



SOCIAL FORESTRY NETWORK



GAINS FROM SOCIAL FORESTRY: LESSONS FROM WEST BENGAL

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Gains from social forestry: Lessons from West Bengal¹

1. Physical and social setting

What are the income flows from social forestry plantations and who enjoys these income flows are the questions that have interested researchers and policy makers ever since social forestry grew into a movement of sorts in early 1970s. Field level studies of gains from social forestry have already begun to become available, for example, from Gujarat.² They raise important questions about distributional implications of different institutional models evolved under social forestry programmes. In this paper, we have attempted a similar analysis of gains to the poor people from West Bengal's group farm forestry programme. This analysis is based on the experience of the first group of 71 families in 10 villages in Arabari forest range (Midnapur district) who harvested and sold trees during the past 12 months. Limited though the experience is, we believe that it has lessons to offer.

With its relatively small land mass, West Bengal has amongst the worst land: man ratios in the country with just about a third of an acre of farm land per caput.³ This limited farm land (net sown area: 13.6m acres) is also distributed in a very unequal manner. In 1970-71, for example, nearly 80% of rural families owned either none or less than 1 ha of land; and, on the other hand, less than 10% of rural families with holdings larger than 5 ha owned half of the states' farm lands.

The state has four distinct soil zones: southern parts of 24 Paraganas and Midnapur districts near the Bay of Bengal constituting the somewhat saline coastal zone; all of Hawrah, Hoogly, Nadia, Malda, West Dinajpur districts form the alluvial zone where land productivity and population pressure are high; all of western districts of Purulia, Bankura and Birbhum and the western part of Midnapur district have laterite soils less suited for intensive agriculture; and the northern districts of Jalpaiguri, Cooch Behar and Darjeeling form the densely wooded hilly zone with high rainfall.

Much of the present West Bengal was under Permanent Settlement during the British rule and the bulk of the farm land was cultivated by

'bargadars' (tenants) whose rights were neither defined nor secure. In early decades before Independence, the Zamindari system, along with a chain of intermediaries between the state and the tiller assumed the worst form of exploitation and repression of West Bengal's rural poor; in addition, they acted as a major hurdle to rapid agricultural growth. In the post-Independence era, the government of West Bengal sought to drastically alter the traditional land relations through the enactment of a series of laws aiming at the abolition of Zamindars, regulation of the terms of tenancy and increasing the tenant's share in the output to 75%; imposing a ceiling on land holdings and distributing the surplus vested land to the landless and marginal farmer families. Contrary to popular misconception, the West Bengal government's performance in the implementation of land reforms was not superior to that of most other state governments; however, three features of West Bengal's land reform programme distinguished it from similar programmes implemented by other states of India.⁴ First, the leftist parties of the state helped to build a politically conscious peasantry and local self-governing institutions. Second, 'operation Barga' launched by the CPI (M) led leftist government which came into power in 1977 helped to develop a register of bargadars who formed the target group for the antipoverty programmes. Third, West Bengal's performance in the distribution of surplus vested land (most acquired through abolition of Zamindari) was superior in qualitative as well as quantitative terms. The process of identification of bargadars and of distribution of vested land used village level self-governing institutions and group meetings which made manipulation by large farmers difficult. All these three features had an important bearing with the evolution and success of West Bengal's social forestry programme.

2. Evolution of West Bengal's social forestry programme

Started somewhat hesitantly in 1981, West Bengal's social forestry programme, as in other states, was meant to be a response to the crisis of rapid erosion of tree cover. While 13.5% of the state's geographical area is officially under tree cover, actually no more than 5% is under productive forests.⁵ The programme had four major

components: strip plantations, village wood lots, farm forestry and reforestation of degraded forests.

Table: 1 which compares the programme performance with targets shows that while farm forestry exceeded the targets, village wood lots fared poorly. Because of heavy pressure on land and because West Bengal was under the zamindari system, most villages have no common lands on which village wood lots can be raised.⁶ Most of the wood lots raised so far are in small plots of land owned by schools, panchayats, hospitals and such other public institutions. Such lands are becoming increasingly difficult to find and, as such, the village wood lot programme is being phased out.

