

Community-based adaptation of tribal women to climate change in semi-arid India

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Resumo

Apesar dos esforços internacionais para proteger os direitos humanos, políticas de mitigação das alterações climáticas não tratam adequadamente da resolução dos problemas das comunidades vulneráveis que vivem em zonas áridas e semiáridas. Este artigo analisa como os planos de políticas de mudança climática podem interferir com as estratégias (existentes) de adaptação de comunidades vulneráveis e instituições locais, e oferece recomendações sobre como a política e processos de mudanças climáticas podem lidar melhor com os seus próprios impactos negativos. A discussão é baseada em estudos de caso de grupos tribais vulneráveis dependentes da floresta em regiões sujeitas à seca no semiárido Rajasthan, Índia. Os resultados indicam que intervenções de políticas bem intencionadas mas contraditórias podem afetar adversamente os meios de subsistência tribal, particularmente as mulheres. No entanto, as estratégias de adaptação baseadas na comunidade, adotadas por

Abstract

Despite international efforts to protect human rights, climate mitigation policies are not adequately addressing the problems of vulnerable communities living in arid and semi-arid zones. This paper analyzes how climate change policy plans may interfere with the (existing) adaptation strategies of vulnerable communities and local institutions, and provides recommendations on how climate change policy and process can better deal

with their own negative impacts. Discussion is based on case studies of vulnerable forest-dependent tribal communities from drought-prone semi-arid Rajasthan, India. Findings indicate that otherwise well-intended, but contradicting policy interventions can adversely affect tribal livelihoods, particularly women. Yet, community-based adaptation strategies adopted by tribal people fail to gain attention as potential solutions in policy processes. Recommendations to counter this failure are outlined.

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pessoas tribais, deixam de ganhar a atenção como potenciais soluções nos processos políticos. Recomendações para combater esta falha são descritas.

Keywords: *drought; indigenous peoples; forest; adaptation; vulnerability.*

Palavras-chave: a seca, os povos indígenas; floresta; adaptação; vulnerabilidade.

1. Introduction

Discourse on climate change and forest emphasizes the risks and impact on forest landscapes and on forest-dependent people. In many developing countries, forestry, after agriculture, is the second largest land use and the major source of livelihood in poor rural and tribal areas. Adaptation has become an important solution to cope with climate change. Contrary to common interpretations, adaptation does not relate solely to the responsibility of vulnerable local communities, but rather to the responsibility of all those who are causing vulnerability, including those who are accountable for it.

Poor rural people's adaptation to drought, storm or flood is not a new phenomenon. For centuries, people across the globe have adapted using diverse local strategies to cope with socio-ecological variability. With the growing concern about climate change and its impact on the livelihood of the poor – particularly marginalized women and children – it has become even more important to understand the adaptation knowledge of local communities. Several reports and documents link climate change, vulnerability and human rights issues to address the larger ongoing development challenges and international negotiations. Cannon, Twigg and Rowell (n.d.) state that those worst affected by climate variability and change are the world's poor, who are vulnerable to loss of livelihoods and assets, hunger and famine, and they have few or no support systems. Marginalized groups such as poor tribal people often live in drought-prone or flood-risk zones without sufficient safety nets such as insurance to cope with any losses. Moreover, they lack the ability (power) to influence government policies by demanding protection or relief support. Thus, their daily livelihood is challenging even without climate variability or change. The larger question of marginalized communities' basic human rights is at issue.

The objective of this paper is to elucidate relatively neglected local adaptation strategies for coping with droughts in semi-arid, poor tribal areas of India. More specifically, this paper is concerned with forest-dependent, vulnerable tribal women's experiences of droughts and their efforts to cope with the resultant changing environment. The next section deals with the study

area and methodology. The findings of this empirical case study are then presented. The last section concludes that there is need for further scientific and practice-based research to ensure that tribal women's voices are heard and that they can influence forest tenure policies and pro-poor drought- risk reduction activities.

