

**SOCIAL ECONOMIC AND ECOLOGICAL IMPACT
OF
SOCIAL FORESTRY IN KOLAR**

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ACKNOWLEDGEMENT

We are grateful to the Indian Institute of Management, Bangalore, for providing funds for this project. We are also grateful to the Vice-chancellor of the North-Eastern Hill University, Shillong for deputing one of us (HCS) during the Winter vacation of 1980-81 and Summer vacation of 1981 for participating in the fieldwork and writing this report respectively. We are thankful to the Karnataka Forest Department for their excellent cooperation and for allowing access to a copy of the World Bank Project on Social Forestry. We share with the officers of the Forest Department their concern for rebuilding the forest wealth. Critical comments on the plans and programmes of Social Forestry emanates from our shared concern and if we differ in our analysis of the plans and programmes it is due to a difference on the concept of development endowed to us by training. We hope that the diversity in the points of view will synthesise into a more comprehensive strategy for a genuine forestry for the people.

Sri S.T. Somashekhara Reddy, our colleague in the Indian Institute of Management, Bangalore, has been very helpful in clearing many doubts and questions about the rural situation in Karnataka. Dr. B.V. Krishnamurthy has helped us with his vast experience as a reputed economist as well as a practicing farmer. His comments at the draft stages of this report are acknowledged with gratitude. Mr. G.S. Shekar had been very helpful in completing the fieldwork quickly. Mr. Ram Steeves provided shelter during our work in Bagepalli.

The patient secretarial help and neat typing of Mr. DCA Kanicka Raj made the timely completion of this report possible.

IIM - Bangalore
August 1, 1981

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ABSTRACT

The rapid stride of deforestation in India has led to a great number of problems. At the macro level the resulting accentuation of floods and droughts have led to uncertainties about the level of agricultural production. At the micro level the loss of forest cover has made the satisfaction of basic requirements of forest products of the rural people, like fuel, fodder etc., have become more and more difficult. To provide the rural people with these requirements and to improve the rural eco-system social-forestry programmes have been launched by many state governments in India. The present study analyses the social, economic and ecological impact of social forestry practiced so far in the district of Kolar in the state of Karnataka. It also extends the analysis to the futurological study of a larger social forestry project to be launched in Karnataka in the coming five years with financial help of the World Bank.

It has been observed from the present study that the social forestry in Kolar district, as practised so far, has been lacking in the organisational and economic preconditions for the satisfaction of the basic needs of forest requirements of the rural people to be met by the increased tree cover. It has, however, been highly successful in motivating individual farmers to participate in the farm forestry component of the programme. In this process a substantial amount of new forest cover has emerged at the cost of foodcrop cultivation. The implications of this shift in land use is found to worsen the condition of the landless agricultural labourers as well as the marginal farmers, both in terms of employment opportunities and the availability of food, fodder, fuel and other essential forest produces. The incomes of large and medium farmers have, however gone up. The proposed World Bank aided programme, as an extension of current practises, is expected to accentuate these impacts in the coming few years.

Please note that the numbers in the text refer to the references at the back of this document.

4. HISTORICAL EVOLUTION OF THE LAND USE PATTERN AND THE QUESTION OF COMMUNITY PARTICIPATION

Kolar, like other predominantly rainfed agricultural areas in the region has been undergoing rather drastic shifts in land utilization in the recent past. The traditional pattern which had stabilised over centuries has given way to new policies and programmes for the development of agricultural land. In the absence of a substantial surface irrigation system based on rivers and streams, Kolar district has had a well developed irrigation system using tanks and underground resources mainly for the cultivation of paddy. The major rainfed crops in the region have been Ragi (Eleusine coracana) and Jola (Jowar – Sorghum vulgare) which are also the staple food of the local population. These are planted with a mixed cropping of pulses like togari (red gram - Cajanus indicus), avare (broad bean - Dolichos lablab) and alasande (Cowpea - Vigna catjang etc. In rotation with Ragi and Jola are grown other pulses and oilseeds like huruli (horsegram - Dolichos biflorus), kadale (chana - Cicer arietinum), Atchellu (gingily - Sesamum indicum), hutchellu (niger - Quizotica abyssinica), nela kadle (groundnut - Arachi hypogoha) etc.¹⁴

Providing inputs to these agricultural crops as well as satisfying other basic needs of village communities were a series of carefully chosen multipurpose farm trees. Some of these were on privately owned land either along field bunds or on the fields. The latter choice was based on enhancing and not obstructing crop production. Besides the privately owned farm trees were the communally owned trees of the village canmons and trees along roadsides. All the trees chosen were among those that were both natural and usefulⁱ to the habitat and provided a sustainable base for fuel, fodder, fruit, oil, medicine, structural timber etc., over and above playing a significant role in maintaining soil fertility, preventing soil erosion and conserving underground and surface water resources. Besides the use of land for agricultural crops and farm trees, land was also kept aside for grazing as a community facility, called gomal lands.

The maintenance of traditional community resources in the form of pastures or farm forests was not excluded by the existence of socio-economic inequality in the rural society. Inequalities have usually been assumed to negate the possibility of community ownership, participation and control. Thus Eckholm points out that:

“perhaps the greatest impediments of all to community forestry are the local social and economic institutions that, in many poor countries, perpetuate the rigid stratification of social classes and the severe exploitation of those at the bottom. Community forestry is not a technology; it is a process of social change that requires the continuous participation of whole communities in planning and problem-solving. It requires people to shift from an individualistic to a cooperative state of mind in spheres of life

ⁱ This word is not legible in the original text

where communalism had not usually been the norm, at least in recent history. People must willingly give up land-use practices and privileges to which they have long been accustomed. Such a process of cooperative behavioral change, never easy to bring about anyway, is especially unlikely where grossly unequal land tenure and marketing systems ensure that a powerful minority will capture nearly all the benefits of any economic gains.”¹⁵

