

The Role of Collective Action and Property Rights in Climate Change Strategies



Importance of Institutions in Addressing Climate Change

The well-documented threats posed by climate change are serious and potentially devastating to the global community. The geographic areas that are most susceptible to the effects of climate change episodes such as increased droughts and flooding are also the regions where the majority of the world's poor live. Evidence suggests that these effects may be especially severe for disadvantaged communities in developing countries. The poor have few assets and few income diversification opportunities, which severely limit their ability to cope or adapt to climate changes.

SOURCE:

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Ensuring that poor people can adapt to climate change and benefit from mitigation measures such as payments for carbon sequestration requires more than technology. Key institutions must also be in place.

The Structure of Mitigation and Adaptation Strategies

Climate change has two manifestations: global warming and an increased number of extreme environmental events. Response strategies are usually divided into mitigation and adaptation (see Figure 1).

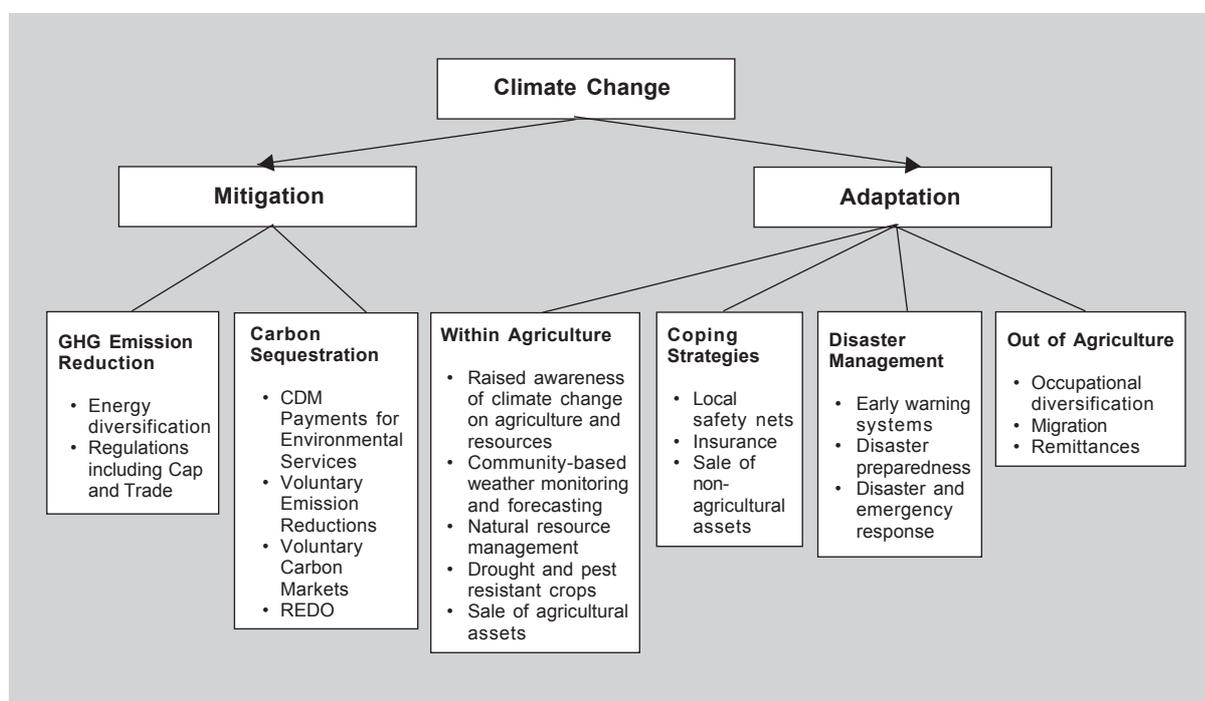


Figure 1. Responses to Climate Change.

Collective Action, Property Rights, and Climate Change Responses

Mitigation refers to strategies utilized to reduce the probability of climate change through sustainable practices that mitigate the increased occurrence, severity, and unpredictability of weather resulting from climate change. The two major forms of climate change mitigation are emissions reduction and carbon sequestration. Emissions can be reduced through a range of technologies, regulations, or economic incentives such as cap and trade systems. Other mechanisms include energy diversification to renewable sources or those that do not emit carbon or other greenhouse gases. Mitigation options for rural smallholders include energy diversification through development of biofuels and alternative energy sources, such as solar-powered stoves. Carbon can be sequestered through afforestation, avoided deforestation and degradation, as well as through sustainable land management practices such as restoring degraded organic soils or using zero- or low-till farming practices.