2. The study area

2.1. The Bhil tribe of western India

India's 80 million ethnic minority known as Scheduled Tribes (henceforth used as interchangeable with the term, tribal people) are largely forest dependent for their livelihoods and inhabit arid and semi-arid regions. It is estimated that there are almost

700 recognized Scheduled Tribes (Sinha 2005). Since it is the state government that adjudicates on whether or not a tribe can be recognized as such, often there are demands for formal recognition by some communities who recognize themselves as van vasis or adivasis in order to receive certain benefits and schemes from the state and the right to apply for reserved posts in government bodies. In the last decade, violence has erupted in several parts of India over the issue of non-recognition of several ethnic minority groups as Scheduled Tribes. In May 2008, Rajasthan state in the western region of India saw riots due to protests by the Gujars, a pastoralist community, in support of their demand to be recognized as a Scheduled Tribe. Gujars are classified by the government as Unscheduled Tribes (Kavoori 2007). Heterogeneity within Scheduled Tribes is immense and sometimes observed within the same tribe across geographical boundaries having distinct languages and dialects, habits, beliefs, religion and customary practices. Almost 84 percent of India's tribal ethnic minority live in forested areas depended on forest- based economies and experience the greatest poverty (Sunderlin et al. 2005).

The population in this study is the Bhil tribe. Bhils are the third largest Scheduled Tribe in India after the Gonds and the Santhals, and one of the poorest. They are the predominant tribe in the contiguous semi-arid tribal districts in the Fifth Scheduled Areas of Gujarat, Madhya Pradesh and Rajasthan states in western and central India. Citing the work of several scholars, Mosse (2005) points out that, during the colonial period, the stereotypical image of wild hill tribes was based on discourse that viewed the Bhils as a people forced by powerful pre-British Rajput and Maratha rulers into the remote forest tracts, from where they became a source of raiding and dacoitry. During colonial rule, like other forest-dwelling communities, the Bhils lost control of the forestland due to the introduction of a state monopoly on timber. Settled agricultural practice was introduced in the region by banning shifting cultivation. There are some instances of religious

groups that attempted to convert the Bhils, but this did not fully succeed in this region. In other words, the Bhils were exposed several external forces that affected their livelihoods.

They were supposed to be traditionally a matriarchal society, and most communities also have their own traditional or customary institutions. Over the years, the majority of Bhils have become settled agriculturalists like mainstream society practicing patrilineal kinship in relation to land title and property rights (Baviskar 2003).

2.2. Semi-arid dry deciduous degraded forestland

The nature of what constitutes a forest has been a debatable issue globally, because it is difficult to arrive at a single policy definition of forest that can apply in the continuum of forest-dependent people, trees and biodiversity, among other factors (Noordwijk and Minang 2009). Indian legislation and different actors have a number of contending definitions. The word forest signifies a different meaning to tribal people. It means home, habitat, culture and economic value for their livelihoods. For forest departments, on the other hand, the forest is an administrative unit of land categorization and protection. A definition proposed by the Union Ministry of Environment and Forests reads thus: “[a]n area under Government control notified or recorded as ‘forest’ under any Act, for conservation and management of ecological and biological resources” (Rastogi 2007:35). This definition, if implemented, would have consequences for the local inhabitants of the forests, particularly for the Bhils who inhabit forest villages and degraded forestlands that are not surveyed, recorded or notified. Tribal land-use practices are traditionally based on oral culture. Lack of documents as proof of ownership has historically deprived the Bhils of their property rights, making them so-called encroachers in the area that has been their ancestral land for centuries. To rectify this, Forest Bill 2007 was passed in India.

On average, the agricultural landholding of a Bhil household is less than a hectare. Agriculture is rain fed and labour intensive. Poor soil quality due to soil erosion and low rainfall are major determining factors for the choice of crop diversity in the field. Crops grown during the *Kharif* (summer) season are largely rain-fed, non-hybrid varieties of maize and millets such as *bajra* (*Pennisetum typhoides*), *kutki* or little millet, which form the staple diet of this region. Whereas maize is grown on 75 percent of the rain-fed cropped areas in this region, most of the millets are traditional crops grown as intercropping. Some of the millets are have a high nutrient value, are drought resistant and grow easily on dry and degraded land. In some groundwater irrigated areas, wheat is one of the *Rabi* (winter) crops. The climate is tropical, with the temperature reaching 45 degrees Celsius in the summer months from March to June, with an average rainfall of 650mm to 950mm between June and September.

