CHAPTER - I

INTRODUCTION
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Much of that by which man lives oozes out of land. And much of the material abundance of the developed countries is due to the past support and current contributions of agriculture. Since the time, some ten thousand years ago, when man settled in a civilised life with family and tilling of soils and tending of domestic animals began, agriculture has been providing much of the contents of welfare, economic and non-economic. Hence, land resources constitute the fundamental base for all human activities. It is a most important natural resource of a country like India where agriculture sector is relatively more prominent than the manufacturing sector. The way and the extent to which the land is utilised sets the pace of a country's economic development. Therefore, proper utilisation of land is a must as it not only important for production of food grains for the ever increasing population but also for maintaining the sustainable ecosystem both for the plant and animals. There is no way out except that of using land in best possible way to allow survival of life on the earth.

Indian agriculture had made spectacular progress in the last few years and significant increase has been achieved especially in sugarcane, cotton, oilseed and cereals. Indian
agriculture is no longer a gamble in the monsoon as was oft-quoted
obiter dicta before independence. The successive five year
plans have given agriculture a pride of place in the national
economy. Agriculture in India provides livelihood to 58 crores
against 29 crores in 1950-51, contributes about 30 per cent to
the gross domestic product and accounts for over 10 per cent
share in exports (Kaul, 1990).

Inspite of rapid growth in agriculture, India may face
a food crisis reminiscent of the 1960 if annual production of
food grains is not stepped upto 300 million tonnes by the turn
of this century. The food grain requirements of the country
would be around 290 million tonnes by 2000 A.D. The target
for food grain production in 1994-95 is fixed at 210 million
tonnes which marks only a marginal increase over the current
production of 180 million tonnes (Joshi, 1992). Also while population
growth in the country has not been showing any sign of
deceleration, the growth of agricultural production has been
showing signs of diminishing marginal return. The cumulative
result of both these trends may be disastrous for the future
economy.

A study by the World Bank on the population growth
in India says that if the country succeeds in universalising
the two children family norm by 2000 A.D., the growth of population
of the country would stop at 150 crores. In case it is delayed
by another 10 years, the growth of population would stabilise
only at an astronomical level of 300 crores, leading to mass
starvation (Joshi, 1992). The ever increasing population growth is not only detrimental to the prospect of the nation but also contributes decisively to the rolling back of forests in India. To meet the requirement of such a vast population the shortcut method cannot achieve permanent gains if the continuous deterioration of environment is not checked. High yielding varieties, fertilizers, irrigation and cultural practices play important role in agricultural production, but a favourable micro-climate is necessary to derive full benefits from these package of practices. The achievements of green revolution have so far been limited to food crops and that to a limited extent. Real green revolution could have been a reality only when it satisfied the multiple needs of rural community and would have been based on a stable ecosystem.

Soil is the most valuable and limited natural resource. The prosperity of a nation depends upon the rational and proper use of this scarce resource, as it nourishes plants which supply food, fuel, fibre, fodder, medicine to animal and human beings. Soil is a bank and nutrients balance sheet. The cultivated area in our country is very limited while population growth is very high. Population pressure on natural resource is increasing the world over, especially in the under developed and developing countries. India's population is expected to touch 100 crores by 2000 A.D., cattle population of our country which stood at 382 million in 1980 will increase to 448 million by 2000 A.D. The requirement for this vast human and animal population
for fuel, fodder, small timber as well as raw materials for various agro and forest based industries are surely to rise. Under the present circumstances, it is high time to plan integrated farming system. Now a days more emphasis is being given on system approach. Besides intercropping, double cropping etc. to increase the cropping intensity in dry land agriculture, efforts are being made for alternate land use under various situations in the country. This would not only increase employment potential in rural India, but also increase production and productivity in dry land agriculture. It would also give stability to income of the farmers.

The traditional land use pattern in India satisfied the requirement of the village folks including fuel, fodder and timber and maintained the ecological balance of soil, water and vegetation. The first round of land reforms in early fifties, while breaking up the old management structure, did not, however, set in motion a self sustaining mechanism. The interregnum witnessed encroachment of common land in villages. The demand on small forest produce casts its shadow on forests and their fast depletion. This not only adversely affected the life style of the economically vulnerable people dependent on forest produce, but also the ecology of the region.

