, 2014).

Natural disasters

Increased exposure to more severe natural disasters, both acute and chronic, is another major impact. By 2015, on average more than 375 million people per year are likely to be affected by climate-related disasters—over 50% more than have been affected in an average year during the last decade (Schuemer-Cross & Taylor, 2009). 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). They exacerbate existing physical and mental health problems and create new problems that interfere with help-seeking and evacuation (Neria, Nandi, & Galea, 2008; North & Pfefferbaum, 2013). The World Bank's [Building Resilience](#) report (2013) finds that economic losses from natural disasters have risen from \$50 billion each year in the 1980s to just under \$200 billion each year in the last decade. Total reported losses from disasters are estimated at \$3.8 trillion in this period with 74% caused by extreme weather (Munich RE, 2013).

Psychosocial impacts

In the United States, the psychosocial impacts of natural disasters have been well documented. Boscarino et al. (2013) found that 14.5% of Superstorm Sandy survivors screened positive for posttraumatic stress disorder (PTSD), 6% met criteria for depression six months postdisaster, 20% sought some type of professional counseling, and 30% experienced one or more of the above. Perhaps the most thoroughly documented instance of postdisaster mental health impacts was Hurricane Katrina. Galea et al. (2007) found that 17% of residents in New Orleans reported signs of serious mental illness in the month after the disaster. Other impacts include significant increases in the number of admissions for acute myocardial infarction during the six years after Katrina (Peters et al., 2014), and interpersonal violence (Schumacher et al., 2010). Symptoms of posttraumatic stress have declined over time but remained high 43–54 months later, especially

among those who had poor mental health and low socioeconomic status before the hurricane (Paxson, Fussell, Rhoades, & Waters, 2012).

The Katrina experience also illustrates the devastating impact of exposure to natural disasters and forced relocation on community stability, cohesion, and resilience. An estimated 1.5 million people left their homes along the Gulf Coast (Aljazeera America, 2013). Many who left did not return, including a disproportionate number of African Americans, resulting in a population decline in New Orleans from 484,000 to 344,000 (Robertson, 2011). Texas was the leading location of displaced residents, followed by Louisiana and other locations in the South (Sastri & Gregory, 2014). Those who relocated permanently were at increased risk for PTSD and other mental health problems (Fussell & Lowe, 2014; Hansel, Osofsky, Osofsky, & Friedrich, 2013; LaJoie, Sprang, & McKinney, 2010; Tucker, Pfefferbaum, Jeon-Slaughter, Khan, & Garton, 2012).

Disproportionately affected populations

Climate change and other forms of environmental degradation have an impact on all humans, but these challenges disproportionately affect populations of lower 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 employment and income; escalating food insecurity; and the effect of extreme weather events on the marginal, ecologically vulnerable, inadequately resourced locations where the poor often live (Leichenko & Silva, 2014). As demonstrated by Hurricane Katrina in New Orleans in 2005 and Typhoon Hiyan in the Philippines in 2013, the poorest and most marginalized populations are especially vulnerable to natural disasters. Therefore, climate change and environmental challenges “have social justice implications that demand consideration” (Doherty & Clayton, 2011, p. 265). Both NASW (2012) and the International Federation of Social Workers (2012) recognize that current and expected environmental inequities that violate social justice principles in two key respects: (1) by unfairly targeting vulnerable segments of the population, and (2) by increasing the numbers of vulnerable individuals, communities, and nations.

GLOBAL ENVIRONMENTAL CHANGE'S HUMAN IMPACTS CAN BE PREVENTED OR SIGNIFICANTLY REDUCED

Social work interventions

Social workers can exercise a leading role in addressing the human impacts of environmental change in four major areas: (1) disaster preparedness and response; (2) population dislocation; (3) community-level organizing and development aimed at strengthening local and regional capacity to respond to global environmental change, particularly in urban settings; and (4) mitigation (i.e., targeted policy), advocacy, and practice engagement in addressing the underlying causes of environmental change. Social work's efforts must comprehensively cover the interventions essential to addressing contemporary environmental threats: mitigation, adaptation, and treatment. *Mitigation* refers to actions to limit the rate or magnitude of environmental changes. *Adaptation* refers to "actions taken in advance of [environmental] impacts or reactions in response to perceived or real...risks" (Ebi & Semenza, 2008); adaptive capacity building, in other words, is aimed at both existing challenges and those as yet unknown or unanticipated. *Treatment* refers to alleviating the health and mental health impacts of environmental events on individuals and groups. In public health terms, mitigation, adaptation, and treatment roughly align with primary, secondary, and tertiary prevention.

Disaster preparedness and response

Social workers have traditionally been engaged in both the development and implementation of disaster preparedness plans and also the delivery of social and psychological services to disaster victims. To effectively address the increasing numbers of severe disasters, however, social workers will need to be even more actively engaged in disaster preparedness and response.

Drawing from the concept of corrosive communities and its relationship to theories of resource conservation, cognitive activation, and risk and resilience, Palinkas (2012; 2014) proposed a conceptual model that identifies three tiers of impacts of both natural and technological disasters:

Tier 1: Biopsychosocial impacts

Biopsychosocial impacts are direct consequences of the contamination of the physical environment, including engagement in cleanup activities, short- and long-term economic and cultural impacts, health effects related to contact with environmental hazards, and litigation related to compensation for damages.

Tier 2: Interpersonal impacts

Interpersonal impacts are both direct consequences of the biopsychosocial impacts and mediators of the relationship between the biopsychosocial and intrapersonal impacts, including a reduction in levels of social support, increase in levels of social conflict, and an increase in collective uncertainty about the future and long-term consequences of the disaster event.

Tier 3: Intrapersonal or behavioral health impacts

Intrapersonal or behavioral health impacts are consequences of both the biopsychosocial and the interpersonal impacts, including 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.

Programs and practices designed to build behavioral resilience in individuals and communities may serve to prevent or reduce the incidence and magnitude of biopsychosocial impacts in the aftermath of a disaster. Over the past decade, community-based disaster management and participatory disaster planning have emerged as broad strategies for building such resilience (Pelling, 2007). Social work has the capacity to integrate these broad approaches with more specific interventions tailored for application to disaster planning and prevention.

For example, existing interventions may serve as models for the development of interventions that build resilience in families and communities before a disaster strikes. Two such interventions are the *Strengthening Families Program* (SFP) and *Coping with Work and Family Stress*. The Strengthening Families Program is 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 years (Kumpfer, Molgaard, & Spoth, 1996). Coping with Work and Family Stress is a workplace preventive intervention designed to teach employees aged 18 years and older how to deal with stressors at work and at home (Snow, Swan, & Wilton, 2002).