This assumption that community action in principle is excluded wherever inequalities exist, however, negates the historical existence of commonly shared resources. Village commons have been a historical reality in India. Relics of village woodlots or roadside plantations can still be easily found. In the social organisation of villages in a traditional setting, private and unequal land-holdings could exist simultaneously with common and equally shared resources. Thus while individual motives might guide a landlord's use of his own land, the utilization of common resources even for him would be guided by community norms. This was possible for two reasons. The first is rooted in the nature of community organisation. A community is basically a social organisation based on commonly accepted norms and values which provide the organising principles and control mechanisms for its members. A shared resource can be managed through community organization by the implicit acceptance on the part of all the members of a commonly shared norm for resource utilization. Even while subscribing to one set of norms in the context of commonly owned resources, it is possible for members of a village to subscribe to individualistic class dominated norms in the context of privately owned resources. The second reason why commons could be maintained in spite of socio-economic inequality arose from the self-sufficient nature of the village economy. This self-sufficiency, in turn, prevented the actions guided by individualistic criteria from undermining community action. Thus, for example, in a traditional coastal fishing village which might have its own socio-economic hierarchies, the exploitation of common resources like the ocean were guided by rigid controls to which everyone was subjected. The exploitation of the poorer sections took place on the shore during the distribution of the catch on the basis of private property ownership. However, the more powerful were prevented from over-exploitation of resources in the sea. This was the primary reason why marine ecology was maintained over centuries.¹⁶ The conservation of village woodlots was guaranteed through similar mechanisms, till the simultaneous operation of individual and community obligations was made impossible through the opening up of the village economy to larger urban or industrial market networks. By and large the access to the larger markets is possible only for the more privileged and politically powerful members of the community, through their easy access to the educational, bureaucratic and financial institutions. This in turn starts a process by which they are no longer controlled by the organising principles of the traditional village community set up which in turn creates the fissures for the breakdown of the community principles and organization. In the case of marine resources, the introduction of mechanised trawlers through international and local funding agencies mainly made use of by the local rich, led to the violation of the traditional community norms and procedures and influenced the manner in which marine resources could be differentially

exploited. Similarly changes introduced through new techniques of agriculture, that could be absorbed only by the rich farmers made them less dependent on local resources (example: chemical fertilizer in place of green manure). Under such circumstances their participation in the community efforts at maintaining local resources was reduced leading to the beginning of the decay of the community norms and procedures regarding the use of local resources.

There has been a very powerful argument which attempts to establish the fact that common resources by their very nature must necessarily get undermined. The most popular version of this argument is known as the "tragedy of the commons", the modern version of which has been described by Hardin as follows:

"Picture a pasture common to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is the day when the long desired goal of social stability becomes a reality. At this point the inherent logic of the commons remorselessly generates tragedy."¹⁷

The rationalisation that leads to the tragedy originates in each herdsman trying to maximise his gain. If an individual herdsman adds one cattle to his herd the increase in income due to the cattle is totally his own, whereas, the loss due to overgrazing gets distributed over all the cattle and consequently over all the herdsman. In the words of Hardin:

"Adding together the component partial utilities the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another ... But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a common brings ruin to all".¹⁸

The inevitability of the ruin discussed above follows necessarily from two presuppositions which are as follows:

- a) Each herdsman works in his own self-interest without considering himself to be a part of the community;
- b) Production is predominantly for exchange and not for use.

These presuppositions, however, do not hold in all socio-historical situations. It is important to recognise that competition has not always been a driving force in human societies. In large sections of the rural societies of the third

world countries the principle of cooperation rather than competition among individuals still dominates. Similarly production for one's own consumption rather than exchange has been the predominant reason for production in subsistence economies. In a social organisation based on cooperation amongst members and production based on need, the logic of gain is entirely different from that of societies based on competition and profits coming through exchange. The general logic behind the "Tragedy of the common" does not operate under such situations. However, under certain circumstances where the common land cannot even support the basic needs of the population a tragedy is expected even without competitive feelings.

There may be situations where ruining the resources does not bring ruin to the people responsible for the exploitation of the resources. Under these conditions, as Daniel Fife points out:

"The tragedy of the commons may appear to be occurring but in fact something quite different is really happening. The commons is being killed but someone is getting rich. The goose that lays golden eggs is being killed for profit."¹⁹

This situation is a possibility in the business world where business can be run in two ways. Responsible business ensures that it could continue to run indefinitely. When the business adopts higher temporary profits as the motto, its irresponsibility may lead to the destruction of its own resources. In such a situation it "pays for the businessman to kill his business." This is true, however, only in case of big business having perfect intersectoral mobility of capital. Small producers, totally dependent on a particular local resource and having little mobility can hardly afford to destroy the basis of their business without destroying themselves. Thus, only big business using natural resources is a major threat to ecological stability of resources, since it is the only group which has no long term stake in a particular resource.

The possibility of the survival of community property like pastures and village woodlots, or common goods like a stable ecology therefore exist only under social organisation where checks and controls on the utilization of resources are inherently built into the organising principles of the community. On the other hand the breakdown of a community with the associated collapse in concepts of joint ownership and responsibility can set the path for the degradation of common resources.

The decline in the maintenance of the common woodlots and gomal lands in the villages has been a slow but steady phenomenon. Among the many determinants which have led to this deterioration the three most important ones are; the reservation of forest areas resulting in the pressure of the entire population falling on the limited resources of the gomal lands and commons, the pressure of agriculture and political manipulations leading to the distribution of waste land among landless labourers and finally the loss of interest of the village elites in village commons due to changed market situation.

