

Handbook on Climate Change and Human Security

Edited by

Michael R. Redclift

*Emeritus Professor of International Environmental Policy,
King's College, University of London, UK*

Marco Grasso

*Senior Lecturer of International Environmental Policy,
Università degli Studi di Milano-Bicocca, Italy*

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Vulnerability does
not fall from
the sky.

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7. Vulnerability does not just fall from the sky: toward multi-scale pro-poor climate policy

Jesse Ribot

AUTHOR'S PREFACE: CAUSE AND BLAME IN THE ANTHROPOCENE – VULNERABILITY STILL DOES NOT JUST FALL FROM THE SKY

God is dead. God remains dead. And we have killed him. How shall we comfort ourselves, the murderers of all murderers? What was holiest and mightiest of all that the world has yet owned has bled to death under our knives: who will wipe this blood off us? What water is there for us to clean ourselves? What festivals of atonement, what sacred games shall we have to invent? Is not the greatness of this deed too great for us? Must we ourselves not become gods simply to appear worthy of it?

– Nietzsche, *The Gay Science*, Section 125

... “risk” has become *the* organizing concept that gives meaning and direction to environmental regulation.

– Jasanoff 1999: 135

Sea level off of New York has risen 20 centimeters this century and when Sandy struck the US East Coast in October 2012 it wreaked expectable but unexpected havoc. Sandy showed that under a changing climate the rich could lose their houses and the poor their lives and livelihoods. Sandy brought global climate change home in a way that the remaining deniers just look stupid and the believers look complacent. It put the state in gear defending past actions – dune and seawall construction, tunnel flood gates – and proposing aid to facilitate recovery. Few are asking why God did this. President Obama did not proclaim “but for the grace of God, there we go”, as he had for the 2010 Haiti quake (Wood, *New York Times*, 23 January 2010). Sandy was also not seen as natural. People are viewing Sandy as an anthropogenic superstorm (Kaplan, *New York Times*, 3 December 2012). People are asking “who did what when” and “why did this happen” People seek to understand cause of risk, its failure to be regulated, and then to attribute blame (Lipton and Moss, *New York Times*, 10 December 2012; Preston, Fink and Powell, *New York Times*, 3 December 2012). The politics of cause

and blame are becoming central to the new normal of American climate politics.

Recent climate events are also reshaping geopolitics. Mohammed Chowdhury, who represents the group of poorest nations at the December 2012 Doha climate negotiations, saw how much assistance President Obama asked from the US Congress for Hurricane Sandy, and noted “. . . we won’t get that scale and magnitude of support” (John Broder, *New York Times*, 9 December 2012). Links are now drawn globally between climate change and disaster. The behavior of emitters is seen to cause the pain of climate victims. Links are drawn through the morality of inequality of mitigation, adaptation and response. The causal chain is also being traced from disaster to the preparations of governments and their post-event responses, and to the excesses and moral vacancy of unprecedented inequalities of a free-market society. Pain and suffering are inspiring fuller analyses of causality, indicating of responsibility, and attribution of blame – supporting claims of liability from direct causality and claims of moral obligation by people to people. With anthropogenic climate change making climate social, the social nature of disaster is clear. Disaster is socially produced – on the ground and through the sky. We can only blame ourselves. We must now look to society – at all scales – for causes, responsibilities, blame, and solutions.

“Vulnerability does not just Fall from the Sky” (Ribot 2010 being reprinted here) explores causal structures of vulnerability and the relation of vulnerability to climate change. Many analyses of vulnerability shy away from historical political-economic analyses of causality. Instead, they focus on identifying *who* is vulnerable rather than *why*. This is no surprise. Causality is threatening. It implies responsibility, blame and liability. The discourses on climate change have shifted toward adaptation as a means of addressing climate-related vulnerabilities – but through a forward looking analysis of how to enable adjustment rather than a historical analysis of the structures that generate risk. Yet generative causes of vulnerability remain important for redressing vulnerability. Causes of insecurity are important for producing security. The chapter focuses on analysis of *vulnerability* and does not use the language of *human security*. Nevertheless they are closely related. Vulnerability and insecurity are socially generated and socially redressed. They do not just fall from the sky. We would do well to understand their causes in order to propose enduring transformative solutions. We would also do well to develop a new sociology of risk that helps us to understand what risk does to society, and how, when and why cause and blame are analyzed, presented, and acted upon.

The enlightenment replaced God with nature, priests with scientists,

and theodicy with the study of risk. What remained constant was society's need to explain pain and suffering – to identify risk and to attribute blame. All human cultures are faced with explaining excessive suffering in the world; all people in all times struggle to reduce pain and to make sense of human experience (Wilkinson 2010). Weber saw such rationalization as the basis of cultural or social change – the need to reconcile belief and experience resulting in the transformation of culture. Douglas believed that explanations of risk also served to define and consolidate community by drawing lines between good and bad, us and them, and by providing a basis of organizing for self-protection.¹

Rose, using Foucault's governmentality, sees risk management as a means of social control – through conduct of conduct. Governments produce risk subjects by conducting "at risk" populations and society to see themselves as the causal agents of risk, thus disciplining individual subjects to take on the project of adjustment – deflecting liabilities from the state, larger society and political economy that produced their condition (Rose 1999). We also often observe politicians addressing risk and security to hold onto power – as angry people vote and protest. Risk, cause and associated blame, following many social theorists, are central to political organization, social organization and social change (Bordieu 1977; Douglas 1985, 1992; Beck 1986; Rose 1999; Jasanoff 1999; Adam et al. 2000; Wilkinson 2010).

What does climate-related risk do in and to society? How does the analysis and interpretation of the causes of risk shape social life? How does risk analysis produce solutions and change social organization? Sen's (1981) causal "entitlements" model explains vulnerability to drought-related famine as a result of the failure of legal market-based means of attaining food. He shows that during droughts well-functioning markets allocate food away from the hungry – despite the presence of sufficient food to nourish everyone. Cause and blame are focused on the legal-economic means of households to use their assets to obtain sufficient food. It indicates a need for capabilities support, market regulation, and social protections to enable household asset formation and prevent entitlement collapse. To explain assets and entitlements within that system, Watts and Bohle (1993) examine the generative political-economy and broad social inequalities through which assets, laws and resulting entitlements are formed. Their analysis indicates the role of political mobilization or "empowerment" – and in my own framing, this includes political representation – in shaping the very protections required to enhance household security. These explanations place cause and blame for climate-related risks within society, attributing social responsibility and requiring social response.

By tracing causality to what Fraser (2008: 28) calls the "generative framework", these analyses point to the potential for transformative intervention – the kind that can restructure the processes producing vulnerability. Such transformative solutions require changes in the power relations that shape the political economy that shape entitlements.² They present deep challenges to the status quo. While understanding causality is a necessary element of response, explanation quickly generates conflict – of theory, method, historiography, interpretation; but more fundamentally, the conflicts are over implication and interest. Causality is a contentious category of mind. Causes indicate blame and liability, linking damages to social organization and human agency. The tracing of causality from any instance of crisis is a threat to those who might have played a role – of ignorance, of negligence, of intent, of greed or avarice – in the production of pain. It is a threat to those who benefit, passively or actively, from unacceptable but everyday relations of production, exchange, and consumption.

Those exposed to blame often avoid or deny generative analyses. It is no wonder that even the well-meaning choose causes of least contention. Rather than looking back at place-based histories and causes of vulnerability, those wishing to reduce vulnerability in the face of climate change prefer to look forward toward "adaptation" – a naturalized neutral space of imaginary futures devoid of social cause or blame (Ribot 2011).³ Their forward gaze silently blames the hazard while accepting current configurations on the ground, contributing to a "death of the social" – a failure to acknowledge generative processes of differentiation that produce unequal protection and opportunity (Rose 1999). It seems that any explanation that does not blame God, nature, or the victim (e.g. the blaming of risk subjects *à la* Foucault and Rose) – or distant drivers of climate change – is suspect and avoided by policy makers, implementers and many activists alike. The continued shunting of blame back to climate does the double work of occluding local causality while continuing to displace blame onto the hazard – as act of God, nature, or today anthropogenic climate change.⁴

Of course, under an anthropogenic climate, blaming the hazard does indicate social liability by tracing cause to greenhouse gas emitters and the political-economic system that enables them to emit. So does this mean that risk is located in hazards or that vulnerability now falls from the sky? Who is responsible for climate events – and associated hunger, famine, dislocation and economic losses? Do we need to rethink causal structure to include causality articulated through the sky? Like with Sen's (1981) and Watts and Bohle's (1989) explanation of famine, the conditions on the ground that translate climate events into disasters remain social and

remain in place. Hence, climate events still cannot be blamed. Hazards – no matter how generated – do not explain people’s assets or entitlements. They do not explain why following Hurricane Sandy, predominantly white, gated communities expect government funds to rebuild their plush homes while Blacks and Hispanics in the projects can only demand support sufficient to reproduce their initial level of poverty (Berger 2012). Nor can analysis of the hazard explain why the same magnitude drought or storm is fatal in one place and time while being a mere nuisance in another.

