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Risk and Blame in the Anthropocene: Multi-scale Climate Change Analysis

Jesse Ribot

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Abstract¹

Climate change and climate-change policies affect food security. Vulnerabilities, however, do not just fall from the sky. Vulnerability is not an attribute of changing hazards. It is produced and reproduced through social and political-economic relations on the ground. Risk of hunger is linked to local hierarchies, government relations, national and global markets, international laws and practices, and highly unequal and interlinked local, national and global political economies that give some access to needed resources, others access to social protections, yet others voice in political and economic decisions. These relations shape how people use, depend on, and are affected by nature. This article frames an analysis of vulnerability – risk of food insecurity, hunger, famine, displacement, economic loss – as it now must be analyzed in the new era of human-nature, the anthropocene. Risk in the anthropocene is now bifurcated with some social causality operating through climate. The focus on climate should, however, not take attention away from causes of vulnerability that remain on the ground.

Risk and Blame in the Anthropocene

...no one person suffers a lack of shelter without a social failure to organize shelter in such a way that it is accessible to each and every person. And no one person suffers unemployment without a system or a political economy that fails to safeguard against that possibility.

Judith Butler, *For and Against Precarity*, 2011

Peasant studies has a long history of explaining the marginality and flexibility of peasant households through their embeddedness, as an economy within an economy, in layered social and political-economic relations (e.g. Shanin 1971; Wolf 1969; Scott 1976; Watts 1983a; Deere and DeJanvry 1984; Blaikie 1985; Bernstein 1996). Understanding rural vulnerability – including food insecurity – requires the same kind of multi-layered analytics. It is about explaining why peasants have limited assets, little surplus, and what enables them to cope with stress under conditions of exploitation, subordination to landlords, dependencies, their relation to markets, and policies ranging from conscription and corvée to taxation, unequal exchange, or skewed access to social services. We do not explain precarity of the peasant household nor its security and ability to withdraw into subsistence as a mere proximate relation between a household and

¹ A version of this article is under review at the *Journal of Peasant Studies*.

the environment. We explain precarity and security by locating the individual in the household, community, polity, market, nation, and in a differentiated global political economy.

Most policy-oriented analysts of climate-related vulnerability shy away from historical political-economic analyses of causalities. They focus on identifying *who* is vulnerable rather than *why*. They seek indicators rather than explanation. 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 – employing a forward-looking analysis of how to enable adjustment rather than a historical analysis of risk generation. Adaptation approaches steer clear of causality – beyond an abstract attribution of climate-related disasters to acts of God or nature, or, in the anthropocene, to anthropogenic climate change. Analysts continue to locate risk within the hazard. They continue to attribute human pain and suffering to droughts, floods, and storms. Hazards analyses frame disaster as a direct linear ‘impact’ of these climatic events.

How can we call a disaster the impact of a climate event when the same magnitude meteorological event in different places or times is associated with totally different outcomes? Why are 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 stressors (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; Birkenholtz 2011; Clark, Chhotray and Few 2013; Chhotray and Few 2012)?² The causes of differences are within society, not in the sky. Bangladesh saw a 150-fold reduction in fatalities from 500,000 after Cyclone Bohle in 1970 to 3406 following the even-stronger Cyclone Sidr in 2007. Reduced fatalities were due to simple planning reforms.³ New Orleans saw fewer than 1300 fatalities

² In Bangladesh, women and the poor are disproportionately 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).

³ Hazards framings of climate risk place attention on climate events, occluding the grounded political economy of risk. Yet simple examples show that climate-related crises are not outcomes of climate events. In 1970, when Cyclone Bhola hit Bangladesh with six-meter tidal surges, some 500,000 people perished (Frank and Husain 1971). In 1991 a similar magnitude storm, 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. Despite increased population density, 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

after the meteorologically comparable Katrina – most of which are attributable to government negligence.⁴ The inability to sustain stresses 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 are the factors that translate climate vagaries into suffering and loss.

By tracing causality to what Fraser (2008:28) calls the ‘generative framework’, analyses point to the potential for transformative intervention – the kind that can restructure the processes that produce vulnerability. Such transformative solutions require changes in the power relations that shape the political economy that shapes security.⁵ But, such causal analyses 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. It is no surprise indeed that analyses of climate focus on *who* is vulnerable and not *why*. *Why* is socially and politically contentious. Continuous work must be done to bring attention back to the generative.

Today, in the anthropocene, we face a new dilemma. Nature has become cultured. Climate is anthropogenic. The hazards themselves, climate events, are no longer natural and blameless. It seems ‘natural’ that cause and blame be turned back toward the hazard; that disasters be

to early warning, community preparedness, and integrated response efforts (CEDMHA 2007; Ministry of Food and Disaster Management of Bangladesh 2008; Bern et al 1993; Batha 2008), which made Sidr 150 times less fatal than Bhola.

⁴ Hurricane Katrina was meteorologically comparable to the cyclones in Bangladesh. But Katrina resulted in even fewer, 1300, fatalities (White House 2006). Nevertheless, this was considered unacceptably high. The US Federal Courts explained the Katrina disaster as a failure of the Army Corps of Engineers, not as a result of the climate event (Hayes 2009). In addition, many of the Katrina-related deaths can be attributed to infamous Bush-administration mismanagement, poor planning and a racist police response. These failures created the disaster we associate with Katrina. [see Margeret Somers on Katrina – genealogies of citizenship, markets, statelessness and the right to have rights.]

⁵ 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.”

attributed to climate change – and traced on to the perpetrators driving SUVs in New Jersey. Such blame and responsibility has long been debated in climate negotiations.⁶ More by more global institutions, through agreements with UN Framework Convention on Climate Change (UNFCCC), are taking responsibility for climate change by aiming adaptation funds to support people to avoid the ‘additional’ stress that climate change is projected to produce.