The impact of forest reservation on the village common has already been discussed earlier. While the degradation of the commons has been much discussed in afforestation programmes the disappearance of resources like gomal lands had not been adequately recognised. Gomal lands have

disappeared either through land distribution to the landless or through unrecorded arrangements with the village panchayats for using the land for agricultural purposes. Substantiating this trend Eckholm has stated that, "Politicians always find it easier to handout unoccupied land than to redistribute proven farmland, however unequal the ownership of the latter may be." "It has also been recognised in the context of Karnataka". "The demand for land is so acute that even the lands unfit for agriculture which are being used as permanent pastures (gomal lands) are being converted into agricultural lands".²⁰ Since a large part of the arrangements for the cultivation of gomal land is not recorded, village and state government records continue to show a substantial existence of gomal lands. Thus, even the forest department has to depend on these high figures of 15,00,000 hectares of gomal land in the state for their planning. Kolar, our field investigation revealed that out of 34 villages surveyed only three had actually functionally surviving gomal lands. In all the other villages it is being cultivated. The gomal land in these three villages amounts to 90 hectares, which is 0.62% of the area covered by the villages surveyed. Using this figure as representative of the district the area covered by gomal lands in functional existence in Kolar district amounts to 4833 hectares. The recorded figure, however, is as high as 1,47,871 hectares. Hence, the gomal lands, through years, actually have, not only degraded but for all practical purposes, disappeared in large parts of the district. The degradation of other common resources in the villages such as village tanks, woodlots etc. are, in part related to the fact that new agricultural practices and technologies provided alternatives to these commonly shared or freely available resources for the privileged village minority. The most significant new farm technologies that resulted in radical shift in land use patterns in the district were the expansion of sericulture and forest plantations on agricultural land. At present the total area under mulberry in the district is 16,216 hectares of which 13,963 hectares are under irrigation. The expansion of mulberry cultivation has taken place with the financial support of the government and international aid agencies.

The spread of casurina on farmland, in contrast to sericulture, has taken place independent of government support. Casurina groves flourished under the impact of the fast rising demand of firewood and construction poles in urban areas. Casurina was specially well suited for cultivation without much expense on labour for protection since it is not browsed by cattle. Being a fast growing and hardwood species, it was ideal for satisfying firewood and construction demands in the urban and semi-urban market. That the shift of land use to casurina was purely guided by urban demand is validated by our observations that it is virtually non-existent outside a radius of about 60 kms. from Bangalore. Tables 8-11 give the distribution of casurina plantations (at present and planned in the coming 5 years) in terms of landholding categories in the 4 taluks. Bagepalli taluk exhibits a conspicuous absence of land under casurina. This is probably related to its larger distance from Bangalore than other taluks. Hence Casurina can be linked with a change in land use pattern around urban areas as a response to the commercial urban demand of structural poles and firewood. According to the estimates made on the basis of the data collected in the present work about 2 per cent of the total sown area in the district is under Casurina. This means a total area of 671

hectares. The chance of a significant expansion of Casurina in the district in the coming few years is also small as is evident from the Tables 8-11.

In the second half of the last decade another significant change in land use emerged as a result of the social forestry programme of the state government. Through the distribution of free seedlings, farmers have put a significant amount of land under farm forests. Though the social forestry scheme is supposed to make a variety of species available for farm forestry, the utilization of all species except Eucalyptus hybrid was found to be very negligible. The area under Eucalyptus plantations (at present and planned in the coming 5 years) in terms of landholding categories in the 4 taluks is given in Tables 12-15 (see end of this chapter). It is observed from these tables that the growth of Eucalyptus farm forests have been higher than Casurina and in the coming few years it is expected to grow at a much faster rate as compared to the marginal growth prospect of Casurina farm forests. Honge, Mango and Tamarind groves, which have been an important source for food, fodder and firewood also show no signs of being regenerated through social forestry programme. In contrast to Casurina, Eucalyptus, at present, shows four distinct trends. Firstly, there is no clearcut correlation of shift to Eucalyptus with the proximity to urban market. Secondly, the initial adoption of Eucalyptus has been weighted towards families having large landholdings. Thirdly, while in the coming five years very little land is expected to go under new Casurina plantations, a substantial amount is expected to go under new Eucalyptus plantations. Fourthly, while the spread of Casurina was a result of private initiative, the spread of Eucalyptus is a result of considerable efforts of the State Forest Department. Thus, while Bagepalli taluk, relatively far away from Bangalore, shows no land under Casurina, the free distribution of seedlings of Eucalyptus from forest nurseries has initiated an adoption of Eucalyptus as a farm forest tree species and it is expected to go up considerably in the near future. The reason larger landholding families are shifting to Eucalyptus quickly is that traditional foodcrops like Ragi are relatively less remunerative and involves more risk in terms of rainfall fluctuations. This risk gets superimposed on the rising cost of labour and associated problems of labour management. The reason that smaller landholding families are planning to shift to Eucalyptus in the coming few years is that private agents who collect Eucalyptus timber for bulk consumers like Harihar. Polyfibre or other paper mills in the region provide ensured advance yearly payments for six to eight years, till the Eucalyptus crop is ready for harvesting.

Almost all the extension of Eucalyptus plantations in the villages is on private landholdings which were earlier under food crops. The civil forests or revenue lands are in the process of getting transferred to the forest department. The community or gomal lands have almost disappeared through the distribution of land, as already mentioned earlier. Only one village among the three having functional gomal land has adopted social forestry on 59 hectares out of a total of 88 hectares of gomal land. Since outside private lands in villages gomals are the only category not under the ownership of the forest department one can conclude that the only social forestry programme in which people have voluntarily participated has been the extension of farm forestry on private land. Whether this participation amounts to community participation in contrast to individual participation is however questionable.

