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## **Environment & Natural Resources for Sustainable Livelihood in India**

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### **Abstract**

Ensuring environmental sustainability—the seventh Millennium Development Goal— requires achieving sustainable development patterns and preserving the productive capacity of natural ecosystems for future generations. Both efforts in turn require a variety of policies that reverse environmental damage and improve ecosystem management. The challenge has two dimensions: addressing natural resource scarcity for the world’s poor people and reversing environmental damage resulting from high consumption by rich people. Many environmental problems arise from the production and consumption patterns of non-poor people, particularly in rich countries. Rich countries consume a lot of fossil fuels and deplete many of the world’s fisheries, damaging the global environment. They also use a lot of tropical hardwoods and products from endangered species.

**Keywords:** Environment, MDG, Sustainable Livelihood, Policies, Natural Resources

### **Introduction**

To ensure the sustainability of Earth and its resources, including the development prospects of poor countries, these harmful production and consumption patterns must change. Energy systems will have to generate much lower greenhouse gas emissions. Fisheries will have to be managed based on ecological limits rather than heavily subsidized free-for-alls. And international rules of the game will have to mitigate the overconsumption that endangers ecosystems and certain plants and animals. But with smart policies and new technologies, the costs of these changes can be quite low. Human well-being depends on natural resources and

environmental services that help produce food. People rely on soils to grow crops, grasslands to raise livestock and freshwater and oceans to support fisheries. Over centuries farmers have generated crucial stocks of knowledge and productivity by breeding livestock and selecting, storing and propagating plant varieties. Diverse genetic resources enable farmers to adapt to environmental change by creating new livestock and plant varieties better suited to new conditions. In periods of scarcity, wild biodiversity is also a source of alternative food products.

Natural resources such as forests and water have historically been taken for granted as limitless ‘goods’. However, widespread



conversion and degradation of forests and other ecosystems due to overexploitation, is posing a challenge for sustaining the health of ecosystems and the services that flow from them. In the forestry sector, this has led to a shift in focus from 'goods' such as timber to 'services' such as biodiversity conservation, landscape beauty and watershed protection. Historically, in India, most traditional resource management systems have been replaced with state controlled regulatory approaches. The ownership, management and control of natural resources have been vested almost entirely in the hands of the government. Until recently, the main approach to forest management was that of departmental policing of forests, forbidding local communities of access to them in the classical fences and fortresses mode. Similarly, in the case of watershed protection and development activities, it was largely government agencies through the line departments of various ministries that undertook watershed treatment work.

### **From a Regulatory to a Participatory Approach**

In order to remedy the above approach, over the last decade a number of policies and guidelines have facilitated a shift in natural resources management from a *regulatory* to a more community-based *collective action* approach in India. In this new approach, greater control is vested with the local communities over the resources in question, thereby leading to a greater sense

of ownership. The forest policy environment today strongly encourages the participation of local communities in forest management, emphasizing collaborative partnerships between the Forest Department and the local people. In the case of watershed development, a set of 'Common Guidelines' were issued in 1994, which called for an integrated and participatory approach to watershed development.

Within the participatory approach, evidence suggests that watershed development and forest protection have been much more successful in places where sufficient biophysical and institutional incentives exist or have been provided to the local people to participate in such activities. Furthermore, the commitment of communities to watershed development projects has also been significantly higher wherever the beneficiaries themselves have contributed to the costs of the project activities. Wherever sufficient awareness has been created, and the right incentives provided, people are willing to contribute to the costs of watershed development activities in their locality. It is being argued and seen in other parts of the world that markets for environmental services are an efficacious tool for the conservation of natural resources, without compromising on the benefits that have been traditionally derived from them in the nature of goods.

