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Economic Instruments for Managing Forest Ecosystem Services in India



Background

India, with a GDP of US \$691 billion for the year 2004, has emerged as the tenth largest economy in the world. The economy has grown at an average rate of 6.7 per cent since 1994. The vision 2020 of India targets an economic growth rate of 9 per cent per year with a view to quadrupling per capita income and putting India as the fourth largest economy in the world. The effect of this high economic growth on natural resources, particularly the remaining forest ecosystems is a matter of concern. The nation shares just 2 per cent of the world's land mass but is home to more than a billion people. Being a mega biodiversity country, forests in India play critical role of providing several ecosystem services which are mostly unaccounted for in economic terms.

The recorded forest area of the country is 76.52 million hectares which is classified into reserved, protected and unclassed forests. India is targeting to have 25% of area under forest/ tree cover by 2007 and 33 % by 2012 in order to fulfil the objectives of the National Forest Policy. The Forest Survey of India in its latest report (State of Forest Report -2003) estimated the forest cover in India as 67.8 million hectares (20.64% of geographical area). Of this, the share of very dense forests (i.e. canopy density over 70%) is just 1.5 percent. The nation has lost about 26,000 sq. km of dense forest (canopy density over 40 %) between assessment year 2001 and 2003 although there was a marginal increase in the total forest cover (FSI, 2005).

India has introduced strong legal measures for forest conservation. Several innovative approaches such as Joint Forest Management (JFM)/ Participatory Forest Management are in place to ensure peoples participation in conservation. However, the available indicators on

the progress of the implementation of these measures show that there are several gaps and weakness in the forest conservation and management. For example, it is pointed out that the efforts for compensatory afforestation in India have not showing the results in the field due to several implementation problems including the lack of adequate funds. Forest Management in India has undergone several changes. It is realized that government through its command and control methods alone cannot manage the forest successfully and this calls for looking at strengthening alternate options, particularly economic instruments. Currently, forest management faces several constraints including a lack of adequate funds. The allocation to the Ministry of Environment and Forests is just 1 per cent of the total budget. It is possible that the introduction of suitable economic instruments for ecosystem services of forests would strengthen forest conservation and sustainable development in India.

Economic Instruments are market based mechanisms. "Any instrument that aims to induce a change in behaviour of economic agents by internalizing environmental or depletion cost through a change in the incentive structure that these agents face (rather than mandating a standard or a technology) qualifies as an economic instrument". Economic Instruments include (a) Price based incentives such as user charges, user fees, product charges, input taxes and subsidies for environmental technology/ research, import tariffs, soft loans and grants, deposit refund schemes, environmental performance bonds (b) marketable permits, rights or quotas (c) adjusting barriers to market entry such as liability insurance legislation, information programmes, voluntary measures, ecolabelling and certification. Economic instruments have several advantages over the command and control standards

and regulations. If suitably designed and implemented these instruments can make important contribution to achieving sustainable development.

Markets for Forest Ecosystem Services

Forests provide several ecosystem services for human well being. These include

- provision of services such as food, water and fiber;
- regulatory services such as climate, floods, disease, wastes and water quality;
- cultural services such as recreation, aesthetic enjoyment;
- supporting services such as soil formation, photosynthesis and nutrient cycling.

Traditionally, these services have been considered as “free” services provided by nature and therefore, the economic values of these services are ignored or underestimated when forests are used for alternate options. As a result, the depletion and degradation of forests, particularly dense forests continue at an alarming rate.

Creation of “markets for ecosystem services” can promote conservation and support local livelihoods since it rewards to the resource owners/managers for their role as stewards in providing these services. Further, these markets can also increase the economic value of forest ecosystems. Market based approaches are increasingly applied to achieve conservation objectives all over the world. Compared to previous approaches to forest conservation, market based mechanisms promise increased efficiency and effectiveness at least in some situations. Around 300 such markets exist for ecosystem services across the world. Markets for forest ecosystem services are expected grow fast in both developing and developed countries.