The *Communities That Care* Program (CTC) likewise fosters an approach with potential for adaptation to prevent behavioral health problems in children and adults postdisaster (Hawkins & Catalano, 2002; Hawkins, Catalano, & Arthur, 2002). A community-based prevention program, CTC 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. The program is designed to increase communication, collaboration, commitment, and ownership among community members and service providers. Social workers provide communities with technical assistance in coalition building, conducting a needs assessment, selection of appropriate EBPs to address needs, and ongoing evaluation of process and outcomes (Arthur & Blitz, 2000). Additionally, CTC incorporates social development strategies in their training activities and technical assistance to provide specific guidelines for implementation (Catalano & Hawkins, 1996; Fagan, Hanson, Hawkins, & Arthur, 2008). Doing so also helps community members to develop both positive social bonds through involvement in a social group such as a coalition, family, or class, and also social skills and recognition for their contributions to the group (Hawkins et al., 2008). Thus, a disaster-specific CTC model could simultaneously address Tier II interpersonal and Tier III intrapersonal impacts

These activities are intended to prevent adverse behavioral health impacts, but numerous evidence-based treatments (EBTs) also exist for such 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 child and parent and typically is delivered in clinics, and *Cognitive-Behavioral*

Intervention for Trauma in Schools (CBITS) (Jaycox, 2004), a 10-group session and 1–3 individual session intervention designed specifically for use in schools. These interventions are effective in alleviating PTSD and other symptoms in children experiencing sexual abuse, multiple trauma, and disaster (Cohen, Deblinger, Mannarino, & Steer 2004; Kataoka et al., 2003; Stein et al., 2003). *Motivational Interviewing* (MI) (Miller & Rollnick, 2002) and *Screening, Brief Intervention, and Referral to Treatment* (SBIRT) (Babor et al., 2010) are potentially useful interventions for disaster survivors with preexisting drug and alcohol disorders who experience a worsening or recurrence of symptoms. *Psychological First Aid* (PFA) is an increasingly used postdisaster intervention (Forbes et al., 2011). It includes the provision of information, comfort, emotional support, and instrumental support to those exposed to an event, with assistance provided in a step-wise fashion tailored to the person's needs. Though treatments such as TF-CBT and CBITS may be employed postdisaster, PFA is designed for use during the disaster itself or in its immediate aftermath. By serving as a form of risk assessment and referral to services during a disaster and by providing social support and facilitating connections to social support networks, PFA is also designed to address Tier I and Tier II impacts on existing health services (North & Pfefferbaum, 2013). Because the TF-CBT and CBITS treatments reduce adverse intrapersonal health outcomes during the postdisaster period, they have potential for addressing interpersonal Tier II impacts as well. Efforts are also underway to develop and evaluate internet-based interventions for psychological screening and referral to treatment in the immediate aftermath of a disaster (Amstadter, Broman-Fulks, Zinzow, Ruggiero, & Cercone, 2009; Ruggiero et al., 2006; Ruggiero et al., 2012). Such interventions show promise in providing a cost-effective means of identifying disaster survivors in need of services and making appropriate referrals to treatment.

The evidence supporting the use of these interventions in both short- and long-term disaster recoveries is limited. Research is necessary to evaluate the effectiveness of existing EBP in the aftermath of natural and manmade disasters and to develop effective strategies for their implementation by social workers and other disaster responders. There is robust evidence of socioeconomic and cultural differentials in both the impacts of and responses to disasters and disaster-related interventions (Norris, 1992; Palinkas, 2012); therefore, adapting interventions that are responsive to both structured inequities and cultural and ethnic differences will be an important cross-cutting dimension in these efforts. Though currently underdeveloped in social work's intervention portfolio, community- and policy-level efforts are particularly critical to strengthen the "safety net" of response structures and actions of local and national governments. For example, the lack of disaster-response infrastructure in both the Philippines and Haiti left a largely uncoordinated patchwork of in-country foundations and international nongovernmental organizations (NGOs) to step in in a haphazard manner. Social work knowledge and skills are critical to building response capacity in such cases. Social workers can help train NGOs and federal or regional officials who are responsible for preserving the lives of disaster victims. Social workers can also help to coordinate and integrate the efforts of government, private foundations, NGOs, and religious institutions in disaster preparedness and response.

Promising practice innovations in this area include community-building and coordination activities that draw on existing knowledge and skills in community social work practice. In

Seattle, for example, community gardens are designated as *Community Emergency Hubs*. Such innovations provide both local sites for action and access to already developed community networks.

Population dislocation

Both in the United States and internationally, social workers have an important role to play in environmental refugee resettlement and services. Such services assist refugees with resettlement, first and foremost in less affected regions within their countries of origin, and second, in regions across national borders that are less affected by ecological changes. In collaboration with the United Nations High Commissioner for Refugees, social workers can and should develop and implement an Environmental Refugee Resettlement Plan (ERRP). Such a plan would outline a three-tier system of service delivery to environmental refugees. Tier I would include services delivered *in situ* in home communities. Tier II would include services delivered elsewhere in countries of origin that are less affected by the environmental changes but serve as resettlement sites for displaced refugees. Tier III would include services delivered in host countries that are less affected by environmental challenges. Tiers II and III services would also involve preparing host communities for the influx of new refugees. Securing the legal status of such refugees through advocacy efforts is also an essential requirement for their support (Terminski, 2011).

Weine (2011) has proposed a model for developing family-based interventions aimed at preventing and treating refugees' mental and behavioral health problems. He argues that interventions that aim to stop, lessen, or delay possible negative individual mental health and behavioral sequelae through improving family and community protective resources in resettled refugee families should possess eight characteristics: feasibility, acceptability, culturally tailored, multilevel, time focused, prosaicism, effectiveness, and adaptability (2011). "To address these eight characteristics in the complex environment of refugee resettlement requires modifying the process of developmental research through incorporating innovative mental health services research strategies, including: resilience framework, community collaboration, mixed methods with focused ethnography, and the comprehensive dynamic trial" (Weine, 2011, p. 410).

Community-based adaptation, resilience, and sustainability

Assisting vulnerable individuals, communities, and societies to adapt is a critical avenue for social work involvement in addressing the human impacts of environmental degradation. In particular, social workers with skills in community practice and organizing will be key to supporting the forward-looking development of resilient communities (Kulig, Edge, Townshend, Lightfoot, & Reimer, 2013), which is increasingly seen as integral to climate change adaptation (National Research Council, 2011). Fünfgeld et al. (2013) noted, "...using climate change adaptation as an opportunity to systematically improve community resilience is one of the most important adaptation outcomes that primary health and community welfare sector organizations can lead and facilitate" (p. 7). Key dimensions of community resilience include robust levels of social inclusion and connectedness (Aldrich & Meyer, 2014), the meaningful involvement of

community residents and stakeholders in proactive planning and participatory development, and built environments that encourage social interaction and collaboration.

Community engagement and empowerment are not only central to addressing environmental vulnerabilities; they also result in important co-benefits, including improvements in health and mental health, social interactions, social cohesion, and levels of community involvement (Ebi & Semenza, 2008). Community-level strategies designed to foster community resilience and ability to proactively cope with environmental changes align with social work's expertise in mezzo-level interventions (Mathbor, 2007). Key community interventions include efforts to enhance community and neighborhood social capital (Aldrich & Meyer, 2014) and social assets (Delgado & Humm-Delgado, 2013), the development of strong crosswalks between informal and formal support systems, and macro-level interventions designed to foster social development and address underlying sociostructural vulnerabilities, including economic inequality and chronic poverty.