Yet, under UNFCCC adaptation funds are earmarked to redress only the damages of the *additional stress* that climate change might cause. Article 4.4 “refers to assistance to be given by developed country Parties in meeting the costs of adaptation that arises from climate change impacts” (Khan and Roberts 2013:182). This additionality⁷ stance, along with calls for ‘polluter-pays’ positions and addition of the UNFCCC “agenda of loss and damage,” implicitly acknowledges that climate change is anthropogenic and that the responsible parties should fund adaptation (Khan and Roberts 2013).⁸ But this additionality then implies that they are turning away from responsibility for the preexisting precarity of those at risk – most of whom were vulnerable well before climate change was anywhere on the horizon. They still only accept the increment of suffering associated with added stress – despite that this suffering is still attributable to the underlying conditions that turn any stress into crisis.⁹

⁶ The Alliance of Small Island States, China and the Group of 77 Group of 77 pointed to liability and compensation for climate change as early as the 1990s (Khan and Roberts 2013:175).

⁷ In the UNDP handbook for practitioners “UNDP Designing Climate Change Adaptation Initiatives: AUNDP Toolkit for Practitioners” (UNDP 2010:38), additionality, guiding the spending of adaptation funds of the UNFCCC’s LDCF and SCCF, both managed by the GEF, means that the funds are targeted at providing resources to meet the ‘additional costs’ of adapting to climate change. The Adaptation Fund defines an adaptation initiative as including: “a set of activities aimed at addressing the adverse impacts of and risks posed by climate change.” ‘Additionality’ is thus evaluated in two steps to identify the non-business-as-usual support. First, a baseline ‘business-as-usual’ development scenario is established – involving no consideration of climate change. Second, a new scenario describes outcomes “that are to be achieved by a set of interventions (activities) that explicitly address climate change concerns.” In this way the expenditures are targeted only to the expected changes due to climate change.

⁸ Framing of adaptation as restitution was supported by the G77 but rejected by the Annex I countries but then later, the inclusion of an “agenda of loss and damage” in COP16 in 2010 and in Doha at COP18 in 2012 seems to show some acceptance by the developed nations (Khan and Roberts 2013:184).

⁹ Khan and Roberts (2013:182) make the point that “this global premise of adaptation as an additional burden for development in the particularly vulnerable countries presents ‘risks’ from climate change due to a biophysical change in the atmosphere, rather than factors that make people vulnerable to these changes.” Rather, they connect these factors to “existing development needs and contexts.” They continue that “on the basis of this consideration, developed countries argue that their responsibility in supporting adaptation should be limited to the problem itself, i.e., adaptation action in addition to the baseline, that the developing countries would undertake in absence of climate change; so the responsibility part for the wealthy nations relates only to damages attributable to human-caused climate change.” (Khan and Roberts 2013:182.)

The targeting of adaptation funds toward the anthropogenic increment of stress accepts that nature has been cultured but, paradoxically, requires that misery of precarity be naturalized – as a background condition. The populations most affected or made worse off by climate change are already the most vulnerable in the face of ordinary climate variability (Ribot, Magalhaes and Panagides 1996; Cannon, Twigg and Rowell n.d.:5; Anderson, Morton and Toulmin 2010; Heltberg, Siegel and Jorgensen 2010; IPCC 2012:76; European Commission 2013:5; Human Rights Council 2009:1; in the case of women, see Figueiredo and Perkins 2012:5). Poverty remains the most salient of the conditions that shape climate-related vulnerability (Prowse 2003:3; Cannon, Twigg and Rowell n.d.:5; Anderson, Morton and Toulmin 2010; Heltberg, Siegel and Jorgensen 2010).

The poor are least able to buffer themselves against and rebound from stress. They already live in a state of precarity. They have historically been the victims of hunger, famine, dislocation and loss in the face of climate events. But it is in facing anthropogenic change that the international community is mobilizing anew to take responsibility – pre-existing vulnerability is transmuted on the scene to natural, it blames no one. What came as humanitarian aid in the past is now channeled toward a kind of reparation for anthropogenic change – adaptation support. The additionality doctrine requires that we restore populations to their condition prior to climate change – to restore them to their former misery. It requires a natural baseline beyond which the producers of climate change are not responsible. It cordons off liability. Together, additionality and adaptation erase history, occluding the structural violence that created the poor's systemic climate-related and non-climate related vulnerabilities, across multiple axes, geographies and histories.¹⁰

While naturalizing misery, in this anthropogenic climate, additionality brings attention back to the hazards. Social grounded causality is doubly and once again obscured, framing hazards as culpable and poverty as natural. Everywhere we turn there are climate change ‘impact’ analyses being conducted – despite that disasters are not and never have been ‘impacts’ of climate events. How do we square cultured nature with un-natural and socially generated disaster? Now that nature is cultured,¹¹ we can indeed trace social causality of risk through climate change.

¹⁰ I owe Erin Collins for this insight and wording.

¹¹ I use the term cultured here to refer to something that is socially produced as opposed to being a product of nature.

An anthropogenic climate does not mean that the cause of vulnerability is located in hazards and that vulnerability now falls from the sky. But because the biophysical events are anthropogenic, the causal explanation of the hazard must now account for human will, intentionality, negligence, and interest. This causal link 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 viewed as external to the social world, are now cultured. Climate events are now traceable to acts of social systems and agents (Jones and Edwards 2009; Arthur 2012). These are new forms of liability and they reside in society; cause still does not originate in the sky. It is important to distinguish between the causes of hazard and the causes of vulnerability. Vulnerability and its causal structure remain social. Climate is a mere medium of anthropogenic stress. We don't blame a car (despite that cars are anthropogenic) for running someone over – we trace liability to auto engineers, road maintenance bureaus, drunken drivers, even careless victims.¹² We seek human causes – in intention, error, negligence.

Cause, and therefore blame, in the anthropocene are now bifurcated. Hazards and vulnerabilities have social cause. God and nature can no longer absolve us. Of course, it is not as if society could ever – with or without anthropogenic climate change, with or without God – have washed its hands of the production of vulnerability. Vulnerability on the ground is (and always has been) as much a product of far-away social forces as are 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 social. The differentiated causes of vulnerability 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 responsibility and blame – as well as claims for redress and compensation (Jones and Edwards 2009; Hyvarinen 2012).¹³

¹² 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. We do not put guns in jail. But we should put some legislators in jail – or at least out of a job.

