

Environmental Goods and Services for Poverty Alleviation: R&D Issues

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Abstract

Forests have a significant potential of alleviating poverty in the rural areas. The joint forest management (JFM), which is a focused approach to exploit this potential, has achieved only modest success in meeting this objective. This is because the JFM has been confined to NTFP, small timber and firewood that are either in the non-monetized sector of the economy or are restricted to raw material collection with little value addition thus restricting their contribution to income enhancement. There is a possibility of expanding the scope of JFM to include in its fold environmental goods and services like carbon sequestration, replacement of fossil fuel, biodiversity conservation, soil and water conservation and eco-tourism in addition to the conventional forestry products with the participants sharing the economic values attached to these goods and services that they help produce. This would require a whole range of research and development activities necessary to set up the necessary framework. Research is needed on tree selection and rotation, to place economic values on various grades of these goods and services, modes of transfer of economic values to the communities involved in JFM, its apportioning between the constituents of the communities and the commitments from the communities in return. Research is also needed for the development of best forestry practices for different bio-geographic zones and evolving appropriate working plan prescriptions to produce suitable combinations of the targeted environmental goods and services for optimizing economic returns in ecologically sustainable manner. The possibilities of linking these services to the international protocols in the field of conservation of natural resources, global warming, intellectual property rights and world trade have to be explored to take advantage of flow of technology and money from North to South as also ways of setting up equitable market systems for these goods and services.

Introduction

Poverty pervades the entire developing world and India alone has almost 200 million people living below the poverty line. The problem of poverty is a multidimensional web with a myriad of causes some of which are illiteracy, lack of resources, degradation of lands, poor infrastructure, dissipation of resources in non-productive activities, failure to channelize the human energies in appropriate directions, extreme corruption, wrongful appropriation of knowledge of the poor without adequate compensation and illegitimate profiting by traders and trading nations at the expense of the poor, to name just a few. There is internal synergy between these causes that imparts them further complexity.

Forests cover about one fifth of India's land mass and is the single largest land based resource that has the potential of reducing poverty of the people of this country and, indeed, it has supported the poor meet their basic requirements over the long and chequered history of the people of this country. But in the preceding few decades the capacity of the forests to cater to the poor has eroded. The reasons ascribed above to poverty in general also apply to the forestry situation. There is lack of understanding of the true role of forests in the well-being of the people, forests lands have become degraded on account of overuse and mismanagement, the investment in the sector has not kept pace with the removals and the few resources available to the forestry sector are often put to non-productive uses. Further, the knowledge of the people about the utility of the various components of forest ecosystems in their surrounds, particularly medicinal plants, remains largely untapped and there is illegitimate profiting by a few at the cost of most. And the human energies of the people most affected that, properly utilized, could have led to a revival of the sector, are dissipated in activities which only puts further stress into the system without achieving much

as is evident in the nature of some of the futile agitations and disturbances noticed in several parts of the country.

Joint Forest Management

About three decades back initial hesitant steps were first taken in India to address some of these problems and enhance the potential of forests in reducing poverty in the countryside by the involvement of the human energies and genius of the people living in the neighborhood of the forests. The Joint Forest Management (JFM) was indeed the first focused approach to address the issues of poverty and ecology in a synergistic manner. Over the years the JFM has evolved into a fairly mature forest management system with its own underlying principles and standardized practices.

There has been much deserved praise of the JFM in enhancing the reach of the poor to the forestry resource and it has doubtless provided relief in some areas to the very poor but there is indication that results are falling short of the expectations of the people leading to a falling interest in JFM. There is a realization that the income generation from many of the JFM areas may have already peaked. One reason for this is the limited product base of the JFM that is largely restricted to the fuel wood, non-timber forest products (NTFP) and small timber. Further a large part of the fuelwood and NTFP collected falls in the non-monetized part of the economy where barter, semi-barter and collection for self-consumption predominates. While there is much to commend in these market systems in physically isolated communities these systems tend to work to the disadvantage of the poor in places where the only isolation from the others is the isolation of poverty. The reason is that the prices of products traded in these systems do not keep pace with the general inflationary trends in the society and the relative prices of these goods remain depressed compared to the rising costs of other goods and services that the poor has to pay in the general market. The barter system also limits the price negotiating capacity of the poor thereby compounding his disadvantage.

