



Adapting to Climate Change

Understanding the Social Dimensions of Vulnerability and Resilience

The consequences of climate change will not be distributed equally. While some scientific uncertainties remain about the character, magnitude, and rates of future climate change, there is widespread consensus in scientific and policy communities that planetary warming will have significant impacts on sea levels, weather systems, ecosystems, public health, and economic development. Less well understood are the likely impacts on human societies. Who will bear the direct costs of climate change? Who will bear the costs of adapting to climate change or of working to prevent it? How will societies and communities organize themselves to cope with risks and manage the social changes associated with climate change?

Typically, the biophysical and economic causes of vulnerability to climate change receive the greatest attention, yet social dynamics can be decisive in determining the susceptibility to harm and level of resilience of different social groups. This article argues that effectively managing the effects of climate change means confronting and integrating these social dimensions into adaptation planning.

Vulnerability to Climate Change

Climate-related hazards do not automatically translate into disasters. It is the overall vulnerability and capacity for resilience that will determine if a society can absorb climate impacts and positively respond or is unable to do so and therefore suffers the losses associated with disaster. If vulnerability therefore marks the threshold between successfully adapting to climate events and not being able to do so, then what comprises vulnerability and how can it be managed?

In the development literature, vulnerability has two dimensions: (1) an external side consisting of the risks, shocks, and stresses to which people are subject, and (2) an internal side encompassing the means to withstand or adjust to damaging loss. The biophysical perspective on vulnerability in the context of climate change is largely about the degree of human exposure to threats provoked by climate change and is therefore primarily external, comprising the amount of potential damage caused to a system by shocks (such as sudden climatic

events like hurricanes) or trends (such as environmental degradation over time). On the other hand, social dimensions of vulnerability to climate change are predominantly about the internal side—that is, what assets, institutions, and relationships do people have to deal with these external threats, and how in turn will their social organization be affected? Social vulnerability is assessed at the level of individuals, households, or groups, but incorporates factors that exist at local, regional, national, and sometimes global scales. The concept therefore relates to the ability of individuals or groups to act within the social, political, and environmental contexts in which they live.

Resilience—the Flip Side of Vulnerability

If vulnerability determines the extent to which individuals or a community will potentially suffer from climate-related events, then resilience is the ability to manage and adapt. It incorporates the notions of self-organization and the ability to learn,



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for possible population relocations, and efforts to address other key health and livelihood impacts.

Building Community Capacity for Resilience

Given the inability of climate models to identify precise risks in different locations and within social groups, and given the variability between these models, the aspiration to have precise top-down planning for local-level adaptation is clearly wishful thinking. It therefore makes sense to focus the adaptation agenda for climate change on reducing vulnerability by improving the adaptive capacity and resilience of the poorest and most marginalized groups. Strategies

are needed that look at the social processes that drive households into vulnerable conditions and at structural inequalities that are often at the root of social-environmental vulnerabilities, while at the same time realizing the potential of the coping strategies in the historical record of communities and social groups. The *Box* below provides an example from northeastern Brazil of reducing vulnerability and enhancing resilience in the face of recurrent drought that may worsen with climate change.

While some adaptation responses are only easily realizable by the state or the international community (i.e., provision of large-scale infrastructure and large-scale social transfer in the wake of major shocks affecting large areas), top-down planning approaches alone will not be sufficient to respond to climate-change-related impacts.

cope, and maintain future options. Rather than a concern about how to stop, change or minimize impacts, resilience is the ability to manage change. People's resilience or capacity to manage and adapt to change is determined by both their assets—including the amount and quality of knowledge and labor, physical and financial capital, and social relations and networks—and the services they can access—such as transport and communication, access to credit, markets, and emergency relief and recovery systems.

A grasp of the social factors that contribute to a population's vulnerability and resilience strengthens the capability of governments and aid agencies to develop effective preparatory measures to prevent and minimize climate change consequences. This knowledge contributes to a more precise understanding of who is vulnerable and how and why they are vulnerable or resilient, which is critical if public policy and development strategies are to foster sustainable adaptation to climate change. In the Maldives, for example, the government's framework for adaptation includes attention to building the capacity of farming households to adapt to climate change, long-term participatory planning

VULNERABILITY EXPOSED—ADAPTING TO RECURRENT DROUGHT IN NORTHEASTERN BRAZIL

Drought in northeast Brazil regularly exposes the underlying vulnerabilities confronting the rural population. Although drought events no longer cause significant mortality, they still contribute to human suffering, deprivation, and poverty. There has been growing concern that climate change will exacerbate current vulnerabilities.

