

COMMENTARY:

The political economy of climate adaptation

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Initiatives to adapt to the effects of climate change are growing in number but may fail to achieve the desired outcomes unless critical competing interests are taken into account during the planning process.

Despite the need to proactively adapt to global warming, something could be going awry with adaptation projects — planned activities that entail altering infrastructure, institutions, or economic practices to respond to the impacts of climate change. Ford *et al.*¹ surveyed 1,741 studies of climate change adaptation between 2006 and 2009 and reached a troubling conclusion: instead of helping the most vulnerable economic or social sectors, projects were contributing to the ones that had already received large shares of adaptation funding¹. Remling and Persson analysed 27 projects supported under the Adaptation Fund of the United Nations Framework Convention on Climate Change (UNFCCC) and found that none of them attempted to address inequality or remediate unequal power structures².

In this Commentary, we highlight the kind of political, economic, and social trade-offs that can occur within or between adaptation projects in both developed and developing countries, and we explain how such conflicts are most likely to operate in practice. This conceptual approach is best defined as the political economy of adaptation. Political economy is a field that enquires into the origins, character and distribution of wealth³. Therefore, it involves the study of struggle over power and resources, or the conditions by which some individuals, groups or institutions benefit from particular systems at the exclusion of others⁴.

We propose that four processes — which we name enclosure, exclusion, encroachment and entrenchment — reflect the competing interests occurring in some adaptation initiatives and can lead to inequitable outcomes⁵. We have found evidence of such processes in a large sample of adaptation projects around the world documented in academic papers and



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A tetrapod seawall protects the residents in Malé, the Maldives, from sea swells and storm surge at the potential cost of impoverishing natural defenses.

official reports. Here we focus on a small sample of eight case studies across different countries including Australia, Norway, USA, Burkina Faso, Honduras and the Maldives, each exemplifying one of these four processes.

A new typology

We are interested in understanding how the political economy of adaptation plays out globally and our proposed typology of processes can augment such understanding⁵.

With 'enclosure', we refer to the process that transfers a public asset into private hands, or extends the role of a private actor into the public sphere. It relates to how private institutions, especially corporations, try to expand into new and potentially profitable activities as a result of an adaptation project. The projects become enclosed as part of the strategy of wealth

accumulation that only serves to widen the economic gap between rich and poor, and to convert untapped assets into productive ventures. Enclosure can also refer to adaptation projects that create their own bureaucracy — a new administrative structure that enables them to act with increased autonomy or sovereignty.

Enclosure seems to go hand in hand with the process of 'exclusion' by which adaptation projects limit access to resources or marginalize a particular group of stakeholders in the decision-making process. Exclusion amounts to a strategy of containment, a way to prevent other parties from interfering with one's interests so that actor can dominate others with their agenda.

'Encroachment' occurs when adaptation interventions intrude or infringe upon protected areas, national

parcs, and wildlife reserves, or interfere with the healthy functioning of an ecosystem. As adaptation is primarily concerned with building human resilience, it can involuntarily undermine the conservation of biodiversity and even contribute to environmental degradation — such as seawalls, canals, or bridges destroying wetlands, negatively impacting water quality, or involving the emission of greenhouse gases through their construction.

Finally, ‘entrenchment’ is the process by which adaptation projects aggravate political, socio-economic, or cultural inequalities and the disempowerment of disadvantaged groups. It intensifies inequities by favouring concentration of wealth within a community, or by hurting vulnerable members of a community, such as artisanal fishers, indigenous groups, or ethnic minorities. In extreme cases, adaptation projects can even lead to violence and death. As the IPCC recently cautioned, “Adaptation strategies that seek to reduce exposure to climate change... carry risks of disrupted livelihoods, displaced populations, deterioration of valued cultural expressions and practices, and in some cases violent conflict”⁶.

Illustrative case studies

We have found that in many cases, the four processes emerge as a result of how adaptation projects are designed and implemented. Here we focus on eight examples to illustrate how the processes work; a summary is presented in Table 1.

