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Conceptualizing climate vulnerability: Understanding the negotiating strategies of Small Island Developing States

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ABSTRACT

The discourse on vulnerability to climate change presents many complexities. Among these are the constant tension between policy makers and academics. This paper unpacks these complexities in order to analyze how Small Island Developing States (SIDS) deal with the notion of vulnerability at the United Nations Framework Convention on Climate Change (UNFCCC). The lack of a clear definition of vulnerability at the UNFCCC has created many tensions among developing countries because the notion of vulnerability is associated with financial and technical resource distribution. However, on a strategic level SIDS have had to demonstrate their vulnerabilities within the UNFCCC in order to remain relevant and compete with other groups for these resources. This paper highlights some of these tensions, especially among developing countries, through an in-depth analysis of vulnerability within academia and foreign policy through the UNFCCC. We argue that competing definitions of vulnerability by academics and policymakers evoke different methodologies for understanding and measuring vulnerability. Further, we find that within the UNFCCC, prioritizing mitigation policies over adaptation has increased SIDS' vulnerability.

1. Introduction

Global climate change is one of the most important issues facing mankind. While there is a widespread consensus on the realities of climate change, the difficulties in tackling it are very prevalent. One of the reasons is because there is no clear conceptualization of climate vulnerability within climate change discourse both at the policy front and within the academy. Adger (2006) describes vulnerability as "the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." For example, during a coordination session among the members of the G77 and China (G77) on adaptation at the 2013 Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) and Meeting of the Parties to the Kyoto Protocol (MOP) in Warsaw, many delegates acknowledged that the lack of a clear mechanism to measure vulnerability makes adaptation policy and measurement very complex.[1] On a political level it appears that the debate around vulnerability creates so much tension that parties are unable to move beyond the preamble of the convention that identifies specific vulnerabilities such as "low-lying and other small island countries, countries with low-lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification, and developing countries with fragile mountainous ecosystems" (UNFCCC, 1992). These complexities extend to academia as well, as scholars from various fields and traditions use different criteria to measure and define vulnerability (McLaughlin and Dietz, 2008).

This paper seeks to depict the assessment of the terms vulnerability within academic literature and foreign policy practices, using the UNFCCC as a case study to evaluate the various negotiating strategies that the Alliance of Small Island States (AOSIS) has taken at the UNFCCC, post-Kyoto. Specifically, we seek to answer the following questions: how do academics and policy-makers conceptualize vulnerability differently, and how do the UNFCCC negotiations, specifically with respect to AOSIS, exemplify these differences? We first examine the major academic discourses that unpack the complexities of defining and measuring vulnerability. Next, drawing on insights obtained from interviews with AOSIS policymakers, we investigate the policy implications of the varying interpretations of these terms for small island states (SIDS) within the UNFCCC process, operationalized through AOSIS' negotiating strategies. By analyzing AOSIS' role in the UNFCCC, we aim to reveal how the vulnerability discourse and its theoretical underpinnings in the academic literature have been instrumental in shaping proceedings at the highest level of climate negotiations.

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[1] Personal observation by Neil Oculi in Warsaw, when many delegates made such comments.

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2. Vulnerability discourse in academia and the UNFCCC

The academic literature demonstrates a lack of a clear conceptualization of vulnerability, leading to failures in dealing with vulnerability in the policy realm. We present two major issues that complicate debates on vulnerability. First, academics and policymakers commonly invoke competing definitions and interpretations of the term. Second, methodologies for understanding and measuring vulnerability are highly varied, complicating usage of the term in academia and policy. While these two issues are related, addressing each issue in turn facilitates a more coherent analysis.

2.1. Conceptualizations of vulnerability

While many geographers have written about vulnerability, Timmerman (1981) was one of the first to conceptualize the term (Cutter, 1996). Timmerman's work was motivated by an effort to develop a social component within the World Climate Program carried out by the World Meteorological Organization (WMO). Timmerman's description of vulnerability is reflective of one of the main objectives of the WMO in 1980:

> "Determining the characteristics of human societies at different levels of development and in different natural environments which make them either specially vulnerable or specially resilient to climate variability and change which also permit them to take advantage of the opportunities by such changes…" (Timmerman, 1981)

Timmerman (1981) notes that "vulnerability is a term of broad use as to be almost useless for careful description at the present, except as a rhetorical indicator of areas of greatest concern". What Timmerman was explaining was the fact that although vulnerability and resilience have been widely used in the past in many different fields such as energy, risk management, and climate impact assessment, there is no clear conceptual framework of the term. In this regard, he does provide a definition of vulnerability, "the degree to which a system may react adversely to the occurrence of a hazardous event," and also resilience, "the measure of a system's, or part of a system's capacity to absorb and recover from the occurrence of a hazardous event". Nevertheless, Timmerman definition did not resolve the issues or inconsistencies in the meanings of vulnerability. As indicated by Cutter (1996) a major part of "the discrepancies is the fact that the meanings of vulnerability arise from different epistemological orientations (political ecology, human ecology, physical science, spatial analysis) and subsequent methodological practices."

