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SOCIAL FORESTRY IN THE PUNJAB
NEED, CONCEPT AND RECOMMENDATIONS

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Introduction

A vast majority of population in the Third World countries is faced with varying degrees of fuelwood scarcity. According to FAO estimates nearly 1000 million people in the developing countries live in situation of acute scarcity of fuelwood. This has resulted, in a much wider area, the current rate of felling trees exceeding than replanting. With growth in population, the pressure on forest resource is mounting and as a consequence, the resource is depleting itself. The indiscriminate felling of trees for fuelwood is also accelerating the process of erosion leading to siltation of dams and frequent onset of floods. The scarcity of fuelwood is also leading to the use of substitutes such as cow-dung and agricultural residues — a practice which reduces the much needed fertilizer for crop production. It has been estimated that if the present trends are allowed to go unchecked, some 2000 million people will be faced with extreme scarcity of fuelwood by the turn of the century.

In Pakistan the situation is equally bad if not worse and there is virtually wood famine in the country. In spite of our limited wood resources, 50% of domestic energy requirements are met by fuelwood. It is further estimated that an other 16% are met by fossil fuels and the remaining 34% by dung and crop residues. It would not be out of place to mention that at present our households use kerosene oil worth 2.4 billion rupees annually of which two-third is imported.

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Prices of constructional timber and fuelwood have registered an alarming increase during the last few years. The country's 94.64 million people are going to be more than 150 million by the turn of the century. Their current annual demand of fuelwood of 19 million m³ would also increase with the same rate, if not faster due to better standard of living, higher literacy rates, etc. to 42 million m³ in the year 2000. We are spending over Rs.1300 million on the import of timber and timber products.

One possibility to bridge this gap between supply and demand could be to put more area under state forests. For the time being it seems rather difficult because of paramount claim of agriculture on land and also the attendant financial constraints. Even if in view of the promised self-sufficiency in food more land is made available to expand the almost static forests base and 20,000 ha. are planted annually, it would take about 100 years to increase the forest area by another 2.5 percent.

Another possibility could be to intensify the forest management practices for better yields per unit of area but that would also require heavy inputs. It is quite apparent that it would never be possible for the Government to spare requisite funds for this and Forestry Services would, therefore, never be able to cope up with this demand, because the forest resource is very limited.

Considering all these facts, the only practical solution seems to be that trees are planted on farmers' lands and also other wastelands belonging to the Government, fully involving the people in the programme - Social Forestry, i.e.

Extending tree cover to
non-forestry areas

Cultivated land
Sub marginal farmland/saline area
Village Shamlots, woodlots
Culturable waste land.

The terms used for various programmes of extending tree cover to non-forestry areas, used rather loosely in our subcontinent are: Social forestry, Farm forestry, Agro-forestry, Community forestry, Environmental forestry, Tree farming, Forest farming, Village woodlots, Small scale forestry, Energy plantations, three dimensional forestry (Conservation, tree crops and livestock), forestry for 4/F (fuel, forage, fodder, fertilizer), etc. These terms are defined below to clear the concept of social forestry.

Social Forestry

The science and art of growing trees and/or other vegetation on all land-available for the purpose, in and outside traditional forest areas and managing the existing forest with intimate involvement of people and more or less integrated with other operations resulting in balanced and complementary land use with a view to provide a wide range of goods and services to the individuals as well as to the society.

Social forestry is a concept - programme and mission (management objective) which aims at ensuring/providing ecological, economic and social security to the people particularly to the rural masses, more so to those who live below the poverty line, particularly by involving the beneficiaries right from the planting stage to the harvesting stage but not only as wage earners. It envisages use of community lands, individual holdings and other public lands, denuded/degraded lands for producing what the dependent communities need and for environmental purposes. It aims at mixed production systems of wood, fibre, fodder, grasses, fruits and other raw material for self-consumption and cottage industry and if surplus for sale. Here Government

control is minimal though financial and technical support is assured. The profits that accrue after meeting the local demands are to be shared between Government and the people.