### **Markets for Environmental Services**

With increasing degradation of the natural resource base leading to a global



environmental crisis, there is a growing appreciation of the role of forest-systems in providing not just goods but also vital services. These services are diverse, ranging from carbon sequestration to landscape beauty and from biodiversity conservation to watershed protection. To sustain the flow of these services, there has been an increasing movement towards putting a value on them and, concomitantly, making payments for this value.

Markets for watershed protection services in India – a complementary approach Today, watershed protection in India is receiving tremendous support for its multiple benefits not only in improving the livelihoods of the rural poor in much of dry land India, but also for the services that accrue to larger downstream beneficiaries in the form of municipal water supplies, regular water flows, flood mitigation and reduction in sediment flow for hydropower generation. While market-based approaches have been credited in several countries with promoting efficient resource management, it is not clear how they may be best employed to improve the use of water resources and land management in watersheds in India. A major concern relates to the impacts of markets for watershed services on the livelihoods of the marginalised,

### **Potential and Constraints: Market-Based Mechanisms Embedded in Collective Action**

Markets for watershed protection services do not always imply a monetary or even tangible transaction between service providers and service receivers. An exploration of the potential for market-like arrangements encompasses all incentive-based arrangements, transactions, payments and compensation systems (monetary or non-monetary) for watershed protection services that are ‘market like’ in nature and have the potential to develop into more sophisticated mechanisms in the future. Given this and learning from experiments from other parts of the world, the potential of *market-based* approaches as alternative, yet complementary, solutions to existing regulatory and collective action approaches for the sustainable management of natural resources has begun to be explored in India.

A preliminary scoping study of two states in India, Himachal Pradesh (HP) and Madhya Pradesh (MP), revealed that there is a latent potential for the development of such approaches. However, underlying this potential are also several constraints, which would need to be overcome.

### **At the Micro Level: Intra-Village Transactions**

There are some interesting examples at the micro-scale where *market-like* mechanisms for watershed services have led to improvements in livelihoods and equity. These have been developed within a collective action framework.



On the whole, there is very little awareness of the concept of providing appropriate compensation to the landless and land-poor in return for their participation in watershed protection activities, both at the field and policy levels. Given this, it is hard to dispute the desirability of having such mechanisms on a wider scale. Contrary to the common perception that *markets* and *market-based* approaches are always anti-poor and iniquitous, these village level mechanisms show how watershed protection activities can be made more equitable to benefit the livelihoods of the poor. Despite the desirability of such mechanisms, there is, however, a need for a certain measure of caution. Given the multiplicity of factors at the village level in India, as well as the specificity of contexts, the practicality of de-linking land and water rights and promoting the trading of these rights needs to be thought through carefully before generalising any such principle at a wider state or country level.

### **At the Micro Level: Inter-Village Transactions**

There are a number of interesting examples of inter-village cooperation with regard to water sharing, watershed protection, grazing rights and more generally, natural resources management, both traditional and otherwise, which are based on incentive mechanisms that closely resemble market-like arrangements. These are generally perceived to be more equitable and beneficial for livelihoods as compared to

alternative 'state-controlled' regulatory systems. Research on existing cases of local exchange-based mechanisms, though conceptually closer to the collective action approach, would yield rich learning for the development of market-based approaches for watershed protection services.

A major constraint in India for putting in place such market-like arrangements is the fragmentation of intra- and inter-village unity along lines of caste, class and political affiliations. This adversely impacts the setting up and smooth functioning of village-level institutions, which would be necessary for any kind of transactions to take place.

### **At the Macro Level**

A significant potential for the development of markets for watershed protection services exists at the macro level between downstream beneficiaries and the upstream watershed protection service providers. Some of the downstream beneficiaries of upstream watershed protection are water supply agencies in urban areas, hydroelectricity projects, and mineral water companies. While the hydro-power sector receives watershed services of water flow regulation and reduced sedimentation in dams and reservoirs, urban centres receive assured water supplies and, in some cases, landslide prevention services.