Two cases demonstrate the process of enclosure. In Melbourne, Australia, when planners confronted declining rates of precipitation and a drop in the storage capacity of the city’s reservoirs, they decided to build the Wonthaggi desalination plant with a maximum capacity of 150 billion litres per year. To construct the plant, however, they had to enclose and expropriate thirteen pieces of land of significant value to the Bunurong aboriginal community⁷.

In Honduras, disaster recovery efforts in 1998 after Hurricane Mitch enabled private actors to enclose activities formerly in the public sphere. Private organizations, mostly transnational non-governmental organizations (NGOs), resettled survivors in the Amarateca Valley and founded new communities — taking responsibility for water works, road construction, schools, housing, and other infrastructure — without government supervision. The lack of public oversight allowed the private organizations involved to pursue development agendas that culminated in insecurity, high crime, violent murder and conflict within some communities, and it made them entirely dependent on NGOs for services provision⁸.

The process of exclusion can be illustrated by two cases. In Norway, management efforts in coastal zones that were facilitated by the Planning and Building Act of 1985 benefitted the most dominant and centralized groups of stakeholders — Norwegian municipalities, fishers, farmers, and tourist entrepreneurs — and marginalized less represented or decentralized groups such as reindeer herders, community-based institutions, and environmental NGOs. As a result of low representation in the coastal planning process, community organizations and environmental groups struggled to ensure that their interests and concerns were heard above those of the well-organized commercial stakeholders⁹. In the low-lying community of Kivalina, Alaska, which was facing displacement from the effects of sea-level rise, authority over adaptation projects was ceded to federal government agencies, excluding local input into the decision-making process. Decisions to proceed with an expensive rock revetment sea-barrier project, which ironically failed the day before its inauguration, were made by the Army Corps of Engineers and private government contractors even though it went against the wishes of the community itself¹⁰.

The incidence of encroachment can be demonstrated by marine protected areas (MPAs) such as the Mnazi Bay–Ruvuma Estuary Marine Park, Tanzania, which was set up to bolster the resilience of coral reefs. However, these MPAs have encroached upon the traditional fishing areas of villagers, leading to dependence on energy-intensive farming with higher rates of greenhouse-gas emissions¹¹. Moreover, fishers have had to migrate to other areas up and down the coast with higher fuel costs and lower-quality catches; many have also had to abandon their small craft in favour of larger motorized boats that also feature an extended range and scuba gear, further increasing emissions. In the Maldives, the past decade has seen the government support the idea of ‘safer islands’ by means of hardening or climate-proofing infrastructure to the risks of sea-level rise, storm surge, and saltwater intrusion^{12–14}. Efforts have centred largely on seawalls, sand mining to be used in construction, and vegetation removal for the expansion of ports and harbours to improve transport corridor efficiency. Undesired consequences have been a degraded natural buffer against storm swells and deteriorating coral reefs, as seawalls have interrupted the ebb and flow of oceanic nutrient cycles.

Two final case studies exemplify entrenchment. In Burkina Faso, livelihood diversification programmes seeking to bolster resilience have instead seen vulnerable households cope with drought by selling off productive assets such as livestock. This has benefited predatory marketers who were able to buy livestock at low prices from distressed farmers only to resell them at great profit in other areas¹⁵. As a result, poor households became trapped in a vicious cycle of borrowing, pawning, and mortgaging of crops. There was a gendered dimension to this entrenchment as well: it was primarily women who had to sell cloth, utensils, and jewellery (accumulated primarily for their daughters’ weddings) to traders who knew

Table 1 | The political economy of climate adaptation in practice

Process	Dimension	Description	Examples
Enclosure	Economic	Acquiring resources or authority: transferring public assets into private hands, or expanding the role of private agents in the public sector	Wonthaggi desalination plant in Australia, disaster recovery in Honduras
Exclusion	Political	Marginalizing stakeholders: limiting access to decision-making processes and forums	Coastal protection in Norway, sea barriers in Alaska
Encroachment	Ecological	Damaging the environment: intruding on biodiversity-rich areas or regions with predisposed land uses, interfering with ecosystem services, or contributing to greenhouse-gas emissions	Marine protected areas in Tanzania, climate-proofing infrastructure in the Maldives
Entrenchment	Social	Worsening inequality: aggravating the disempowerment of women or minorities and/or concentrating distributions of wealth	Livelihood diversification in Burkina Faso, disaster relief in Kenya