Increasing value additions and market access:

Another reason for low-income accruals to the JFM participants is the meager value additions and poor market access that characterizes the forest based rural economy. Enhanced levels of value addition and better market access has good potential of bringing increased incomes and a lot of attention has been paid to this aspect in the preceding decade. But these efforts have had limited success for a variety of reasons one of which is that these activities can benefit only those who have the capacity for requisite skill acquisition and ingrained or acquired entrepreneurship abilities. This may keep a large part of the women and older poor outside reach, as many may not have the time, social permission or the physical ability to acquire skill and abilities. Another major cause is that of inability to create an enabling legal and policy environment in which the related processing industry accesses only the legally harvested and appropriately value added product from the JFM participants. Even where such laws and policies have been enunciated the implementation leaves much to be desired and unaccounted trade is the norm rather than exception.

Demand for expanding area base of JFM for increasing incomes:

Continued low levels of income accruals from JFM has led to demands for more forests lands being brought under the purview of the JFM communities in the hope that larger extent of forests lands would provide more resources to be shared. But there is a limitation on the extent of forests that can be transferred to the care of the individual JFM communities as it raises the possibilities of conflict between neighboring communities and also reduces the forests lands under the exclusive conservation areas. It is because the individual JFM community areas can be increased only by transferring forests from adjacent conservation zones or from those under the care of another JFM community.

Expanding the JFM base at the production level:

Incorporation of high value forest goods and services within JFM may provide a very significant enhancement in returns to the participating communities. These are carbon sequestration, raising bio-fuels to replace fossil fuels, water conservation, soil conservation, biodiversity conservation and aesthetics and

eco-tourism; but the JFM participants have not yet staked claim on these services produced by them. Their claims have been limited to the products that have been sold traditionally by the forest departments. Thus this semi-privatization of forest resources has brought no new innovation in the product range yet and it is perhaps time to think of these possibilities.

Carbon sequestration:

Forests role in carbon sequestration under the clean development mechanism (CDM) has major potential for income enhancement in JFM areas where lands are available for reforestation and afforestation, i.e., lands that were not forested as on 31.12.1989. Increased C-sequestration through appropriate forest management practices like protection and gap planting in an existing forest, however, does not qualify for financial benefit under CDM – a limitation at present which might be addressed at a later date by the UNFCCC. Till that happens the JFM lands eligible for carbon credits under the Kyoto Protocol would be only those that were not forested as on 31.12.1989. Since most lands under JFM in India do not qualify for this description Kyoto Protocol may not bring much benefit to the existing JFM areas. But it can make expansion of JFM activities to presently non-productive common lands possible and thus contribute to poverty alleviation.

Too high hopes over the CDM might, however, be misplaced particularly in the context of JFM where the issues of additionality and leakage prevention may bring burdens over the JFM communities that they are ill equipped to handle and may discourage them. The high transaction costs and the prevailing low prices of carbon credits also are not very encouraging.

Replacement of fossil fuels:

Replacement of fossil fuel by renewable energy sources qualifies for carbon credits under the CDM. Fuel wood is an excellent replacement for fossil fuels used in households and minor industries. JFM communities could grow firewood not only for themselves but also for sale and earn saleable carbon credits for fossil fuel replacement. This would also enable expansion of JFM into neighboring common lands as discussed above.

Water conservation:

Global fresh water consumption doubles every 20 years. There is thus a huge ever-increasing demand for fresh water and for quality drinking water. Forests in the watersheds greatly influence the local water cycle and improve water quality. Dry season water availability in forest streams and wells in the catchments near forests is considerably higher in well-forested watersheds. The increase in non-rainy season water availability and quality improvement due to afforestation of the watersheds is quantifiable. It should be possible for JFM participants to stake claim to the increase in water availability due to improved forests and negotiate for appropriate water prices from the down stream users for the additional waters.