Major Drivers

There are three major drivers to demand market for ecosystem services. (i) a shift in environmental protection policies from command and control (C&C) to economic and market based instruments such as charges and user fees, eco-taxes; (ii) improved capacity to value the goods and services provided by forest ecosystems; (iii) raising demand for ecosystem services by public authorities, private entities and consumers as a result of environmental obligations of these user agencies.

Issues

There are several issues associated with the introduction of economic instruments for forest conservation. These include the type of forest services, the ecological conditions, the consequences of losing those services and the management options; the economic value of services and its contribution to livelihood and human well being; rights and responsibilities for costs of services that were previously considered as “free” and associated negotiation and conflict resolution; identifying the potential buyers and sellers, the biophysical relationships related to service delivery; definition and measurement of services in quantitative terms; the support services and capacity building, institutional arrangements to facilitate payments, provide financing, manage risk and uncertainty, monitoring and evaluation, the benefits and costs and concerns of equity.

The quality and quantity of long term supply of forest ecosystem services needs to be studied and such inputs are important while making any decisions on introduction of PES. This requires an interdisciplinary approach by involving economists, ecologists, social and physical scientists.

Several market based instruments exist in India for forest conservation. This include entrance fees or charges; ecolabeling and certification schemes; Net Present Value (NPV); Ecological Value Tax.

There are currently apprehensions about emerging economic instruments, particularly *Payment for Ecosystem Services (PES)* (also called *Payment for Environmental Services*) in India among various stakeholders in India partly due to limited understanding about their potential for contributing to conservation and human well being.

Given the rapidly changing social and economic scenario in India, there is a need to explore innovative and emerging forest conservation approaches and assessing the role of economic instruments can help determine suitable alternatives.

This project will assess the design and implementation of existing economic instruments and build awareness about and assess the potential for introducing Payment for Ecosystem Services (PES), particularly watershed protection payments.

Arguably, for forest protection one of the key instruments is likely to be PES (payment for environmental services) and its logical corollary user fees (some already exist in India such as NPV). This study will therefore focus on these key instruments - their applicability and a case study(ies) that provide details on the mechanics of implementation (given governance

constraints), the risks and advantages and a similar study on the (current) obstacles to implementing CAF.

Objective

Examine the scope of and opportunities for introducing suitable Economic Instruments, including Payments for Ecosystem Services (PES), for forest conservation in India.

Scope of Work and Tasks

The work will follow an approach of combining field based case studies, policy research and stakeholder consultations. The activities and work plan are based on the following:

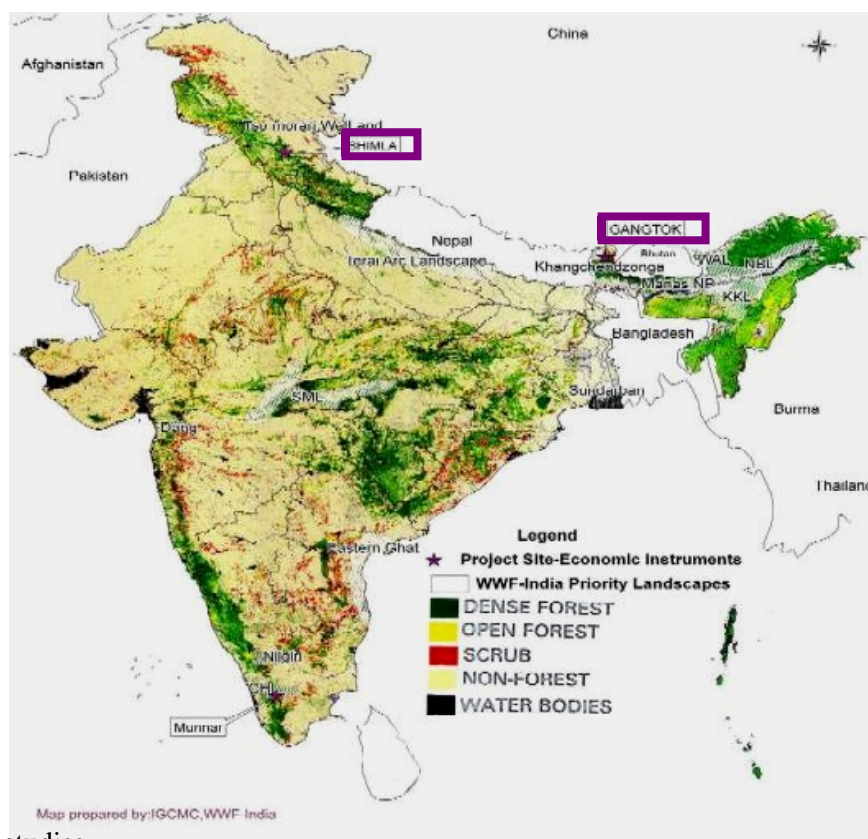
- (i) Assess the design and implementation of existing economic instruments in selected Indian States and ecoregions where such mechanisms are already in place .