Community participation in forestry for basic needs of the people is an essential component since in its absence, market demand, rather than material need, dictates the pattern of land utilization and the choice of species. While afforestation in itself can be taken up primarily for high commercial returns by individuals, if it has to lead to improvement in community services and assets like better satisfaction of basic needs and a stable resource base, the involvement of the community in planning, raising and utilization of the forests becomes practical necessity. The pattern of afforestation that has resulted from social forestry interventions in Kolar exhibits that the only species that has been adopted on a large scale through free distribution of seedlings has been Eucalyptus hybrid. The virtue of Eucalyptus is that it is not browsed by cattle and is quick growing. This virtue, thus, gets translated into the lack of joint responsibility on the part of the community to protect the trees. Social forestry programmes, which, through free distribution of seedlings and free technical advice stress on species like Eucalyptus implicitly accept the impossibility of community participation. The community participation is further excluded by the disproportionate success of plantations on private land-holdings which makes individuals and not communities responsible for the plantations.

The success of the propagation of the species like Eucalyptus through farm forestry is rooted in new and growing markets for the produce as well as the decay in the traditional ties that had provided the social organisation essential for the production of traditional food crops. Eucalyptus plantations have provided a way for farmers to make profits from land without the corresponding dependence on the community. This detachment from the community, in turn, leads to insurmountable problems in generating community participation in the utilization of common uncultivated and unforested land for raising village woodlots. The organisational context in which Eucalyptus plantations have come up and which they in turn engender and reinforce creates individual motives and actions which undermine the possibility of cooperative motives and actions. When the richer farmers can make large profits by planting Eucalyptus on their own land and simultaneously reduce their dependence on poorer people and local resources in the villages, it is utopian to expect them to take part in parallel community activities to raise village woodlots on the commons. With organisational constraints restricting the primary thrust of farm forestry operations to private farmland, the participation of the village community as an integrated unit is excluded, not merely in terms of raising of forests but also in sharing the profit and benefits that occur.

The community's participation which existed traditionally at two levels has therefore been excluded by the way farm forestry operations of social forestry have been organised. The first level at which the community as a whole was deeply involved was in the knowledge about useful tree species, the knowledge of traditional silviculture. As Krishnamurty points out in regard to traditional farm trees:

“traditionally this wealth has been built up by man's careful selection of those species (among the several that were thriving in the local millet under natural conditions) that were of value to him after testing its ecological adaptability.”²¹

The most popular farm tree in the region under study was 'Honge' (Pongamia glabra) whose leaves provide fodder and manure, whose oil is used for lighting, and, which finally makes extremely good firewood. Neem (Melia azadirachta), another traditional farm tree has multiple utility as pesticide, medicine, food, oil and firewood. Tamarind, Mango and Jack fruit are other fruit trees that have provided an essential part of the local diet. Together, the mix of species chosen has maximised self-sufficiency in farm inputs without making conflicting demands on land for food, fodder, fuel, manure production. The second level at which the community as a whole participated in raising farm trees was in the material production and distribution of the tree wealth. Most of the trees selected were multipurpose in character. Moreover, the species chosen and the land on which they are planted had been carefully selected to maximise their economic as well as ecological contribution of conserving soil and water. Thus, trees were planted along tank bunds, field boundaries and on common land to hold the soil and conserve the moisture. The land distribution as well as the choice of species lent itself to the maximization of material benefits to the community as a whole.

The social organisation of the newly introduced official social forestry practices has systematically ignored the traditional forms of community participation both at the level of knowledge production and use and the level of material production and use. The species Eucalyptus hybrid, specially encouraged in the programme is not an indigenous one. Moreover, the simple process of growing trees which farmers in India have been doing for centuries has been suddenly transformed into a task of specialists of the forest nurseries. The total isolation of the rural people in the preparation of seedlings, is thus, a process of creating a dependency in an area of activity in which the rural people had complete control on the generation and use of knowledge. The epistemological alienation thus brought in does not merely not invite community participation but excludes it in an area where it existed traditionally. The land utilization pattern and the choice of species embodied in the social forestry programme further exclude the community's participation in the material production of farm trees and the distribution of material benefits. The nature of these benefits and their distribution will be discussed in details in the following chapters.

TABLE - 12: Area under Eucalyptus in Bagepalli Taluk

Land holding (In Acres)	Area presently under Eucalyptus	No. of house holds	Area planned for Eucalyptus in coming 5 years	No. of households
1	2	3	4	5
0 - .99	0	0	0.0	0
1 - 1.99	0	0	0.0	0
2 - 2.99	0	0	2.5	3
3 - 3.99	0	0	3.0	2
4 - 4.99	0	0	1.5	2
5 - 6.99	0	0	8.5	7
7 - 9.99	0	0	4.0	2
10-15	0.5	1	10.0	4
>15	4.0	3	6.0	3
Total	4.5	4	35.5	23

TABLE - 13: Area under Eucalyptus in Bangarpet Taluk

1	2	3	4	5
0 - .99	0.0	0	0.0	0
1 - 1.99	0.0	0	1.0	1
2 - 2.99	0.0	0	1.0	1
3 - 3.99	2.0	20.	0.0	0
4 - 4.99	2.0	1	0.5	1
5 - 6.99	5.0	3	7.0	3
7 - 9.99	3.5	3	1.0	1
10 - 15	6.0	4	7.0	2
>15	3.5	3	5.0	1
Total	22.0	16	22.5	10

TABLE - 14: Area under Eucalyptus in Kolar Taluk

1	2	3	4	5
0 - .99	0.0	0	0.0	0
1 - 1.99	0.5	1	3.5	3
2 - 2.99	3.0	4	7.5	6
3 - 3.99	0.0	0	1.0	1
4 - 4.99	6.5	4	9.5	3
5 - 6.99	11.25	7	1.0	1
7 - 9.99	11.0	4	2.0	1
10 - 15	5.0	2	3.0	1
> 15	42.0	5	0.0	0
Total	79.25	27	27.5	16

TABLE - 15: Area under Eucalyptus in Malur Taluk

1	2	3	4	5
0 - .99	0.0	0	0.00	0
1 - 1.99	0.5	1	1.0	1
2 - 2.99	3.0	3	1.5	2
3 - 3.99	2.5	2	9.0	5
4 - 4.99	3.5	3	2.5	3
5 - 6.99	11.5	9	6.5	4
7 - 9.99	13.5	7	12.0	4
10 - 15	21.5	7	18.0	4
> 15	17.0	4	7.0	3
Total	73.0	36	57.5	27