Table: 1

Targets and achievements of West Bengal's social forestry programme

	Targets	Performance by 1983	Performance by 1986
1. Strip plantations (ha)	20,000	5,700	18,158
2. Village wood lots (ha)	6,000	1,149	2,395
3. Farm Forestry (ha)	52,000	14,780	62,024
4. Reforestation of degraded forests (ha)	15,000	4,500	17,756
5. Total (ha)	93,000	26,129	100,333

(Information from Forestry Department, Government of West Bengal. "Progress Report on Social Forestry", Social Forestry Wing, Calcutta, 1986).

The success of the farm forestry plantations is explained largely by West Bengal's impressive record in distribution of surplus vested land. Over 61% of the total area planted under the social forestry programme and 59% of the area planted under the farm forestry component are concentrated in four western laterite districts of Bankura, Birbhum, Purulia and Midnapur which have a relatively greater proportion of

wastelands. These four districts account for 56% of surplus vested land and 38% of total land distributed in the state. They have enough undistributed vested land to benefit some additional 2.2 million poor families and therefore provide great scope for farm forestry as a source of livelihood.

An interim evaluation of the programme by the department itself indicated that strip plantations and village wood lots in West Bengal faced much the same problems as they do in other states. Survival rates range between 40-60% and local people are generally indifferent, at times even hostile, to the plantations.⁷ In a recent wise move, the present government handed over all wood lots and strip plantations to village panchayats who will now take the responsibility of nurturing, protecting, harvesting and replanting the trees and will keep the entire revenue from such plantations. There was general agreement among the forest department officials we met that while work on new strip plantations and reforestation of degraded forests will continue in times to come, nevertheless, in view of the unique opportunities offered by West Bengal's vested land distribution programme, group farm forestry will become increasingly important especially after the encouraging results obtained in the Arabari range of East Midnapur Division, where the first group of families involved in farm forestry have sold their tree crops for tidy sums and reinvested the cash in productive assets.

3. The Nepura group farm forestry complex in Arabari range

The first ever group farm forestry plantation in West Bengal was established in 1981 on a contiguous block of about 43 ha of mostly "patta" land owned by 144 poor families from 10 villages surrounding Nepura village in Arabari forest range. The soil in this area, as in much of Midnapur, is laterite and mildly undulating. The surplus land distributed as "patta" land is usually upland with a hard surface and little moisture retaining capacity. Most of the "rayat land" (owned land) is low lying and fertile and is capable of sustaining three crops a year with irrigation.

While a few "pattas" were issued as early as in 1972, by far the majority were issued in 1978 and thereafter. Some recipients of

"pattas" had tried to take a kharif paddy crop on these lands but failed to get their seeds back. As a result, all "patta land" remained unused until the farm forestry programme started in 1981. Visits to a few other parts of Midnapur district confirmed the forest department's view point that tree cultivation was the only productive use of patta lands in laterite areas.

The villages are populated by some caste Hindus (usually Brahmins) but mostly by scheduled caste families and by Santhals (tribals). Most "rayat lands" are owned by caste Hindus and Santhals, as a rule, do not own "rayat lands" except those recently purchased. The main source of livelihood for scheduled caste and Santhal families has traditionally been forest and farm labour; and, the issuance of "pattas" did not help to change this pattern. That the "patta" lands could not be put to productive agricultural use emerged as an important facilitating factor for the farm forestry programme.

This programme involved motivating clusters of farm families to plant trees on a contiguous plot of 20 ha or more land. The forest department would provide free seedlings, and one dozen each of fertiliser and pesticides. In the initial years, the department also offered incentives at Rs0.10 and Rs0.14 per surviving plant at the end of the 1st and 2nd years respectively. However, digging of pits, planting, fertiliser application, replacement of dead trees, etc were the responsibility of participating families and no remuneration was paid for these tasks as is done in states like Gujarat. Even so, as Table: 2 shows, farm forestry caught on in Arabari as in other parts of Midnapur, and, indeed, in other laterite districts such as Bankura and Purulia.

The number of participating families in Table: 2 at best indicates the number of parcels of land brought under farm forestry, for many families planted trees over several years in different parcels. While the department has been recommending a density of 1,500 trees/ha, on an average 2,100 seedlings have been lifted per hectare brought under the plantation. Most families planted eucalyptus only while a few planted a small number of Akashmoni (Acacia auriculiformis) or

cashew trees along with a large number of eucalyptus. This trend was in conformity with the farm forestry programme elsewhere in West Bengal except that 'Jhau' (Casuarina equisetifolia) popular in some other districts were not planted here.