Nevertheless, something happens to causality with social nature – when climate hazards become anthropogenic. Why can’t we now attribute causality and blame to these events in the sky? What does anthropogenic climate change do to cause and blame? Social liability, it is true, can now travel through the sky. But, it is still not a product of the sky. Risk of damage in the face of a biophysical event is still caused by the place-based social and political-economic histories that put people on the threshold of disaster. Climate events – anthropogenic or natural – still find vulnerable people in place. They don’t put them there. Because the biophysical events are anthropogenic, however, the causal explanation of risk must now account for the human intentionality and interest behind the stressor. This becomes even more acute with the advent of geo-engineering (Klein 2012). Even if disasters were never acts of God or nature, climate events, which could have been seen as external to the social world, are now cultured. Climate events have become traceable to acts of social systems and agents (Jones and Edwards 2009; Arthur 2012). So once again, liability resides on the ground, not in the sky. The causal structure of vulnerability remains within society. The sky is merely a medium. We don’t blame a car for running someone over.⁵ We cannot wash our hands. A new politics of cause and blame characterize our current era. Welcome to the anthropocene.⁶

Cause, and therefore blame, in the anthropocene are now bifurcated. Of course, it is not as if society could ever – with or without anthropogenic climate change – have washed its hands of the production of vulnerability, which is a result of the differentiation of a world system of political-economic and social relations among countries and among people within countries. The vulnerability on the ground is (and always has been) as much a product of far-away forces as the changes we now see in the skies. Risk articulates through climate events due to protected actions of real people in real places who, without direct liability through the rules, structures and subjectivities of differentiation, shape patterns of inclusion and exclusion that externalize the cost of their desires and their profit on others far away. The structure of vulnerability is still purely social. The causes of vulnerability – above all the differentiated causes in a given place – can

still be traced from that place through the social relations of production, exchange, domination, subordination, governance and subjectivity. They still have to be analyzed and understood starting from the instance of crisis in a real place and real time. But, acknowledged anthropogenesis provides a new pathway for attributing social causality, and therefore, blame and liability – and claims for redress and compensation (Jones and Edwards 2009; Hyvarinen 2012).⁷ Like vulnerability, the causes of new climate stress also do not fall from the sky.

While anthropogenesis remains on the ground, it profoundly changes the meaning of climate events. Humans are now demonstrably responsible – not only for the vulnerability on the ground, but for the stressors that arc across the sky. Blaming the sky – and its Godliness or its nature – can no longer absorb, divert or occlude liability. Indeed, it adds a new dimension to a connectivity of the globe that has long been apparent to historians and to social and political-economic theorists (Wolf 1981). Social causes of place-based vulnerability and of stressors in the sky – the two strands of cause and blame – are interlinked. Inequality in access to the production of climate-changing greenhouse gasses is partly responsible for the poverty and marginality that places some people in secure standing and others at risk. Those who can consume well beyond subsistence are less vulnerable than those who cannot (see Watts 1983; Agarwal and Narain 1991). Unfettered access to resources and goods – protected through a differentiated global political economy with rules and social relations that protect some actors and subordinate others – enables the excess consumption that is changing the climate and increasing the stresses on those at risk. Social stratification and inequalities that are behind vulnerability on the ground are contributing to stress articulated through a changing climate system.⁸

Historical causal analysis is not the only path toward productive strategies for reducing vulnerability and increasing human security, but it is important. This preface helps frame analysis of the origins of vulnerability and insecurity in the era of anthropogenic nature as a way of updating the article. As early as 1994, the UNDP proposed Human Security as a people-centered concept in which “security . . . means safety from the constant threat of hunger, disease, crime and repression” as well as “protection from sudden and hurtful disruptions in the pattern of our daily lives” (UNDP 1994). In developing this concept further, Ogata and Sen (2003: 2) called for “security centered on people – not states.” This redefinition of security brings the focus to the individual, household and community levels, precisely where analyses of vulnerability must always begin. So, to reduce vulnerability and build security requires a deep understanding of experienced crisis and its origins. To achieve human security, to protect “the vital core of all human lives in ways that enhance human freedoms

and fulfillment" (Ogata and Sen 2003), requires an understanding of how these lives arrive at thresholds of disaster. Climate-related security needs to be centered on people – not in the sky. Rather than looking to causal analysis, it is easier to naturalize blame, shift it to God, or, in the anthropocene, to displace it through the clouds onto people far off. This last is a productive social analysis of causality. The causes of place-based vulnerability, however, which have local and distant roots, need also to be revealed and treated.

Rationalization of pain – understanding its causes and attributing blame – shapes relations in and among societies. In the anthropocene we face new plausible pathways of damage and blame with the potential to reconfigure geopolitics. Al Qaida can blame the West for some of their suffering based on their experience of global political-economic marginalization filtered through their own theodical lens.

Now societies around the world have grounds on which to blame the industrial world for storms and droughts. What filters will soften or harden their understanding? What will they do in response? The new channels of global-scale blame are emerging in the anthropocene. Long-distance cause and effect, of course, is nothing new. It has long been attributed through analysis and imagination. A Haitian taxi driver in Newark told me that the 2010 Haiti quake was caused by problems with a secret tunnel being dug from Miami to Port-au-Prince. He understood there was a causal relation between actions in the US and Haiti's pain. He was not wrong. The history that made Haiti vulnerable was connected to French slavery and subsequent indemnities collected by Citibank, trade blockades, the US occupation, externally backed dictators, and other forces from overseas that left Haiti at risk. He understood and his imagination filled in. In the anthropocene, a new channel of blame, backed by the quite credible priests of science, has been added to the repertoire of global division. God is dead, nature is cultured, we need even less imagination to see how the burdens of human agency can turn back upon us.

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Notes

1. For Mary Douglas, following Durkheim and Weber, the risks that people fear are not the sociological focus. She explores only the social *functions* of risk. She argues that when social bonds that hold people together are weak, people commonly become obsessed with disaster (perhaps implying that weak bonds are a condition of our own modernity). This

- focus on disaster has a positive function for society. By finding a common threat, communities come together, and organize around common social objectives. They protect their group from harm. Simultaneously, as part of group survival, comes the search for explanation and blame – which helps further consolidate the group by defining insiders and outsiders. It identifies those who belong and creates boundaries that define the community. It also defines the "other." Like Weber, Douglas sees discourses of "risk" as having taken the place of discourses of theodicy. The language of "risk" supplanted language of "sin," both being languages of blame. Where people used to talk about being "sinned against," they now speak of being "at risk": sin appeals to the authority of priest; risk appeals to the authority of science and modern rationality (Douglas 1985). On the production of "at risk" subjects also see Rose 1999.
2. Focused on injustice, Fraser (2008: 28) outlines two approaches to remedy – affirmative and transformative. She argues that "by affirmative remedies for injustice I mean remedies aimed at correcting inequitable outcomes of social arrangements without disturbing the underlying framework that generates them." I would place many approaches to adaptation in this camp. She continues "By transformative remedies, in contrast, I mean remedies aimed at correcting inequitable outcomes precisely by restructuring the underlying generative framework."
 3. People's possibilities of action are always being structured by others – their conduct is being conducted. Conducting conduct, I would argue, is the function of concepts like "adaptive capacity." Viewing risk as a product of limits that structure options points the individual and group to aim to restructure their circumstance by changing the political economy and power relations in order to expand their possibilities of action. Viewing risk as determined by adaptive capacity points the individual to adapt within their internal or inherent capacity, making *invisible* the production of their possibilities of action – naturalizing them and creating a subjectivity of action that is the responsibility of the individual.
 4. Here anthropogenic climate change is at risk of becoming a means of directing attention to distant causes at the expense of continued analysis of the production of local vulnerabilities. So, it too can serve, like God and Nature to deflect responsibility.
 5. One reviewer felt this statement was too close to the US gun lobby's statement that "guns don't kill people, people kill people." Indeed, they are right. We don't blame a gun for killing someone – we blame legislators who make them freely available, among many other social factors.
 6. I take this phrase from the video "Welcome to the Anthropocene": <http://sociology.leeds.ac.uk/sites/environment/2012/03/27/welcome-to-the-anthropocene/>.
 7. Blaming humans for biogeophysical events is by no means new. It defines communities, defines divides, places blame and locates the origins of pain for some people for some reason. It is worth taking seriously. It is as reasonable as the notion of a natural disaster or an act of God. All of these explanations do "work" – they produce meaning and mobilize action, avoid or attribute blame, etc. They are about people trying to make sense of extraordinary suffering, as in the case of the Haitian taxi driver at the end of this preface. Of course fantasies, nature and god (evoked by the taxi driver, insurance companies, Pat Robertson, and Barak Obama) are all means to locate blame and shift it away from the history of subordination that put Haiti at risk (Ribot 2010). Further, magic in many cultures is a means of attributing human causality to events that may or may not be of human origin.
 8. The production of that suffering resides in unequal access to pleasure and plenty – social stratification. It is commonly but spuriously said that the Chinese character for crisis is composed of danger plus opportunity. The popular interpretation of this misconception is that change is both painful and promising – and crisis should be a welcomed opportunity for personal growth (yet another logic that blames the victim). What these wishful thinkers fail to recognize is that danger and opportunity may be related, but more likely across separate segments of society. Some people are faced with danger while others reap related opportunity. Danger for some is opportunity for others – society is stratified.