- (ii) Build awareness about and assess potential for PES for forest protection with special reference to watershed protection based on selected sites within the priority ecoregions.

Results would be assessed and used to identify opportunities for broader application or replication at other sites to strengthen the motivation for improved management of protected areas or sustainable management of production forests.

Selected Economic Instruments & Sites for Case studies

During the Phase-I, NPV and PES for urban water supply will be covered. For NPV, the case study will be focused on selected Forest Divisions in Himachal Pradesh . In the case of PES- for Urban Water Supply, *Gangtok* (Sikkim), *Shimla* (Himachal Pradesh) and *Munnar* (Kerala) have been identified.



* Selected sites for case studies

Net Present Value (NPV) of Forest Land

NPV is the amount to be paid by the user agency before diversion of forest land in India for non-forest purposes to compensate the consequential loss of benefits accruing from the forests. These amounts made by the User Agencies can be utilized for getting back in long run the benefits which are lost by such diversion. NPV is in addition to the funds realized for compensatory afforestation from user agencies.

“The NPV is the present value (PV) of net cash flow from a project, discounted by the cost of capital.” It is the method by which future expenditures (costs) and benefits are levelised in order to account for the time value of money.

Payment for Ecosystem Services

Payment for Ecosystem Services, also called payments for environmental services (PES) is a generic term of variety of arrangements through which the beneficiaries of ecosystem services pay back the providers of those services. The ecosystem services in question can be watershed protection, forest conservation, biodiversity conservation, carbon sequestration, landscape beauty in support of ecotourism. Ecotourism services may be present at any scale, from local to national or international.

Payment may be through a market type arrangement between willing buyers and willing sellers(eg. tourist companies paying African communities for the protection of wildlife). It also may be a scheme intermediated by a large private or public entity (eg., Part of New York household's water bill is used by the water company to buy watershed protection services from farmers in the vicinity of the water company's intake) . Or, payments can take the form of a government-driven design, using public revenues to pay the providers of ecosystem services (Government of Costa Rica uses a fraction of the tax on energy to buy forest conservation services from farmers).

A simple definition describing PES principle is “a voluntary, conditional transaction with at least one seller, one buyer and a well defined environmental service.” Conditionality: only to pay if the service is actually delivered.

Expected Results

The results of this project will be a fully documented case studies at a selected field sites, a national workshop to discuss findings and possible applications to a broader range of sites and situations, a project outcome brief and a proposal for prospective follow up activities based on results of the case study and workshop discussions with key stake holders

Time Frame

Phase- I: June 2006- December 2006

Implementation

WWF-India *in collaboration with*

Institute of Economic Growth (IEG), Delhi.

(Project Coordinator at IEG: Dr. Vikram Dayal, vikday@idegindia.org)

Support: World Bank/ WWF Alliance for Forest Conservation and Sustainable Use.

For further details, please visit: www.wfindia.org

You may also contact Dr. T.R.Manoharan, Senior Coordinator (Forest Policy and Economics), WWF-India at tmanoharan@wfindia.net

WWF global work on PES are available at www.panda.org/mpo

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WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- Conserving the world's biodiversity
- Ensuring that the use of renewable natural resources is sustainable
- Promoting the reduction of pollution and wasteful consumption.