Table: 2
Progress of farm forestry in Nepura complex

Year of Plantation	No. of Seedlings	Area (acres)		Beneficiaries			
		Patta	Rayat	SC	ST	Gen.	Total
1981	131,700	5.0	8.0	40	52	52	144
1982	215,000	97.5	9.5	65	205	136	336
1983	336,000	154.5	13.5	166	208	150	528
1984	185,200	85.1	7.5	72	161	86	319
1985	123,000	56.0	5.0	41	89	48	178
1986	75,000	33.0	4.5	37	40	65	142
Total	1,065,900	461.1	48.0				

In a survey of 59 tree growing families that we conducted, it emerged that the bulk of the effort was made at the planting stage. Most families indicated having done soil working and fertiliser application twice; only a few generally progressive tree growers did 3 or 4 mulchings and fertilizer applications as per the recommendations. A great advantage of planting on a contiguous plot was that problems of protecting the plantation were minimised since most members of the community had a stake in the plantation. The participating families thus went about their work much as if the plantation had not existed at all and the effort required to protect trees from free grazing animals or poachers was minimal. Many families had planted trees in homestead plots and in backyards. None of the families we interviewed irrigated the trees or undertook thinning, pruning etc except when need for firewood necessitated lopping of branches.

The real costs, to the participant families, of establishing the plantation was indeed very low: the land planted with trees had no alternative use; pits were dug in summer months when farm work was difficult to come by; basic inputs were provided by the department free of cost; protection did not pose much of a problem. In alluvial tracts of West Bengal, farm forestry did not - and, is unlikely to - make as much progress as in the laterite districts if only because land as well as labour there have considerable opportunity costs.

4. Returns from farm forestry

In the last few years, Nepura and surrounding villages have experienced a major economic boom initiated at the outset of the 80s by the introduction of irrigated potato crops in rabi. The region has abundant ground water potential at 40'-50' exploited to an insignificant extent through a man-operated bamboo device to lift water in buckets. In 1983, the first "shallow" (local parlance for a shallow tubewell mounted with a pumpset and a diesel engine) was installed by Ashok Hazra, a young, affluent farmer. Hazra started selling water to neighbouring owners of good "rayat" land to grow potato in rabi and 'boro' rice or til in summer. Yields of 4-5,000 kg of potato per acre of 'rayat' and some irrigable 'patta' land became common and even at a low price of Rs0.70-1.00, with just about 10 hours/acre of purchased water, potatoes offered lucrative cash returns. Most farmers close to Hazra's 'shallow' also began to grow summer til but yields were low (2-300 kg/acre). Boro rice with its high water requirement remained the privilege of the rich. Hazra began to sell water to some 100 marginal farmers around his 'shallow' to irrigate 60-70 acres at Rs14/hour.

The land buying spree in Nepura complex villages began in 1984 with the cash inflow from potatoes. However, it really gathered momentum only in late 1985 when many families with 5 year old 'potas' (the name tribals gave to eucalyptus) plantations began to be harvested. The beginning was made by Sadan Chandra Pan, a high caste primary school teacher with 1 acre of rayat land plantation and 0.75 acres of patta land plantation. Pan took good care of the 3,000 'potas' trees that

he planted and created a sensation in the area by selling his 2,200 surviving trees to a trader from Chandrakona Road, the nearest business town, for a neat sum of Rs56,000 in December 1985. He invested Rs46,000 in buying up 9 bighas (3.8 acres) of prime paddy land 200 yards from his house from an ex-absentee landlord. The remaining Rs10,000, he promptly spent on installing a 'shallow' right in the middle of his newly acquired paddy land on which he harvested 7,800 kg of kharif paddy, 15,000 kg of potato, 300 kg of mustard and 1,000 kg of til (sesamum). To top it all, he earned Rs3,000 net by selling water to over 50 buyers on 60 bighas of land. Following Pan, Hazra also sold his 160 'potas' trees planted in 1980 on 0.2 acres of 'rayat' land at Rs6,000. His 1981 plantation on 2 acres of 'rayat' land is expected to fetch him Rs70,000 when he harvests it in coming months.