5. ECONOMIC IMPACT OF SOCIAL FORESTRY IN KOLAR

The primary objective of the social forestry programme is to meet the basic needs of forest products of the rural people. Among these basic needs the primary focus has been placed on regeneration of firewood resources for the rural areas. It is expected that increase in the local production of wood will automatically lead to the better satisfaction of the fuel needs of the rural people, especially the poorer sections, who continue to depend totally on dry bushes and twigs as their only fuel for domestic purposes. Besides the energy requirements increased tree growth in the villages is expected to increase the availability of fodder, thus reducing overgrazing of pastures, and also aims at providing constructional timber for agricultural implements and

rural housing. Besides the direct satisfaction of these material needs social forestry is also seen as a programme for increasing production of food through the stabilization of the rural ecology. Finally, it promises to generate significant employment in the rural areas, thus raising the income of the poorer families. Each of these expected economic impact will now be examined in the light of the observations made in the district of Kolar.

5.1 The Scramble for Biomass: Market Demand Against Basic Needs:

The data on afforestation through farm forestry provided in the last chapter adequately indicates the rapid success with which increased production of wood is being made possible in the villages of Kolar district. The satisfaction of basic material needs of the populations of these villages is, however, dependent on a number of factors. Among them is, their competitive ability to have access to forest products through their purchasing power as against that of other contenders for bio-mass. The shortage of bio-mass has been viewed as the most serious impediment to the satisfaction of domestic energy needs of the rural population. Thus, the increased production of bio-mass becomes the automatic prescription for solving the crisis. Tables 16-24 give the pattern of consumption of both commercial fuels like kerosene and purchased firewood and non-commercial fuels like dry bushes and twigs and self-procured firewood. The consumption of animal dung and charcoal was generally found to be absent. Only 3 families among the 613 surveyed use animal dung at times of extra fuel needs or lack of firewood. Hence the pattern of consumption of animal dung is not presented here.

In terms of quantity, or the number of consumers commercial energy sources like kerosene or electricity is negligible. Biomass is predominantly the source of energy for domestic purposes. At the commercial end of biomass consumption purchased firewood accounts for about 16 per cent of the total biomass consumption and 15 per cent in terms of number of consumers. At the other end of non-commercial biomass resources, shrubs and twigs account for 43 per cent of the total bio-mass consumption and sustain 55 per cent of the rural families for their energy needs free of cost. There are other families who depend partly on purchased firewood and partly on collection. Table 25 gives the breakdown on the tree species which are found to be sources of firewood in the villages surveyed. Honge comes out as the biggest source for firewood in the rural areas of Kolar district till today.

TABLE - 25: Specieswise contribution of farm trees towards firewood resources

Species	<u>No. of families reporting use of species*</u>					% Contribution
	Malur	Kolar	Bangarpet	Bagepalli	Total	
Mango	0	2	0	0	2	.69
Tamarind	0	32	6	0	38	13.19
Honge	33	91	45	1	170	59.03
Casurina	16	7	20	0	43	14.93
Eucalyptus	9	2	2	0	13	4.51
Coconut leave	5	3	1	2	11	3.82
Mulberry	0	6	1	4	11	3.82
Total	63	143	75	7	283	99.99

* The use of different species has not been taken to be mutually exclusive.

The other species useful in terms of fuelwood are tamarind and mango. The most important farm tree used for fuel is, however, a product of traditional farm forestry practices and is not being encouraged under the social forestry scheme. Eucalyptus which is the primary product of social forestry efforts is not found to be a major source of fuel within the village. The small number of families using Eucalyptus for cooking are usually poor families who collect it from reⁱⁱ Forests. In the absence of any other species they have no other choice than Eucalyptus, though personal discussions revealed that these families would like to use Honge for cooking if they had an option. Very few farmers who are growing Eucalyptus on their own land use its wood as domestic fuel. One reason is that the economic returns on the sale of Eucalyptus wood are high and alternate sources still turn out to be cheaper. The second reason as revealed through discussions with both urban and rural consumers is that Eucalyptus is an inappropriate fuel for cooking, compared to other traditional fuelwoods like Honge or even Casurina. The burning velocity of Eucalyptus being too high it is unsuitable for cooking that requires slow and controlled heating. It also turns out to be inappropriate in financial terms because far more quantity of Eucalyptus wood is required for the cooking than other hardwood varieties. In this context of type of properties appropriate for fuelwoods the criteria of fast growing species in absolute terms of bio-mass production seems to be misplaced. Eucalyptus plantations do not qualify as fuelwood or energy plantations either in terms of the economic viability of the rural population or in terms of their material properties as domestic fuel. These characteristics of Eucalyptus also prevent it from being a source of firewood supplies for urban areas where the demand for firewood is fast increasing with kerosene being costlier and limited in availability.

In the city of Bangalore, according to estimates made from all the weigh bridges in the city, daily about seventy or eighty truckloads of firewood is transported from surrounding rural areas. The total weight of the firewood import is about 700 tons. About 500 tons of this is casurina and the rest 200 tons are traditional species like tamarind, mango, honge etc. Except lops and tops no Eucalyptus wood is supplied to Bangalore as firewood. About one to two truckloads of lops and tops of casurina and Eucalyptus comes in daily to Bangalore. In Bangalore the retail price of Casurina firewood is about Rs.45 per quintal and for honge etc., is around Rs.35 per quintal. The price of Honge at the farmland is about Rs.150 per ton and for casurina is about Rs.200 per ton. On the other hand farmers get around Rs.250-300 per ton of Eucalyptus (at some places it was found to be even higher) and at this rate of purchase Eucalyptus as a major source of fuelwood is out of reach for both urban as well as rural consumers of firewood.

