

Algorithmic Climate Governance in the Global South: Decision Authority and Accountability

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Abstract:

In recent years, climate adaptation decisions in many Global South contexts have been increasingly influenced by algorithmic tools, including risk maps, vulnerability indices, predictive models, and systems that support screening through artificial intelligence. These instruments are frequently treated as objective evidence within policy processes. Yet, the governance conditions through which they acquire decision authority and shape accountability remain insufficiently examined. This research paper addresses a central research problem: how algorithmic decision support systems restructure institutional authority and responsibility in climate governance. The study treats algorithms as administrative instruments embedded within political and organizational settings instead of approaching them as technical mechanisms. The objective is to examine how modeling assumptions, data proxies, and aggregation procedures influence decision pathways and accountability arrangements in adaptation planning. The research adopts a qualitative institutional analysis of policy documents, project reports, and technical descriptions of algorithmic decision support systems used in Global South adaptation contexts. The methodology emphasizes governance interpretation rather than technical assessment; it answers several questions, such as how algorithmic outputs are translated into policy decisions, how authority is distributed across institutional actors, and how responsibility is assigned or deferred. By focusing on institutional processes rather than model performance, the paper positions algorithmic climate governance as a question of public accountability rather than technical optimization. The study contributes to climate governance and sustainable development research by providing a structured approach to analyzing how algorithmic systems operate as decision authorities within policy environments. The study provides a governance framework that determines when algorithmic tools should guide decisions, when they should impose constraints, and how to uphold accountability.

Keywords:

Algorithmic governance, Climate adaptation policy, Decision authority, Institutional accountability, Global South.