Hazra's and Pan's early moves had an electrifying influence on tree growers in Nepura and surrounding villages. 'Potas' trees as a source of large amounts of cash became significant on a scale unheard of earlier. Tree planting became more vigorous and widespread and raising and nurturing trees suddenly became much more worthwhile. But it is also led to large scale selling of 'potas' plantations - mature as well as not yet mature - on a contract basis. The most widely used contract was lops, tops, stem and all to be sold to a party for a fixed sum which varied enormously across families. A less widely used contract left firewood behind for use by the family and the buyer took away only poles. In both these contracts, harvesting was the buyer's responsibility. In either case, substantial quantities of bark was left behind for use as fire wood.

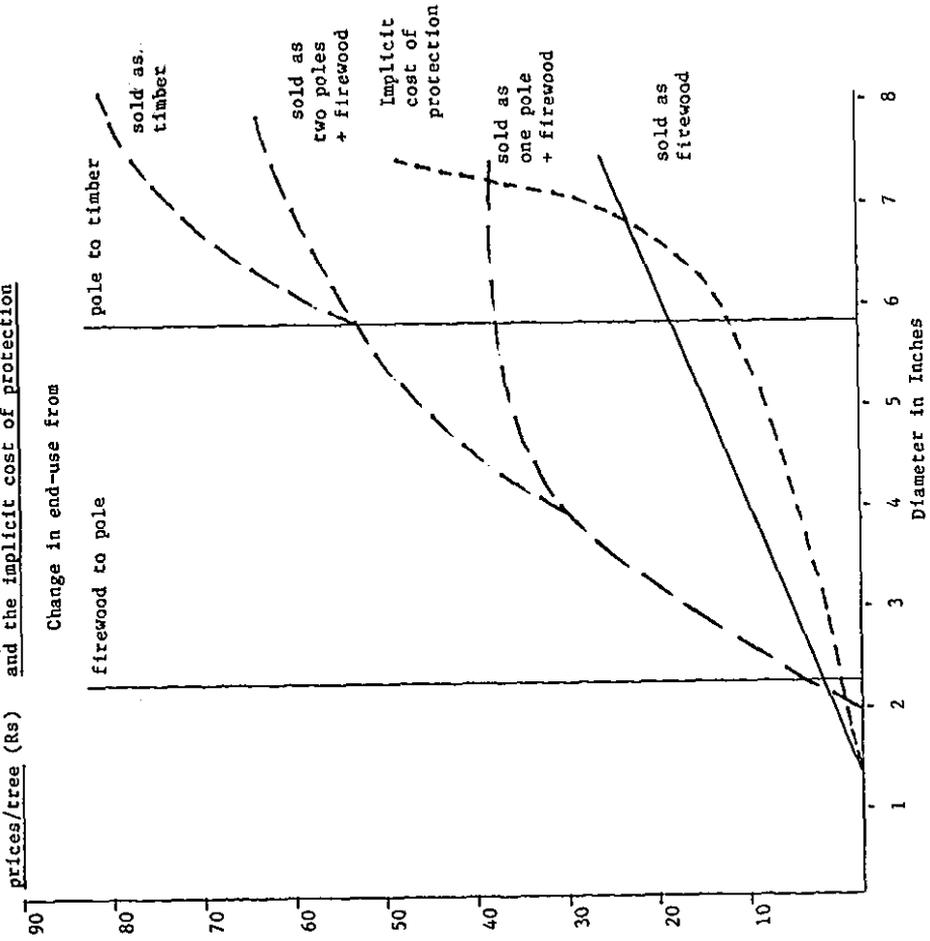
While most subsequent sellers got what they felt were 'handsome' amounts for their plantations (because, perhaps, they had never earned such large amounts at one time), few got as good a bargain as Hazra and Pan did. Hazra got Rs37.5 per 5 year old tree and Pan got Rs25; but most later sellers got much lower prices, usually a third or less. Our survey of 59 tree seller families indicated that a good number of families, especially from scheduled castes and Santhal communities earned less than Rs5 per tree. Table: 3 presents a frequency