Partnerships with grassroots, locally based efforts are particularly promising avenues for greater social work research and practice investment. Many such efforts focus on community-building projects (e.g., community gardens, urban farms, greenspace enhancement) that center the active participation, engagement, and leadership of poor and marginalized residents (Forsyth, 2013; Schlosberg & Collins, 2014; Schweizer, Davis, & Thompson, 2013). "Increased capacity, voice, and influence of low-income groups and vulnerable communities and their partnerships with local governments...benefit adaptation" (IPCC, 2014, p. 18). A growing body of research and practice evidence points to the multiple social and health benefits that come from place- and community-based efforts to enhance livability and revitalize urban neighborhoods. For example, Anguelovski (2013) describes a range of grassroots "green" projects in struggling postindustrial cities such as Detroit, arguing that these not only result in important health and economic benefits for local residents but also build coalitions and social connections across individuals and groups through shared investment in place. Efforts in the United States and other countries to develop urban ecodistricts, which focus on social equity and sustainability at the neighborhood scale, similarly integrate ecological and social sustainability and social justice (Holden & Li, 2014). Dominelli (2014) strongly encourages social work involvement in and support of such projects, which in effect are strategic experiments in urban and environmental innovation (Bulkeley & Broto, 2013). However, determining how to effectively take inherently localized projects to a larger scale will require significantly greater investments in context-sensitive, place-based research focused on better understanding the interconnections among social, human, and environmental processes (Devine-Wright, 2013). Scholars also note the need for care to ensure that local capacity-building efforts are not seen as replacements for macro-level policies and interventions aimed at addressing underlying sociostructural vulnerabilities (McCarthy, 2014).

Social work also has a growing portfolio of evidence-informed, culturally-responsive interventions at the community level that hold promise as potentially translatable to addressing environmental challenges. For example, the CTC intervention described above seems readily adaptable to efforts to enhance community-level climate change resilience. Another well tested community-based intervention with deep roots in social work research and practice is asset

building, which is increasingly recognized as a viable social development strategy aimed at reducing economic inequality around the world (Sherraden, 2014). The human ability to absorb economic shocks associated with environmental challenges depends largely on the household asset base. Environmental disasters often lead to partial or total loss of household assets, resulting in low coping capacity and further vulnerability (De la Fuente, 2007; World Bank, 2008). In the broader adaptation literature, asset accumulation as a risk-mitigation strategy is gaining increasing attention. However, empirical studies of asset-based strategies for the purpose of climate adaptation are few (Moser & Satterthwaite, 2010; Stein & Moser, 2014). Building from now established knowledge on institutional theories of asset-building for low-income families (Schreiner & Sherraden, 2007), social work scholars can contribute to rigorously studying asset accumulation interventions in relation to environmental problems, their effect on adaptation and resilience, and the institutional arrangements that would support fair distribution of adaptation-related assets.

Developing effective sustainability involves meeting the immediate needs of the current generations without compromising the capacity of future generations to satisfy their needs (World Commission on Environment and Development, 1987). It consists of three distinct but overlapping components: environmental, economic, and social. A socially sustainable community is equitable, diverse, connected, and democratic (McKenzie, 2004). Potential social work approaches to promoting socially sustainable adaptation to global environmental change include capacity building and empowerment, resilience building, social innovations and social enterprise, and education and advocacy. Building sustainable societies also requires developing common understandings of the causes and consequences of environmental degradation along with values and expectations that fit the changing ecological realities. “Understandings of, and responses to, climate change will be influenced by worldviews, cultures, and social identities” (Swim, Clayton, & Howard, 2011, p. 248). As “applied anthropologists,” social workers are well positioned to engage local knowledge in the communities they serve. Social workers can help to shape understandings, values, and expectations that are responsive to ecological change, and to explain the emergence of new opportunities and resources that occur simultaneously with the disappearance of old opportunities and resources.

Mitigation

The profession of social work’s commitments to advancing social justice and human rights, addressing the social determinants of human well-being, and policy research and practice also position it to assertively advocate for “strategies that address...root causes as well as more proximal concerns” (Pelling, 2011, p. 176). Social workers can exercise important policy and advocacy roles to address the disproportionate effects of environmental challenges on the world’s most vulnerable individuals, groups, and communities. “The same processes that position some people to be in harm’s way (i.e., living in marginal low-lying areas and having precarious, resource-based livelihoods) also limit their options for mitigation and adaptation” (Brklacich et al., 2007, p. 267). Alternative energy sources, for example, remain expensive and not accessible to all segments of the population. Social workers are well positioned to advocate for equal access to alternative fuel sources. Similarly, building resilient communities requires

that communication technologies are accessible and available to all, regardless of age, gender, nationality, or socioeconomic status. Social workers can advocate for the marginalized and disenfranchised in securing access to technology and other resources.

Social workers must likewise be engaged in addressing the problem of unregulated economic growth and development. Centrally, social workers have the responsibility to address the links between socioeconomic disparities and environmental justice. They can do so by supporting equity-oriented urban design and planning and advocating for and partnering with predominantly low-income communities to prevent the placement of toxic waste sites and industries that contribute significant amounts of pollution to the environment. These efforts will entail collaborations not only between social workers and community stakeholders but also with disciplines such as urban planning, architecture, and public health.

Social workers also have an important role to play in increasing public awareness of the human impacts of environmental change. This role includes working at the micro, mezzo, and macro levels (e.g., engaging with individuals, groups, and communities in learning about and crafting responses to the local impacts of global changes) to overcome the apathy towards, denial of, or misinformation about global climate change. Doing so helps to ensure the implementation of mitigation and adaptation policies, programs, and practices. It also fosters hope and optimism that investments in mitigation, adaptation, and transformation can and will have meaningful results.

The science of disaster response, refugee resettlement, and prevention of and adaptation to environmental change has made substantial advances in the past decade. Still, the translation of effective, evidence-based interventions, policies, and programs requires additional efforts aimed at developing a robust base for environmental social work. Such development entails (1) an understanding of the barriers and facilitators involved in reorienting tested social, community, and behavioral strategies that address environmental challenges, and (2) the development of evidence-based strategies that facilitate the implementation, scaling up, and sustainment of these interventions (Palinkas & Soydan, 2012; Proctor, et al., 2009). The systematic study of how a specific set of activities and designated strategies can be successfully tailored and integrated in specific local settings is also necessary. Social workers have been successfully engaged in creating an evidence base for implementation strategies like the *Availability, Responsiveness and Continuity* model (Glisson & Schoenwald, 2005), learning collaboratives (Margolis, Peterson, & Seid, 2013), and community development teams (Palinkas et al., 2013) in child welfare and child health. Other widely used implementation models include the *Reach, Efficacy/effectiveness, Adoption, Implementation, and Maintenance* (RE-AIM) model developed by Glasgow (2009); the Institute for Healthcare Improvement's (2004) *Breakthrough Series*; the Department of Veterans Affairs' *Quality Enhancement Research Initiative* model (Demakis, McQueen, Kizer, & Feussner, 2000); and the *Precede-Proceed* model (Green & Kreuter, 2005). In the next decade, efforts will be required to adapt these interventions to scale up the use of evidence-based programs, policies, and interventions for disaster response, refugee resettlement, and prevention of and adaptation to environmental change.

MEANINGFUL AND MEASURABLE PROGRESS CAN BE MADE IN A DECADE

Social work has begun to formally build a body of research, policy, and practice at the nexus of society and the environment (Coates & Gray, 2012). Through a purposeful effort to tackle the human impacts of global environmental change as a grand challenge, many in the profession can be engaged in addressing the areas discussed above. In addition to building on or redirecting existing interventions, significant research, practice, and training investments will be required. These will strengthen social work's response capacity and broaden the range of available tested interventions. They will particularly benefit interventions that strengthen social integration and cohesion, mobilize community capacity to anticipate and respond to environmental challenges, and advocate for shifts in policies and services to recalibrate current tendencies to focus on the physical rather than social and human dimensions of environmental challenges.

A list of social work activities and outcomes that can be achieved in a decade is provided in Table 1.