Droughts have been a recurrent phenomenon in the semi-arid region of western India. However, the impact is more severe due to loss of forest tenure and a high dependency on rain-fed agriculture that often results in crop failure. The detailed evaluation report, *State of the World's Minorities 2008* (Minority Rights Group International 2008), points out that discrimination against minority groups and indigenous communities in India makes it harder for them to cope with the impacts of climate change. One of the factors mentioned in the report is that tribal communities rarely receive any drought-related relief packages. Dry, deciduous, degraded forests no longer provide safety nets for the forest-dependent Bhil tribe. Thus, due to recurrent crop failure, some Bhils are forced to migrate for work to supplement their income. Every year, increasing numbers of the Bhil population migrate to neighbouring towns and cities from this region to work as low-paid unskilled casual labourers. According to Sunderlin et al. (2008: 1388), such trend "is a reflection not just of increased income opportunities in agriculture and other domains, but also of decreased availability of types of forest resources that might have been abundant in the past."

Cattle used to serve an important economic function in Bhil livelihoods, but due to depletion of fodder the cattle number per household fluctuates every year. Moreover, the *gauchar* (communal grazing) land is either degraded or encroached or has been closed from open grazing. Tribal women suffer the worst impact of drought, poverty, land alienation and scarcity of natural resources (Agarwal 2001). With the restrictions on access to commons, it is the tribal women who bear the brunt of the hardship involved in collecting potable water, firewood, fodder, medicinal plants and other non-timber forest products. Non-timber forest products such as honey, *tendu leaves* (*Diospyros melanoxylon*), *mahua flowers* (*Madhuca indica*), *chirota* (*Cassia tora*) and resins supplement to some extent the income of Bhil households. In some tribal districts, the collection of non-timber forest products is restricted to members of forest users' committees or village members formally protecting the adjoining forests.

3. Empirical data and method

The empirical data used in this paper derive from fieldwork undertaken during two summer seasons (2008 and 2009), which were two consecutive drought years in

scheduled areas of semi-arid western India. The study was conducted in Banswara district of Rajasthan state (with one of the highest poverty indicators), with a large population of Bhil and Bhilala tribes. The site selection was based on a number of key criteria such as scheduled areas dominated by tribal communities, some form of tribal customary institutions in the management of common pool resources (CPRs), tribal people's dependence on natural resources and the implementation of forest decentralization (Forest Rights Act 2006) reform.

A case-study method using a participatory approach was employed, including in-depth qualitative interviews with two women's self-help groups from two neighbouring villages in the district. In addition, individual household interviews were conducted with 12 women-headed households and executive committee members of village forest institutions in these villages. In view of the high illiteracy rate, seasonal migration of tribe members (for wage labour in neighbouring cities) and relevance to the study objectives, a combination of data collection approaches was employed: informal meetings, observation under natural conditions, focus group discussions, participatory mapping and interviews (Yin 1994).

In qualitative studies, it is possible for perceptions of respondents to be influenced (Leurs 1996). In this study, this effect could reflect either power difference between local people and researchers and/or the drought at the time the study was conducted (Bailey 1978). For the qualitative data analysis, a database of codes was developed, the interview texts were coded and the data were verified (Kumar 2005).

4. Community-based adaptations (CBA): findings

The term adaptation is often misunderstood as the responsibility of local communities to adjust to the changing environment, placing on them the burden to deal with the changing situation. This is a narrow understanding of the term. Adaptation can also encompass holistic dimensions of the local adaptation with an inclusive approach – social, political and economic, as well as global development policy (Reid et al. 2009), but, more broadly on the community level rather than on an independent individual's response to drought. Community-based adaptation (CBA) is a relatively new concept. A simple meaning of community-based adaptation to climate change is “a community-led process, based on communities' priorities, needs, knowledge, and capacities, which should empower people to plan for and cope with the impacts of climate change” (Reid et al. 2009: 13). However, community is rarely a well-defined concept. Agrawal and Gibson (1999: 633) argue that if “community is viewed as a unified, organic whole, then, it fails to attend to differences within communities, and ignores how these differences affect resource management outcomes, local politics, and strategic interaction within communities, as well as the possibility of layered alliances that can span multiple levels of politics”. For equitable policy and decision making, such details about community require attention.

Within a community, different sections have different power (political) and capacity to undertake adaptation. Marginalized poor Bhil women are affected by depleting firewood and fodder and increasing food shortage. Moreover, tribal women's voices rarely influence political decision making (Agarwal 1993), including in relation to their needs relating to adaptation to climate

variability or change. With limited scope to influence political decision making, a decentralized local institution plays a significant role. Decentralization, argues Ribot (2004), requires a significant transfer of discretionary powers to local bodies, who are accountable to the population in their jurisdiction, for example local elected government, *e.g. gram panchayat* in India. Bhil women's limited opportunity to participate in politics restricts them from voicing their opinion about climate change adaptation activities.