Payments for environmental services (PES) were introduced to provide incentives for land users to engage in sustainable practices, especially those that sequester carbon above or below ground, and to provide them with some form of compensation for the positive externalities of their actions. Carbon sequestration can receive financial rewards as carbon offsets in carbon markets (such as the Clean Development Mechanism [CDM] set up by the Kyoto protocol), government instituted markets, and voluntary carbon markets. Soil carbon sequestration and avoided deforestation projects, which are important for climate change mitigation in many African countries, were excluded from the CDM but may be covered through new proposals for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD).

Many compensation payments, however, are available to land owners but not to people with customary tenure, and carbon sequestration plans usually require that land remains unused for other livelihood activities, such as agriculture, livestock raising, or harvesting natural resources such as firewood. As a result, not only do such schemes exclude millions of poor people, but also they also have on occasion, resulted in the displacement of households and communities that do not hold the formal title but depend on that land for their livelihoods. Such communities are pushed out when governments or private interests acquire the land to participate in reward schemes.

Adaptation involves actions that communities and individuals can undertake in response to changing conditions. These approaches include strategies within agriculture such as raising awareness of climate change, community-based climate monitoring and forecasting, changing planting dates, crop varieties, or cropping patterns, and implementing water harvesting or irrigation schemes. Adaptation strategies within agriculture are connected with effective natural resource management (NRM), such as improved land and water management practices. People may also adapt to climate change by moving out of agriculture through occupational diversification of some or all members of the household, or temporary or permanent migration, with increased reliance on remittances. Coping strategies for short-term climate-related shocks such as floods or droughts include reliance on local safety nets or mutual insurance schemes, as well as disaster management, which entails early warning systems, disaster preparedness, and emergency responses. Overall, a community's capacity to adapt requires a number of collective action institutions and property rights arrangements that would enable the smallholders to accumulate various types of assets and knowledge.

To identify the institutional arrangements relevant for climate change response strategies, it is useful to look at the spatial and time scales of each action or program. Figure 2 provides examples of several common response strategies involving natural resource management practices. The spatial scale helps to identify what types of institutions are required, both for policy development to set the enabling conditions, and for actions to carry out the necessary activities. These can vary from the global to the national, local, or even individual level.

Actions at the individual level, such as planting a drought-resistant annual crop or building a farm pond, generally do not require much in the way of institutions for coordination, though coordination at higher levels may be needed to produce the new varieties and develop seed systems that distribute them. Moving up to response options at the group or community level, such as a community pond or small reservoir, some form of coordination becomes necessary. At the local level, collective action institutions are often the most appropriate. Some state institutions may also be relevant, for example, to provide technical advice to a group of farmers constructing or operating the reservoir.

At higher spatial scales, local governments or other state agencies become increasingly important for coordination, although collective action institutions may still be relevant, as in Nepal's National Federation of Forest User Groups. The relative roles of state and collective action are illustrated by the triangles on the right-hand side of Figure 2. In general, if the relevant scale for policies or action is the global level, then international institutions are required for coordination, either through existing international bodies such as UN agencies, or by creating new institutions such as the carbon credit exchanges formed after the Kyoto Protocol in 1997.

The time frame for actions also provides insight into the nature of institutional arrangements needed. While climate change response schemes need to be set in motion very soon, some will show results in the short term (a year or two), others over the medium term (two to ten years), and still others have a much longer time horizon. The longer the time lag between actions and results, the more difficult it will be to gain and maintain support and to monitor progress. Some

actions, such as responses to crises like drought or flooding, will only be intermittent. These call for institutional structures for preparedness and ability to respond quickly, but do not need to operate all the time. The time scale may also indicate the relevance of property rights issues when there is a significant lag between an action and its outcomes, especially between investment and returns such as for planting trees.