Table 1. Social Work Accomplishments for the Next Decade

Challenge Area	Type of Response	Domains Addressed	Outcome
Disaster preparedness and response	<ul style="list-style-type: none"> • Mitigation • Treatment • Prevention 	<ul style="list-style-type: none"> • Basic needs (e.g., food, water, shelter) • Safety • Health 	<ul style="list-style-type: none"> • Implement a nationwide program for training teachers to recognize trauma symptoms and make appropriate referrals for treatment of child disaster survivors. • Contribute to the evidence base for interventions such as Psychological First Aid. • Evaluate the effectiveness of web-based technology in delivering mental health services to disaster survivors. • Develop an EBP for preventing and mitigating community-level conflicts, reducing community uncertainty, and building social capital postdisaster. • Adapt evidence-based approaches to community empowerment in preparing for and responding to disasters. • Develop a CSWE-approved training model in disaster preparedness and response for use in schools of social work. • Develop an evidence-based strategy for scaling up use of EBPs postdisaster that will have the following aims: <ul style="list-style-type: none"> ◦ Fewer disaster victims per event ◦ Fewer victims with trauma per event ◦ Quicker disaster response
Population dislocation	<ul style="list-style-type: none"> • Resettlement • Integration 	<ul style="list-style-type: none"> • Basic needs • Safety • Health • Social connectedness • Self-actualization 	<ul style="list-style-type: none"> • Increased recovery time • Implement a collaborative care model for management of mental and behavioral health impacts of involuntary relocation because of environmental changes in primary care settings. • Adapt, evaluate, and implement EBPs for treatment and prevention of mental and behavioral health problems associated with involuntary migration. • Collaborate with the UNHCR in developing a plan for implementing an ERRP, a three-tier plan for environmental refugee assistance and resettlement. • Coordinate with international, national, and local agencies to implement the ERRP, which will have the following aims:

Community-based adaptation, resilience, and sustainability	<ul style="list-style-type: none"> • Advocacy • Community empowerment • Community capacity building • Prevention 	<ul style="list-style-type: none"> • Basic needs • Safety • Health • Social connectedness • Self-actualization 	<ul style="list-style-type: none"> ○ Fewer refugees living in camps and other temporary shelters ○ Reduced time spent in transitional living arrangements ○ More refugees employed in host communities ○ Increased access to health and social services ○ Fewer physical and mental health problems related to migration stress and acculturation • Develop a CSWE-approved training model in refugee resettlement and community integration for use in schools of social work. • Develop, tailor, and implement participatory interventions for enhancing community-based adaptation to current and future environmental challenges, with the following aims: <ul style="list-style-type: none"> ○ Identification of urban communities most vulnerable to negative environmental impacts ○ More communities demonstrating positive changes in measures of community adaptation and resilience (e.g., social capital, social cohesion, network density, civic engagement, community participation [e.g., in grassroots sustainability and urban rejuvenation projects], financial asset accumulation) ○ More governments (e.g., municipal, regional, national) implementing adaptation policies and programs developed with community input ○ More interdisciplinary partnerships between social work and other urban professions (e.g., urban planning, architecture, and public health) • Develop a guidebook for international field placements and student exchanges in planning, implementation, and sustainability • Develop measures of social sustainability inclusive of indices of social equity and inclusion • Develop a CSWE-approved training module on mitigation of environmental degradation associated with increasing urbanization/enhancement of community adaptive capacity for use in schools of social work • Develop, evaluate, and implement EBPs for reducing exposure to environmental degradation in low-income poor neighborhoods and low-income nations that will have the following aims: <ul style="list-style-type: none"> ○ Fewer low-income individuals exposed to environmental contaminants. ○ Reduced incidence of environment-related chronic diseases ○ Reduced impact on low-income communities of chronic and acute extreme weather events
Mitigation	<ul style="list-style-type: none"> • Advocacy • Community empowerment • Community education 	<ul style="list-style-type: none"> • Basic needs • Safety • Health 	

Note: *CSWE*, Council on Social Work Education; *EBP*, Evidence-Based Practice; *ERRP*, Environmental Refugee Resettlement Plan; *UNHCR*, United Nations High Commissioner for Refugees

Social workers can address each of the four challenge areas through four sets of activities:

1. *Intervention development* will draw on innovative methods and design strategies to evaluate existing interventions such as *Psychological First Aid*. It will evaluate and adapt current evidence-based interventions such as *Trauma-Focused Cognitive Behavioral Therapy* for use with different types of disasters in different settings and populations.
2. *Implementation* will use existing and potential evidence-based strategies to develop, evaluate, and adapt current and emerging interventions.
3. *Coordination* will integrate existing and proposed local, state, national, and international efforts at mitigation and adaptation.
4. *Education* will develop curricula for social work graduate students focused on the human impacts of environmental change and implement existing curricula for disaster response to nonsocial work professionals like teachers and primary care providers.

GLOBAL ENVIRONMENTAL CHALLENGES REQUIRE INTERDISCIPLINARY COLLABORATION

Addressing the human impacts of environmental challenges requires interdisciplinary efforts between social workers and other social (e.g., anthropologists, economists, sociologists, political scientists, geographers), behavioral (e.g., psychologists, psychiatrists), public health (e.g., epidemiologists, health services researchers, environmental health experts), and environmental (e.g., climatologists, environmental policy experts, engineers) scientists and practitioners. Collaborations with legal experts, architects and urban planners, and experts in environmental sciences (e.g., oceanographers, hydrologists, geologists, geochemists, atmospheric scientists) are also essential. Impact-oriented partnerships are likewise necessary between diverse and unconventional funders and stakeholders from state, local, and nongovernmental environmental and planning entities, to corporations and businesses more typically seen as part of the problem rather than the solution (e.g., the energy industry). Partnerships with innovation-oriented sectors such as the entertainment and technology industries will also be vital to crafting 21st century mechanisms for social engagement, connectivity, and inclusion.

While no single discipline or profession is prepared to engage in all of the efforts to mitigate, adapt to, and prevent the human impacts of global environmental change, social workers are well positioned for leading roles in these efforts. This conclusion is based on both the centrality of the person-in-environment perspective in social work theory, research, and practice, and on the profession's ongoing experience in disaster response, refugee resettlement, community capacity-building, and environmental justice. It is also based on the ability of social workers to facilitate the translation of research to practice in their roles as researchers, practitioners, and representatives of the communities they serve. Social workers are in a unique position to bring together global and local solutions to the problems associated with global environmental change.

ADDRESSING GLOBAL ENVIRONMENTAL CHANGE DEMANDS TRANSFORMATIVE SOLUTIONS

As awareness grows of the complex intersections between intransigent social and health disparities and the differential impacts of environmental change on vulnerable individuals and

communities, there is increased recognition of the importance of *transformative* as well as adaptive responses to environmental challenges (Pelling, 2011). Key questions in this regard relate to the sociostructural factors and mechanisms placing particular groups at differential risk—questions that draw attention on one hand to power asymmetries, conflicts over resources, and structural inequities (Brown, 2014), and on the other to the vital importance of harnessing the capacities, capabilities, and local knowledge inherent in all communities as resources for transformative change. However, comprehensive research, practice, and policy attention to questions of social justice, human rights, and global environmental change has lagged (Preston et al., 2014). Social work scientists and practitioners are well positioned to bridge this gap.