¹³ Blaming humans for biogeophysical events is by no means new. In 2011 a Haitian taxi driver in Newark told me that the Haiti earthquake was caused by problems with a tunnel being dug between Miami and Port-au-Prince. His explanation is not meaningless or silly. 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 that

While anthropogenesis remains on the ground, it profoundly changes the meaning of climate events. Humans are now demonstrably (to non-deniers) 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, anthropogenesis adds a new dimension to a connectivity of the globe that has long been apparent to historians and to social and political-economic theorists (e.g. Wolf 1981; Wallerstein 1974). 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 1983b; 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 simultaneously contributing to stress articulated through a changing climate system.

This article develops an analysis of the grounded origins of vulnerability and insecurity – so that anthropogenic climate change cannot be added to the repertoire of State obfuscations that occlude the multiple place- and non-place- based causes of vulnerabilities. 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 quoted in IPCC. 2011:4). 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 – by asking who is vulnerable and why, and progressively contextualizing this explanation in the many layers of political-economic and social relations and histories that shape it. So to reduce vulnerability and build security requires a deep understanding of experienced crisis and its

the quake was 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. 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.

origins. To achieve human security, to protect “the vital core of all human lives in ways that enhance human freedoms and fulfillment” (Ogata & Sen, 2003), requires an understanding of how these lives arrive at thresholds of disaster.

Following a brief review of vulnerability theory, this article 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 article 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. The analysis here focuses on vulnerabilities in populations exposed to climate stress, not the origins of these stresses. This is the part of the analysis of causality that must constantly be brought back into the analytic and public eye.

Linking Climate and Society: Theories of Vulnerability

...To call the frame into question is to show that the frame never quite contained the scene it was meant to limn, that something was already outside, which made the very sense of the inside possible, recognizable.

Judith Butler, Frames of War 2009:9

It is widely noted that vulnerability to 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

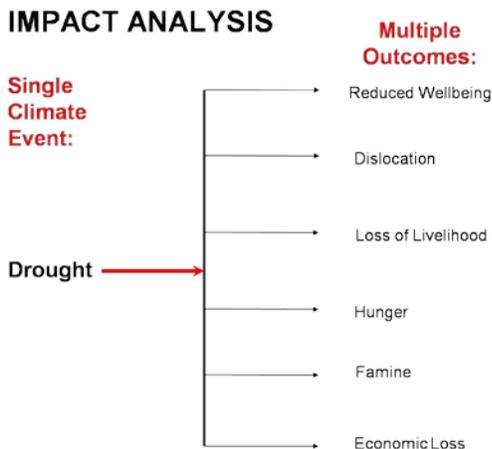


Figure 1: Impact Analysis

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 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 the risk-hazard authors attribute to natural sciences, with a social constructivist view, which these authors attribute to the social sciences. The social scientists seem to have bought this division and unthinkingly accepted the application of these categories to themselves (e.g. Ribot 1995; Fussel and Klein 2006; Adger 2006).

VULNERABILITY ANALYSIS

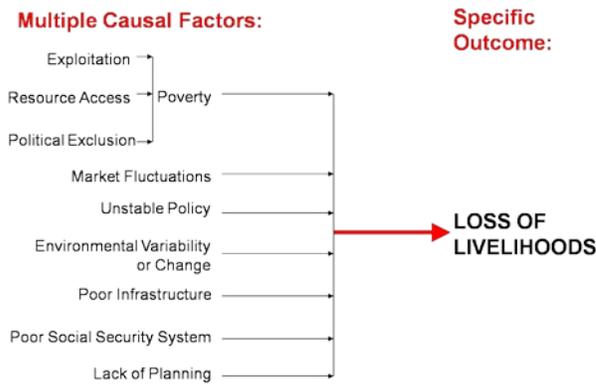


Figure 2: Vulnerability Analysis

It should be evident to any social scientist, however, that both the risk-hazards and the entitlements and livelihoods approaches can be positivist as described by Jasanoff (1999). 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 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 Reboitier 2012).¹⁴ In short, we need to discard this false dichotomy introduced, it would seem, to discredit social-science analyses – through contrasting it with the ‘real’.¹⁵

¹⁴ 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 shape the ways in which the world is itself apprehended and translated into meaning.

¹⁵ 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

Nevertheless, there remain two primary schools of thought concerning climate's relation to risk. One key distinction between the two schools is that the ostensibly 'natural-science' risk-hazards models tend to evaluate the multiple outcomes (or "impacts") of a single climate event (see figure 1), while the entitlements and livelihoods approaches, characterize the multiple causes of single outcomes (Figure 2) (Ribot 1995; Adger 2006) – both of which can be done in a positivist manner or applying a constructivist lenses. The risk-hazards approach 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 society and hence tends to see natural phenomena as playing a role but not as having 'caused' the risk or damage in the face of an event. A third category (to which I will return later), 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 frequently portrayed as inadequately incorporating social dimensions of risk (Watts and Bohle 1993; Ribot 1995; Adger 2006:270; also see Cannon 2000). This approach enables the 'additionality' views common in climate policy circles, which are based on the imaginary notion that the effects of climate change can be separate from underlying social conditions.

The entitlements and livelihoods schools are concerned with the chains of events that lead to vulnerability. They consider people to be vulnerable *to* undesirable outcomes – loss of a valued

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'.

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 and livelihoods approaches are often depicted as ignoring biophysical factors.

Integrative frameworks link the 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. Linked approaches also draw on resilience theories (Gunderson and Holling 2002). These all tend to integrate the social into systems theory approaches in ways that do not account for social theory of political or economic change. Cracking open the nut of recent work on resilience and systems theory is beyond the scope of this paper, but suffice it to say systems theories are still struggling to integrate social theory and boundary conditions (Duit et al. 2010).

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 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 that 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. A new and similar approach, differentiated by using the language of ‘network political ecology’, is described by Birkenholtz (2011). Berkenholds (2011:10) explains “For network political ecology, this means a focus on both vertical (hierarchical) and horizontal (non-hierarchical) connectivity in places experiencing a common effect of climate change, understood through their connections to other processes.”