Components of Social Forestry

Social Forestry is a generic term and may involve the stimulation and development of the following specific activities:

i. Community forestry in which the planting, establishment, management, harvesting and marketing of forests, trees and their products are carried out either by the rural community members themselves or by a state Forestry Service on their behalf, with the proceeds going to benefit the community rather than individual land owners (encouraged by training, extension programme, demonstrations and incentives) plant trees in farm woodlots, contour or boundary lines, or inter-mixed with agricultural crops.

ii. Farm Forestry has been defined as the practice of forestry on farm land, it may or may not be integrated with other farm operations. It includes the growing of scattered trees on the margins of cultivated land and also small patches of forest in wastelands generally unsuitable for agricultural crops. Shelterbelts and windbreaks also come within the domain of farm forestry. The definition of farm forestry is relatively broad in order to encompass the wide spectrum of forestry practised by small farmers in different countries of the developing world.

iii. Extension forestry is also included in social forestry and refers most commonly to the planting of trees on the sides of roads, railways and canals.

iv. Recreation and amenity forestry refer to the creation and maintenance of trees and forests for specialized recreational use or improvement of local amenity. Their value is difficult to quantify and they are more common in more developed economies where they have clear social benefits.

v. Rehabilitation forests concerns degraded forests and soils and it may have both direct productive benefits and indirect social benefits (e.g. releasing more land for agriculture, renewing supplies for local industry, improving dry season grazing, reducing soil loss, etc.).

Social forestry refers to all professional forestry activities that aim specifically at the participation of local people in forest management and at the fulfilment of the forest-related needs and aspirations of these people.

It is a generic term and may involve the stimulation and development of the following specific activities:

Participatory forestry: Prime responsibility for management still rests with forestry professionals.

Village forestry - relates to small scale management of forests and tree resources practised by non-professionally trained people, either on private or public forest land. Professional foresters may have an advisory role but not an executery one.

Communal & community forestry - a form of village forestry in which forestry management practices are carried out as a communal effort.

Farmer's forestry - relates to a form of village forestry in which the management of tree resources is the responsibility of private farmers.

Agroforestry

Agroforestry is generally taken to be synonymous with either social forestry or farm forestry. Agroforestry is only one set of land management systems; parallel with pure agricultural or pure silvicultural systems according to whether it is appropriate or in-appropriate to local environmental and social conditions and it may or may not be used in social forestry. It is one of the means to achieve the objective of Social Forestry.

Agroforestry is defined as a collective term for system of land management and technologies, where woody perennials are deliberately used on the same land management unit as agriculture crops and/or animals, either in some form of spatial arrangement or temporal sequence. In Agroforestry systems there are both ecological and economical interactions between the different components.

A strictly scientific definition of agroforestry should stress two characteristics common to all forms of Agroforestry and separating them from other forms of land use, namely: (i) the deliberate growing of woody perennials on the same unit of land as agricultural crop and/or animals, either in some form of spatial mixture or in sequence. (ii) There must be a significant interaction (positive and/or negative) between the woody and non-woody components of the system, either ecological and/or economical.

Agroforestry is a socially, culturally and ecologically acceptable, integrated form of land use involving trees that improves or does not degrade the soil and permits increased and sustained production of plant and animal produce including wood. It is a promising approach to reconcile the production

of more food, and the prevention of economic degradation. It aims directly at social development in rural areas, applying self-help strategies.

Agroforestry covers a variety of land use systems combining with agriculture or range management on the same land.

Agroforestry should be a generic term that embraces the following specific components:

- i. Agrisilviculture: Agri:Crops + Forest Crops
- ii. Silvopastoral : Forest for wood + domesticated animals
- iii. Agrosilvopastoral: Agri + Forest + Domesticated animals
- iv. Multipurpose forest tree production system: forest tree species regenerated and managed to produce wood, leaves and/or fruit for food and/or fodder.

Agroforestry is an interdisciplinary approach to systems of land use. It requires knowledge of the agriculture, forestry, environment and people. As Forest is something-else than an agglomeration of individual trees; human being is more than the added weights or values of his chemical components; likewise Agroforestry is different from the sum of its two major components, agriculture and forestry which form the "Agroforestry Systems".

Although much is known about the components individually, relatively little is known about the interaction between them apart from largely empirical observations. It requires new management practices and technologies which understand the complex

interactions of the various components of the system.
 Various components:

- Land
- Environment
- Agricultural component
- Forestry component
- Management strategy

The aim of most Agroforestry systems is to optimize the positive interactions in order to obtain a higher total, a more diversified and/or a more sustainable production from the available resources than is possible with other forms of land use under prevailing ecological, technological and socio-economic conditions.