The American Psychological Association Task Force on the Interface Between Psychology and Global Climate Change (Doherty & Clayton, 2011) underscores the need for leadership in three sets of activities: (1) 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; (2) efforts to promote 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 that affect the health and relationships of the earth's most vulnerable individuals and communities; and (3) addressing factors that contribute to the social and economic disparities of climate change impacts. Social workers can and should have a similar set of responsibilities. In adopting these responsibilities, social work must transform itself into a discipline that intentionally focuses on the physical as well as the social environment and addresses patterned socioenvironmental disparities (Kemp, 2011; Peeters, 2012). To tackle this grand challenge, the science of social work must evolve into a hybrid of social and environmental science, while the practice of social work must focus on mitigation, adaptation, and prevention. The evolution must begin in the classroom with the preparation of social work students (Jones, 2010; Kemp, 2011; Miller & Hayward, 2014). Responsiveness to the human impacts of turbulent, escalating environmental changes requires that social work practitioners be skilled at collaborating with experts from other disciplines and community partners. It requires that social workers be oriented to the importance of interventions at multiple levels, and intent on ensuring that efforts to prevent, treat, and mitigate the consequences of environmental degradation and change are equitably distributed to all.

Robust environmental social work research and practice will likewise require the development and implementation of new forms of research, practice, and academic–community partnerships. New sets of partners and new forms of collaboration based on principles of equity, respect, diversity, transparency, debate, and compromise will be necessary. Effective and sustainable research–practice partnerships build upon the existing organizational cultures of research and policy/practice; however, they are not merely an aggregation of these cultures. Effective partnerships are the product of the transformative exchange of understandings, values, attitudes, and rules for engagement between researchers, practitioners, community stakeholders, and policymakers. This exchange occurs through a process of debate and compromise. It assumes that there is mutual interest in learning how policymakers and practitioners view research and how researchers view policy and practice. It also requires an ability to communicate using a

common language and a willingness to collaborate and compromise (Nurius & Kemp, 2012; Soydan & Palinkas, 2014).

Finally, environmental social work research and practice must be founded on the transformation of the science of social work into one that seeks to integrate global knowledge with local experience. Although social work traditionally assigns priority to the former in the belief that it possesses external validity and adheres to standards of scientific rigor, “local” and indigenous knowledges are vital to adequate responses to current and forthcoming environmental challenges. In a robust science of environmental social work, community members and practitioners will be engaged in partnership with researchers to generate local, deeply contextualized knowledge that complements and contributes to the global knowledge generated by researchers and policymakers.

SUMMARY

In their International Policy Statement on Globalization and the Environment, the International Federation of Social Workers urged social workers to,

...recognize the importance of the natural and built environment to the social environment, to develop environmental responsibility and care for the environment in social work practice and management today and for future generations, to work with other professionals to increase our knowledge and with community groups to develop advocacy skills and strategies to work towards a healthier environment, and to ensure that environmental issues gain increased presence in social work education (2012, Section 2, paragraph 9).

In this position paper, we have summarized evidence regarding the rapidly escalating role of environmental factors in social, health, economic, and justice problems and disparities that are central to the mission of social work. Environmental challenges manifest in both dramatic events (e.g., natural disasters), and chronic, slow-onset hazards (e.g., prolonged drought), both of which threaten the health and welfare of vulnerable populations. Understanding, assessing, and intervening with natural, built, and exploited environments is critical not only to addressing the issues described here, but also to leveraging the capacity for achieving other grand challenges that are embedded within these environments. The challenge, indeed imperative, to systematically and effectively address the impacts of complex environmental change in the next decade cannot be side-stepped. We have presented a vision for achieving each of the above-noted goals of the International Federation of Social Workers. The grand challenge lies in implementing this vision. Many of the necessary tools already exist or can be adapted to mitigate, adapt to, or treat the consequences of environmental change. While it lies beyond the capacity of our profession to keep the global environment from changing, it is certainly within our capacity to assist communities and societies to prevent, anticipate, and respond to the human impacts of these changes in a just, equitable, inclusive, and culturally responsive manner.

REFERENCES

- Aldrich, D. P., & Meyer, M. A. (2014). Social capital and community resilience. *American Behavioral Scientist*. Advance online publication. doi:10.1177/0002764214550299
- Aljazeera America. (Aug 29, 2013). Eight years after Hurricane Katrina, many evacuees yet to return. Retrieved from <http://america.aljazeera.com/articles/2013/8/29/eight-years-afterkatrinalowincomeevacueeshaveyettoreturn.html>
- Amstadter, A. B., Broman-Fulks J. J., Zinzow H., Ruggiero K. J., Cercone J. (2009). Internet-based interventions for traumatic stress-related mental health problems: A review and suggestion for future research. *Clinical Psychology Review*, 29, 410–420. doi: 10.1016/j.cpr.2009.04.001
- Anguelovski, I. (2013). New directions in urban environmental justice: Rebuilding community, addressing trauma, remaking place. *Journal of Planning Education and Research*, 33(2), 160–175. doi: 10.1177/0739456X13478019
- Arthur, M. W., & Blitz, C. (2000). Bridging the gap between science and practice in drug abuse prevention through needs assessment and strategic community planning. *Journal of Community Psychology*, 28(3), 241–255.
- Babor, T. F., McRee, B. G., Kassebaum, P. A., Grimaldi, P. L., Ahmed, K., & Bray, J. (2007). Screening, Brief Intervention, and Referral to Treatment (SBIRT): Toward a public health approach to the management of substance abuse. *Substance Abuse*, 28(3), 7–30.
- Brklacich, M., Chazan, M., & Dawe, A. (2007). Vulnerabilities of societies under Global Climate Change (GEC). In H. Tiessen, M. Brklacich, G. Breulmann & R. S. C. Menzes (Eds.), *Communicating global change science to society* (pp. 73–88). Washington, DC: Island Press.
- Boscarino, J. A., Hoffman, S. N., Kirchner, H. L., Erlich, P. M., Adams, R. E., Figley, C. R., & Solhkhah, R. (2013). Mental health outcomes at the Jersey shore after Hurricane Sandy. *International Journal of Emergency Mental Health*, 15, 147–158.
- Brown, K. (2014). Global environmental change I: A social turn for resilience? *Progress in Human Geography*, 38(1), 107–117.
- Bulkeley, H., & Broto, V. C. (2013). Government by experiment? Global cities and the governing of climate change. *Transactions of the Institute of British Geographers*, 38(3), 361–375.
- Caruana, C. (2010). Picking up the pieces: Family functioning in the aftermath of natural disaster. *Family Matters*, 84, 79–88.

- Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories*. (pp. 149–197). New York, NY: Cambridge University Press.
- Coates, J., & Gray, M. (2012). The environment and social work: An overview and introduction. *International Journal of Social Welfare*, 21, 230–238.
- Cochran, P., Huntington, O. H., Pungowiyi, C., Tom, S., Chapin, F. S, III, Huntington, H. P., ...Trainor, S. F. (2013). Indigenous frameworks for observing and responding to climate change in Alaska. *Climate Change*, 120, 557–567.
- Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York: The Guilford Press.
- Cohen, J. A., Deblinger, E., Mannarino, A. P., & Steer, R. (2004). A multi-site, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(4), 393–402. doi: 10.1097/00004583-200404000-00005
- De la Fuente, A. (2007). Climate shocks and their impacts on assets. Occasional paper for UNDP 2007, Fighting climate change: Human solidarity in a divided world. Human Development Report 2007/2008. New York: Oxford University Press.
- Delgado, M., & Humm-Delgado, D. (2013). *Asset assessment and community social work practice*. New York: Oxford University Press.
- Demakis, J. G., McQueen, L., Kizer, K. W., & Feussner, J. R. (2000). Quality Enhancement Research Initiative (QUERI): A collaboration between research and clinical practice. *Medical Care*, 38(6 Suppl. 1), I17–I25. doi:10.1097/00005650-200006001-00003
- Devine-Wright, P. (2013). Think global, act local? The relevance of place attachments and place identities in a climate changed world. *Global Environmental Change*, 23, 61–69. doi:10.1016/j.gloenvcha.2012.08.003
- Doherty, T. J., & Clayton, S. (2011). The psychological impacts of global climate change. *American Psychologist*, 66(4), 265–276.
- Dominelli, L. (2014). Promoting environmental justice through green social work practice: A key challenge for practitioners and educators. *International Social Work*, 57(4), 338–345. doi: 10.1177/0020872814524968
- Ebi, K. L., & Semenza, H. C. (2008). Community-based adaptation to the health impacts of climate change. *American Journal of Preventive Medicine*, 35(5), 501–507.