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ARTICLE: VULNERABILITY DOES NOT JUST FALL FROM THE SKY: TOWARD MULTI-SCALE PRO-POOR CLIMATE POLICY*

A society is ultimately judged by how it treats its weakest and most vulnerable members.

– Hubert Humphrey

If a free society cannot help the many who are poor, it cannot save the few who are rich.

– John F. Kennedy

Introduction

If some combination of narcissistic morality and raw self interest does not help reduce vulnerability, then perhaps some good analysis and political engagement may.

Analysis of vulnerabilities can help answer where and how society can best invest in vulnerability reduction. Analysis may not motivate all decision makers to make those investments, but can give development professionals, activists, and affected populations fodder to promote or demand the rights and protections that can make everyone better off. Climate variations and changes present hazards to individuals and to society as a whole. The damages associated with storms, droughts, and slow climate changes are shaped by the social, political, and economic vulnerabilities of people and societies on the ground. Impacts associated with climate can be reduced through measures falling anywhere on a spectrum from climate change mitigation to reduction of the vulnerabilities of individuals and groups (McGray et al. 2008: 35). This chapter calls for evaluation of the relatively neglected social and political-economic drivers of vulnerability at one end of this spectrum. The objective is to enable consideration of a full range of vulnerability-reducing policy responses. The article is concerned with the reduction of the everyday vulnerabilities of poor and marginal groups exposed to climate trends and events.

The world's poor are disproportionately vulnerable to loss of livelihood and assets, dislocation, hunger, and famine in the face of climate

* I want to thank Robin Mearns for permission to reprint this article, which first appeared as: Ribot, Jesse C. (2010) "Vulnerability does not just fall from the sky: toward multi-scale pro-poor climate policy", in Robin Mearns and Andrew Norton, *Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*, Washington DC: The World Bank. <https://openknowledge.worldbank.org/handle/10986/2689> License: CC BY 3.0 Unported. This reprint contains modifications, particularly concerning the notion of so-called "social constructionist" approaches to vulnerability.

variability and change (Cannon et al. n.d.: 5; Anderson et al. 2010; Heltberg et al. 2010). Living with multiple risks, poor and marginalized groups must manage the costs and benefits of overlapping natural, social, political and economic hazards (Moser and Satterthwaite 2010). Their risk-minimizing strategies can diminish their income even before shocks arrive, while shocks can reinforce poverty by interrupting education, stunting children's physical development, destroying assets, forcing sale of productive capital, and deepening social differentiation from poor households' slower recovery (Heltberg et al. 2010). The poor may also experience threats and opportunities from development or climate action itself, such as efforts to reduce greenhouse-gas emissions in sectors such as household energy, land, and forest management (Turner et al. 2003: 8076; O'Brien et al. 2007: 84; ICHRP 2008: 1–2; White et al. 2010).¹

The good news is that policy can drastically reduce climate-related vulnerability. While the best global data indicate human suffering and economic loss are worsening in the face of natural hazards,² the number of people per total population affected is declining (Kasperson et al. 2005: 151–2). This reduction in vulnerability is most pronounced in high-income countries, where higher levels of wellbeing along with better infrastructure, policy, and planning are successfully mediating the relation between climate trends or events and outcomes. Effective climate action can further widen this gap between climate stressors and the risk of hardship.

In 1970, when Cyclone Bhola hit Bangladesh with six-meter tidal surges, some 500,000 people perished (Frank and Husain 1971). In 1991 the similar Cyclone Gorky, struck Bangladesh with 140,000 deaths. Yet, in 2007 when Cyclone Sidr, which was stronger than either Bhola or Gorky, hit Bangladesh with ten-meter tidal surges, fatalities dropped to 3,406. Although population density increased in this area during this time, the death toll was dramatically reduced (Government of Bangladesh 2008). The reduced damage was due to Bangladesh's shift from a focus on disaster relief and recovery to hazard identification, community preparedness, and integrated response efforts (CEDMHA 2007). Most important were sophisticated early warning and evacuation systems (Ministry of Food and Disaster Management of Bangladesh 2008; Bern et al. 1993; Batha 2008), which made Sidr 150 times less fatal than Bhola.³ This is an example of effective climate action.

While there are notable policy successes, vulnerability of poor, marginalized, and under-represented people remains widespread. In cases like Bangladesh, women, the poor, and other marginalized groups are disproportionately and unacceptably vulnerable (Mushtaque et al. 1993). When facing droughts in Northeast Argentina, industry-dependent tobacco growers are more vulnerable than independent agroecological farmers,

whose farms are more bio-diverse, more technologically equipped, less exposed to external markets, and have greater political negotiating power (Kasperson et al. 2005: 158–9). In Kenya, privatization of pasturelands has improved security of some while making the poorer and landless much more vulnerable (Smucker and Wisner 2008). In Northeast Brazil the poor remain vulnerable due to dependence on rain-fed agriculture combined with little access to climate neutral employment (Duarte et al. 2007: 25). Poorer people excluded from access to services, social networks, and land experience intensified climate-related vulnerabilities and losses due to unequal social relations of power and representation. These kinds of problems are also a target for climate action.

The vast differences in damages associated with similar climate stressors in the same place at different times, from place to place or among different social strata, reflect the complex and non-linear relation between climate and outcomes. The damages associated with climate events result more from conditions on the ground than from climate variability or change. Climate events or trends are transformed into differentiated outcomes via social structure. The poor and wealthy, women and men, young and old, and people of different social identities or political stripes experience different risks while facing the same climate event (Wisner 1976; Sen 1981; Watts 1987; Swift 1989; Hart 1992; Agarwal 1993; Blaikie et al. 1994: 9; Demetriades and Esplen 2010; Moser and Satterthwaite 2010). These different outcomes are due to place-based social and political-economic circumstance. The inability to sustain stresses does not come from the sky. It is produced by on-the-ground social inequality, unequal access to resources, poverty, poor infrastructure, lack of representation, and inadequate systems of social security, early warning, and planning. These factors translate climate vagaries into suffering and loss.

Poverty is the most salient of the conditions that shape climate-related vulnerability (Prowse 2003: 3; Cannon et al. n.d.: 5; Anderson et al. 2010; Heltberg et al. 2010). The poor are least able to buffer themselves against and rebound from stress. They often live in unsafe flood- and drought-prone urban or rural environments, lack insurance to help them recover from losses, and have little influence to demand that their governments provide protective infrastructure, temporary relief, or reconstruction support (ICHRP 2008: 8). Indeed, their everyday conditions are unacceptable even in the absence of climate stress. Climate stresses push these populations over an all-too-low threshold into an insecurity and poverty that violates their basic human rights (ICHRP 2008: 6; Moser and Norton 2001).

Since the adaptation side of climate action aims to reduce human vulnerability, it cannot be limited to treating incremental effects from climate

change so as to maintain or bring people back to their pre-change deprived state (also see Heltberg et al. 2010).⁴ As Blaikie et al. (1994: 3) point out, “despite the lethal reputation of earthquakes, epidemics, and famines, many more of the world’s population have their lives shortened by unnoticed events, illnesses, and hunger that pass for normal existence in many parts of the world. . .” (also see Kaspersen et al. 2005: 150; Bohle 2001). It is this “normal” state that effective climate action must aim to eradicate if climate variation and change are to be downgraded from deadly threats to mere nuisances.