Trees and plants are very closely associated with human life from the very dawn of civilisation. Throughout the world, at one period or another in its history, it has been the practice to cultivate tree species and agricultural crops in intimate
combination. Of the entire gamut of interdependent physical organic factors that constitute the environment, forests occupy the most important ecological niche. Forests which are the end product of natural plant successions, are the single largest sustenance factor in earth's environment.

Apart from their unique environmental role, forests also have an important commercial role. They are the store houses of raw materials that go into meeting the material needs of the human population. An entire range of necessary resource like fuel, fodder and timber can be traced back to forests. The Central Board of Forestry at its meeting in Dec. 87, inaugurated by the Prime Minister resolved that the extraction of wood from forests would be stopped and the country's need for timber and fuel wood, be met by importing wood and through farm forestry (Rai, 1988). The other significant resolution was that in reduction in state revenue as a result of stopping forestry operation would be compensated- the quantum of compensation to be worked out by the Eighth Finance Commission.

With the annual soil loss of 6000 million tonnes, floods affecting 9 million ha. and drought progressively affecting larger areas, "its a small price to pay for ecological security (Rai, 1988)". Advanced countries like Japan have substantially reduced the production from their forests and have gone in for large scale imports of timber, coal and oil. This is the first time that the Ministry has come out with such concrete proposal for stopping
any further loss in tree cover. In the words of the then Prime Minister Sri Rajiv Gandhi, continued deforestation has brought us face to face with an impending ecological and socioeconomic crisis and the trend has to be checked.

The gross revenue of states from forests in 1984-85 was Rs.823.23 crores. In the same period the expenditure on forests was Rs.609.77 crores. It is estimated that about 9 million cubic meters of timber and industrial wood valued at Rs.700 crores will have to be imported to meet the needs of timber in the country. Another major cause of forest degradation was the people living around the forests who have been systematically lopping off branches for fuel wood for themselves as well as for sale. To conserve fuel wood resources, arrangements have to be made to supply nearly 125 million tonnes of fire wood equivalent in the form of alternative fuel through the public distribution system. The expenditure on this scarce alone is put at Rs.4000 crores annually. The planting of 5 million hectare per year would mean an additional expenditure of Rs.2500 crores.

Arguing strongly for importing fuel wood and timber, it has been pointed out that India has only 0.1 ha of forest area per capita while the world average is 1 hectare. By the turn of this century this is expected to go down to 0.07 ha (Rai, 1988). This will be further reduced if the pressure on forests for timber, fuel wood and grazing continue at the present rate. As per the recent satellite data the forest cover in India is 13 per cent spreading over an area of 40 million hectare instead of the recommended coverage of one third of the total land area.
At present there is a short fall of over 10 million tonnes of fuel wood, about 6 M m³ timber and 400 MT of fodder. The resultant pressure has yielded in removal of forest produce beyond the carrying capacity of the forests. About 73 M tonnes of animal cowdung is used as fuel, depleting the soil of valuable nutrients. If this dung were not converted to fuel cakes, the enriched soil would produce 14-15 M tonne of additional food grain. The loss of 6000 M tonne of top soil results in another 5-8 M tonne of nutrient loss. Recent satellite data has shown that forest cover is declining at a faster pace.

In the recent past, deforestation coupled with short duration period of agricultural cycle or frequent disturbances by removal of timber and pulping material has caused marked deterioration in soil fertility and stability of the ecosystem. Apart from its detrimental effect on soil quality, hydrological cycles and depletion of native germplasm, the conversion of forests into lands intensively used for crops caused a number of other environmental disturbances. Under intensive agriculture a pronounced deficiency of micronutrients has been noticed. Heavy nitrogen inputs to compensate the soil fertility has caused potential environmental hazards due to movement of nitrate from soil into water bodies and causing utrophication, other hazards include presence of nitrate in drinking water consumed by man and livestock and its occurrence in high concentration in feed and food plants and alleged effect of nitrate on the integrity of nitrogen cycle of the biosphere. Intensively irrigated lands offer potentialities for farm forestry. But the poor response of the farmers towards tree planting on farm lands has been due to the fact that the
benefits were enumerated qualitatively. Economic bias to the entire programme of social forestry has been lacking. Social forestry production system has a direct bearing on agricultural production as it is nothing but multiple land use for maximisation of production for the diverse requirements of the rural communities. Developed countries like USA and USSR have demonstrated that agril. production can be increased to the extent of 20 per cent by using wind breaks through agroforestry. Increase in fuelwood will release cowdung to be used as manure in the fields which in turn will increase agril. production. Irrigation channels passing through sand-dunes can be maintained functional if plants are raised along such channels. Apart from maintaining an ecological balance, social forestry programme according to an estimate can increase the G.N.P of the country by Rs. 10,000 crores, provide employment of 20 million people and if seriously practised for 20 year can vanish poverty for ever.