Vulnerability assessments have played an integral part in our understanding of the impact of climate change and aim to inform the development of policies that reduce the risks associated with climate change (Füssel and Klein et al., 2006). The literature on vulnerability to climate change is extensive resulting both in opportunities as well as challenges. In evaluating divergent methods and epistemologies in vulnerability scholarship, Adger (2006) argues that such diversity is a strength and a sign of vitality, not a weakness. He notes that the strength of vulnerability research is reflective on the various research and phenomena it explains. Vulnerability research covers many fields, making its interpretation and mode of inquiry vastly different. However, citing Kasperson and Kasperson (2001), he asserts that "a comprehensive theory of vulnerability to global change therefore needs to account for a range of risks, thresholds and institutional responses and resources, given that vulnerability will manifest itself differently at different scales." McLaughlin and Dietz (2008) assess the strength and weaknesses of human vulnerability to climate change from different perspectives: biophysical, human ecological, political economy, constructivist and political ecology. They explain that "while each of these perspectives offers important insights, and some theoretical convergence is evident, the field remains divided along a number theoretical fracture lines." In reviewing the literature on these five perspectives of vulnerability to climate change, McLaughlin and Dietz (2008) argue that there is a need for more research on addressing the interrelated dynamics of social structure, human agency and the environment(s)."

Early research on vulnerability approached the concept through a focus on risk, hazard, and disaster mitigation (Cutter, 2012). This research was based on three questions: 1) what is the human occupancy of hazard zones? 2) How do people and societies respond to environmental hazards and what factors influence their choice of adjustments? 3) How do you mitigate the risk and impact of environmental hazards (Cutter, 1996)? Citing Coburn and Spence (1992) and Clayton (1994), Cutter notes that these research questions mainly examine hazard reduction through a structural (engineered) approach. For example, Smit et al. (2000) describe mitigation as the means to "abate, moderate or alleviate, could be (and sometimes is especially in the environmental hazards, engineering and insurance fields) applied to impacts, as in mitigate vulnerabilities and effects by adjusting practices or structures." In the 1990s, vulnerability assessment formed an integral part of international efforts to reverse poverty, population, development, and environmental degradation, such as the UN's International Decade of Disaster Reduction (IDNDR). This so-called risk-hazard approach focuses on the magnitude of exposure to physical systems, and is associated with the technical literature on risk and disaster management (Dilley and Boudreau, 2001; Turner et al., 2003; Willows et al., 2003; Thomalla et al., 2006). Risk assessment establishes information concerning exposure to hazards which inform the level of exposed vulnerability. Risk assessment in climate change identifies hazards that may be caused or exacerbated by climate change, and evaluates the likelihood and relative magnitude of these hazards in order to prioritize responses and alleviate risks (Wratt et al., 2004). However, little attention was given to the role of social factors in risk-hazard approaches to vulnerability.

Adger (2006) points out that later insights into the social resilience of ecological systems complement the analytical tool kit of risk-hazard vulnerability assessment. However, citing Berkes and Folke (1998), he notes "there is no single universally accepted way of formulating the linkages between human and natural environment." For example, human interactions through property resources scholarship as noted by (Dolšak and Ostrom, 2003; Adger, 2006) places institutions as the key agent to deal with political, social, and economic organization within a social-ecological system. According to Füssel (2007), vulnerability must be treated differently within the three climate change policy prescriptions: mitigation, which focuses on emissions reduction; adaptation, which moderates the adverse effects of climate change; and compensation for climate change impacts through monetary and non-monetary assistance. Füssel (2007) notes that the risk-hazard approach is most appropriate for mitigation and compensation, while adaptation policies require a political economy approach to vulnerability, focused on individual and community well-being and capacity to cope with various external stresses. This political economy approach has also been described as the social constructivist framework (Füssel and Klein et al., 2006) and frames vulnerability through class phenomena, through the work of philosophers such as Marx, Weber, and Durkheim (Foster and Bellamy, 1999 and Pelling, 2003). Füssel and Klein et al., 2006 observe that a social constructivist framework "regards (social) vulnerability as an a priori condition of a household or a community that is determined by socio-economic and political factors" (see also Dow, 1992; Adger and Kelly et al., 1999; Blaikie et al., 2014). In examining the political economy of Nicaragua, Gerulis-Darcy (2008) reflects on the structural origin of disasters to argue that vulnerability and disasters are socially produced. Gerulis-Darcy (2008) presents a macro-analysis of the political and economic forces that create conditions for increased vulnerability to natural disasters such as hurricanes and argues that "the state of the contemporary international political economy is a stimulus for the study of disaster[s] that requires a multi-dimensional analysis of the