Currently, the water tariffs, as in other parts of the country, are highly subsidised in Bhopal. Removal of subsidies and



increasing tariffs is a politically contentious issue in India. There is a need for great positive political will in order to make this happen. Unless accountability in the public utility system is increased, people would be generally unwilling to pay any extra money to the Bhopal Municipal Corporation.

### **A Sustainable Livelihoods Approach to Water Projects**

For many years the domestic water sector has focused on the achievement of health benefits through supply improvements, based on the premise that more and better water can help to improve the health of individuals. This approach has been consistent with the provision of improved supplies by governments and other agencies as part of a strategy of meeting the basic needs of the poor. In the last decade however, the wider policy environment has moved towards self-financing and cost recovery on water projects, where greater emphasis is placed on community financing as a means of ensuring cost recovery. The idea of water as an 'economic' good has been the driving force behind this change. Whilst the end result is still anticipated health benefits, the principle that the 'consumer pays' is now more firmly linked to sustainable supply delivery. This shift in emphasis has various implications for poverty reduction, not least of which is whether or not poor consumers can afford to pay.

The central issue this paper addresses, therefore, is the need to understand the

impacts of improved supplies on socio-economic 'livelihood' circumstances of households, and to move away from an emphasis on health benefits. Grouping this under the 'sustainable livelihoods' umbrella, the approach can assist in creating clearer links between the expectations of policy makers and donors (in their drive to mobilize communities around a 'demand-based' theme) and the capacities and motivations to undertake this new role on the part of communities and households. A central strand in this relationship is likely to be the link between anticipated impacts at a household level and the motivation of households to participate in community efforts to pay for service.

During the 1960s and 1970s, this focus on developing supply and improving sanitation became the mainstream development approach within the sector, and was enshrined in the United Nations (UN) water decade<sup>1</sup> which had a central 'health-based' and supply-oriented message. In health terms, the overriding benefits were perceived to be the reduced transmission of water-borne diseases e.g. diarrhoeal diseases, typhoid and guinea worm. The focus widened during the 1980s to integrate water supply, sanitation provision and hygiene education, as the need to take a more comprehensive approach to reducing the presence and transfer of pathogens at a household level was recognised. Poor health caused by poor water supply quality, insufficient sanitation and unsafe hygiene behaviour was regarded as both a symptom



and cause of poverty. Images of open sewers and unclean water sources became a favourite medium for conveying the 'idea' of poverty in the developing world, regardless of the many other influences and causes. Table 1 gives figures for access to safe water and sanitation at a global level, which came to represent measures of success or failure in creating sustainable supplies

### **Implications for Policy and Practice**

Water as a natural asset forms part of the asset range available to households and its economic value as well as its cost needs to be properly understood in order to understand the linkages with livelihood strategies. This is the case not just because this points towards ways of strengthening asset bundles through improving access to natural capital, but also has methodological implications for demand assessment. The structure of demand for water within a community – particularly demand over and above the survival level – may be informed just as much by its productive uses as by its routine daily consumptive uses. Calculating anticipated demand at the household and community level may, therefore, require greater depth of analysis of household livelihood uses (and potential uses) than is commonly undertaken by demand assessment. This also has policy implications for notions of scarcity, particularly in terms of the presence or absence of other assets critical to gaining sustainable access to supplies. Scarcity can

be determined by the unavailability of physical and human

### **Conclusion**

This paper emphasises the health impacts of improving access to supplies of clean drinking water and better sanitation. It then assesses the relevance of this view to wider debates on how to achieve supply sustainability by adopting demand-responsive approaches (DRA) and by shifting the emphasis to the principle of 'consumer pays'. The paper argues that an overemphasis on health impacts does not fit well with DRA, which is being increasingly advocated by agencies at an international level. Thus, in order to encourage demand for water services in particular, and to ensure that communities can be engaged in self-financing their development, greater attention has to be paid to the role of water within wider household livelihood strategies – and livelihood impacts should become a major focus of interventions.

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