

Name: Vivek Prasad

Defense Date: April 28, 2011

Title: Exploring the Challenges and the Potentials of Adaptation to Climate Change: A Bottom up Approach

Dissertation Director: Dr. Susan A. Crate

Committee Members: Dr. Christopher Hill, Dr. Jagdish Shukla, Dr. Jon Padgham

ABSTRACT

Human adaptation to the local effects of global climate change remains insufficiently researched but is critical because as climate change unfolds, it will bring inevitable surprises on regional and local scales. This research contributes to that knowledge by using case studies of four villages in Jharkhand (meaning Land of Forest), India as an area of research. Jharkhand became an Indian state in the year 2000, presenting a unique case of transition in the socio-political and environmental realms. Poverty, food insecurity, and alienation from local resources are central issues for inhabitants. In the context of this critical phase of transition to statehood, Jharkhand's people are also challenged by the local effects of global climate change. This research addressed the following questions: what do vulnerability and its components (exposure, sensitivity, and adaptive capacity) mean to the local people? What are the inherent challenges and potentials embedded in those components when translated into the field? How can resilience be enhanced to prepare communities to cope with climatic events and change?

The definition and framework of vulnerability was adapted from the Intergovernmental Panel on Climate Change (IPCC) and tailored to the local specifics. With regards to exposure, it

was obvious that local communities and scientific communities are observing climate change and variability. There are two challenges inherent in this context. First, although the scientific community has the capability to record, process and inform communities, the communication channel is very weak. Second, communities are also keenly observing using their cultural background, but their knowledge has yet to inform policy making. These challenges can be addressed by establishing a culturally acceptable interaction within the framework of the existing political and administrative structure. With respect to sensitivity, this research examined the sensitivity of important local resources using two lenses, endowment and entitlement. It was found that entitlement is more pronounced than endowment. This is because the majority of the villagers shared that it is difficult to change endowment rapidly. They consider climate change and variability as inevitable and they have to live with this reality. On the other hand, the entitlement issue is mainly related to governance and socio-political factors that can be intervened and corrected in favor of villagers. At the same time, cultural notions provide avenues to intervene through an entitlement lens that can be used by adjusting existing formal institutions. Adaptive capacity with its various features and components provided evidence that communities and institutions have exemplified, though in limited scale, successful adaptation using existing programs and policies. Also, there are cases of mal-adaptation, where institutions have failed to deliver.

This research, primarily based on collaborative and qualitative research methods, brings climate change and associated human and social issues to the center of the debate and acknowledges that there is a need for translating macro-level discussion and understanding to smaller place-based communities. In this effort, there is an urgent need to outreach to the

vulnerable communities and for understanding of their place-based experiences and responses to climate change and variability. Recommendations drawing from these understandings will have realistic and acceptable adaptation measures useful for communities and policy makers.

The broader implication of this research includes the development of a framework of vulnerability, based on a model framework of vulnerability accepted by the IPCC that can be applied and replicated in similar research elsewhere. Additionally, this research identifies the social and cultural foundations of adaptation and resilience, a largely neglected focus in contemporary climate change discourse.

The three main findings of the research are: first, that ensuring and protecting entitlement of individuals and communities is a prerequisite for adaptation to climate change; second, that because the exchange of knowledge within and between communities and with external agencies is somewhat constrained, and all parties need a fuller understanding based on both local and scientific knowledge, there is a need for creating conducive environments where the exchange of knowledge can take place; and third, for adaptation to be successful there is a need for appropriating external assistance models to local contexts and realities.