Scholarly Research Journal for Humanity Science & English Language,
Online ISSN 2348-3083, SJIF 2016 = 4.44, www.srjis.com
UGC Approved Sr. No.48612, AUG-SEPT 2017, VOL- 4/23

VULNERABILITY, SOCIAL CAPITAL, AND ADAPTATION TO CLIMATE CHANGE

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Abstract

Why do some communities weather the shocks of a changing climate while others, facing the same hazard, are devastated? This paper argues that the answer lies less in the magnitude of the physical hazard than in the social capacity of communities to anticipate, absorb, and recover from it, a capacity shaped above all by the bonds of trust, reciprocity, and cooperation that constitute social capital. Drawing on the scholarship linking social capital to adaptive capacity, it argues that adaptation to climate change is fundamentally a problem of collective action, since the measures that protect a community, maintaining shared defences, managing common resources prudently, aiding one another in crisis, require cooperation that individuals acting alone will not supply. The paper connects this insight to the study of how communities govern shared resources, which illuminates the institutional foundations on which cooperative adaptation rests, and illustrates the argument with the challenge of adapting to the growing uncertainty of mountain water supplies. It concludes that building adaptive capacity means building and sustaining the social institutions through which communities act together, and that policies which erode those institutions undermine the very capacity to adapt they seek to strengthen.

Keywords: *adaptation; vulnerability; social capital; collective action; climate change*

1. Introduction

When a flood, a drought, or a failing water supply strikes two communities with equal force, they do not suffer equally. One may absorb the blow and recover; the other may be broken by it. The difference is often attributed to the physical hazard, but the hazard was the same; the difference lies in the communities. This observation directs attention away from the magnitude of climatic shocks and toward the capacity of societies to cope with them, a capacity that varies enormously and that determines, as much as the hazard itself, who suffers and how much. This paper examines that capacity, and argues that its foundation is social: that the ability to adapt to a changing climate rests on the bonds of cooperation through which communities act together.

The paper first distinguishes vulnerability and adaptive capacity from the physical hazard, then develops the link between social capital and the capacity to adapt, then frames adaptation as a problem of collective action with institutional foundations, and finally illustrates the argument through adaptation to uncertain mountain water. The treatment is conceptual, drawing on the scholarship of adaptation and collective action.

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2. Beyond the hazard: vulnerability and adaptive capacity

Understanding why communities suffer unequally from the same climatic shock requires separating the hazard from the vulnerability of those exposed to it. Vulnerability is not a property of the climate but of the society in its path: it is the degree to which a community is susceptible to harm from a given hazard, which depends on its exposure, its sensitivity, and above all its capacity to adapt, to anticipate the hazard, to absorb its impact, and to recover and adjust afterward (Adger, 2003). Two communities facing an identical drought may differ vastly in vulnerability because they differ in adaptive capacity: one may have the reserves, the flexibility, and the organisation to cope, while the other, equally exposed, lacks them. This reframing shifts the target of adaptation policy from the hazard, which often cannot be controlled, to the adaptive capacity of communities, which can be built, and it poses the question of what that capacity consists in.

3. Social capital and the capacity to adapt

A central answer, developed in the scholarship on adaptation, is that adaptive capacity rests substantially on social capital: the networks, norms, and trust that enable members of a community to act together for mutual benefit (Adger, 2003). The connection is direct. A community rich in social capital can mobilise collective effort in the face of a shock, pooling resources, sharing risks, aiding its vulnerable members, and coordinating a response, where a community poor in trust and cooperation cannot. The bonds that constitute social capital are, in effect, the channels through which a community's capacity to cope flows, and the same bonds that sustain everyday cooperation are the ones activated in crisis. Because adaptive capacity depends on these bonds, it is not reducible to wealth or technology: a poor community rich in social capital may adapt better than a wealthier one that is fragmented and distrustful. Adaptation, on this view, is as much a social and institutional achievement as a material one, and the cultivation of social capital is central to building the capacity to adapt (Adger, 2003).

4. Adaptation as collective action

That social capital should be so central follows from recognising that adaptation is, at bottom, a problem of collective action. Many of the measures that protect a community against climatic hazard are collective goods: a maintained embankment, a prudently managed common water source, a shared store against drought, a system of mutual aid in crisis. Such goods benefit all whether or not each contributes, and so, left to individuals pursuing their own interest, they tend to be under-provided, the familiar difficulty of the commons. Adaptation thus requires communities to overcome the collective-action problem, to secure cooperation toward shared protection that self-interest alone would not supply. The study of how communities govern shared resources is therefore directly relevant to adaptation, for it has shown both that the collective-action problem can be solved and the institutional conditions under which it is: clearly defined groups, rules fitted to local circumstances, collective choice by those affected, monitoring, and means of resolving conflict (Ostrom, 1990). These are precisely the institutional foundations on which cooperative adaptation rests, and a community that possesses them, that

has, in effect, the institutions of a well-governed commons, possesses thereby much of the capacity to adapt (Ostrom, 1990; Adger, 2003).

5. Adapting to uncertain mountain water

The challenge of adapting to the growing uncertainty of mountain water supplies illustrates the argument. As a warming climate renders the snow, ice, and runoff of mountain regions less reliable, the communities that depend on mountain-fed water face increasing variability and risk in their supply (Barnett et al., 2005). Adapting to this uncertainty is largely a collective task: it means managing shared water sources prudently so that reserves are not exhausted in good years, maintaining the common works through which water is harvested and stored, and sharing the burden of scarcity equitably when supplies fall short. Each of these is a collective good requiring cooperation, and each therefore depends on the social capital and the governing institutions of the community. A mountain community with strong cooperative institutions can ration, maintain, and share its way through an uncertain water future; one whose institutions have eroded faces the same uncertainty without the means to manage it collectively, and fragments into a scramble that leaves the weakest worst off (Barnett et al., 2005; Ostrom, 1990). The capacity to adapt to uncertain water, in short, is the capacity to act together, which is to say social capital embodied in institutions.

6. Conclusion

Communities suffer unequally from the same climatic shocks because they differ in adaptive capacity, and that capacity rests substantially on social capital, the bonds of trust and cooperation through which a community acts together. Because the measures that protect against climatic hazard are largely collective goods, adaptation is fundamentally a problem of collective action, whose solution depends on the institutional foundations that the study of the commons has identified. Building adaptive capacity therefore means building and sustaining the social institutions through which communities cooperate, and policies that erode those institutions, however well intentioned, undermine the very capacity to adapt. In the face of a changing climate, the strength of a community's social fabric may matter as much as the strength of its defences, for it is through that fabric that the defences are built and held.

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