This approach is consistent with those that the above theorists have been using for decades. These entitlements/livelihoods integrative approaches are often reclassified as social constructivist or ignored by the systems modelers, who take the hazards stance while including the social factors as objects of outcome that interact with the landscape and hazard. The hazards stance continuously bends causality back to the interface between people and nature. Reifying nature as a primary element in their analysis and thus bending the analysis continuously back to nature itself as cause. The social-science analyses (including the network political ecologists) operate differently. They trace causal chains outward toward whatever the factors are found to shape risk. Where climate is part of that constellation, it emerges as being significant. Where it is not, even when it is a key stressor, it can remain in the background – as illustrated by the trends in which stressors increase but damages decline (IPCC 2012). This sociological and political-economic ‘progressive contextualization’ (coined by Vayda 1983, who applied it in an a-theoretical manner) or the old political ecology framing (Watts and Bohle 1993; Ribot 1995) or new ‘network political-ecology’ approach to vulnerability analysis (Birkenholtz 2011) focuses attention on the full array of causes of negative outcomes. These approaches allow the analyst to identify the multiple causes behind undesirable outcomes.¹⁶

Before developing this vulnerability analysis approach further, it is important to acknowledge the burgeoning ‘adaptation’ literature. Adaptation literature is not asking why people are vulnerable. It is asking how to reduce their vulnerability – usually without applying the above vulnerability analytics to understand its origins. Nevertheless, that literature leaves a very generous opening for causal analysis of vulnerability hidden in the term ‘adaptive capacity’. The notion of ‘adaptive capacity’ as framed by Yohe and Tol (2002) is effectively a converse of vulnerability (Ribot 2011). If we ask what causes vulnerability it is the same question as asking why a given individual or household does not have adaptive capacity. The causes of this lack are precisely the same as the causes of the presence of vulnerability. So, in assessing its causes – causes of its presence or absence – it is clear that this term reflects what the entitlements and livelihoods approaches call vulnerability. Here the two approaches could intersect. The next section delves deeper into vulnerability analysis.

¹⁶ Birkenholtz (2011) uses language of ‘effect of climate change’. This looks like a kind of slippage into hazards language. It can also be considered a result of his use of Latour – whose flat ontology makes objects into actors (with many dangerous implications). This approach is then to be contrasted with the one proposed in this article. However, this author’s article, despite Latour, retains the focus on social and uses ‘effect’ to indicate that climate produces action and reaction recursively – both of which are within society. The action then remains with humans; so Latour can be dumped.

Vulnerability Analysis

Two objectives of any policy oriented 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 at risk. 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 – this is the world of vulnerability indicators. 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 – this is the world of causal analysis.

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 people and communities are sensitive or lack resilience. Knowing¹⁷ likely “impacts” – risks or likely outcomes in a static and socially produced situation – 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.¹⁸ This section trains our attention on the elements of an analysis of causal structures of vulnerability.

Causal Structures of Vulnerability

The two most common approaches to analyzing causes of vulnerability use the concepts of entitlements or livelihoods.¹⁹ These approaches analyze the sensitivity and resilience of individual,

¹⁷ Note that ‘knowing’ is itself a social process and the foresight that is generated, used or ignored is part of the production of security or of the production of risk itself.

¹⁸ On mapping and targeting, see Downing 1991; Deressa, Hassan and Ringler 2008; Adger et al 2004; Kasperson et al 2005:150.

¹⁹ For reviews of vulnerability approaches, see Kasperson et al 2005:148-50; Füssel and Klein 2006; and Adger 2007.

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. This section examines how we locate these models in a larger set of meso- and macro-level political economic relations.

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.”²⁰ Entitlements are the total set of rights and opportunities with which a household can command—or through which they are legally “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.²¹ 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.²² Understanding causes of hunger can shed light on policies to reduce vulnerability (Blaikie 1985; Turner et al 2003). By analyzing chains

²⁰ ‘Entitlements’ as a concept must also be viewed as part of the problem of exclusion – it is predicated on a strong justification of private property that, following Locke, Kant and Nozick (see Nozick 1974), is just if obtained in a just acquisition. It implicitly legitimizes any existing distribution of property while delegitimizing such social means of redistribution as taxation. Nevertheless, the framing and process of analysis of entitlements failure gives us a strong basis for accounting for hunger.

²¹ “Assets create a buffer between production, exchange and consumption” (Swift 1989:11).

²² Entitlements framework is very useful, but grossly incomplete—covering only a limited set of causes. See Gasper 1993 for an analysis of its limits.

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 1983b). 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.²³ Leach, Mearns and Scoones (1999) later called these environmental inputs to household sustenance “environmental entitlements” (also see Leach, Mearns and Scoones 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, Mearns and Scoones 1999:233). In this definition these authors made 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.²⁴

²³ 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.

²⁴ 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.

Leach, Mearns and Scoones (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, Mearns and Scoones 1997:9). Hence endowments such as natural resources that are not classically owned by 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 (see Lund 2008, 2013; Lund and Boone 2013). With this insight, they introduce the notion that rights, Sen takes as singular and static, may also be plural (a la von Benda-Beckman 1981; Griffiths 1986) and are based on multiple, potentially conflicting, social and political-economic relations of access (*a la* Blaikie 1985; Ribot and Peluso 2003).

This analytic approach needs to be expanded beyond ‘entitlements’. If the inquiry into causes of hunger and famine are to be complete, it must also look at how food is obtained in practice – including rebellion, theft, stealth and other means of access (for access theory see Ribot and Peluso 2003). In the moral economy of peasants, rebellion is just when the patron fails to provide food (Scott 1976). There is probably a parallel for urban riots. People accept all kinds of inequality (Bourdieu 1977) until some standard of expectation is breached – and then they take what they need. In short, what enables the individual and household and community to avoid risk and maintain its security and wellbeing includes a range of claims that can be made through exchanges and transfers within legal channels and through takings that have a compelling basis in the need to survive.

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.

