

Enhancing Climate Change Adaptation through Amartya Sen's Capability Approach

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Abstract

Climate events can profoundly affect the capabilities and wellbeing of individuals and communities, impacting their daily lives. These impacts are unevenly distributed, exacerbating existing vulnerabilities, inequalities, and inequities. Understanding the multidimensional impact of these events is crucial for developing inclusive and equitable climate adaptation policies. In the literature, social and distributional impacts of climate events are often overshadowed by the economic impacts. Recently there have been calls from the scientific community to develop a comprehensive index that gauges the overall impact (including societal) of climate events on human wellbeing for informing policy making better.

This paper tries to address this gap by applying Amartya Sen's capability approach for gauging the impact of climate events on human well-being. We propose a Climate Resilience Index (CRI) based on this capability approach. This framework offers a comprehensive perspective on societal vulnerability, enabling a more holistic, inclusive, and equitable approach to policy and decision-making for both recovery from climate extreme events and risk reduction.

The capabilities approach focuses on what individuals can achieve (*called functionings*) given their available resources. An individual's capabilities is the choice set of *functionings* (e.g., being physiologically and mentally healthy, being sheltered, being mobile, being educated etc.) available to that person. Personal, social, and environmental factors influence their ability to convert resources into *functionings* (*called conversion factors*). Adaptation to climate events depends on existing capabilities, and climate extreme events reduce capabilities through lost opportunities and diminished ability. Recovery needs financial and institutional support that can equitably enhance capabilities. Therefore, the capabilities approach provides a robust framework for identifying and measuring the societal, distributional, and economic impacts of climate

events on diverse populations. It does so by analysing changes in individuals' overall capabilities, encompassing broader well-being dimensions like health, shelter, mobility, education, etc.

Our proposed CRI uses this approach. By selecting indicators for each impacted capability due to climate events, the CRI will capture whether individuals can achieve specific *functionings*. This composite index will provide an aggregate measure of climate resilience, encompassing vulnerability, consequences, and recovery. The CRI is applied to Danish case studies to ensure its relevance and effectiveness for informing policy and decision-making processes.