The environmentalists have been stridently calling for a complete closure of all our reserve forests even for nistar and their suggestion is that social forestry production system is the only component which holds the key to the maintenance of agril. production system and forest production system. With the low land to human ratio in our country it must be appreciated that social forestry does not always demand separate allocations of land. It represents largely on overlapping and multiple use of land. This consideration formed the basis for conceptualisation of the present study. Therefore, it was decided as per the
need of the time, to undertake the present study to investigate into the present farming system adopted by the farmers in social forestry implemented areas in Orissa with an aim of finding scope for inclusion of social forestry to increase the socio-economic status of farm families in general and the following objectives in particular.

OBJECTIVES

1. To study and analyse the existing farming system in social forestry implemented areas of the state with identification of constraints for a change in farming system.

2. To study the sources and factors of motivation leading to acceptance of social forestry for a sustainable ecosystem.

3. To measure the awareness of farmers about the outcome of social forestry for a sustainable ecosystem.

4. To examine the extent of successfulness/failure of social forestry programme by the farmers along with the factors associated with implementation of social forestry programme.

5. To determine the role of extension agencies in promoting social forestry as one of the component in farming system.

6. To formulate a strategy based on the out-come of the study to promote social forestry programme in general and in the area of study in particular.
IMPLICATION OF THE STUDY

The findings of the investigation would provide an overall picture of agriculture as well as social forestry status of the state. Besides this, it would enlight knowledge, attitude and perception about the social forestry programme of the grass root level workers of the social forestry project. The findings would aid in determining constraints in inclusion of social forestry as a permanent feature in the present farming system to meet the many fold needs of the farm families as well as for maintaining a sustainable ecosystem. Because, to derive the full benefit from various inputs of agriculture a microclimate or microecosystem is essentially required. This will be helpful for carrying out the need based research to develop effective strategy for covering of waste and uncultivated land of the state under plantation programme for maintaining a sustainable ecosystem. Further the results can be utilised to plan and execute the programme for solving the fuel wood as well as unemployment problems of the rural mass in the state. The findings would further highlight the factors and sources of motivation under which the farmers feel tempted to adopt the plantation programme and the economic benefit they derive out of it. It would also help extension officers of forest and agriculture department along with the N.G.Os in identifying respective clients for implementation of social forestry programme both for meeting the various needs of the farmers as well as maintaining the desired ecosystem or environment. In short, the study may be of great value not only to extension workers but also to social scientists, administrators, planners and policy makers those who deal with Social Forestry programme.
LIMITATIONS OF THE STUDY

Although utmost care has been taken for conducting the study, as per objectives, still it suffers from some of the following limitations.

1. The study has been conducted in three districts and mostly in non-irrigated areas. Hence, the recommendation and strategy developed in the study may not be equally applicable for all the regions of the state.

2. The study is based on verbal opinion of the respondents coupled with official data. The official data being average in nature, the results may not be able to find implications to full extent, but certainly it would aid in drawing general and valid conclusions.

ORGANISATION OF THE THESIS

The study has been presented in seven chapters. The first chapter deals with "Introduction" which highlights the problems, need, objectives, implication and limitations of the study.

The second chapter gives the relevant "Reviews" on earlier findings on the subject.

The third chapter is devoted to "social forestry in Orissa a critical analysis" in view of its importance for inclusion in our present farming system to meet the multidimensional requirements of the farming community.
The fourth chapter presents "Setting" which describes the physiography, the demography, socio-economic infrastructure and other resources of the state in general and research area in particular.

"Research methodology" has been presented in the fifth chapter. This chapter comprises locale of the study sampling procedure, tools and techniques of data collection, operationalisation of various terms and concepts and their measurement procedure along with the statistical analysis.

The findings and discussion have been presented in the sixth chapter. This chapter is divided into sub sections to deal with each objective separately.

The last chapter deals with summary and conclusion.