This critical relation between people and government is grossly under theorized in the vulnerability literature. It is recognized as important but left vague (Drèze and Sen 1989; Watts and Bohle 1993). Representation can be defined as responsiveness of authority to needs and aspirations. It is called democratic when it is driven by means of sanction or accountability (Manin, Przewski and Stokes 1999). Citizenship can be substantively defined as the ability to influence those who govern – an ability to hold government accountable, to sanction (Ribot, Chhatre and Lankina 2008). Expanding on the existing frameworks from notions of accountability through media or social movements to a much broader array of mechanisms of accountability (Ribot 2004; Agrawal and Ribot 2013) constitutes an analysis of the degree to which representation is driven democratically and the degree to which people are themselves citizens or subjects of their polity (a la Mamdani 1996). While there is clearly a relation between empowerment and entitlements, there remains little empirical work on this front – concerning local government, central government, or the many other customary and non-government authorities that shape entitlements as they rule the rural world.

Authorities play an important role in shaping entitlements and enforcing relations of access to resources, markets and decision making. They fit into, but are also under theorized in the institutionalist literature. Institutions play several important roles in the causal chain of wellbeing and vulnerability. Leach, Mearns and Scoones (1999:236) view institutions, which they see broadly as the ‘rules of the game’, as mediating vulnerability. They shape access to resources (a part of endowment formation), they configure 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 cooperation, competition and conflict when making claims to resources. The term institution, however, must be fleshed out by empirical observation of how rules of the game and specific organizations in and of society shape wellbeing and damages.

Agrawal (2010) shows how rural institutions, which he characterizes as organizations, shape 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/organizations play different roles in enabling each of these risk-reducing practices. In 77 case studies he shows that these practices depend on a mix of public, civic, and private organizations (administrative or elected government, membership organizations, cooperatives, service organizations and private businesses), evaluating which are most frequently called on. This innovation enables us to systematically map the relation between risk-pooling strategies and institutions.

Such institutional analyses (Agrawal 2010; Leach, Mearns and Scoones 1999) raise the causal question of which institutions become relevant and how – through what material and discursive relations? What enables institutions to play productive roles in vulnerability reduction? What property and social relations enable individuals and households to act collectively and to access these institutions? The analysis gives us a powerful link between risk reduction strategies and the institutional means people use to manage them. It gives us a starting point to ask the next question, *why* do they use these strategies and what has enabled these institutions to play the role they play in risk management. The analysis needs to be extended beyond description to explanation. But, if we want to understand why representative institutions remain weak and NGOs have emerged to provide security, we need to explain the institutional landscape. For example, Manor (2005) shows that central governments and aid institutions have overfunded NGOs and while underfunding elected local governments – making formal local representation less able and less relevant. The social protections that institutions support are part of a larger political economy that explains the production of institutions (Ribot, Chhatre and Lankina 2008). They are not just there to be chosen by local risk-poolers. They don't just emerge from the polycentric ether (a la Ostrom 2009). Social protections and representation are interlinked.

Polanyi (1944:187-200) may be another important source of inspiration for understanding the origins of social protections (and environmental protections) that can spell security. As Polanyi argues, social protections are an artifact of the double movement of capitalism itself – a destructive tendency toward both labor and nature (fictive commodities that are not valued by the market) that is countered by a protective set of forces within society (labor organizing and environmental movements) and by the enlightened self interest of capitalists. They need labor and land as inputs and move to protect these resources. Hence capitalism's destructive forces are countered by protective policies. Fraser (2011) sees these as both being mediated by a third movement of emancipation. Markets in Fraser's view are both productive and destructive as can be any protective policies. Hence, society demands that both be subject to public scrutiny. This scrutiny is called for and in her sense of right must be subject to the criteria of participatory parity

– a judgment based on equal access to representation. The argument is clear, the empirics showing that this is a natural reaction or social demand are still wanting.

Polanyi (1944) can offer another very different explanation for the risks people experience. Polanyi described land, labor and finance as ‘fictive commodities’ since they were essential inputs to markets but were not produced by the market. The market overexploits and destroys because it does not consider their production. Perhaps risk itself is another such fictive commodity – its use as a commodity, its commodification, causes a dysfunctional production of risk itself through quantifying and packaging and selling of something that is not a market product – even if it is a market byproduct (like and sometimes in the form of pollution). In this case, rather than destroying risk, the market enhances it as a source of income and employment for sectors – insurance and disaster aid – that rely on risk as their object of intervention. This may seem too cynical. But it is a dynamic to be aware of. It is one that cannot be separated from what Rose (1999) called the production of risk subjects – where through processes of governmentality, individuals internalize the explanations of risk as if it were produced by their behavior and not by broader social and political economic forces. In this manner, demand for protection turns into demand for insurance. By blaming themselves for the risk, they take on the burden of self protection rather than seeking social protection.

A further Polanyian twist is to view nature through the lens that Polanyi (1944) viewed markets. For Polanyi, there was a transformation in which markets served people during the period of merchant capital. In the transition to industrial capital, people began to serve markets. They became inputs to markets rather than markets being inputs to people’s production and reproduction. Today we see a transition taking place within nature. Nature once served people. More-by-more people serve nature. Sato (2013) argues that “governance of environment goes hand in hand with the governance of people.” In Sato’s case in Thailand, natural resources play a role in state-society formation at societal margins – integrating hill people and others into society. While once nature was something that, like the market, served people, people, now are subordinated to serving nature (through conservation) as nature becomes scarce and is further commodified. The subordination of people to nature is part of Polanyi’s characterization of labor as a fictive commodity and nature too. Here people are transformed from life in use of nature to labor of maintenance and extraction that transforms nature into market culture. In the process labor is commodified and its value is not reflected in its use. As margins are incorporated, people go from using nature to live to being subordinated to nature’s economic use. This is a transition that shapes and reshapes agricultural people’s relation to nature – nature served them and now they serve nature. It is this transition that is part and parcel of marginalization.

Representation (however demands are made) and responsive social protections are one set of loops, constituting people's relation to government, connecting household assets to a wider political economy. Multiple other 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 (Poteete and Ribot 2011; 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 (also see Alavi 1965).

