

Farm forestry

World's total forest area is 4.03 billion ha, corresponding to 31% of the total land area or an average of 0.6 ha of per capita, whereas India's forest and tree cover is 78.29 m ha which is only 23.81% of the geographical area is. We are incessantly putting efforts to achieve the national goal of 33% geographic area of the country under the forest and tree cover as enshrined in the National Forest Policy, 1988. India has only 2.4% of the world's geographical area and 0.5% of the world's grazing area but supports over 16% of the world's human population and over 18% of world's cattle population. This ever growing population places massive demands and pressures on the land resources and forest resources. Farm forestry is the potential alternative choice for increasing the tree cover outside the notified forest areas. Moreover, agroforestry is the only viable option to achieve the 33% tree or green cover as mentioned in the NFP (1988).

An area of 46.70 m ha has been estimated under wastelands which is 14.75% of the total geographical area of the country. The land degradation issue threatens country's food security and the quality of the environment which assumes a major significance nowadays. practices are considered as most vital technology and potential farming system for minimizing the land degradation. In the recent past it is valued as a commercial and profitable land-use system across the world. Approximately, 1.2 billion people (20% of the world's population) depend directly on farm forestry products and services in rural and urban areas of developing countries.

Contributions

Apart from the direct benefits to the farmers, it offers unquantifiable environmental services to the world. IPCC's prediction of temperature increase between 1.1° C and 6.2° C by the end of the century due to excessive carbon dioxide emission will most likely create extreme changes in temperature and precipitation. In the last decade emphasis has been on the role that Agroforestry System can play in adaptation to climate change, and mitigation of greenhouse gas emissions through fixation of atmospheric carbon. In India, average sequestration potential in agroforestry has been estimated to be 25tC ha⁻¹ over 96 million ha. The role of trees outside forests in carbon balance has been considered only recently, reporting that trees outside forests in India store about 934 Tg C or 4 Mg C ha⁻¹, in addition, to the forests.

Value chain in Farm forestry

value chain (also known as market, supply or commodity chain or production to consumption system) concerns the activities involved in bringing a agroforestry products through processing and production to delivery to final consumers and ultimately disposal which is involving activities such as harvesting, cleaning, transport, design, processing, production, transformation, packaging, marketing, distribution and support services.

Farm forestry and the forest based industries can therefore play an important role in shifting India towards an innovative, resource efficient and bio-based economy. Most of the agroforestry practices are knowledge intensive and require strong commitment of the land owner (farmers'). Right incentives would enable a wider application of these practices. Ensuring quality and quantity of products is still a challenge.

In the agroforestry value chain, the roles and responsibilities of various institutions (research institutions, bankers, wood based industries, farmers, etc.) are dealt clearly to achieve the objectives. The main objective of the value chain in agroforestry is that, research institutions will provide the quality planting materials (high yielding clones/varieties) with package of practices to the users especially to the farmers.

The goal and objectives of the value chain in agroforestry are networking and establishing linkages with all stakeholders to augment the production to consumption system, promoting effective collaboration among public agencies, private industries and organizations engaged in industrial agroforestry, developing suitable research and development (R&D) mechanism for industrial agroforestry in consultation with the value chain partners, ensuring self-reliance in raw material supply and augment associated socio-economic and environmental issues and Formulating and recommending policy guidelines for promotion of agroforestry among farmers'.

Unlike agriculture and horticulture, there has been a lack of price supportive mechanism for farm-grown trees. Till the recent past, wood-based industries seldom indicated the price of wood (species-wise), and hence tree-growing farmers were not aware of the pricing pattern for wood growing in their farmlands. This value chain approach will provide the wood price for various industrial wood species has been fixed (minimum support price) based on mutual consultations, besides taking a cue from the prevailing local wood market prices.

Financial institutions will support the farmers' based on their economically viable bankable projects and will support the farmers' by providing mechanism for tree insurance. This insurance scheme provides the farmers, tree growers and captive plantation owners with the much needed relief against the risks/losses faced by them due to biotic and abiotic factors.

Moreover, the value chain will provide organized agroforestry plantation developers, harvesting and marketing information, marketing of agroforestry products, development of price supportive mechanism, value addition technologies, creation of agroforestry data base, research initiatives, etc.

The human population using the fuelwood as main source of cooking is 854 million.

The total Growing stock of trees outside forests (ToF) used for Timber in India is 1548 million cum and the annual potential production of timber from these are 42.774million cum. The total production of timber from Recorded forests for the period 2005-10 is 237.57 million cum.

Today, most of the timber is produced outside our forests and post 2004 import of wood and wood products shot up as it was cheaper and as the import norms were eased. In 2006, India imported wood worth 2.75 billion USD, exports growing at 12 percent per annum. However, this increased by 2.75 times by 2017 where the total value import of wood into India was estimated to be 7.57 Billion USD. The trade imbalance in wood imports (all forms including round wood) in 2017 as per World bank (WITS website) was 5.562 billion USD.

There are clear evidence today about the impact of India's growing wood imports on extinction of primary forest and its biodiversity in many parts of the world especially South East Asia (Cambodia, Laos, Indonesia, Malaysia, Myanmar) and also in other countries including PNG, Brazil, Columbia, Peru etc.