Following a brief review of vulnerability theory, this chapter frames an approach for analyzing the diverse causal structures of vulnerability and identifying policy responses that might reduce vulnerability of poor and marginal populations. The chapter argues that understanding the multi-scale causal structure of specific vulnerabilities – such as risk of dislocation or economic loss – and the practices that people use to manage these vulnerabilities can point to solutions and potential policy responses. Analysis of the causes of vulnerability can be used to identify the multiple scales at which solutions must be developed and can identify the institutions at each scale responsible for producing and capable of reducing climate-related risks.

The literature pays insufficient attention to the social causal factors that shape the needs for and potential elements of vulnerability-reduction interventions, policies and programs.⁵ This chapter outlines a policy-research agenda on causal structures of multiple vulnerabilities in different environmental and political-economic contexts so that causal variables can be aggregated to help develop higher-scale vulnerability-reduction policies and strategies. The focus on causality builds on insights from successes of existing project approaches, such as social funds, social safety nets, or community-driven development (Heltberg et al. 2010), and successful adaptation support based on coping and risk-pooling practices (Agrawal 2010; Anderson et al. 2010). A focus on causal structure adds systematic attention to root causes at multiple scales. It identifies the proximate responses to risk, ordinarily conducted via projects and people’s own coping arrangements, while also attending to the more distant social, political, and economic root causes of vulnerability.

Vulnerability analysis and policy development are only first steps in a multi-step iterative governance process. The chapter concludes with a discussion of governance, arguing that to tilt decision making in favor of the poor will require systematic representation of poor and marginal voices in climate decision-making processes.

Linking Climate and Society: Theories of Vulnerability

It is widely noted that vulnerability of environmental change does not exist in isolation from the wider political economy of resources use. Vulnerability is driven by inadvertent or deliberate human action that reinforces self-interest and the distribution of power in addition to interacting with physical and ecological systems (Adger 2006: 270).

Vulnerability analysis is often polarized into what are called risk-hazard and social constructivist frameworks (Füssel and Klein 2006: 305; also see Adger 2006; O’Brien et al. 2007: 76). Risk-hazard is characterized as the *positivist* (or realist) school while the entitlements and livelihoods approaches are lumped together as *constructivist*. I, however, will call this latter category entitlements or livelihoods approaches – since neither are founded on social constructivist perspectives.

The “social constructivist” label here is a misnomer. For the positivists, “risk . . . is a tangible by-product of actually occurring natural and social processes. It can be mapped and measured by knowledgeable experts, and within limits, controlled” (Jasanoff 1999: 137). In social constructivist views, “risks do not directly reflect natural reality but are refracted in every society through lenses shaped by history, politics and culture” (Jasanoff 1999: 139). It falsely contrasts a positivist or “realist” view, which these authors attribute to natural sciences, with a social constructivist view which these authors attribute to the social sciences.

It is evident to any social scientist that both the risk-hazards and the entitlements and livelihoods approaches can be positivist as described above by Jasanoff. Both analyses can also be subject to or can integrate a social constructs view, which would certainly shed light on our understanding of risk and its assessment. If one distinguishes between constructivism as ontology, referring to the nature of things, and constructivism as a methodological stance, a constructivist analysis does not have to suggest that conditions and causes of vulnerability are not “real” (Leach 2008: 7). Indeed, there is no reason why a methodological constructivist approach cannot respect the phenomenology of vulnerability. It would also be perfectly positivist to assert that the socially constructed meanings that emerge from differently positioned actors shape causality (see Rebotier 2012).⁶ In short, we need to discard this false dichotomy introduced, it would seem, to discredit social analysis.⁷

One concrete distinction between the two schools is that the risk-hazards models tend to evaluate the multiple outcomes (or “impacts”) of a single climate event (Figure 7.1), while the entitlements and livelihoods approaches, characterize the multiple causes of single outcomes (Figure 7.2) (Ribot 1995; Adger 2006) – both of which can be done in a

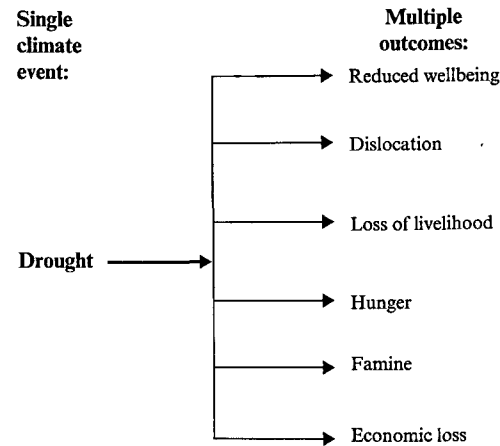


Figure 7.1 Impact analysis

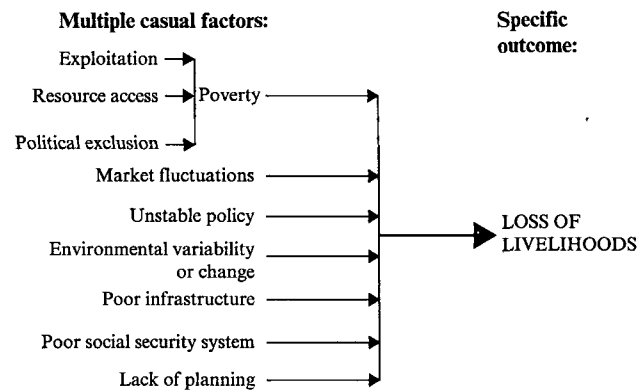


Figure 7.2 Vulnerability analysis

positivist manner or applying constructivist lenses. The risk-hazards traces a linear causal relation back to the environmental hazard itself while the entitlements and livelihoods approaches tend to trace cause to multiple social and political-economic factors. The entitlements livelihoods approach locates causality in agency and hence tends to see natural phenomena as playing a role but not as having “caused” the risk of damage in the face of an event. A third category, integrative frameworks, have grown mostly from the entitlements and livelihoods approaches, yet treat environment as a causal factor.

The two archetypal approaches ask different questions. The risk-hazard approach, which defines vulnerability as a “dose-response relation between an exogenous hazard to a system and its adverse effects” (Füssel and Klein 2006: 305) is concerned with predicting the aftermath or “impact” of a given climate event or stress, and estimating the increment of damage caused by an intensification from “normal” climatic conditions to the conditions expected under climate change scenarios. They view people as vulnerable to hazards – locating risk in the hazard itself. This approach is usually portrayed as inadequately incorporating social dimensions of risk (Adger 2006: 270; also see Cannon 2000).

The entitlements and livelihoods schools are concerned with what causes vulnerability. They consider people to be vulnerable to undesirable outcomes – loss of a valued asset. They are also concerned with the likely aftermath of a climate event or trend. They view climate events and trends as external phenomena and view the risk of disaster and suffering as social, therefore they place the burden of explanation of vulnerability within the social system. They locate risk within society. The entitlements and livelihoods approaches are described as depicting “vulnerability as lack of entitlements” or a lack of sufficient means to protect or sustain oneself in the face of climate events where risk is shaped by society’s provision of food, productive assets, and social protection arrangements (Adger 2006: 270). The entitlements approach is often depicted as ignoring biophysical factors.

Integrative frameworks link these two views. These frameworks tend to borrow from entitlements and livelihoods models, rather than being purely risk-hazard based. Integrative frameworks view vulnerability as depending on both biophysical and human factors. One views vulnerability as having “an external dimension, which is represented by the ‘exposure’ of a system to climate variations, as well as an internal dimension, which comprises its ‘sensitivity’ and its ‘adaptive capacity’ to these stressors” (Füssel and Klein 2006: 306). The IPCC views internal and external aspects as separate dimensions of vulnerability. These notions of external and internal aspects of vulnerability, however, are entirely contingent on how one draws the boundaries of the system under analysis.

Turner et al. (2003; also see Blaikie 1985 and Watts and Bohle 1993) have adopted an approach that avoids this boundary problem by tracing the causes of vulnerability from specific instances of risk – explaining why a given individual, household, group, nation, or region is at risk of a particular set of damages (see Figure 7.2). By tracing causality out from each unit at risk, their model views the entire system as one integrated whole. Analyses of vulnerability must then account for all factors –

biophysical and social – contributing to the stresses affect the unit of concern (Kasperson et al. 2005: 159–161). This causality-based integrative approach to vulnerability informs the available integrative analytic approaches described in the next section. It allows a multi-scale multi-factor analysis of vulnerability.