4.1. Community-based adaptation of village A

With two consecutive drought years (2008 and 2009), most forest-dependent Bhil men migrated to neighbouring cities for daily wage labour employment. Thus, Bhil women were household heads for almost six to eight months during these drought seasons. Almost two decades ago, during drought years most Bhil families were able to remain in their villages and adapt to the climate impacts by depending on non-timber forest resources. However, in recent years, with recurrent droughts over longer periods, degradation of forests and uncertain forest tenure rights, non-timber forest resources have become an insufficient source of livelihood. Bhil women in this village started to work as a community to face the challenges of climate variability and change (experienced as drought). The village group local government (*gram panchayat*) showed no interest in women's need for fodder (to feed livestock) or income-generation activities. On the other hand, the newly selected village forest institution excluded the women from the decision-making process. This change was challenging for women who collect firewood and fodder from the forest. The newly formed informal women's community aimed to revitalize the indigenous and scientific strategies for coping with drought.

The tribal women's CBA mainly took the form of horticulture on farm land, introducing the kitchen garden and drought-resistant millets for agriculture. Tribal kinship relations helped them to support each other in household chores and in farming drought-resistant millets. They took the initiative to explore different varieties of traditional millets that would tolerate the drought and dry soil conditions. In the first year, the crops failed. This led to a change in strategy and to creating pressure on the district government to support their adaptation practices. Funding to support this initiative was approved and, the next year, which was again a drought year, the tribal women successfully farmed the drought resistant millets. The men of the household, on the other hand, initially opposed the women's interest in practicing horticulture on farmland. The fact that most women were devoid of any land tenure rights made them dependent on the men of their household. However, the support of the local organization and the training of the women's group helped the women to gain approval from their household head, and the women were empowered by the fact that they could now access the market. Exchange of their agricultural output in the market gave them independence (economic and political relations).

Because of their success, horticulture and a community-based approach to alternative crops were extended to the other neighbouring villages.

4.2. Community-based adaptation of village B

As in village A, this village was facing extreme impacts from climate change. Moreover, about 25 percent of the households were below the poverty line, and more than half had no secured (forest) land tenure rights. Tribal women in village B created a community grain storage facility that helped the families who lacked resources. Another important aspect of their CBA was their claim on their traditional right to collect *jatropha* seed from the forest. With the increasing demand for *jatropha* seeds in the local market, the village forest institutions denied women the right to collect the seed from the forest. Through CBA, *jatropha* (a drought resistant plant) was planted as a fence on their farmland and on communal areas (grazing land). During the drought year, the tribal women's community took the initiative to negotiate with the district tribal development office in marketing the *jatropha* seed.

During the CBA implementation process, the village B tribal women were able to network and establish good links directly with the buyers. This helped them to get the market rate without paying commission to an agent. Moreover, collective selling resulted in a better price, and the proceeds were distributed among them depending upon each woman's seed production. The amount of *jatropha* seed collected from the women's own plantations (planted as fences on farm land and in open-access/grazing land) as part of their CBA activity was greater than the total quantity collected by the village forest institutions from forestland. The women's group demanded re-selection of the women who would hold a seat on the executive committee of the village forest institution. Previously, the women representatives in the village forest institution were connected by kinship to the few elite political members of the institution. Indirectly, their adaptation technique to survive climate change enabled the women to gain political power at village level.

5. Discussion

Agrawal's (Draft 2007) framework on adaptation, institutions and livelihoods provides an interesting dimension for analysis. This framework classifies the basic coping strategies

to counteract environmental risks to livelihoods into five analytical categories: mobility (over space), storage (across time), diversification (across assets), communal pooling (across households) and exchange (access to markets). Institutions, according to this framework, are important in reinforcing different livelihood practices. Using Agrawal's adaptation as an analytical framework, this paper briefly discusses community-based adaptation by tribal women.

As observed from the above two cases, tribal women faced the challenge of decentralized local government (*panchayat*). In village B, the village forest institution resisted by not sharing information, thereby increasing unpredictability and by excluding the vulnerable groups – the tribal women. Findings indicate that different kind of institutions (see Table 1) influence or hinder community-based adaptation strategies. Property rights and forest tenure play a crucial role in community-based adaptation practices. Women without tenure rights face the challenges of access to resources and decisions relating to changing farming systems.