Causality of material insecurity should also be systematically understood through effects of discourse (as with the governmentality example from Rose 1999, above). Rebotier (2012) develops a risk analysis framework for understanding the iterative biophysical and social production of risk. Rebotier examines how discourse, the naming of a place, a community, a geographical area of a city as 'risky' creates its own outcomes and can have the effect of a self-fulfilling prophecy. Rebotier shows that interpretation of risk is always stratified by the differentiated relation of individuals and groups to physical risks and to the discourses about it. In this sense, Rebotier shows how risk is also always political – its interpretations imply actions that serve different people with different social identities and means differently.

Rebotier also shows that once risk is identified and translated into meaning – that is, interpreted – it becomes performative and instrumental. The identification of risk, the words we use to describe it, and its inscription in place, imply actions and interventions with consequences for the control and use of spaces. He observes “territories are spaces in which meanings are inscribed, and in addition to the physical transformation of territories that risk may imply, risk is itself one of the meanings inscribed within these spaces, shaping the relationships as well as the actions carried out by their occupants, including those who govern” (2012:392). In this sense, Rebotier's 'territorialization-of-risk framework' requires us to take a holistic view that bridges the gap between material fact and representations – placing both in the political space of risk apprehension and assessment. Here, through its performative nature, insult becomes injury – deepening material marginality through its perlocutionary effects (Butler, 1997).

Vulnerability is also established discursively at a much higher scale of social organization. The very framing of the ‘third’ or ‘developing’ world as far away and other produces otherness. As Butler (2010:25) states “...those whose lives are not ‘regarded’ as potentially grievable, and hence valuable, are made to bear the burden of starvation, underemployment, legal disenfranchisement, and differential exposure to violence and death.” Butler goes on to note that it is impossible to distinguish whether the ‘regard’ leads to the ‘material reality’ or it is the material differences that shape ill regard. The key point is that the categories themselves are perpetually crafting the material world. In short, perception has a material effect. Framings matter.

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 their coping capacities. While food production support is typical of food-security interventions, household-based research shows that food purchase 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 (also see Suarez, Ribot and Patt 2009 – where farmers had forecast information without the means to use it—so, why don’t they have ‘adaptive capacity’). 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, market access, social protections so limited, and representation are so skewed.

Like entitlements analyses, livelihoods approaches (Blaikie et al 1994; Bebbington 1999; Turner et al 2003; Cannon, Twigg, Rowell 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, Twigg, and Rowell 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). This is a simple but strong analytical relation between biophysical events and social vulnerability.

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. They also form a grounded basis for locating vulnerability in multi-layered sets of social and political-economic relations that require a broader set of material and discursive analytics.

Tracing Causalities: Toward Reduced Vulnerability

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 crisis-prone 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, dislocation or economic losses that push people over a threshold into poverty or extreme deprivation. The focus on causality can point toward solutions – whether or not the political and development communities choose to take them up.

Tracing the causes of negative outcomes complements coping²⁵ 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. They may seek to support local representation, rather than implementing technical requirements for production that have no ecological effect and represent excessive and non-productive labor for already overburdened populations.

Another example is given by Osborne (2011), who shows how land titling under carbon forestry schemes in Chiapas results in subsistence insecurities. Corn prices in Mexico are down due to new agrarian policies and international trade policies. Alternative income opportunities for farmers are needed. Land rights have been made less secure in the context of land reforms that can displace people from what are labeled as ‘unproductive’ lands. Carbon forestry has become a means of securing land by showing that it is productive. Carbon forestry projects prevent squatters from taking over their lands by making it appear to be in use. They are motivated by their need for land security and not the meager income from carbon storage. Indeed, the labor to return of carbon forestry does not fill the subsistence gap on a relevant short-term time scale. Required tree planting reduces labor time available for other subsistence activities and the land use for trees reduces land use for subsistence crops. It is a losing proposition over the short term – the only time horizon on which subsistence farmers can operate. Labor, not land, is the limiting factor. Farmer vulnerability is deepened. With carbon forestry interventions, such as REDD, people are moving from short-term subsistence land uses to long-term capital returns. This shift away from meeting everyday needs may have food security effects (Osborne 2011:875). After much investment, given constraints on labor, many farmers have been forced to abandon their carbon forestry projects. Here policy makers may reduce vulnerability by

²⁵ 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).

attending to labor constraints and subsistence insecurities in the design of carbon forestry interventions.

In a very different context, Wolford (2007) shows how land insecurity can be traced to common beliefs of both the right and left. While the neoliberals blame the state and populists blame the market for land inefficiencies, they both presume that rights to property are rooted in labor investments (*a la* Locke 1823). The result is that from both sides the farmer is pushed to demonstrate evidence of productivity in order to secure and maintain their property rights. “Land reform beneficiaries who have won access to land based on a labor theory of property find it difficult to feel secure in their ownership – unless they use land in ways that are consistent with collective social norms regarding productivity and productive-ness” (2007:552). She shows that those norms corral farmers into self and mutual surveillance of land use, producing ownership insecurities that lead to land-use conforming with government programs – whether or not those produce of greater land-use efficiency. Here attention toward the framing of land reforms, forms of land title, and the community norms of land use.

As with the above examples, vulnerability analysis most useful to policymakers starts from the outcomes we wish to avoid, such as destitution, subsistence insecurity and land insecurity, 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.

Multi-scale Vulnerability Analysis

Studies of coping strategies, adaptation practices and lessons from successful development interventions provide valuable guidance for vulnerability reduction (Mearns and Norton 2010). Meso- and macro-scale causes of vulnerability, such as unequal development practices,

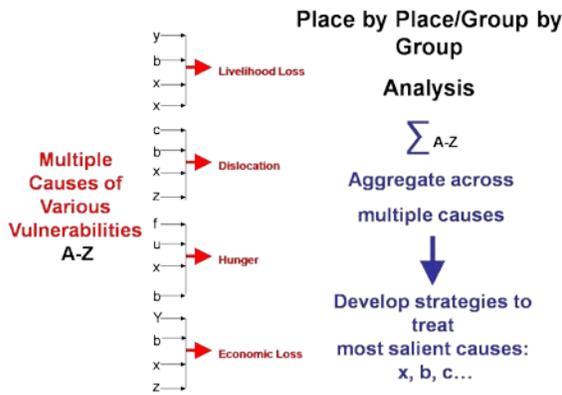


Figure 3: Identifying and Aggregating Multiple Causes of Vulnerability

however, are less likely to receive attention in poverty reduction, vulnerability reduction or adaptation programs (see Agrawal XXXX on need for meso-scale analysis). Identifying and matching solution sets or climate-related opportunities with responsive (or at least responsible and perhaps liabilizable) institutions at appropriate scales of social, environmental, and political-administrative organization provides an entry point into multi-scale climate related risk response. 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 (or units) at risk around the world and a mapping of those causes onto solution sets for responsible and responsive institutions.