distribution of prices and some other indicators. These averages conceal the much wider differences that exist in price/tree and gross income per acre earned by individual families but highlight the fact that those who selected mature trees for sale got much better average prices than those who sold the block; those who sold trees along with firewood got more than those who sold only poles. They also show that upper caste tree growers got better deals than the Santhals; and scheduled caste tree growers got the worst prices for the trees. The local forest officials' view was that price differences were commensurate with the thickness of poles. It is, however, difficult to accept that quality differences alone can explain a 7-800% difference in prices received by different families especially since differences in land quality, age profile of plantations, and management practices were at best marginal. Market imperfections appear to us to be a very important explanatory factor (to which, we return, at a later point); however, some of the families themselves explained the price difference in terms of the somewhat strange economics of 'potas' cultivation and marketing in that area.

5. Production economics of eucalyptus cultivation from the tree growers' view point

Eucalyptus trees in Arabari range are sold mainly for poles. The demand for poles to be used as props in nearby collieries and for construction is particularly good. The price that a tree commands, depends much on its girth or diameter; trees with less than 2.5" diameter are used as firewood; those with 2.5" - 6" diameter are used as poles and those thicker than 6" diameter may command timber value. At critical stages thus, increase in the value of a tree due to change in the use to which it may be put is much greater than increase in income due to growth in volume or weight as Figure: 2 shows. In other words, if as Chambers argues,⁸ we treat a 'potas' tree as a savings deposit, the effective rate of interest accruing in different years to its holder may vary widely. A 4 year old 2.5" diameter tree may command Rs4-5 as firewood; but sold after 6-8 months, it may pass for a pole at Rs12-15; likewise a 4" diameter tree may yield 1x16' pole and a good amount of low value firewood with a total value of Rs22-27; if allowed to grow to 5" diameter, it may yield 2 poles each of 16' (valued at Rs40-45) and much the same amount of firewood.

Figure 2
Income yield of eucalyptus tree
and the implicit cost of protection



The value growth curve of the eucalyptus tree thus has several kinks; and those who sold select trees which were ready for use as poles were smart enough to realise the implications of these kinks and will sell the rest of the trees over the coming months as they qualify for pole use. The forest department extension effort, however, emphasized selling the entire lot together on the reasoning that coppice growth from stools will be vigorous and will generate at least twice the yield over 5 years in the second rotation. We could not however, see how the coppicing principle reduces the value of selecting mature trees for sale, especially since change in end-use changes the tree value so drastically. Further, almost all families reported that diameter of trees planted at the same time in the same plot varied between 2"-5"; in good plantations, 4" diameter trees were in greater number; in bad plantations, 2"-2.5" diameter trees were in majority.

As we mentioned earlier, cost of establishing plantations and the opportunity cost of planted land were neither substantial nor of much consequence to growers. In deciding the timing of harvesting, two factors appeared important to them: a) potential rise in 'paddy' land prices due to the buying pressure b) the rapidly increasing probability of theft of standard trees, especially on peripheral plantations, as they become more valuable. While the second factor was not very important in Arabari, it was in Bhagwantpur where recently a theft of a few trees were reported. We met a family of three brothers outside Bhagwantpur with a 3 acre 1984 irrigated eucalyptus plantation with an average diameter of 4". The brothers expect to get Rs100/tree (although according to the DFO, Rs70 would be a more accurate figure) in 1988 and have to keep a 24 hour watch on the plantation. The forest department itself of course encounters many poachers, often armed, on their 8-9 year old eucalyptus plantations where each tree may be worth Rs2-300.

6. Use of cash income from sale of trees

Most families we interviewed were happy and excited about the one time cash inflow from their plantation; the majority were unaware of how much more they could have earned by finalising the sale transaction a

bit more thoughtfully or by waiting a year or so more. Some distress sales too were reported; Tinkari Dolal sold 400 trees for Rs1,100 to get his eyes treated; Sanyasi Malik needed Rs800 to get his 1 bigha of mortgaged land released and therefore sold 500 trees for Rs1,800; Madhar Singh sold a 1.25 acre two year old plantation for Rs400 to get his daughter married. But such cases were few and far between; also, most families who got low prices agreed that they could have got a better deal.