There have been two major reasons why the majority of communities and residents live in conditions highly vulnerable to drought. First, they depend on rainfed agriculture. There is limited access to climate-neutral employment, and efforts to encourage industry to reduce this dependency have provided only minimal relief. Second, interventions have consisted of post-drought social security and welfare payments with little investment in capacity building for community preparedness. While these transfer payments are important for recovery because they protect families from being overwhelmed by drought, the measure also maintains the patron-client relationship with government instead of developing the capacity of communities to respond to and recover from events. While government assistance will always be critical, neglecting the communities' capacity contributes to persistent vulnerabilities.

This perspective is gradually changing. Instead of only focusing on government-led recovery, there is now increased investment in developing capacities at the community and individual level. The Ceará state government, for example, is providing institutional support to a community-driven development initiative that uses participatory GIS (geographic information systems) to draw on local understanding of local problems and potential solutions. The methodology is largely based on understanding drought not only as a biophysical but also a socioeconomic problem and to enhance preparedness by identifying and strengthening existing sources of resilience in order to live in, and adapt to, a semi-arid environment.

Source: D. Nelson and T. Finan. Forthcoming. "Weak Winters: Dynamic Decision Making and Extended Drought in Ceará, Northeast Brazil." In E.C. Jones and A.D. Murphy, eds., *The Political Economy of Hazards and Disasters*. Walnut Creek, CA: AltaMira Press.

If state responses are to be as effective as possible, the capacity of those at risk to make claims on public institutions for support is critical to ensure that a public response to such events will benefit the most vulnerable. For example, the capacity of poor people to cope with famine has been shown to depend on their communities' ability to make claims on various sources of support. Therefore, understanding the capacity of vulnerable communities to have agency as well as how their voices can be strengthened becomes critical for assuring effective public action.

Based on the assets they possess and services they can access, communities and social groups independently develop different adaptation strategies for climate-related challenges. These techniques come out of firsthand experience confronting actual climatic variability and natural disasters and therefore offer an important source of learning and knowledge.

One important asset that can prevent households from becoming more vulnerable is the ability to act collectively through strong community networks, known as social capital. The strength or weakness of social networks affects how a community collectively manages natural resources and systems, resolves disputes, distributes benefits, and takes advantage of new opportunities. Therefore, the presence or lack of social capital influences a community's ability to confront poverty and vulnerability. Strong social capital can potentially enhance the resilience of both social and natural systems.

The Bank's Role

In order to stem the threats from climate change, the international adaptation agenda needs to prioritize reducing social vulnerabilities and enhancing social resilience. To this end, the World Bank's Social

Development Department is advancing a work program focusing on the following four themes:

- ◆ *Supporting effective adaptation to climate change through understanding poverty and social impacts.* A variety of factors make poor people more vulnerable to the impacts of climate change, including (a) being dependent on fragile natural resources for livelihoods, (b) inhabiting areas of less productive potential and greater environment risk, and (c) lacking assets and capabilities, which enable effective adaptation.
- ◆ *Helping communities and households to manage risk, adapt to adverse impacts, and participate in actions to mitigate climate change.* Successful adaptation to climate change will require local-level institutions that foster collective action on a range of key tasks, such as managing natural resources, mediating competition over scarce resources to prevent insecurity and conflict, mutual



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aid, and community-based infrastructure development and maintenance.

- ◆ *Ensuring that actions to mitigate climate change benefit poor people.* An explicit consideration of the likely poverty and social impacts of mitigation measures will be critical to ensuring that key investments include and benefit the poor rather than eroding their livelihoods.
- ◆ *Understanding the political economy of climate action.* Accountability and public debate over climate action are important for developing responses that include vulnerable populations. A focus on understanding power dynamics and a concern for social justice and equity will help to ensure that poor people have voice and agency in decision making for climate change planning.

The Social Development Department's efforts on the social dimensions of climate change include the following main elements: (a) stocktaking in areas where substantial existing bodies of work exist to bring the Bank up to speed on existing knowledge; (b) new research and knowledge generation to deepen understanding of the social dimensions of climate change in key areas for policy and program action; (c) broader corporate policy development to integrate a concern for the social dimensions into the Bank's key policy and strategy processes at both the central and regional levels; and (d) development of policy and operational approaches to climate action that include poor and vulnerable populations.

Moving Forward

The social dimensions of climate change are about the implications for human well-being, human agency, social organization, and social justice. Confronting the social dimensions of vulnerability to climate change will be critical for effective and sustainable

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adaptation planning. It is important that efforts be focused on not only determining who will be most vulnerable to what events and what exacerbates that vulnerability, but what policies will best strengthen their capacity to adapt positively. In that light, it is critical that international development agencies pursue strategies that link global efforts for climate change mitigation with local efforts that strengthen the capacity of vulnerable communities to adapt to climate-change effects.

Further Reading

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