Vulnerability Analysis

Two objectives of any vulnerability analysis for climate action are to identify who is vulnerable and how to assist them. Analysts need to ask: *Where* should we spend public funds earmarked for climate adaptation, and *in what kinds of projects* should we invest in these places? The first question, how to target expenditures, requires identifying which regions (where), social groups (who) and things of value (what) are vulnerable. The question of what we need to invest in requires an understanding of the characteristics of their vulnerability and reasons (why) these places, people, and things are at risk, so we can assess the full range of means for reducing that vulnerability. *Where, who* and *what* are very different questions than *why*. Knowing *where, who* and *what* tells us how to target expenditures. Knowing *why* tells us what to modify or improve in these targeted places and communities. *Why* also indicates the complexity and cost of short- and long-term solutions to vulnerabilities associated with climate variability and change.

While risk-hazard style impact assessments can indicate that a place might be affected by a predicted climate change under given static on-the-ground circumstances (a given level of exposure and ability to respond), it rarely tells us *why* the places and people or ecosystems are sensitive or lack resilience. Knowing likely “impacts” can help us target funding to particular places or to particular social groups or ecological systems. It cannot, however, tell us how to spend that money once we get there. Analysis of causes can help direct funds into vulnerability reducing projects and policies. Climate action should be guided by both types of analysis. Much attention has been given to impact assessment, indicators, and mapping for targeting.⁸ This section trains our attention on the elements of an analysis of causal structures of vulnerability.

The causal structure of vulnerability

The two most common approaches to analyzing causes of vulnerability use the concepts of entitlements or livelihoods.⁹ These approaches analyze the sensitivity and resilience of individual, household, or livelihood systems, and in some instances, the linked human-biophysical system. They tend to bring attention to the most-vulnerable populations – the poor, women,

and other marginalized groups. These approaches provide a starting point for analyzing the causes of climate-related vulnerability.

Entitlements and livelihoods approaches – putting vulnerabilities in place

Sen (1981, 1984; also see Drèze and Sen 1989) laid the groundwork for analyzing causes of vulnerability to hunger and famine. Sen’s analysis begins at the household level with what he calls “entitlements.” Entitlements are the total set of rights and opportunities with which a household can command – or through which they are “entitled” to obtain – different bundles of commodities. For example, a household’s food entitlement consists of the food that the household can command or obtain through production, exchange, or extra-legal legitimate conventions, such as reciprocal relations or kinship obligations (Drèze and Sen 1989). A household may have an endowment or set of assets including: investments in productive assets, stores of food or cash, and claims they can make on other households, patrons, chiefs, government, or on the international community (Swift 1989: 11; cf. Drèze and Sen 1989; Bebbington 1999). Assets buffer people against food shortage. They may be stocks of food or things people can use to make or obtain food.¹⁰ In turn, assets depend on the ability of the household to produce a surplus that it can store, invest in productive capacity and markets, and use in the maintenance of social relations (cf. Scott 1976; Berry 1993; Ribot and Peluso 2003).

Vulnerability in an entitlements framework is the risk that the household’s alternative commodity bundles will fail to buffer them against hunger, famine, dislocation, or other losses. It is a relative measure of the household’s proneness to crisis (Downing 1991; also see Downing 1992; Watts and Bohle 1993: 46; and Chambers 1989: 1). By identifying the components (that is, production, investments, stores, and claims) that enable households to maintain food consumption, this framework allows us to analyze the causes of food crises.¹¹ Understanding causes of hunger can shed light on policies to reduce vulnerability (Blaikie 1985; Turner et al. 2003). By analyzing chains of factors that produce household crises, a whole range of causes are revealed. This social model of how climate events might translate into food crisis replaces eco-centric models of natural hazards and environmental change (Watts 1983). By showing a range of causes, environmental stresses are located among other material and social conditions that shape household wellbeing. Hunger, for example, may occur during a drought because of privatization policies that limit pastoral mobility, making pastoralists dependent on precarious rain-fed agriculture (Smucker and Wisner 2008).

By locating environment (including climate) within a social framework,

the environment may appear to become marginalized – set as one among many factors affecting and affected by production, reproduction, and development (also see Brooks 2003: 8). But, this does not diminish the importance of environmental variability and change. Indeed, it strengthens environmental arguments by making it clear how important – in degree and manner – the quality of natural resources is to social wellbeing. These household-based social models also illustrate how important it is that assets match or can cope with or adjust to (as in buffer against) these environmental variations and changes so that land-based production activities are not undermined by and do not undermine the natural resources they depend on.¹² Leach et al. (1999) later called these environmental inputs to household sustenance “environmental entitlements” (also see Leach et al. 1997; and Leach and Mearns 1991).

“Environmental entitlements refer to alternative sets of utilities derived from environmental goods and services over which social actors have legitimate effective command and which are instrumental in achieving wellbeing” (Leach et al. 1999: 233). In this definition these authors make four innovations. First, they expand Sen’s concept of entitlements from an individual or household basis up to the scale of any social actors – individuals or groups. This enables analysis to be scaled to any relevant social unit (or exposure unit in the case of climate related analyses) – such as individuals, households, women, ethnic groups, organizations, communities, nations, or regions. Second, they introduce the notion of a sub-component entitlement, a set of utilities that a particular resource or sector contributes to wellbeing – e.g. environment.¹³

Leach et al.’s (1999: 233) third innovation also draws on Sen to show that “environmental entitlements enhance people’s capabilities, which is what people can do or be with their entitlements.” Lastly, they expand the idea of rights such that things may be “claimed” rather than just legally “owned.” In this framing, claims may be contested – something Sen fails to capture. For example, when hunters near Mkambati Nature Reserve in South Africa are banned from the reserve by state law, they continue hunting based on customary rights which they view as legitimate. They claim their rights, contesting the state’s claim (Leach et al. 1997: 9). Hence endowments such as natural resources that are not classically owned within a household can still be accessed through social relations that may introduce cooperation, competition, or conflict mediated by systems of legitimization other than state law. With this insight, they introduce the notion that rights, which Sen takes as singular and static, may also be plural (*à la* von Benda-Beckman 1981; Griffiths 1986) and are based on multiple, potentially conflicting, social and political-economic relations of access (*à la* Blaikie 1985; Ribot and Peluso 2003).

Watts and Bohle (1993) also place Drèze and Sen’s (1989) analysis of household entitlements in a multi-scale political economy. They argue that vulnerability is configured by the mutually constituted triad of entitlements, empowerment, and political economy. Here, empowerment is the ability to shape the higher-scale political economy that in turn shapes entitlements. For example, democracy or human rights frameworks can empower people to make claims for government accountability in providing basic necessities and social securities (Moser and Norton 2001: xi). Drèze and Sen (1989: 263) have observed the role of certain types of political enfranchisement in reducing vulnerability, specifically the role of media in creating crises of legitimacy in democracies. Watts and Bohle go far beyond media-based politics to show that empowerment through enfranchisement puts a check on the inequities produced by ongoing political-economic processes. While not outlined in their model, their approach indicates that direct representation, protests and resistance, social movement, union, and civil society pressures can all shape policy and political processes or the broader political economy that shapes household entitlements (Ribot 1995). Moser and Norton (2001: x) view mobilization to claim basic rights as an important means for poor people to shape the larger political economy.

Multiple mechanisms link micro and macro political economies to shape household assets. Deere and deJanvry (1984) identify mechanisms by which the larger economy systematically drains income and assets from farm households. These include tax in cash, kind and labor (*corvée*), labor exploitation, and unequal terms of trade. These processes make people vulnerable since the wealth they produce from their land and labor is siphoned off – with the systematic support of social, economic, and environmental policies. For example, forestry laws and practices in Senegal have prevented rural populations from holding onto profits from the lucrative charcoal trade (Larson and Ribot 2007) and foresters in Indonesia systematically extract labor from farmers and prevent them from trading forest products while allowing wealthy traders to profit (Peluso 1992). Scott (1976) also shows how peasant households are exploited in exchange for security. Peasants allow their patrons to take a large portion of their product or income in exchange for support during hard times.

Each household is affected by multi-scale forces that shape their assets and wellbeing. Southern African farm households contend with climate variability, AIDS, conflict, poor governance, skewed resource access and the erosion of their coping capacities. While food production support is typical of food-security interventions, household-based research shows that food purchases supported by remittances and gifts

are more important in enabling households to obtain food. Donors in the region supported climate early warning systems, but these systems were found to do little to reduce vulnerability if not coupled with other measures. For example, farmers ask for guidance on specific actions to take given forecast and warning information. Many farmers lack the capacity or resources, such as credit, surplus land, access to markets or decision-making power, needed to turn climate information or specific guidance into action – these proximate factors shaped their vulnerabilities (Kasperson et al. 2005: 159–161). The analyses framed by Watts and Bohle (1993), Deere and deJanvry (1984), and Scott (1976), as well as an analysis of the power and authority hierarchies in which households are embedded (Moser and Norton 2001: 7), would give us insights into the larger political economy that would explain why credit is scarce and market access and representation are so limited.