they were desperate for money. In extreme situations some rural women provided sexual services to those traders in exchange for food and water¹⁶. In Kenya, relief aid to natural disaster victims has been unfairly allocated to urban areas first and peripheral, rural areas last. In some cases, smaller, pastoral communities affected by drought were forced to abandon their assets and move into permanent aid camps, while corrupt officials were able to funnel resources to grow their wealth, with some using relief funds to erect their own “drought castles”¹⁷.

Looking forward

The occurrence of the processes of enclosure, exclusion, encroachment, and entrenchment raises at least four important implications concerning the future of adaptation research and practice in the face of climate change.

First, social and political conflicts are inseparable from the process of climate adaptation. No matter how noble the intentions of planners, or how well interventions are designed, adaptation projects will rarely escape underlying distributional aspects and power struggles. Adaptation projects can become a flashpoint for competing interests, generating their own sets of winners and losers. Many of these conflicts involve those seeking to enclose resources or exclude stakeholders from access. In other situations, adaptation projects encroach upon and subvert the intended goals of wildlife conservation or lead to increased greenhouse-gas emissions. In still other contexts they can entrench disparities in gender, wealth, or social status. Adaptation can even require further adaptation — responding to the negative impacts of an earlier adaptation effort (maladaptation)¹⁸. Analysts need to be aware that a project can inequitably distribute benefits, and accept that there will almost always be losers. Adaptation researchers and policymakers need to ask repeatedly: (i) adaptive capacity for whom? (ii) who benefits from this adaptation project? and (iii) who can stand to lose, now or in the future?

Second, researchers need to conceive of adaptation as more than a local phenomenon¹⁹. Even seemingly context-specific adaptation interventions at the scale of the household or community can

reinforce broader gender roles and class distinctions, strengthen the hegemony of markets or actors, or create their own type of bureaucracy. The costs and benefits of adaptation initiatives are not necessarily limited to the areas where the projects are being implemented. Projects become intertwined with the global market system and its desire to convert resources into productive capital and consolidate wealth.

Third, best practices and design principles that can minimize the destructive influence of the political economy processes identified here do exist. We suggest, for example, incorporating the cost of negative externalities that can be priced into adaptation project budgets, as well as punitive bonds as insurance if a project causes damages⁵. We recommend critical stakeholder analysis of interests and power relationships between allies and competitors in adaptation projects, alongside Free, Prior and Informed Consent from a potentially affected community²⁰. We also propose an international tribunal for redress to ensure restitution, compensation, rehabilitation, satisfaction, or guarantees of non-repetition⁵.

Fourth, more research is needed to refine and test the framework we propose here. In this Commentary we have only outlined examples of adaptation projects in which the processes discussed here occur, without looking at cases where they do not happen or situations where they emerge in other sectors beyond the adaptation projects. In a more in-depth analysis of a smaller sample of other cases — community based adaptation in Bangladesh, storm surge protection in the Netherlands, hurricane recovery in the United States, and technology transfer processes within the UNFCCC — we discuss situations where enclosure, exclusion, encroachment, and entrenchment occur simultaneously⁵. However, more testing through additional case studies and/or data collection from field research, focus groups, and interviews is needed. Building comparisons between the political economy of adaptation and the political economy of other areas, such as public health or national security, could also help further our understanding of which pathologies are unique to adaptation projects.

That said, we firmly believe that researchers and policymakers need to be

aware of the potential trade-offs associated with adaptation interventions. With adequate assessment tools and adherence to best practices in project design and evaluation, experts and decision-makers can make sure adaptation initiatives do not exacerbate inequalities. Done well, adaptation can build resilience and enable humanity to cope with climate change. Done poorly, however, it can lead to resource concentration, land-grabbing, the exclusion of indigenous people, marginalization of smaller groups, uncontrolled corporate power, and aggravated social poverty. □

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