The empirical evidence in this paper points to an interesting relationship between the institution, adaptation strategy adopted and livelihoods. However, this paper argues that political power and representation of marginalized groups are equally important. It is possible to achieve community-based adaptation to climate change without the support of local institutions if the level of risk (here drought) is very high and may have a negative impact on livelihoods. Some of the women in these villages were not part of the adaptation process due to their household's economic situation and the low risk of drought. Finally, the case study also indicates that women's interest in political participation in village forest institutions is high. This could be due to their dependency on the forest for their livelihood, especially during drought years. The *jatropha* plant became an important community-based adaptation for two reasons: its drought resistance and market demand. Such positive impacts of community-based adaptation helped to improve the livelihood outcomes of the forest-dependent tribal households.

6. Conclusion and recommendations

This paper attempted to show the role of tribal women's collective activities in understanding the importance of adaptation to frequent droughts in the semi-arid region of western India. However, it may be argued whether these activities can be considered as a response to frequent climate variability or as a response to concern about possible future climate change. Nevertheless, it is evident from this case study that tribal women protect themselves by various adaptation mechanisms. Community-based adaptation by diversification (agro-forestry, horticulture), asset pooling among kinship/hamlets, and migration to the cities or wage labour enabled them to overcome the climate stress. As observed, village forest institutions play an important role in enabling (or possibly hindering) the initiatives of community-based adaptation practices.

Continuous dialogue and renegotiation are required to shape changing political relations between the main actors. At local level, there is need for a shift towards devolution of discretionary decision making and the transfer of tenure rights to marginalized tribal communities, including women. Moreover, there is need to statutorily recognize a forest management institution by

different line ministries and departments managing forests in tribal areas. At national level, there is need for a constitutional approach to forestry reform in which the state should be accountable. A clear tribal policy that stresses the recognition of traditional forest and land tenure rights of tribal people is a key requirement for the success of coping with climate variability. The concept of adaptation as coined in the western world and by external agents (donors, researchers, etc.) is evidently different from the perception of poor, marginalized tribal communities. Therefore, there is an urgent need to revisit what community-based adaptation implies in tribal areas for the management of degraded forests. Equally, there is need for empirical research to examine role of community-based adaptation and rights-based policies in the current decentralized approach to forest management in tribal areas.

Political power is an important aspect of climate variability and change. Political participation by vulnerable tribal women is crucial to ensure that they influence policy and that their voices are heard in major forest and climate negotiations. For negotiations at local (village) level, people's representation, including the opinion of vulnerable populations, is essential. This begs the question as to who is vulnerable and calls for local knowledge to solve the problem, the local perception of what is at risk and how it can be solved, and what needs to be prioritized by policymakers. For negotiations at national level, in addition to the above, it will mean networking and policy advocacy with multi- disciplinary institutions, ensuring devolution of power, implementation, monitoring and reviewing adaptation practices, allocation of funding and resources. And, at global level, negotiations must involve transparent deals that benefit the vulnerable groups such as children, indigenous peoples and poor women. The underlying process of such negotiations needs to be empowerment of marginalized groups, without any dangerous impact on their livelihoods and environment.

A great amount of research is needed to document and analyse the community- based approach. Forest and land tenure rights of tribal women and other vulnerable groups could complement their climate change and variability adaptation practices. Mainstreaming community-based adaptation in development projects is not the only option. Flexible localized rather than adoption of a single community-based approach should be focus of discretionary decision-making process of elected local institutions. The success of community-based adaptation depends on recent forest tenure reform that gives recognition of the forest tenure rights of the Scheduled Tribes and other forest- dependent people. There is need to explore a holistic and comprehensive understanding of various adaptation strategies (including local initiatives) and existing forest policy activities to cope with droughts in semi-arid regions. That is, more scientific and empirical evidence is needed on how a given group of a marginalized population at high risk (of drought or flood) will be affected by climate change.

The key recommendation is that local initiatives (such as those described in this paper) should provide an opportunity for government, research institutions, donors and policymakers to recognize and promote community-based adaptation strategies. On an optimistic note, a win-win situation for sustainable forest management without any negative impacts (of climate stress or change) on vulnerable groups is possible to achieve

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