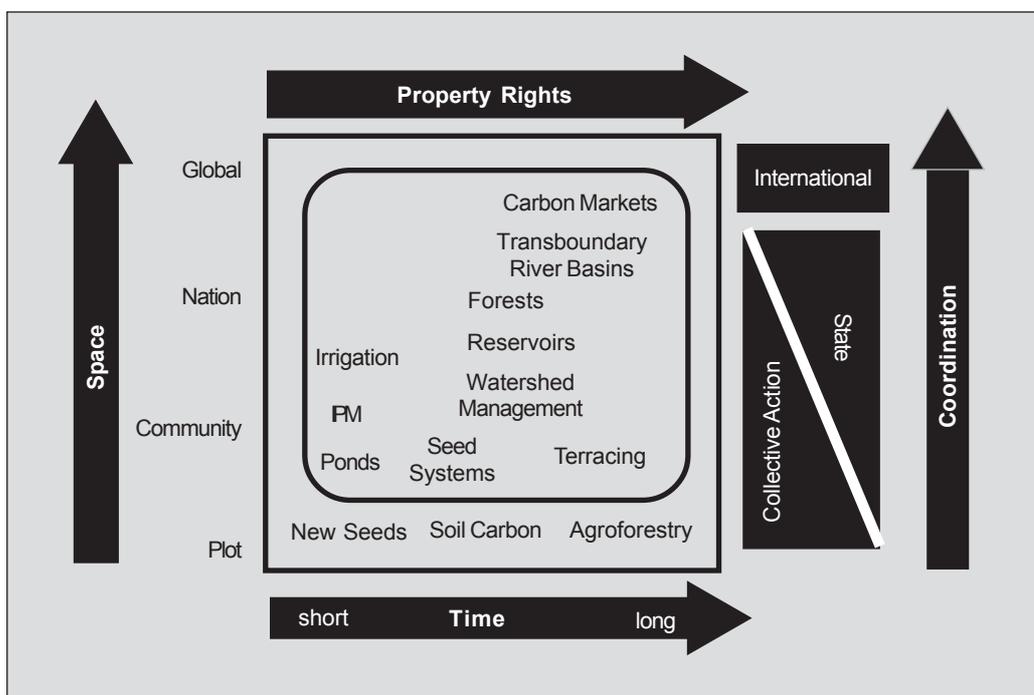


Figure 2: Role of Institutions in Climate Change Responses.

Policy Implications

Recognize the Importance of Collective Action for Successful Mitigation and Adaptation Strategies

Research and practice have shown that collective action institutions are very important for technology transfer in agriculture and natural resource management among smallholders and resource-dependent communities. In the same way, they will also be important for spreading information, technologies and practices for various climate change response strategies, both for mitigation and adaptation.

Smallholder groups can facilitate effective implementation of PES schemes focused on carbon sequestration. Cooperatives or other forms of collective action among smallholders can help to achieve economies of scale in overcoming transaction costs in verification and payment. Groups of smallholders cover more area, and the cooperatives assume the transaction costs of developing and enforcing contracts with individuals. *Fondo Bioclimatico* in Mexico provides an example of a program that restores land, previously deemed useless because of soil degradation, to profitability through use of agroforestry and forestry systems that sequester carbon. Additionally, it is a cost-effective strategy for collective income generation because the contracts are created and brokered by the farmers, allowing them to design, manage, and monitor their programs on individual or communal land. External assistance can help to make the initial contacts between smallholders and CDM programs, and to develop the capacity of local groups to negotiate and meet technical monitoring criteria.



Coping strategies for short-term climate-related shocks also include reliance on collective action in disaster preparedness.

Local institutions are also important for helping farmers adapt to climate change through knowledge and information sharing. Research shows that improved information on climate change increases a farmer's likelihood of adapting. For example, in several Andean communities farmers have developed a knowledge system on climate change and its potential effects on their productivity through community education and sharing observations on gradually changing weather patterns. For areas that are most vulnerable to sudden natural disasters such as hurricanes or typhoons, collective action can help to disseminate information through community meetings, volunteer emergency response teams, and community response plans that include an early warning system.

Enhancing resilience to climate-related shocks is a goal of many adaptation strategies employed by smallholders. Local safety nets built on collective action can help poor people cope with climate-related shocks, for example, by turning to a neighbor for emergency funds or using food reserves and seed banks. Mutual insurance schemes such as funeral societies that have traditionally served as a coping mechanism for illness or death in the family are now being used to cope with climatic shocks such as drought. However, local collective action is less able to deal with shocks that affect many people in a community; for severe and widespread shocks, national or even international assistance is needed.

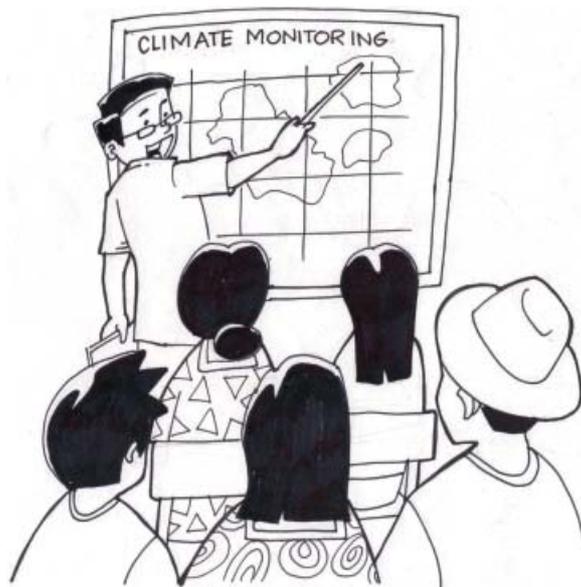
Ensure that Tenure Insecurity does not Exclude the Poor from Mitigation and Adaptation Strategies

The focus of most mitigation and adaptation programs has been on the global and national level. For climate change policies to be sound development policies, however, the impact of response strategies on the poor needs to be examined. In many cases, customary property rights need to be recognized and made more secure if millions of smallholders are to benefit.