Like entitlements analyses, livelihoods approaches (Blaikie et al. 1994; Bebbington 1999; Turner et al. 2003; Cannon et al. n.d.: 5) evaluate multi-scale factors shaping people's assets. They build on entitlements approaches, but shift the locus of analysis from the household to multi-stranded livelihood strategies that are also embedded in the larger ecological and political-economic environment. They also shift attention from a focus on vulnerability to hunger toward an analysis of multiple vulnerabilities, such as risk of hunger, dislocation and economic loss – a suite of factors closely related to the broader condition of poverty. In these approaches, vulnerability variables are connected with people's livelihoods, where a livelihood is "the command an individual, family or other social group has over an income and/or bundles of resources that can be used or exchanged to satisfy its needs. This may involve information, cultural knowledge, social networks, legal rights as well as tools, land, or other physical resources" (Blaikie et al. 1994: 9). Vulnerability in this framing is lower when livelihoods are "adequate and sustainable" (Cannon et al. n.d.: 5). Livelihood models also explicitly link vulnerability to biophysical hazards by acknowledging that hazards change the resources available to a household and can therefore intensify some people's vulnerability (Blaikie et al. 1994: 21–22).

In short, entitlements and livelihoods approaches form a strong basis for vulnerability analysis. They differ in the scale of the unit of concern and analysis (exposure unit) and the scope of factors that analysts view as impinging on that unit at risk – with livelihoods approaches being much broader. When taken together they provide a powerful repertoire of analytic tools for vulnerability analysts. Both approaches (1) start with the unit at risk, (2) focus on the avoidable damages it faces, (3) take the condition of the unit's assets to be the basis of its security and vulnerability,

and then (4) analyze the causes of vulnerability in the local organization of production and exchange as well as in the larger physical, social and political-economic environment. Vulnerability analysis differs greatly from the risk-hazard approaches which start with climate events and map out their consequences across a socially static landscape. Entitlement and livelihoods vulnerability approaches put vulnerability in context on the ground, enabling us to explain why specific vulnerabilities occur at specific times in specific places.

Toward Pro-poor Climate Action

Vulnerability to hunger, famine and dislocation are correlated with poverty (Prowse 2003: 3; Cannon et al. n.d.: 5; Anderson et al. 2010; Heltberg et al. 2010). Women, minorities and other marginalized populations are also disproportionately vulnerable, sharing many vulnerabilities of the poor (Demetriades and Esplen 2010). For poor and marginalized vulnerable populations, vulnerability reduction is poverty reduction and basic development (Cannon et al. n.d.: 4; also see Prowse 2003: 3).

The weak within society tend to be of lower priority for those in power. Economically weak actors in urban slums or marginal groups far from the centers of power within semi-arid or forested zones may be of little importance to those in political office or big business. They are likely to be low priority for governments even in disaster planning (Blaikie et al. 1994: 24; ICHRP 2008). For instance, the extent to which slum dwellers are affected by extreme weather is both about settlement location and the level and quality of infrastructure and services such as water, sanitation, and drainage. These populations' lack of assets reduces their ability to adapt to changing conditions and also prevents them from making political demands for investments to reduce their risk (Moser and Satterthwaite 2010).

To counter biases against poor and marginalized, vulnerability analyses and policies must be pointedly pro-poor. This section outlines an analytic approach to pro-poor vulnerability analysis and a research agenda for the identification of vulnerability-reduction policies.

Pro-poor vulnerability analysis

Entitlements and livelihood approaches evaluate the causes of asset failure and of negative outcomes in order to identify means to counter the causes (Downing 1991; Ribot 1995; Watts and Bohle 1993; Turner et al. 2003: 8075). This focus on negative outcomes favors poor and marginalized groups because they are overrepresented in at-risk populations. This tilt in favor of the poor can also be enhanced, of course, by analytic efforts that

choose to study outcomes of most concern to the poor such as hunger, displacement or economic losses that push people over a threshold into poverty or extreme deprivation. The focus on causality can point toward solutions.

Coping¹⁴ and adaptation studies identify vulnerability-reduction strategies used by poor and marginalized populations and means to support those strategies. Agrawal (2010), for example, starts with household and community risk-pooling strategies and identifies institutions – civic, private and public organizations – that support these strategies. His analysis provides insights into the roles of institutions (by which he means “organizations”) and therefore into potential institutional channels for coping and adaptation support. While this approach does not explain why people become vulnerable, it provides great insights into local-level vulnerability management and reduction.

While analysis of coping or adaptation strategies can also provide insights into causes of vulnerability, the entitlements and livelihoods approaches analyze the causal structure of vulnerability so as to identify a wider range of coping and adaptation opportunities (Watts 1983; Mortimore and Adams 2000; Yohe and Tol 2005; Anderson et al. 2010). Coping approaches, as well as many project-based interventions, focus on means for adapting as well as causes of adaptation and the ability to adapt. The vulnerability approach seeks to identify causes of the vulnerability – that is, causes of the risks that people need to adapt to.¹⁵

Tracing the causes of negative outcomes complements coping and adaptation approaches by enabling researchers and development professionals to conduct a full accounting of causality which can indicate the policy options available for reducing vulnerability at its multi-scale origins – not only coping with or adapting in the face of hazards and stress, which tends to be a response to the most-proximate factors. For example, despite laws transferring forest management to elected rural councils in Senegal, foresters force councilors to give lucrative woodfuel production opportunities to powerful urban merchants, usually leaving the rural populations destitute (Larson and Ribot 2007). Forest villagers continue to rely on low-income rain-fed farming and must cope with meager incomes. By focusing on the causes of destitution that puts forest villagers on the margins, analysts might recommend means of policy enforcement rather than, as many projects are doing, encouraging villagers to market other secondary forest products.

Vulnerability analysis most useful to policy makers starts from the outcomes we wish to avoid and works backward toward the causal factors (Turner et al. 2003: 8075; also see Blaikie 1985; Downing 1991; Füssel 2007). In addition to favoring the poor, focusing on outcomes and their causes has other advantages: (1) it best matches policy to valued attributes

of the system that we wish to protect; (2) it enables policy makers to place hazards as one variable among many affecting those attributes; (3) it brings attention to the many variables at multiple scales affecting valued attributes, steering analysts toward the many possible means for reducing the probability of negative outcomes or enhancing positive ones; (4) it enables comparative analysis of the many causes of negative outcomes, helping to focus policy attention on the causes that are most important, most amenable to reforms and least costly to change – giving policy makers the biggest bang for their buck. Analyzing the “chains of causality” (Blaikie 1985), by showing how outcomes are caused by proximate factors that are in turn shaped by more distant events and processes, can tell us what kinds of interventions might stem the production of vulnerability at what scales and, where relevant, who should pay the costs of vulnerability reduction.

Vulnerability reduction measures, of course, do not only derive from understanding causes. Indeed, some causes may be (or appear) immutable, others no longer active, transient or incidental. Redressing direct causes may not always be part of the most effective solutions (Drèze and Sen 1989: 34). The objective of vulnerability analysis is to identify the active processes of vulnerability production and then to identify which are amenable to redress. Other interventions can also be identified that are designed to counter conditions or symptoms of vulnerability without attending to their causes (such as support for coping strategies or targeted poverty-reduction disaster relief). All forms of available analysis should be used to identify the most-equitable and effective means of vulnerability reduction.

Identifying multi-scale vulnerability-reduction policies

Studies of coping strategies and lessons from successful development interventions provide valuable guidance for vulnerability reduction. Large-scale causes of vulnerability, such as unequal development practices, however, are less likely to receive attention in poverty reduction, vulnerability reduction or adaptation programs. Identifying and matching solution sets or climate-related opportunities with responsive institutions at appropriate scales of social, environmental, and political-administrative organization provides an entry point into multi-scale pro-poor climate action. Such action requires a systematic understanding of both proximate and distant dynamics that place people under stress or on the threshold of disaster. This section proposes a research agenda for identifying the range of causal factors shaping various vulnerabilities for groups at risk around the world and a mapping of those causes onto solution sets for responsible and responsive institutions.