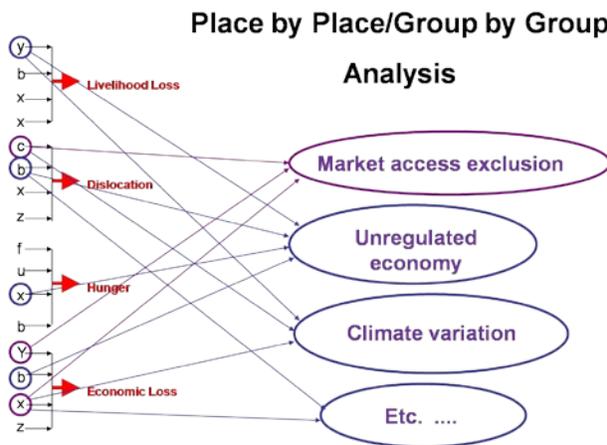


Figure 4: Aggregation Causal Data Across Cases

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 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 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, by hazard areas, or hazard types to make such an exercise manageable. The case studies start with the negative outcome and trace back the chains of causality. The case studies, aggregated or individually, can then serve as the basis for generating recommendations for local policy. Single cases can help us understand the factors operating on the unit of focus. 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.

Climate-related disaster areas are an excellent starting place. Studies should cover cross-sections of exposed populations – including income stratified samples and households or communities that fared well in addition to those experiencing damages. Indicators currently used to identify poverty and vulnerability reduction interventions are also a good starting point for identifying relevant study populations (see the *Atlas of World Hunger*, Bassett and Winter-Nelson 2010). In areas of risk stories of damage are likely to be found. Studies should not just examine large-scale disasters, but also chronic suffering where micro disasters constitute people's lives. For comparison cases need to be paired with households or populations perceived as less at risk. For this research agenda to counter the biases against poorer and marginal populations, cases must be consciously skewed toward the kinds of risk faced by the poor: cases where health, livelihood, and life are at risk. True the rich are at risk of economic loss and that loss is worth avoiding – but the rich can protect themselves or buy insurance. After identifying and regrouping of multiple cases the analysis involves: identification of causal chains in each from each outcome; comparison of the causal chains across cases; and identification of salient causal factors – those that reappear frequently and or those always associated with undesirable outcomes for the units of concern. This causal analysis should explain the social institutions and structures – from laws and practices to broader relations of production and exchange that shape the factors associated with loss. These steps set out a major research agenda for vulnerability reduction analysis.

Thorough vulnerability analyses would indicate where there is a 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 can be effective 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, Siegel and Jorgensen 2010; Raleigh and Jordan 2010). Such vulnerability studies can complement successful “self-help” and “social-protection” (see Heltberg, Siegel and Jorgensen 2010) coping and adaptation supports by indicating opportunities for higher-scale reforms.

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 shortcomings of what the World Bank calls community driven development (CDD) provides this lesson (Mansuri and Rao 2003; 2012; Ribot and Mearns 2008). 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 effected citizens and their political 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 2002:154-7). 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 condition. Policies, like institutions or organizations (a la Agrawal 2010), can enable coping. They can also be systematically disabling (see Larson and Ribot 2007; Poteete and Ribot 2011). Policies or their unequal implementation can selectively favor some actors while making others more vulnerable (Marino and Ribot 2012). Policies from all sectors have deep distributional implications. Coudouel and Paternostro (2005) and the World Bank’s Poverty and Social Impacts Analysis source book²⁶ 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.

²⁶ URL: http://web.worldbank.org/files/14520_PSIUsers_Uguide_-_Chapter_1_May_2003.

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 their causes, 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 incitation, 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

The production of suffering and poverty resides in unequal access to pleasure and plenty – social stratification. The Chinese character for crisis is said to be composed of *danger* plus *opportunity*. The popular new-age interpretation of this scripted wisdom is that crisis is both painful and promising – to be welcomed as an opportunity for personal growth. What these wishful thinkers fail to recognize is that danger and opportunity may be related, but more likely across separate segments of a stratified society. Some people are faced with danger, others with opportunity. Some profit from the suffering of others (Sen 1981). In a political world there are two sides of vulnerability analysis. It is not only an artifact of institutions and structure, but also of intentionality through which understanding of vulnerability can lead to its deepening (Butler (2009:2). Institutions and their networks compete and conflict—some for enabling and others in support of disabling policies and practices (Leach, Mearns, and Scoones 1999). Vulnerability is political.

Vulnerability is always experienced locally. Its causes and solutions are generated through interest, conflict and cooperation at multiple 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 practices that generate vulnerabilities—providing a basis for redress and compensation.²⁷ Vulnerability-reduction or compensation policies are developed, promulgated, and implemented through institutions – through the means, organizations and rules, that people make to shape and act in the world. 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. 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.

Vulnerability is social and political. Principles to govern climate action must be designed around the processes that shape climate change and 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. This process must be tilted in favor of poor and marginalized populations by analyses that explain causes of entitlement failure – a province of the poor. 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 help tilt policies to favor the most vulnerable—due to their sheer numbers. This means the building of and engagement with representative decision-making bodies to ensure a modicum of influence by those most in need.

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.

²⁷ 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.