Adopting perennial crops that withstand drought and pests, sequester carbon, or hold moisture, requires land and perhaps also water rights to guarantee a return on these investments. Secure property rights are also important for natural resource management practices like tree planting and

water harvesting that involve long-term investment in land and promote sustainable use. Secure tenure can also allow people to migrate or diversify their occupations to pursue alternative income sources. Finally, disaster preparedness requires a certain amount of investment, not only in public infrastructure, but also for protecting livelihoods through practices such as seawall containment, irrigation canals, erosion prevention, and watershed management, all of which require secure property rights.

The rise in demand for land by international fuel developers for biofuel production can weaken local institutions and lead to people with insecure tenure losing rights to land and water resources. There have been reports of land seizures and denial of customary land rights related to biofuel cultivation in parts of Africa (Tanzania, Mozambique), Latin America (Colombia, Brazil), India, and Papua New Guinea. Water use for biofuel plantations is also threatening community resource bases. In other instances, land acquisitions of areas considered underutilized or unused take place, even though these lands may be used for animal grazing or fuel wood collection by the poor. Despite their contributions to climate change mitigation, land acquisitions and land clearings for biofuel production may have detrimental impacts on the livelihoods of the resource-dependent poor.



Knowledge and information sharing increase adaptation.

To allow rural poor to benefit from biofuel production, an array of options for tenure security must be available. Allowing communal systems to participate in the local biofuels market is particularly important. For example, the Kavango Biofuel Project in Namibia is a collaborative effort between local farmers and a Namibian company to grow jatropha on communal land. The company provides capital costs, food, and cash for the farmers to replace annual maize and millet crops with perennial jatropha. Those community members without access to land can participate in other jobs made available through the project, such as working in the processing plants or in product transport.

The design of many carbon payment schemes has excluded small farmers who lack clear land ownership. Whether new REDD schemes will affect smallholders and forest communities positively or negatively will depend on the provisions made for the allocation of benefits from carbon trading. If the land tenure of forest-dependent communities is not secure, and governance around land tenure is not effective, there is a danger that the benefits from REDD projects will be appropriated by governments, the private sector, and even conservation NGOs. Secure tenure rights will give local people more leverage in negotiating the terms of these schemes; insecure rights could lead to dispossession because REDD will increase land values.

As for adaptation mechanisms, property rights are critical in facilitating income diversification because secure tenure will provide a fallback option in case the other sources fail, or can be used as a collateral for other livelihood activities. Without secure property rights, smallholders may not have sufficient capital or a fall-back option to support diversification.

Consider Various Levels of Governance in Designing and Choosing Mitigation and Adaptation Strategies

The need to consider the wide-ranging effects of climate change policies and programs, including their impact on the rural poor, calls for the participation of various levels of governance in designing and choosing response strategies. For example, effective carbon payments will require international market mechanisms to match those who wish to pay to offset their emissions with those who will sequester carbon; national governments that will broker agreements, such as through a Designated National Authority (DNA) as currently employed for CDM agreements; and collective action groups to monitor compliance among local smallholders. While local collective action can provide an effective means of measuring and ensuring compliance, whether a group will continue to fulfill this role on an ongoing basis will depend on whether there is an incentive to do so. Long-term participation is more likely if the group has been involved in the negotiations, has had a say in setting the rules, and receives a substantial benefit, either for the group or its members. Experience with collective action in other types of natural resource management suggests that systems that are developed in a top-down manner and do not engage local people in the design of rules and systems are unlikely to create viable institutions that operate at the local level in the long run. Additionally, local policy responses are necessary to complement national policies that do not specify benefits or support for smallholders. This provides a caution against focusing only on national-level negotiations and systems for climate change mitigation or adaptation, because they are unlikely to create effective institutions to execute the programs, especially among smallholders.

A range of central and local institutions, public and private, is therefore needed. Rather than focusing exclusively on any single type of institution, policies need to develop harmonious, multi-level governance arrangements in which multiple institutions each play a role. Through coordination among different institutions, institutional as well as ecological resilience will be created and the poverty impacts of climate change will be targeted more effectively.



The lack of property rights will discourage people from planting perennials that better withstand climate change, sequester carbon and hold moisture, and require land (and water) rights to guarantee a return on investments.

Suggested Readings

- Cotula, L., N. Dyer, S. Vermeulen. 2008. *Fuelling Exclusion? The Biofuels Boom and Poor People's Access to Land*. IIED and FAO. Rome: FAO.
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- Swallow, B. and R. Meinzen-Dick. 2009. *Payment for Environmental Services: Interactions with Property Rights and Collective Action*. In *Institutions and Sustainability*, ed. V. Beckmann and M. Padmanabhan, eds. Dordrecht, The Netherlands: Springer.
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