Ecological aspect: It combines the protection characteristics of forestry with the production attitudes of both forestry and agriculture. It conserves and produces.

Economic aspect: Agroforestry appears as an interesting contribution to solve the food crisis as well as the energy crises. It creates employment, and occupy local underused labour.

Success of Agroforestry depends mostly on the choice of suitable species of economic plants that can be grown together. Points to be considered for selection of species are: germplasm, propagation, planting out, juvenile phase of growth, mature growth and renascence and replanting - all in relation to technical, managerial and socio-economic considerations.

vi. Distribution of plants

vii. Incentives - Prices

Partial aid for woodlots

Subsidized prices of planting stock

Tax plants for selling wood

Agroforestry aims at solving problems of rural development by:

- . Increasing and improving the yields of food production.
- . Safeguarding local energy supply.
- . Production of timber and a variety of other raw-material for the farmers subsistence, for industrial use and if applicable, exports.
- . Protection and improvement of the production potential of a given site and environment; increasing the human-ecological carrying capacity.
- . Safe-guarding sustainability through appropriate intensification of land use.
- . Improving social and economic conditions in rural areas by creation of jobs and income and reduction of risks.
- . Development of land use systems which make optimal use of modern technologies and traditional local experience and which are compatible with the cultural and social life of the people concerned.

Benchmark position: Following measures are already being taken to expand Social Forestry/Agroforestry in the province:

- i. Growing of woodlots
- ii. Raising windbreaks and shelterbelts
- iii. Planting linear plantations
- iv. Growing scattered trees
- v. Afforestation of marginal private land
- vi. Distribution of plants
- vii. Incentives - Prizes
 - Partial aid for woodlots
 - Subsidized price of planting stock
 - Tree plants for saline areas

viii. Publicity measures:

- Through Radio
- Through Television
- Through Cinema Slides
- Slogans for tree plantation
- Newspapers
- Exhibition and Fairs
- Publicity material
- Sale points
- Essay writing competition

RECOMMENDATIONS

- Social forestry/Agroforestry should be implemented on a massive scale in the country to prevent the situation from getting into a more serious proportion.
- Government should extend the necessary support like provision of subsidies, relief in water rates and land revenue or provision of an all-year-round supply of planting stock for sale at nominal rates.
- Rewards should be awarded to farmers who successfully raise tree plantations on their lands.
- A separate well-organized and well-equipped forestry extension service be created within the Forest Department.
- Provision of appropriate inservice training to the staff employed on Forestry Extension Service within and outside the country.
- Appropriate incentives and subsidies be provided.
- A policy decision should be evolved to promote establishment of more wood-based cottage industries to utilize the wood produced from private farms.

- Growing of multipurpose tree species at U.C.level.
- A multi-disciplinary study be conducted that leads to a more rational land use planning.
- Forestry be included as one of the subjects in the text-books of schools upto secondary level, to create awareness and appreciation of the role of trees and forests in ameliorating the environment and to emphasize on the complementarity between forestry and agriculture.
- Village shamlot lands be managed with a multiplicity of objectives such as for fuel, fodder and for grazing.
- Marketing arrangements be made to assure a fair return to tree growers.
- Forestry education institutions should take up teaching of Social Forestry to change the role of Forest officers from guardians of forest resources to agents of development.
- A network of demonstration plots be established on farmers' lands and maintained by Government for three years and then by the owner.
- Incentives be provided to Social Forestry staff.
- A considerable new effort be directed in Agroforestry research to find out:
 - Right combination of agricultural and tree crops to be grown on the same piece of land.
 - Effect of various spacings, thinning and pruning regimes on the tree form; growth rate and on yield of agricultural crops and vice versa.
 - Assessment of the effect of reduced light on the quantity and composition of agricultural crops.

- Effect of different tree species on agricultural yields; and
 - Behaviour of fast-growing, multipurpose trees on the farm lands.
 - The extent of crown and root competition with agricultural crops.
 - Evaluation of shade-tolerant pasture species.
- Existing Agroforestry systems should be studied and identified and analysed in different ecological zones, these be improved and/or new Agroforestry systems be designed.