

Chapter 6

Conclusion

The study proposes to establish a carbon market in India in which carbon credits of agroforestry origin are not only allowed to be traded but there is an earmarked quota for them in the emission offsets by the industries that have been assigned emission allowances. The study after presenting information on climate change, its projected impacts and the economic losses which models have predicted, gives an economist's perspective of climate change as global externality. Solutions to deal with the market failures arising out of externality have been analysed with respect to greenhouse gas emissions and a domestic carbon market for India has been conceptualized. A review of national carbon markets in other countries both existing as well as those on path of establishment has also been presented. With the main objectives behind the idea being the reduction of GHG emissions from the country and seizing the opportunities thrown open by the climate change mitigation and adaptation strategies; lowering of transaction cost, capacity building in abatement & carbon financing, carbon markets and flexibility in exercising policy options for addressing domestic priorities and environmental challenges are the main motives for creating a carbon market in India.

An estimate of potential carbon credits from agroforestry practice in India has also been generated as part of this study. The estimate indicates that agroforestry has the potential to reduce up to 3 % of India's GHG emission in a period of 5 to 7 years, apart from other co-benefits like higher income to the farmers, soil improvement and other environmental benefits. Economics of agroforestry practice with and without carbon

credits and analysis of impact of transaction cost on the returns from the agroforestry activity with benefits of carbon credits brings out following inputs for policy.

- (i) Considering diverse environmental, economic and social benefits from Agroforestry, a fixed quota to the carbon credits of agroforestry origin in the emission offset by the industries would not only sustain demand of the carbon credits of agroforestry origin in the proposed carbon market but will also ensure capital flow from the industries to the farmers a form of payment of ecosystem service (PES).
- (ii) Transaction cost is a critical factor in determining economic feasibility and wide participation in the carbon market. Creation of carbon credits from agroforestry would be economically viable only if transaction cost is kept low i.e. in the range of 5% to 10%.
- (iii) Gain from the carbon credits created from agroforestry would be significant and attractive enough for people to adopt the practice, only if the price of carbon credit is at least around Rs 2500 per unit. Carbon credits generated from other mitigation activities may be viable at a lesser price; therefore to sustain carbon credits of agroforestry minimum support price for it would be necessary.
- (iv) Carbon credits resulting from different mitigation or abatement activities are different in the economics of producing these carbon credits (cost—benefit analysis) and also in terms of co benefits which are associated with the activities. Rather, abatement or mitigation of one tonne of CO₂ is the only common attribute of them. Carbon credits arising from agroforestry or other forest related activities are believed to offer maximum ecological and social benefits and also serve as

adaptation measures. Because of this feature, carbon credits of forestry origin stand out and deserve special place in the carbon market.

Drawing inputs from the information gathered in the course of this study, using the analysis and by analyzing economics of the agroforestry models, a policy and execution framework for the proposed carbon market in India has been presented. Contours for the policy include

- Objectives of the Carbon Market
- Sectors and Industries to be covered for Emission Allowances
- Creation of Market Regulator
- Legal framework
- Minimising transaction cost
- Sectors and activities allowed for generating carbon credits and their apportioning
- Capacity Building
- Linking the concept of Payment of Ecosystem Service to the carbon market
- Coordination and Linkages with Other Institutions

Execution framework for the domestic carbon market is a follow up of the policy framework. Role of market regulating authority is of central importance in creating the domestic carbon market and then ensuring its successful functioning. Linkages and collaboration with the institutions in the related fields and capacity building in every area of carbon market will be the most crucial action in the execution of the carbon market for the country.

Agroforestry is the land based activity which can be extended to every part of the country. Agroforestry not only offers much higher returns from the agricultural fields but is also considered as an effective strategy for socio-economic and environmental improvement in rural environs, particularly for soil improvement. Since generating carbon credits by practice of agroforestry is a new concept in the context of rural India, awareness and extension activities should be important component in the execution frame work.

If agroforestry is combined with biomass based power generation, then there is additional gain of carbon credits from the activity. There are several other benefits of this model of decentralized power generation like additional source of income to the villagers, employment generation, better availability of electricity, much lesser transmission losses and environmental improvement.

It would be in the wider national interest to create a carbon market within the country which harnesses the benefits of carbon credits and emission trading for improving economy of the villages and along with this it also contributes towards better environment and agro-ecology in the country.