- Environmental Justice Foundation. (2009). *No place like home: Where next for climate refugees?* London: Environmental Justice Foundation.
<http://ejfoundation.org/sites/default/files/public/no%20place%20like%20home.pdf>
- Fagan, A. A., Hanson, K., Hawkins, J. D., & Arthur, M. W. (2008). Bridging science to practice: Achieving prevention program implementation fidelity in the Community Youth Development Study. *American Journal of Community Psychology*, 41(3–4), 235–249.
- Forbes, D., Lewis, V., Varker, T., Phelps, A., O'Donnell, M., Wade, D. J.,... Creamer, M. (2011). Psychological first aid following trauma: Implementation and evaluation framework for high-risk organizations. *Psychiatry*, 74(3), 224–239. doi: 10.1521/psyc.2011.74.3.224
- Forsyth, T. (2013). Community-based adaptation: A review of past and future challenges. *WIREs Climate Change*, 4(5), 439–446. doi:10.1002/wcc.231
- Fünfgeld, H., Rance, A., Millin, S., Wallis, P., Bosomworth, K., & Lonsdale, K. (2013). *Climate change adaptation in the primary health and community welfare sector in Victoria: A literature review and analysis of institutional context and organisational needs for adaptation*. Melbourne: RMIT University, Monash University, Victorian Centre for Climate Change Adaptation Research.
- Fussell, E., & Lowe, S. R. (2014). The impact of housing displacement on the mental health of low-income parents after Hurricane Katrina. *Social Science and Medicine*, 113, 137–144. doi:10.1016/j.socscimed.2014.05.025
- Galea, S., Brewin, C. R., Gruber, M., Jones, R. T., King, D. W., King, L. A.,... & Kessler, R. C. (2007). Exposure to hurricane-related stressors and mental illness after Hurricane Katrina. *Archives of General Psychiatry*, 64(12), 1427–1434.
- Glasgow, R. E. (2009). Critical measurement issues in translational research. *Research on Social Work Practice*, 19(5), 560–568. doi:10.1177/1049731509335497
- Glisson, C., & Schoenwald, S. K. (2005). The ARC organizational and community intervention strategy for implementing evidence-based children's mental health treatments. *Mental Health Services Research*, 7(4), 243–259. doi:10.1007/s11020-005-7456-1
- Green, L. W., & Kreuter, M. W. (2005). *Health program planning: An educational and ecological approach*. Boston, MA: McGraw-Hill.
- Hansel, T. C., Osofsky, J. D., Osofsky, H. J., & Friedrich, P. (2013). The effect of long-term relocation on child and adolescent survivors of Hurricane Katrina. *Journal of Traumatic Stress*, 26(5), 613–620. doi: 10.1002/jts.21837
- Hawkins, J. D., & Catalano, R. F. (2002). *Investing in your community's youth: An introduction to the communities that care system*. South Deerfield, MA: Channing Bete.

- Hawkins, J. D., Catalano, R. F., & Arthur, M. W. (2002). Promoting science-based prevention in communities. *Addictive Behaviors*, 27(6), 951–976.
- Hawkins, J. D., Catalano, R. F., Arthur, M. W., Egan, E., Brown, E. C., Abbott, R. D., Murray, D. M.. (2008). Testing communities that care: The rationale, design, and behavioral baseline equivalence of the Community Youth Development Study. *Prevention Science*, 9(3), 178–190.
- Holden, M. & Li, C. (2014) The emergence and spread of eco-urban developments around the world. In *Proceedings of the 4th World Sustain. Forum*, 1–30 November 2014; Sciforum Electronic Conference Series, Vol. 4, 2014 , f008; doi:10.3390/wsf-4-f008
- Institute for Healthcare Improvement. (2004). The breakthrough series: IHI’s collaborative model for achieving breakthrough improvement. *Diabetes Spectrum*, 17(2), 97–101. doi:10.2337/diaspect.17.2.97
- Intergovernmental Panel on Climate Change. (2007). *Impacts, adaptations and vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. New York: Cambridge University Press.
- Intergovernmental Panel on Climate Change. (2013). *Climate change 2013: The physical science basis*. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. New York: Cambridge University Press.
- Intergovernmental Panel on Climate Change. (2014). *Impacts, adaptations and vulnerability*. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. New York: Cambridge University Press.
- International Federation of Social Workers. (2012). *Globalisation and the environment*. Retrieved from <http://ifsw.org/policies/globalisation-and-the-environment/>
- Jaycox, L. (2004). *Cognitive Behavioral Intervention for Trauma in Schools (CBITS)*. Longmont, CO: Lopriss West.
- Jones, P. (2010). Responding to the ecological crisis: Transformative pathways for social work education. *Journal of Social Work Education*, 46(1), 67–84. doi:10.5175/JSWE.2010.200800073
- Karl, T. R., Melillo, J. M., & Peterson, T. C. (eds.). (2009). *Global climate change impacts in the United States*. New York, NY: Cambridge University Press.
- Kataoka, S. H., Stein, B. D., Jaycox, L. H., Wong, M., Escudero, P., Tu, W.,...Fink, A. (2003). A school-based mental health program for traumatized Latino immigrant children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 42(3), 311–318.

- Keck, M., & Sakdapolrak, P. (2013). What is social resilience? Lessons learned and ways forward. *Erdkunde*, 67 (1), 5–19.
- Kemp, S. P. (2011). Recentering environment in social work practice: Necessity, opportunity, challenge. *British Journal of Social Work*, 41, 1198–1210.
- Kemp, S. P., Whittaker, J. K., & Tracy, E. M. (1997). *Person-environment practice: The social ecology of interpersonal helping*. New York, NY: Aldine de Gruyter.
- Kulig, J. C., Edge, D. S., Townshend, I., Lightfoot, N., & Reimer, W. (2013). Community resilience: Emerging theoretical insights. *Journal of Community Psychology*, 41(6), 758–775. doi: 10.1002/jcop.21569
- Kumpfer, K. L., Molgaard, V., & Spoth, R. (1996). The strengthening families program for prevention of delinquency and drug use in special populations. In: R. D. Peters & R. J. McMahon (Eds.), *Childhood disorders, substance abuse, and delinquency: Prevention and early intervention approaches*. Newbury Park, CA: Sage Publications.
- LaJoie, A. S., Sprang, G., & McKinney, W. P. (2010). Long-term effects of Hurricane Katrina on the psychological well-being of evacuees. *Disasters*, 34(4), 1031–1044. doi: 10.1111/j.1467-7717.2010.01181.x
- Leichenko, R., & Silva, J. A. (2014). Climate change and poverty: Vulnerability, impacts, and alleviation strategies. *WIREs Climate Change*, 5(4), 539–556. doi:10.1002/wcc.287
- Margolis, P. A., Peterson, L. E., & Seid, M. (2013). Collaborative Chronic Care Networks (C3N) to transform chronic illness care. *Pediatrics*, 131(Suppl 4), 219–223. doi: 10.1542/peds.2012-3786J
- Mathbor, G. M. (2007). Enhancement of community preparedness for natural disasters: The role of social work in building social capital for sustainable disaster relief and management. *International Social Work*, 50(3), 357–369. doi: 10.1177/0020872807076049
- McCarthy, J. F. (2014). Using community-led development approaches to address vulnerability after disasters: Caught in a sad romance. *Global Environmental Change*, 27, 144–155. doi:10.1016/j.gloenvcha.2014.05.004
- McKenzie, S. (2004). *Social sustainability: Towards some definitions*. Working paper series No. 27. Magill, Australia: University of South Australia, Hawke Research Institute.
- Mearns, R., & Norton, A. (Eds.). (2010). *Social dimensions of climate change: Equity and vulnerability in a warming world*. Washington, DC: The World Bank.
- Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: preparing people for change*. New York: Guilford Press. Retrieved December 2014 from <http://w3.unisa.edu.au/hawkeinstitute/publications/downloads/wp27.pdf>