This is the contribution of adaptation studies. They complement vulnerability analysis to give us a fuller picture of how both histories and innovations shape our world. But these ‘adaptations’ – a kind of naturalized biological term – are not the natural random work of Darwin’s evolution. As Arendt (1960:460) points out, the miracles of evolution are authored by probability whereas we know the author of the even more-frequent miracle of political change through men and women “...who because they have received the twofold gift of freedom and action can establish a reality of their own.” She places cause (and responsibility) for change and innovation within society. In this sense ‘adaptive capacity’ becomes something that must be explained socially. Like any contribution to vulnerability or wellbeing, innovation is socially enabled. It is part of the causal (and reparatory) chain of vulnerability.

The freedoms to act and to innovate follow from rights and representation. As we see vulnerability and adaptation analysts and agencies turning more and more ‘rights-based’ approaches to natural resource management and climate change (Schreckenber XXXX; Wolford XXXX), it is important to keep in mind that the fundamental right is the right to influence those who govern and to engage in the making, scrutiny and implementation of rights. Representation as participatory parity (Fraser 2008) is one means by which individuals and households can shape the political economy that shapes their entitlements. Social movements are another. The ability to influence authorities and the rules they make and implement produces the very entitlements (from productive assets to extended social protections) that spell security and creates the flexibility that enables people to buffer themselves against the unpredictable but expected stresses of life. Of course, to be functional, representation requires powers – representatives need discretionary authority, means and resources to respond to people’s needs and aspirations; people must have resources and knowledge to act as citizens to influence those who govern (Ribot, Chhatre and Lankina 2008). Poverty is not only a basis of vulnerability but it is also disenfranchising – undermining the ability of the poor to influence those who govern.

Theorizing roles of representation remains a frontier of vulnerability studies. Pain, suffering and the risk of damages motivate social organization and change. 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 cause and 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. Max 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. Mary 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.

(Wilkinson 2010.) Ulrich Beck (1986) follows suite expanding to the global industrial society. Indeed, 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; Butler 2009).

To be represented is to be seen and responded to. To demand representation is to see the possibility of response. Making vulnerability legible is part of the process of understanding where those possibilities lay – the job of research and of voice. The legibility churches and governments produce is matched with occlusions and illusions that divert attention. They do not want citizens to see what they see – they want citizens to see causality as external to their institutions so that the victims displace their frustrations onto God, nature or blame themselves. Citizens must insist on that government sees and must insist that they see what the institutions that govern them see – constantly showing them what citizens already know that their rulers know. It is in this context where sanctioning government can result in response. To insist requires knowledge of risk, its causes, and of the channels of possible redress. It requires the material resources and time to analyse, organize, and exercise the counter power of demand. As Watts and Bohle (1993) show, empowerment is the ability to shape the political economy that shapes entitlements. Sen sees this ability as articulated through media (Drèze and Sen 1989). Watts and Bohle view this as struggles and movements. Where is representation? Where is the democratic channel that can also shape politics of recourse and response? How do these modes converge or be leveraged to reshape vulnerabilities?

Polanyi (1944) theorized the double movement in which capitalism can destroy its very inputs – labor and land – but people respond to the risks and damages by demanding protections. Fraser (2011) sees these demands as predicated on a third, emancipatory, movement to demand that both capitalism and social protections be subject to public scrutiny. Capitalism is damaging while also being a productive and emancipatory force. The rules that guide it and its effects need to be disciplined and subject to public judgment. Social and environmental protections too provide shelter from the negative sides of capitalism – e.g. a system that generates and shrouds risk. But social and environmental protections too are redistributions with negative and positive consequences – inadequate social security systems, fortress conservation, and misguided climate policies. Rights, recourse, and representation must constantly be asserted and re-asserted to make visible the links between risk, cause, responsibility and blame as they shape the dependence we share that makes sustainability of life possible.

For researchers, promoting 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, policy makers and social movements. For development professionals and policy makers it will mean working with and strengthening 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 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, means of livelihood, off-farm options and social protections 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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FOOD SOVEREIGNTY: A CRITICAL DIALOGUE INTERNATIONAL CONFERENCE PAPER SERIES

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A fundamentally contested concept, food sovereignty has — as a political project and campaign, an alternative, a social movement, and an analytical framework — barged into global agrarian discourse over the last two decades. Since then, it has inspired and mobilized diverse publics: workers, scholars and public intellectuals, farmers and peasant movements, NGOs and human rights activists in the North and global South. The term has become a challenging subject for social science research, and has been interpreted and reinterpreted in a variety of ways by various groups and individuals. Indeed, it is a concept that is broadly defined as the right of peoples to democratically control or determine the shape of their food system, and to produce sufficient and healthy food in culturally appropriate and ecologically sustainable ways in and near their territory. As such it spans issues such as food politics, agroecology, land reform, biofuels, genetically modified organisms (GMOs), urban gardening, the patenting of life forms, labor migration, the feeding of volatile cities, ecological sustainability, and subsistence rights.

Sponsored by the [Program in Agrarian Studies at Yale University](#) and the [Journal of Peasant Studies](#), and co-organized by [Food First](#), [Initiatives in Critical Agrarian Studies \(ICAS\)](#) and the [International Institute of Social Studies \(ISS\)](#) in The Hague, as well as the Amsterdam-based [Transnational Institute \(TNI\)](#), the conference “Food Sovereignty: A Critical Dialogue” will be held at Yale University on September 14–15, 2013. The event will bring together leading scholars and political activists who are advocates of and sympathetic to the idea of food sovereignty, as well as those who are skeptical to the concept of food sovereignty to foster a critical and productive dialogue on the issue. The purpose of the meeting is to examine what food sovereignty might mean, how it might be variously construed, and what policies (e.g. of land use, commodity policy, and food subsidies) it implies. Moreover, such a dialogue aims at exploring whether the subject of food sovereignty has an “intellectual future” in critical agrarian studies and, if so, on what terms.

ABOUT THE AUTHOR

[Jesse Ribot](#) is Professor of Geography, Women and Gender in Global Perspective, Natural Resources and Environmental Studies, and faculty of Beckman Institute, at the University of Illinois since 2008. Before 2008 he worked at World Resources Institute, taught at MIT and was a fellow at The New School, Yale, Rutgers, Max Planck Institute, Woodrow Wilson Center and Harvard. He is an Africanist studying local democracy, resource access and social vulnerability.