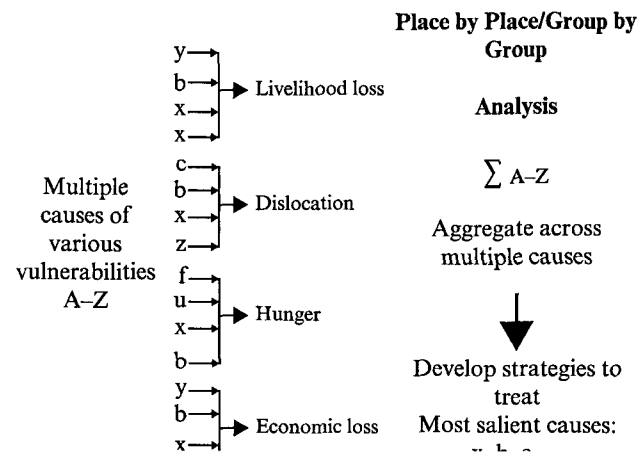


Figure 7.3 · Identifying vulnerability's most salient causes

Different outcomes that we hope to avoid – such as loss of assets, livelihood, or life – are risks for different sub-groups and have different associated causal structures (Drèze and Sen 1989; Watts and Bohle 1993; Ribot 1995; Roberts and Parks 2007). Different sectors will face different stresses and risks and will have different response options (IPCC 2007: 747). Within each case, vulnerabilities of the poor, who have few resources to shield themselves or rebound from climate events and stresses, will be different from vulnerability of the rich who are able to travel to safety and draw insurance to help them rebuild. From understanding differences in the causal structures of vulnerabilities, local, national, and international policies can be developed. Explaining difference will require an analysis of the multiple causal factors for a variety of vulnerabilities of concern (see Figure 7.3).

These causal data must then be aggregated to evaluate the best point of leverage for vulnerability reduction with respect to specific vulnerabilities and overall (see Figure 7.4).

Such an analysis should reveal the frequency and importance of different causes, pointing toward strategies to address the most salient and treatable causal factors.

Identifying causal structures of vulnerability and potential policy responses can be a basis for developing a broad vulnerability-reduction strategy. It involves the aggregation of causal structures over multiple cases of vulnerability of particular groups in particular areas to specific outcomes. This aggregation may have to be broken down by sectors, by eco-zones, or by hazard areas to make such an exercise manageable. The

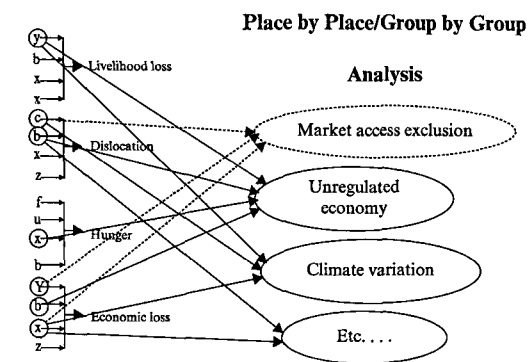


Figure 7.4 Identifying and aggregating multiple causes of vulnerability

case studies can also serve as the basis for generating recommendations for local policy. More broadly, multiple case studies can help us to understand the relative importance of different factors – both near and far – in producing and reducing vulnerability. These factors must be aggregated so as to identify the relevant scales and corresponding institutions for climate action. These steps set out a major research agenda for vulnerability reduction analysis. For this agenda to counter the biases against poorer populations, all of these steps must be consciously pro poor. For example, the cases where basic human rights such as health, livelihood, and life are at risk must take priority over the analysis of purely economic losses.

Indicators currently used to target poverty and vulnerability reduction interventions are a good starting point for identifying relevant study populations. Existing livelihoods approaches to vulnerability reduction already target the poor, strengthening their baseline nutrition, health and morale, and addressing the underlying conditions of poverty, thus reinforcing their abilities to confront stressors and bounce back after them (Cannon et al. n.d.: 6). Vulnerability studies complement successful “self-help” and “social-protection” (see Heltberg et al. 2010) coping and adaptation supports by indicating opportunities for higher-scale reforms.

Thorough vulnerability analyses would indicate the need to reform the larger political economy of institutions, policies, social hierarchies and practices that shape wellbeing, capacity for self protection, and extended entitlements. For example, while social funds, community-driven development and social safety nets are excellent means for responding to immediate stresses and needs of poor populations, examining causality through historical studies often reveals that the poverty these programs respond to is due to larger-scale uneven development investment decisions and

governance policies that limit the choices available to those affected by environmental disasters (Heltberg et al. 2010; Raleigh and Jordan 2010).

Vulnerabilities and their causes are diverse. Responses to vulnerability must be developed from detailed understandings of specific problems in specific places – general principles and models are insufficient. Case studies inform us of a particular set of dynamics and opportunities for vulnerability reduction in a particular place. It is from case studies that viable solutions can follow – for specific places and more generally. To be complete, place-based approaches must take into account people's detailed knowledge of their social and production systems and the risks they face – experience with community driven development (CDD) provides this lesson (Mansuri and Rao 2003). To make results of an analysis relevant and the implication of recommendations feasible, investigations of vulnerability must consider local people's needs and aspirations and their knowledge of political-economic and social context in which any policy will have to be inscribed into law and translated into practice. Thus, while studies provide perspectives communities may not be able to generate, the steps in developing a vulnerability-reduction policy strategy must be informed and open to influence by local citizens and their representatives.

Any vulnerability case study should include an evaluation of existing vulnerability-reduction and a wide range of sectoral and regulatory policies (Burton et al. 2002: 154–157). Any given population at risk is deeply affected by existing policies. Some are aimed at assisting them. Among existing policies some may reduce vulnerability while others help produce vulnerable conditions. Policies, like institutions or organizations (*à la* Agrawal 2010) can enable coping. They can also be systematically disabling (see Larson and Ribot 2007). Policies or their unequal implementation can selectively favor some actors while making others more vulnerable. Policies from all sectors have deep distributional implications. Coudouel and Paternostro (2005) and the World Bank's Poverty and Social Impacts Analysis (TIPS) source book¹⁶ suggest methods for poverty and social impact analysis of policies for their distributional effects. Such guidelines can also be applied to evaluating the vulnerability implications of policies and interventions.

When exploring effects of policies and practices shaping vulnerability, or when analyzing potential vulnerability-reduction measures, it is also important to account for a wide range of ancillary benefits (see Burton et al. 2002). For example, in urban areas, asset building not only reduces immediate vulnerability, but also enables poor and middle income people to make demands on their government for better services and infrastructure (Moser and Satterthwaite 2010). Most adaptation measures will go far beyond reducing of risk with respect to climate events. Hence, the set

of benefits that follow from a given set of vulnerability reduction measures are also highly relevant in deciding the allocation of funds earmarked for development or for climate-related vulnerability.

Knowledge of problems and policy guidance can inform popular mobilization and policy process. Proposing policy solutions, however, is a small part of the political struggle for change. Calls for change must be backed by political voice and leverage. Bringing poor and marginalized groups into decision making through organizing or representation can reinforce their claims for justice, equity, and greater security in the face of a changing environment (Ribot 2004; Moser and Norton 2001).

Conclusion: From Climate Action Options to Institutions and Governance

While vulnerability is always experienced locally, its causes and solutions occur at different social, geographic, and temporal scales. Identifying the causes of vulnerability points toward vulnerability-reduction measures and the scales at which they can best be implemented. It also helps attribute responsibility to the polluters – providing a basis for compensation.¹⁷ Vulnerability-reduction or compensation policies are developed, promulgated, and implemented through institutions. So are the many other sectoral, economic, and social policies that have implications for vulnerability via their effects on resource access, market access, political voice, poverty, and economic distribution. Institutions also play numerous roles in supporting people's everyday coping and livelihoods strategies (Agrawal 2010). Systematically identifying causes of vulnerability, identifying policy solutions, and mapping them to scales and appropriate institutions is a process that vulnerability-reduction analysts and activists must yet conduct.

Institutions play several important roles in wellbeing and vulnerability. Leach et al. (1999: 236) view institutions as mediating vulnerability by shaping access to resources (a part of endowment formation), the relation between endowments and entitlements (rights and opportunities with which a household can command different commodity bundles), and the relation between entitlements and capabilities (the range of things people can do or be with their entitlements). In their model, institutions enable people to obtain, transform and exchange their endowments in ways that translate into contributions to wellbeing. As such, institutions support the needs of a plurality of sub-groups, who can enter into competition and conflict when making claims to resources.