The high open market price of Eucalyptus wood is a result of its suitability for pulp based industry and higher purchasing power of these industries. The price of Eucalyptus offered to the farmers is above the price of firewood. This ensures that Eucalyptus wood is supplied to the few paper mills and one Rayon mill in the region. Such high purchasing power of the industries is reinforced in two ways. Firstly, the Karnataka Forest Department

ⁱⁱ This word is not legible in the original text

is bound to sell Eucalyptus wood to Harihar Polyfibre, the only Rayon factory in the region, at a very low price of Rs.24 per ton (there seems to be pressure on the government for some upward revision of this rate). Secondly the consumers of the product of pulpwood based industries are urban elites and have almost infinite purchasing power compared to the rural poor. The high price of raw material can therefore be accommodated easily in the price structure without losing market. Supporting the high price offered for Eucalyptus is a very extensive network of purchase agents. These agents not only purchase Eucalyptus harvested from the land of large landholding farmers who can wait for eight years for the financial returns but also encourage small and middle farmers to commit their land for Eucalyptus for at least eight years by giving yearly advance payments till the harvest period. While such a shift turns out more remunerative in the context of current market price for traditional foodcrops like ragi, the smaller farmers lose considerable returns due to increase in the price of Eucalyptus wood during the waiting period of eight years. The control of the agents in the production and marketing of Eucalyptus is indicated by the fact that they could give us a reliable estimate of acreage under both Eucalyptus and Casurina in private farmland in Kolar district, while the concerned state government departments had no such information. Table 26 shows the estimates of this coverage from the collection agents and this work. The three industries to which most of the Eucalyptus wood of Kolar district was reported to go to are Harihar Polyfibre, Dandeli Paper Mills and Shesha Shai Paper Mills. On the average about 15-20 truckloads of Eucalyptus (about 150-200 tons) are reported to be weighed at the Modern Weigh Bridge in Kolar, which covers about 90 per cent of Eucalyptus supplies from Kolar district. Other significant weighing points are at Devanahalli Malur and Bangalore. About 80 per cent of the supplies are earmarked for the Polyfibre industry in Harihar. The barks of Eucalyptus that remains after dressing the Eucalyptus for use by the rayon industry, as well as the lops and tops with thickness less than 3-4 centimetres are sold in the urban market of Bangalore as fuel. This leaves hardly anything of Eucalyptus from farmlands for the consumption of the rural people. In sum, therefore, the growth of Eucalyptus plantations in the rural areas of Kolar has no positive contribution to the satisfaction of fuel needs of the rural people. On the other hand through decline in traditional species like Honge the supplies that were already available will get restricted in the future. If these trends continue the firewood crisis will worsen during the years to come, inspite of the impressive growth of Eucalyptus plantations in the villages.

TABLE - 26: Estimates of private Farmland under plantations of Eucalyptus and Casurina

Species	Estimate of land covered (Acres)	
	Agents	This work
Eucalyptus	40,000	55,000
Casurina	20,000	17,000

Another energy contribution of traditional farm trees like Honge, is the use of Honge oil for lighting purposes, which fetches a good price even today. Discouragement to Honge plantations will automatically increase the dependence of rural people on kerosene for lighting, thus shifting the resource base from a renewable local resource to a non-renewable imported one.

Besides being materially appropriate for domestic energy requirements like cooking and lighting the traditional farm trees have been a rich resource base for fodder for the cattle at the same time. Eucalyptus has spread through farm forestry basically according to two properties that the species is fast growing and it is not browsed by cattle. The latter property, however, excludes its use as fodder, while at the same time it further decreases the availability of fodder both in terms of grazing resources as well as by-products of food-crops, since eucalyptus allows no undergrowth. Instead of creating an additional fodder resource, the widespread planting of Eucalyptus on farmland and revenue lands further depletes the already scanty resources that exists now.

By accentuating fodder shortages, it also indirectly affects two most important alternate and renewable energy resources, for farming practices i.e., animal energy and bio-gas energy. Less fodder will reduce the number of, or weaken the work/milch animals. Reduced work-milch animals will in turn reduce the inputs to bio-gas plants accentuating the already acute problem of firewood shortage.

The experience of social forestry in Kolar indicates that inspite of commitments to the satisfaction of the basic needs of the deprived rural population, none of the objectives of the programme seem to have been satisfied. The failure, in our view, arises from simplistic assumptions about the production and distribution of primary products. One simplistic assumption is that just growing more trees will satisfy the basic needs. Distinction is not made between what trees are grown and who grows them. In a social and economic context where different groups have different demands and priorities about forest produce using the same land, the species that get planted determine, to a large extent, at a particular phase of development, the groups to which the benefits will accrue. The second assumption that simplifies the working of marketing and distribution of produce is that merely producing more quantity of any commodity in a particular locality automatically amounts to higher availability of that commodity to the local people. This assumption fails under conditions where the higher purchasing power of distant urban-industrial groups can pullout resources without allowing them to trickle to the local people whose need is greater but who have very little purchasing power. Pointing this out, Eckholm has written:

“... From a social perspective top priority must also be given to meeting the elementary forest and food needs of the poorest one third of the humanity. And with forest products, as with food, merely growing more produce is not necessarily sufficient to eliminate deprivation. Who does the producing, and how the benefits are distributed are equally crucial considerations... With

wood, as with other resources, buying power rather than need, determines the allocation of the traded products.”²²

5.2 The Balance of Land Use for Wood and Food Production

The paradigm of social forestry as a development strategy has been essentially focussed on the problem of afforestation and through afforestation it has, at least in principle, had the objective of making more resources available for the rural needs of energy, fodder, construction material etc. Food production has only indirectly been addressed by this paradigm through stabilization of rural ecology. That food production and social forestry, especially in terms of farm forestry, are very directly linked because they make conflicting demands on the same land has not been a central concern of the social forestry programme. The only official document where this linkage is spelt out is in the Recommendations of the Second Forestry Conference in which mention is made of striking a balance between forests and food needs of the people in the section on energy plantations. However, in practice most development efforts initiated by professionals have a tendency to stress on one aspect of resource utilization at the cost of others. As Eyre points out:

“piecemeal assessment of the Earth’s resources is always liable to reach unrealistic conclusions; the specialist can so easily overlook the many urgent demands on land and materials other than those in which he is particularly interested. The industrial developers may forget that there are such essentials as food-crops...”²³

Policy makers and bureaucrats who have viewed the decline in tree cover as one of the major problems in the management of land can very easily be impressed by their spectacular success of raising forests on farms. This partial assessment, however, would fail to take into account another more basic utilization of land, that is, for growing food crops. The social forestry schemes make no pretence of entering into agricultural land as the farm forestry components. They do, however, stress on the “marginal” nature of agricultural land being used for planting Eucalyptus. Just as it is unrealistic to blur over distinctions between type of forests and trees, it is also unrealistic and misleading to blur over distinctions in food crops. The food consumed in rural populations is usually very different from that consumed in urban centres. Food productivity, food shortages, food surpluses are issues that have focussed only on the items for urban consumption. Thus, the recent import of wheat to check inflation has come as a response to the rising food prices of wheat which is not the food for a large section of the rural poor in India. On the other hand the fact that, in Karnataka the price of Ragi, the staple millet in the rural areas has shot up by 200 per cent in two years and has become nearly as expensive as wheat and rice, has brought little response or reaction from the government. While in a recent statement the food minister of Karnataka has claimed that the price increase in Ragi is the result of crop failure in 1980-81, the price of Ragi has gone up at a fast rate not only this year but in the last few years. Moreover, the area under ragi has

been systematically shrinking in the district as well as in the state. In Kolar the most significant shift from Ragi has been to Eucalyptus, since sericulture has expanded primarily in the irrigated areas in the district, while Eucalyptus has spread in the rainfed areas. As Tables 12-15 show, during the next 5 years about 12 per cent of the total agricultural land may be under Eucalyptus. Most of the transfer will be at the cost of Ragi and associated crops. Table 27 gives the decline in area under ragi since the social forestry programme has spread. While Fig. 7 gives the extent of decline of proportion of land under ragi from 1955 onwards.

TABLE - 27: Area and Production of Ragi in Kolar District during 1977-78 to 1980-81
(Source: Bureau of Economics and Statistics, Karnataka)

Year	Area(He)	Production (tons)
1977-78	1,41,772	1,75,195
1978-79	1,46,861	1,65,174
1979-80	1,40,862	99,286
1980-81	48,406	13,340

Crops like Ragi, pulses and oilseeds sown in mixed or rotation cropping are the staple food of the rural people, especially the poorer families.

It is the production of essential foods of the poor which has usually been made invisible in our agricultural policy and this invisibility at the policy level is largely ...ⁱⁱⁱ

...opportunities is the same for the rural poor in these countries

There was a phase when foreign dependence was exemplified by developing countries exporting primary goods and importing manufactures. This gave rise to a paradigm of reliant development strategies based primarily on the western pattern of industrialisation through import substitution without consideration of how it will create new demands on land. Such self reliance, however, is outmoded in the new context of dependency. Firstly, countries like USA derive most of their new domination through being the world's biggest supplier of grain, and technology and capital to grow food. As a CIA study concluded:

“... the world's increasing dependence on American grain surpluses portends an increase in US power and influence specially vis-a-vis the poor food deficit countries.”²⁷

Further, in the context of the growing environmental movement in the industrially advanced countries and the resulting^{iv} of environmental protection, these countries are more than keen to base polluting industries in developing countries and import manufactures, instead. Development policies which, often, become resource utilization policies need to take these changing trends

ⁱⁱⁱ There is a page missing from the original text here

^{iv} The following word is not legible in the original text

into account such that self-reliance does not exclude the satisfaction of basic human needs and not short lived.

Social forestry, inspite of its proclaimed objective of satisfying basic needs of the rural population, appears to be, in its present form, structurally and organisationally oriented towards being a policy for supplying industrial material. Unlike conventional forestry management which supplied industry with its raw material from land specially marked for reserved forestry, social forestry is ultimately performing the same function by putting new demands on land that has not, in any sense, been lying waste but has been used for the production of basic food necessities of the rural people.

Increasing food production is an objective that social forestry indirectly aimed at satisfying by rebuilding the rural ecology. The ecological role of forests in sustained food production is a factor that specialists and policy makers have only recently turned their minds to. Deforestation is now recognised as being linked to the food problem in two ways. Firstly, it reduces agricultural productivity by destroying the natural processes of water and soil conservation. Secondly, by leading to firewood scarcity it diverts manures and crop wastes from fields to the cooking hearths. Rebuilding the ecological support system for food production is an essential step in development. The present form of social forestry, however, underlines its very objective, if instead of creating more forests for increasing food production, forests are grown in place of food.

5.3 Impact on Employment and Income Distribution

Employment generation and higher income for the rural poor, particularly for the landless agricultural labourers, is one of the objectives to which the social forestry programme directly addressed itself. In the light of the serious unemployment and underemployment in the rural areas, and the recognition that the modern industrial sector cannot employ this large number of people, additional employment in the agriculture sector and the rural areas is the only hope for improved material wellbeing for the rural poor in the years to come.