Soil conservation:

Siltation of ponds and small water bodies is a serious problem for rural communities and governments spend large sums every year to desilt these. Regeneration and protection of watershed forests decreases soil erosion significantly. This decrease in soil erosion is quantifiable and economic benefits from reduced siltation can be calculated and transferred to the JFM communities responsible for creating these services.

Bio-diversity conservation:

The international community and most national governments are deeply concerned about the threat to bio-diversity of the earth. This concern is now being widely shared by the civil societies in general. This concern is exhibited in a number of international treaties and increased allocations for bio-diversity conservation in multilateral, bilateral and national projects. JFM zones, being in the area of human influence, are specially vulnerable to biodiversity losses. The JFM participants, with technical and financial

support, can ensure bio-diversity conservation in their areas of operation. Their impact on bio-diversity can be measured to a degree and they could be compensated for their efforts financially.

Aesthetics and eco-tourism

Forests enhance aesthetics and may result in increased tourist traffic flows to existing tourism destinations and may even create new destinations. Increased earnings could be quantified and shared in an appropriate manner with those responsible for creating these aesthetic values.

Developing markets:

These new goods and services require the creation of new markets as the existing markets either do not place value on these goods and services or discount them severely. New markets grow organically over long periods of time through errors and course corrections. This organic growth can also be speeded up by an appropriate research and development strategy to broaden the base of forest goods and services. Research is needed for optimization of production of these goods and services, measurement of goods and services delivered, economic valuation of these goods and services and determining the key players in the market. Research is also needed to make appropriate choices of forest species suitable for producing these new range of goods and services and maximizing their production at least cost. Another important area of research is on working plan prescriptions for managing forests to produce these results.

Production optimization:

Production optimization would require research to establish ecologically sound models for optimizing the product mix to give greatest economic satisfaction to the participating JFM communities for all bio-geographic zones and JFM sizes. With this sharp change in the expected outputs from JFM a fresh look at the appropriate choices of forest species would be needed along with ways of maximizing their production at least cost in JFM settings. Another important area of research would be to translate these research findings into working plan prescriptions to enable the JFM communities to manage forests to produce these results at least costs.

Measurements:

The methods of measurement of these goods and services available today are neither credible nor cost effective. Research is required to be undertaken for creating such credible and cost-effective measurement methods for carbon sequestered, increase in supply of water in dry seasons, decrease in soil wash with increased forest cover and for deciding the parameters indicative of bio-diversity conservation.

Economic valuation:

The JFM communities would be able to enter the market with greater confidence if they have access to data on the true economic values of the goods and services that they produce. There is a general lack of a wide base of knowledge for these products and, therefore, research on economic valuation of all these goods and services and their various combinations is an urgent requirement. Related to this, and perhaps even more important, is the field of research on the issues of leakage, additionality and rotation in relation to carbon sequestration and bio-diversity conservation

Legal & policy research:

In a normal situation of market development enabling policies and laws develop as a need of the society. However, to hasten the development of market for these goods and services it would be necessary to create an enabling environment to begin with. This calls for a thorough research in this field. Further in the case of these goods it would also be necessary to establish who, and to what extent, are the producers and to what extent they can demand payment for services rendered by them. Research would also be necessary to establish practices and benchmarks for fair negotiations between the producers and consumers.

Conclusions:

Poverty alleviation capacity of JFM would be significantly enhanced by expanding the product base of the JFM by incorporating in its fold the environmental goods and services like carbon sequestration, fossil fuel replacement, water conservation, soil conservation, biodiversity conservation, enhanced aesthetics. But the market for these new goods and services has to be developed through the tool of research as its organic growth would take too long a time. The R&D efforts must concentrate on the optimization of production of these goods and services, measurement of goods and services delivered, their economic valuation and establishing an enabling legal and policy framework for such a market to function and flourish.

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