- Miller, S. E., & Hayward, R. A. (2014). Social work education's role in addressing people and a planet at risk. *Social Work Education: The International Journal*, 33(3), 280–295. doi:10.1080/02615479.2013.805192
- Moser, C., & Satterthwaite, D. (2010). Toward pro-poor adaptation to climate change in the urban centers of low- and middle-income countries. In R. Mearns & A. Norton (Eds.), *Social dimensions of climate change: Equity and vulnerability in a warming world* (pp. 231–238). Washington, DC: The World Bank.
- Munich RE. (2013). Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE. Retrieved from <http://www.munichre.com/en/reinsurance/business/non-life/natcatservice/index.html>
- Myers, N. (1993). Environmental refugees in a globally warmed world. *Bioscience*, 43(11), 752–761. doi: 10.2307/1312319
- National Association of Social Workers. (2013). *Code of ethics*. Retrieved from <http://www.socialworkers.org/pubs/code/code.asp>
- National Association of Social Workers. (2012). *Social work speaks: National Association of Social Workers policy statements*. Washington, DC: NASW Press.
- National Research Council. (2011). *Building community disaster resilience through public-private collaboration*. Washington, DC: National Academies Press.
- Neria, Y., Nandi, A., & Galea, S. (2008). Post-traumatic stress disorder following disasters: A systematic review. *Psychological Medicine*, 38(4), 467–480.
- Norris, F. H. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology*, 60(3), 409–418.
- North, C. S., & Pfefferbaum, B. (2013). Mental health response to community disasters: A systematic review. *Journal of the American Medical Association*, 310(5), 517–518. doi: 10.1001/jama.2013.107799
- Nurius, P. S., & Kemp, S. P. (2012). Science, social work, social impact: Crafting an integrative conversation. *Research on Social Work Practice*, 22(5), 548–552. doi: 10.1177/1049731512444168
- Osofsky, H. J., Palinkas, L. A., & Galloway, J. M. (2010). Mental health effects of the Gulf oil spill. *Disaster Medicine and Public Health Preparedness*, 4, 273–276.
- Palinkas, L. A. (2009). The Exxon-Valdez oil spill. In: Y. Neria, S. Galea, & F. H. Norris, (Eds.), *Mental health Consequences of Disasters* (pp. 454–472). New York: Cambridge University Press.

- Palinkas, L. A. (2012). A conceptual framework for understanding and mitigating the mental health impacts of oil spills: Lessons from the Exxon Valdez oil spill. *Psychiatry*, 75(3), 203–222. doi: 10.1521/psyc.2012.75.3.203
- Palinkas, L. A. (2015). Behavioral health and disasters: Looking to the future. *Journal of Behavioral Health Services and Research*, 42(1), 86–95. doi: 10.1007/s11414-013-9390-7
- Palinkas, L. A., Holloway, I. W., Rice, E., Brown, C. H., Valente, T., & Chamberlain, P. (2013). Influence network linkages across treatment conditions in a randomized controlled trial of two implementation strategies for scaling up evidence-based practices in public youth-serving systems. *Implementation Science*, 8, 133. doi:10.1186/1748-5908-8-133
- Palinkas, L. A., & Soydan, H. (2012). *Translation and implementation of evidence-based practice*. New York: Oxford University Press.
- Pawar, M. (2013). Water insecurity: A case for social policy action by social workers. *Australian Social Work*, 66(2), 248–260. doi:10.1080/0312407X.2013.777969
- Paxson, C., Fussell, E., Rhodes, J., & Waters, M. (2012). Five years later: Recovery from post-traumatic stress and psychological distress among low-income mothers affected by Hurricane Katrina. *Social Science and Medicine*, 74(2), 150–157. doi: 10.1016/j.socscimed.2011.10.004
- Peeters, J. (2012). The place of social work in sustainable development: Towards ecosocial practice. *International Journal of Social Welfare*, 21(3), 287–298. doi: 10.1111/j.1468-2397.2011.00856.x
- Pelling, M. (2011). *Adaptation to climate change: From resilience to transformation*. London, UK: Routledge.
- Pelling, M. (2007). Learning from others: The scope and challenges for participatory disaster risk assessment. *Disasters*, 31(4), 373–385.
- Pelling, M., & Blackburn, S. (Eds.) (2014). *Megacities and the coast: Risk, resilience, and transformation*. Hoboken, NJ: Taylor and Francis.
- Peters, M. N., Moscona, J. C., Katz, M. J., Deandrade, K. B., Quevedo, H. C., Tiwari, S., ... & Irmpen, A. M. (2014). Natural disasters and myocardial infarction: The six years after Hurricane Katrina. *Mayo Clinic Proceedings*, 89(4), 472–477. doi: 10.1016/j.mayocp.2013.12.013
- Preston, I., Banks, N., Hargreaves, K., Kazmierczak, A., Lucas, K., Mayne, R., ... & Street, R. (2014). *Climate change and social justice: An evidence review*. Joseph Rowntree

- Foundation. Retrieved from <http://www.jrf.org.uk/sites/files/jrf/climate-change-social-justice-full.pdf>
- Proctor, E. K., Landsverk, J., Aarons, G., Chambers, D., Glisson, C., & Mittman, B. (2009). Implementation research in mental health services: An emerging science with conceptual, methodological, and training challenges. *Administration and Policy in Mental Health and Mental Health Services Research*, 36(1), 24-34. doi: 10.1007/s10488-008-0197-4
- Robertson, C. (2011, February 3). Smaller New Orleans after Katrina, census shows. *New York Times*. Retrieved from <http://www.nytimes.com/2011/02/04/us/04census.html?pagewanted=all>
- Ruggiero, K. J., Resnick, H. S., Acierno, R., Carpenter, M. J., Kilpatrick, D. G., Coffey, S. F.,... & Galea, S. (2006). Internet-based intervention for mental health and substance use problems in disaster-affected populations: A pilot feasibility study. *Behavior Therapy*, 37(2), 190-205.
- Ruggiero, K. J., Resnick, H. S., Paul, L. A., Gros, K., McCauley, J. L., Acierno, R.,..., & Galea, S. (2012). Randomized controlled trial of an Internet-based intervention using random-digit-dial recruitment: The Disaster Recovery Web project. *Contemporary Clinical Trials*, 33(1), 237-246. doi: 10.1016/j.cct.2011.10.001
- Sastry, N., & Gregory, J. (2014). The location of displaced New Orleans residents in the year after Hurricane Katrina. *Demography*, 51(3), 753-775. doi: 10.1007/s13524-014-0284-y
- Saleebey, D. (2004). The power of place: Another look at the environment. *Families in Society*, 85(1), 7-16.
- Schreiner, M., & Sherraden, M. (2007). *Can the poor save? Saving and asset building in individual development accounts*. New Brunswick, NJ: Transaction.
- Schweizer, S., Davis, S., & Thompson, J. L. (2013). Changing the conversation about climate change: A theoretical framework for place-based climate change engagement. *Environmental Communication*, 7(1), 42-62. doi:10.1080/17524032.2012.753634
- Schuemer-Cross, T., & Taylor, B. H. (2009). *Right to survive: The humanitarian challenges for the 21st century*. London: Oxfam International.
- Schumacher, J. A., Coffey, S. F., Norris, F. H., Tracy, M., Clements, K., & Galea, S. (2010). Intimate partner violence and Hurricane Katrina: Predictors and associated mental health outcomes. *Violence and Victims*, 25(5), 588-603.
- Schlosberg, D., & Collins, L. B. (2014). From environmental to climate justice: Climate change and the discourse of environmental justice. *WIREs Climate Change*, 5(3), 359-374. doi:10.1002/wcc.275