Proper selection of species in social forestry and proper social organisation of the programme, in principle, supplement the labour requirements for agricultural operation and hence increase the employment opportunities in the villages, thus leading to an improved quality of life for the poorest section of the rural population. This expectation increased employment opportunities for the landless is, however, utopian in the present approach to farm forestry which provides a convenient means for farmers to be independent of labour input in their farm operations while, simultaneously increasing the returns from land. From the individual farmer's viewpoint the change in land use is rationally motivated by the higher returns and the lower cost and risk involved in shifting from food crops to farm forestry. The higher costs of food crop production arise from both the economic and social problems arising from employing farm labour. Costs rise from other farm inputs, while the return from food crops in rain fed areas is not very lucrative. Moreover, while the cost of mixed and rotation cropping of traditional food-crops in rainfed areas necessitates an annual expense of at least Rs.600 per

acre, going in for Eucalyptus plantations requires only an initial expenditure of Rs.600 per acre with no repeat expenditure for 30 years and guaranteed high returns. The present rate at which farmers sell Eucalyptus is around Rs.300 per ton and it easily provides for an annual return of Rs.2500 per acre. Farm forests of Eucalyptus, thus simultaneously provide the big farmers freedom from labour and other farm inputs and an avenue for good profit. According to a recent report, a farmer in Gujarat who has gone in for farm forestry with Eucalyptus can earn an income of Rs.10,000 to 16,000 per acre of wet land annually while his wheat and canesugar growing neighbours can expect around Rs.3000 and 4000 respectively. With the promise of such returns, ten thousand farmers in one district of Gujarat alone have gone in the Eucalyptus farming on irrigated farm land.²⁸

For the landless labourer, on the contrary, what little employment was available to him through the production of food crops, disappears as the farmland goes under Eucalyptus plantations. Kolar district has no significant canal irrigation networks and has primarily rainfed crops. The most significant crop has traditionally been Ragi a coarse millet, with a mixed cropping of pulses like cow-pea. These crops are planted in rotation with horse-gram, bengal-gram etc., oilseeds, groundnut, etc. These foodcrops, besides generating employment through sowing and harvesting, also require labour for manuring the fields, thinning, weeding, threshing, winnowing etc. The annual labour requirement for the traditional rainfed cropping patterns is of the order of 100 mandays per acre. The Eucalyptus crop, on the other hand, after the initial planting requires absolutely no labour for maintenance, since it is not browsed and generates negligible employment till it is ready for harvesting. For the whole state, on the empirical estimate of the proportion of land to be under Eucalyptus at the end of the next 5 years, as derived from feedback from farmers involved in our study, this figure of loss of labour requirement is at least 200 million mandays per year. After the initial planting the only employment generation in Eucalyptus is at the stage of harvesting. This employment, however, is usually not available to the local people. The agents for the collection of Eucalyptus normally provide the labour for harvesting. Moreover, employment generation through harvesting Eucalyptus becomes available only after a rotation period of 3 years, if the returns are to be maximized. Even if this employment is available to the local people, it will not be very significant in its amount.

Planting Eucalyptus has become a favourite means adopted by large farmers to avoid labour problems and dependence on labour. The impact of such practices have obviously been very harmful for the agricultural labourers and marginal farmers. In the neighbouring state of Tamil Nadu the government was being forced to contemplate on legislation to take over land of those affluent farmers who switched to cultivation of Eucalyptus or Casurina from food grains to avoid employing agricultural labour at wages prescribed by the government.²⁹

Given that one of the purposes of social forestry is to reduce destructive pressures on forest resources by providing economic alternatives to villagers who presently depend on forest exploitation for their livelihood, these actual trends in the impact of the social forestry programme on employment opportunities of agricultural labour undermine the very objective of the programme. Eucalyptus plantations destroy what little opportunities

exist in the rural areas. Consequently, for their survival, the displaced labour is forced to search for alternate means of livelihood which is often found to be leading to increased hacking of reserved forests. Denudation of forests has often been viewed merely as the result of rural energy consumption. However, for a villager who has no food, the attack on forests is for collection of firewood for sale in urban and semi-urban centres, rather than his own consumption. Because selling firewood alone is often the only means of subsistence for many poor families. To illustrate, in a single village included in the survey of Bagepalli Taluk out of sixty house holds 15 were found to be fully dependent on firewood trade. This firewood, with the help of bus and truck drivers goes to the urban markets like Bangalore. Villagers spend nearly 8 hours walking 6-8 kms per day making one headload sold at Rs.4.00 in the local market or at Rs.3.00 to the bus or truck drivers. When firewood becomes a commodity against which the poor villagers have to buy food it is unrealistic to expect them to burn firewood for their own cooking, which continues to be done with shrubs and twigs only. Theft of wood as a means for survival is becoming an only option left for more and more, villagers. Recently 200 villagers were caught stealing firewood in the Sakrabaile forest of Shimoga district and one person was killed in police encounter.³⁰ Thus the form that social forestry has taken has neither resulted in better employment opportunities within villages to the poorer people, nor relatedly, has it created better possibilities for the healthy survival of reserved forests.

As a strategy for simple economic growth the shift in land use pattern from foodcrops to farmforestry in Kolar district, social forestry is very successful. The shift ensures a stable and higher return for many years unlike ragi and associated crops, which have limited market and can be severely affected by the drought. In fact the support of the forest department through the free distribution of seedlings has helped many farmers in coming out of the personal insecurity of a failed crop. However, social forestry is supposed to be a basic needs strategy directed at improved material wellbeing of the poorer sections of the rural population. The fulfilment of this objective necessitates an evaluation not only of the growth parameters of the whole district but the extent and nature of distribution of the economic benefits of the total growth. As the analysis made earlier in this chapter indicates the overall growth in the income of rural families has been achieved at the cost of a decrease in material and financial benefits for the poorer sections, especially the agricultural labourers. The introduction of Eucalyptus plantations through social forestry has, firstly, depleted the resource base for the satisfaction of basic needs of food, fodder, fertilizer and fuel. Secondly, the diminishing resources have been accompanied with diminishing employment opportunities and pushing down the income of the rural poor still further. Thus, the overall impact has been a reduction of purchasing power with price rise accompanying the resource depletion for basic requirements of life.

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