Agrawal (2010) emphasizes the role of institutions, showing how rural institutions structure risk and sensitivity in the face of climate hazards by enabling or disabling individual and collective action. Rural populations

protect themselves by risk pooling via storage (over time), migration (over space), sharing assets (among households), and diversification (across assets). Exchange (via markets) can substitute for any of these risk pooling responses. Rural institutions play a role in enabling each of these risk-reducing practices. In the 77 case studies Agrawal analyzes, all of these practices depend on local institutions – mixes of public, civic, and private organizations.

Risk pooling and exchange mechanisms constitute one set of practices that shape vulnerability. Many other practices also produce or reduce climate-related vulnerabilities. Drèze and Sen (1989), for example, explored the role of media in influencing policy to prevent and respond to chronic hunger and famine. Leach et al. (1999) focus on the role of resource access, endowment formation, and entitlement mapping – the kinds of processes that might make it so the actors involved do not need to engage in risk pooling. Heltberg et al. (2010) point to social protection interventions. Cannon et al. (n.d.) examine the role of networks (akin to Sen's 1981 extended entitlements); Bebbington (1999) emphasizes social capital; Scott (1976) focuses on reciprocal relations within a moral economy; Deere and deJanvry (1984) outline mechanisms by which economic gains are coerced or extracted from peasant households; Moser and Norton (2001) emphasize the role of human rights and claim making.

Each of these enabling and disabling practices depend on different kinds of institutions – rules of the game and public, private or civic organizations – at various scales. To map vulnerability-producing and reducing practices to institutional nodes for intervention, Agrawal's (2010) analytic approach to risk-pooling could also be productively applied to each of these other vulnerability producing and reducing practices. Each can be studied for its role in the causal structure of vulnerability. Each practice – whether reciprocity or social protection – depends on institutions that, when identified, can be targeted for reform or support. But, attempting such interventions can generate social and political tension. As Leach et al. (1999) indicate, institutions and their networks can be in competition or conflict – some for enabling and others in support of disabling policies and practices.

The institutions responsible for and capable of responding to vulnerability are the locus of vulnerability governance. Governance (following World Bank 1992: 3, 1994: xiv; Leftwich 1994) is about the political-administrative, economic and social organization of authority – its powers and accountabilities. It is about how power is exercised and on whose behalf. As the global climate warms, decisions will be made at every level of social and political-administrative organization to mitigate climate change, take advantage of its opportunities, and dampen associated

negative consequences – from global conventions to the decisions of local governments, village chiefs or NGOs. Multiple decisions at multiple scales affect the livelihoods of the urban and rural poor. What principles of governance should guide decisions at each of these decision-making nodes? Who will decision-making bodies represent and how? What distributions of decision-making powers and what structures of accountabilities will provide the most leverage for positive change and the checks and balances to protect poor urban and rural people's basic well being and rights? These questions remain open.

Principles to govern climate action must be designed around the processes that shape vulnerability and the actors and organizations with authority and power to make decisions that can change these processes. The first step will be aggregating case-based analyses of causality, coping and the role of institutions. This process can be tilted in favor of poor marginalized populations by analyses that explain causes of asset and entitlement failure. To translate learning into action will be a long-term iterative process to negotiate the reshaping of policies and practice. All policies change distribution and, therefore, have advocates and meet resistance. Decision-making processes that are accountable and responsive to affected populations may at least tilt policies to favor the most vulnerable – due to their sheer numbers. This means the development of and engagement with representative decision-making bodies to ensure a modicum of influence by those most in need.

For researchers, representation might mean incorporating the voice of local populations in their understanding of who is at risk, the problems they face and possible solutions, as well as sharing findings with affected populations and policy makers. For development professionals and policy makers it will mean working with representative bodies and insisting that these bodies incorporate local needs and aspirations into the design of projects and policies. In global negotiations it may mean requiring negotiators to engage in public discussions within their countries or for national groups to organize and monitor their nation's negotiators. In local and national contexts it may mean helping to mobilize the poor and marginalized to make demands and to vote. Such governance practices may help avoid negative outcomes of climate action and could make climate actions more legitimate and sustainable. Representing and responding to the needs of the most vulnerable populations might promote development that can widen the gap between climate and distress. Moving people away from the threshold of destitution by building their assets, livelihoods and options, will dampen their sensitivity, enhance their flexibility, and enable them to flourish in good times, sustain through stress and rebuild after shocks.

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Notes

1. For instance, if adaptations or mitigation efforts (such as reduced emissions from deforestation and decreased degradation, REDD) increase inequality within or among regions or social groups (O'Brien et al. 2007: 84).
2. This trend holds even without counting the 2004 tsunami. Twice as many people were adversely affected by climate events in the 1990s as in the 1980s, and over the past four decades great major catastrophes have quadrupled while economic losses have increased tenfold (Kasperson et al. 2005: 151–152).
3. Hurricane Katrina was a category 3 storm, as were those in Bangladesh. Katrina's surge was 4 meters. Of course, more could be done. Sidr was comparable to Katrina, which devastated New Orleans. But Katrina, despite infamous Bush-administration mismanagement, resulted in 1,300 fatalities (White House 2006).
4. The term "adaptation," although common in climate discussions, is highly problematic. It naturalizes the vulnerable populations, implying that, like plants, they should adjust to stimuli. The term implicitly places the burden of change on the affected unit – rather than on those causing vulnerability or with responsibility (e.g. government) to help with coping and enable wellbeing. "Adaptation" also suggests "survival of the fittest," which is not a desirable ethic for society.
5. The US National Research Council (September 13, 2007: 71–73), IPCC (2007: AR4-12.4, 17.2, 17.4), and 2006 Stern Review all acknowledge need for greater social science analysis.
6. For example, Leach points out that "A methodological constructivist approach can be used to understand the different perspectives of scientists, citizens and other stakeholders around the issue and to specify different roles for them in decision-making" (Leach 2008: 7). But, of course, constructivism cannot be confined to an analysis of perspectives and must be extended to an understanding of how position shapes the ways in which the world is itself apprehended and translated into meaning.
7. There is no positivist reasoning that would prevent analysis of interpretation and positionality as being part of the analytics of causality – since difference and struggles over meaning and interpretation are part and parcel of causality. In addition, discourse is no less "real" than a tree or a storm system. The causes of decisions that shape security and damage are the results of discursive battles for domination, for authority, for decision-making power and ultimately for policy and practice. Positionality shapes people's behavior and is therefore part of the material political-economic analysis of causality. These are not trivial observations of categorization. The very placing of the social-science analyses into "social constructivist" and non-"realist" categories is a means of delegitimizing these perspectives as if social, discursive, constructivist factors are not part of the causal structure of vulnerability. Indeed, they are the heart of it. Of course, any "realist" who does not understand that interpretation is multi-faceted and meaning attributed misses the point that these observations do not deny the materiality of their "science."

8. On mapping and targeting, see Downing 1991; Deressa, Hassan and Ringler 2008; Adger et al. 2004; Kasperson et al. 2005: 150.
9. For reviews of vulnerability approaches, see Kasperson et al. 2005: 148–150; Füssel and Klein 2006; and Adger 2006.
10. "Assets create a buffer between production, exchange and consumption" (Swift 1989: 11).
11. Entitlements framework is very useful, but grossly incomplete – covering only a limited set of causes. See Gasper 1993 for an analysis of its limits.
12. Household models are often limited by their failure to account for intra-household dynamics of production and reproduction – but they do not have to be. See, for example, Guyer 1981; Guyer and Peters 1987; Carney 1988; Hart 1992; Agarwal 1993; and Schroeder 1992.
13. This second innovation can be confusing since environmental claims in Sen's (1981) classic entitlements framework could be considered part of people's "rights and opportunities" and the alternative sets of utilities these can become would be part of the alternative commodity bundles people can command. Nevertheless, it is useful to view environment as contributing to people's endowments and alternative commodity bundles.
14. Coping is a temporary adjustment during difficult times, while adaptation is a permanent shift in activities to adjust to permanent change (Davies 1993; also see Yohe and Tol 2005).
15. Yohe and Tol (2005) seek to identify on causal structures – but they focus on the determinants of adaptive capacity – rather than the causes of vulnerability itself.
16. URL: http://web.worldbank.org/files/14520_PISA_Users_Uguide_-_Chapter_1_May_2003.
17. Füssel (2007: 163) identifies three fundamental responses for reducing negative outcomes associated with climate change: mitigation, adaptation and compensation. Mitigation assumes climate to be the major cause of problems. Adaptation and compensation requires analysis of causality to identify a broader range of responsible factors and institutions.

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