- Sherraden, M. (2014). Asset building research and policy: Pathways, progress, and potential of a social innovation. In R. Cramer & T. Williams Shanks (Eds.). *The assets perspective: The rise of asset-building and its impact on social policy* (pp. 263–284). London & New York: Palgrave MacMillan.
- Snow D. L., Swan S. G., & Wilton, L. (2002). A workplace coping skills intervention to prevent alcohol abuse. In: J. Bennett & W. E. K. Lehman (Eds.). *Preventing workplace substance abuse: Beyond drug testing to wellness* (pp. 57–96). Washington, DC: American Psychological Association.
- Soydan, H., & Palinkas, L. A. (2014). *Evidence-based practice in social work: Development of a new professional culture*. New York: Routledge.
- Stein, B. D., Jaycox, L. H., Kataoka, S. H., Wong, M., Tu, W., Elliott, M. N., & Fink, A. (2003). A mental health intervention for school children exposed to violence: A randomized controlled trial. *Journal of the American Medical Association*, 290(5), 603–611.
- Stein, A., & Moser, C. (2014). Asset planning for climate change and adaptation: Lessons from Cartagena, Colombia. *Environment & Urbanization*, 26(3), 166–183. doi: 10.1177/0956247813519046
- Swim, J. K., Clayton, S., & Howard, G. S. (2011). Human behavioral contributions to climate change: Psychological and contextual drivers. *American Psychologist*, 66(4), 251–264. doi: 10.1037/a0023472
- Tang, Z., Engel, B. A., Pijanowski, B. C., & Lim, K. J. (2005). Forecasting land use change and its environmental impact at a watershed scale. *Journal of Environmental Management*, 76(1), 35–45.
- Tschakert, P., Tutu, R., & Alcaro, A. (2013). Embodied experiences of environmental and climate changes in landscapes of everyday life in Ghana. *Emotion, Space and Society*, 7, 13–25. doi:10.1016/j.emospa.2011.11.001
- Terminski, B. (2011). *Towards Recognition and Protection of Forced Environmental Migrants in the Public International Law: Refugee or IDPs Umbrella*, (Policy Studies Organization Summit Proceedings: Washington).
- Tucker, P., Pfefferbaum, B., Jeon-Slaughter, H., Khan, Q., & Garton, T. (2012). Emotional stress and heart rate variability measures associated with cardiovascular risk in relocated Katrina survivors. *Psychosomatic Medicine*, 74(2), 160–168. doi: 10.1097/PSY.0b013e318240a801
- United Nations World Commission on Environment and Development. (1987). Our Common Future (Brundtland Report). Retrieved from <http://www.un-documents.net/our-common-future.pdf>

- United Nations Environment Programme. (2014). North American Cities Facts. Retrieved from http://www.rona.unep.org/cities/north_american_cities_keyfacts.html. Accessed October 20, 2014.
- United States Environmental Protection Agency (2014). *Climate change*. <http://www.epa.gov/climatechange/>. Accessed October 20, 2014.
- Uttawa, S., Bhuvandasa, N., & Aggarwal, V. (2012). Impacts on urbanization on environment. *International Journal of Research in Engineering and Applied Sciences*, 2(2), 1637–1645.
- Warner, K., Ehrhart, C., de Sherbinin, A., Adamo, S. B., Onn, T. C. (2009). In search of shelter: Mapping the effects of climate change on human migration and displacement. Retrieved from http://ciesin.columbia.edu/documents/clim-migr-report-june09_media.pdf
- Weine, S. M. (2011). Developing preventive mental health interventions for refugee families in resettlement. *Family Process*, 50(3), 410–430. doi: 10.1111/j.1545-5300.2011.01366.x
- Wells, K., B., Springgate, B. F., Lizaola, E., Jones, F., & Plough, A. (2013). Community engagement in disaster preparedness and recovery: A tale of two cities—Los Angeles and New Orleans. *Psychiatric Clinics of North America*, 36(3), 451-466. doi: 10.1016/j.psc.2013.05.002
- World Bank. (2008). *Poverty data: A supplement to World Development Indicators 2008*. Washington, DC: World Bank.
- World Bank. (2010). *Natural hazards, unnatural disasters: The economics of effective prevention*. Washington DC: The World Bank.
- World Bank. (2013). *Building resilience: Integrating climate and disaster risk into development. Lessons from World Bank Group experience*. Washington DC: The World Bank.

ABOUT GRAND CHALLENGE 10

Strengthen social responses to environmental changes. Unprecedented environmental problems resulting from global climate change are among the most pressing challenges facing contemporary societies, including the United States. These range from acute hazards such as natural disasters to chronic, slow-onset stressors such as prolonged drought and rising urban pollution levels. All of these challenges have profound social implications, threatening human health and well-being, destabilizing response infrastructures, and disproportionately affecting those with less economic privilege or social status. Social work, in partnership with other fields, can play key roles in developing, implementing, and scaling innovative strategies for anticipating, mitigating, and responding to the social and human dimensions of environmental challenges. In particular our field should organize efforts around disaster preparedness and response, assistance to dislocated populations, service coordination and community capacity building, and advocacy to elevate attention to these and related issues. All of this work will not directly alter the climate, but will transform our nation's capacity to respond to climate change's inevitable impacts and dramatically reduce the human suffering, particularly among vulnerable populations, associated with this global environmental challenge.

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ACKNOWLEDGMENTS

The authors gratefully acknowledge the assistance of their collaborating colleagues and the support of Dean Edwina Uehara, University of Washington School of Social Work, and Dean Marilyn Flynn, University of Southern California School of Social Work.

Sandra Audia Little at the University of Maryland School of Social Work designed the cover. John Gabbert at the Center for Social Development provided editorial support.

SUGGESTED CITATION

Kemp, S. P., Palinkas, L. A., Wong, M., Wagner, K., Reyes Mason, L., Chi, I., ... Rechkemmer, A. (2015). *Strengthening the social response to the human impacts of environmental change* (Grand Challenges for Social Work Initiative Working Paper No. 5). Cleveland, OH: American Academy of Social Work and Social Welfare.

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GRAND CHALLENGES FOR SOCIAL WORK INITIATIVE

Working Paper