Table: 3

Frequency distribution of eucalyptus sale prices

Price Rs/tree	No. of families	No. of families selling select trees	No. of families from		
			Gen	SC	ST
Rs20 +	4	3	3	1	-
Rs15-20	6	3	3	2	1
Rs10-15	4	2	3	1	0
Rs5-10	30	-	7	15	8
Rs0-5	13	-	1	10	2
	57	8	17	29	11

SC = Scheduled Castes

ST = Scheduled Tribes

The cash inflow from tree sale caused a spurt in the land buying spree begun by the rabi potato and, the judicious investments of these flows

Table: 4

Income from sale of trees: Survey of 59 tree sellers from Nepura, Baliaganj and Mangalbandhi villages

	No. of families	Area planted		Number of trees		Amount received (Rs)	Gross income per	
		Rayat acres	Patta acres	Planted	Harvested		Acres planted (Rs)	Tree harvested (Rs)
General	17	8.97	10.92	23,400	12,972 ¹	156,900	7,888	12.1
		2.6		(1,176)	(652)			
Scheduled Castes	29	2.6	23.67	35,100	21,607	128,350	4,886	5.94
				(1,336)	(822)			
Scheduled Tribes	11	0.0	11.05	15,600	7,212	49,000	4,434	6.80
				(1,412)	(653)			
All	57	11.57	45.64	74,100	41,791	334,250	5,842	8.00

Notes: ¹ In General category 5 and in SC category 3 families sold selected mature trees and got unusually high prices per tree ranging from Rs15-30. In SC category, this serves to push up an otherwise low average price and income/acre.

² Figures in brackets are average per family.

made by some families and their potential implications for their livelihood are among the most profound impacts of the Arabari farm forestry programme. The cash found its way into four important uses: a) purchase of paddy land and investment in 'shallows' b) marriage of daughters c) house building and repair and d) meeting pressing family commitments or tiding over contingencies. Table: 5 presents the information available on use of cash from the 59 family survey. We have presented the average landholding data just to highlight the general asset poverty of the families and the value of the large cash inflow to them. Only half of the 59 families had any 'rayat' land, the rest being landless. Most owners of 'rayat' land were upper caste families and all but 4 had less than 1 acre of rayat land. All the families interviewed except 5 had been allotted 'pattas' and were dependent on labour as the main source of livelihood. Significantly, while upper caste families spent the money on various purposes, Santhal families, as a rule, invested their money in buying small plots of 'paddy' land and most scheduled caste families spent their money in marriages and repairing their houses. Investments in paddy land proved lucrative in most cases especially with the possibility of purchasing water from "shallows". Most families who purchased paddy land took three crops, obtained an average of 800 kg of kharif paddy, 2-3,000 kg of rabi potato and 150-200 kg of summer til per 'bigha' (0.42 acre) using about 15 hours of purchased irrigation. Some had the facility of lifting water from a nearby river using a hired diesel engine at Rs12/hour. Almost all families who purchased land also used purchased irrigation. With the rising pressure of land purchase, price of paddy land has shot up from Rs3,000 per bigha in 1981 to over Rs8,000-12,000 per bigha depending upon land quality and location. The sellers of 'paddy' land are mostly ex-landlords who are hit by the ceiling laws. One major seller, for example, had holdings in several villages which he is in a hurry to sell off in order to settle in a village in which he has the largest and best chunk of land. Such land may be available for two or three more years; however, 'potas' plantation is perceived to be so much more lucrative, that every stretch of 'patta' land is now planted. When we asked people if land would continue to be available the standard answer was: "paddy land yes: 'patta' land, No".

Table: 5

Use of cash from sale of trees: 59 family survey in Arabari

	No. of families	Land owned in 1980		Area (and number) of trees harvested	Cash earnings from sale of trees	Investment in land		Expenditure on marriages	Expenditure on house	Expenditure on contingencies	Other productive investment				
		Rayat (acres)	Patta (acres)			No. of families	Amount Invested (Rs)					Amount spent (Rs)	No. of families	Amount spent (Rs)	No. of families
General	17	30.38	10.55	19.97 (12972)	156900	4	58500	4	24300	3	34000	1	400	6	39600
a) Total															
b) Average per family	-	1.79	0.62	1.17 (763)	9227	-	14625	-	6075	-	11300	-	400	-	6600
Scheduled Castes	29	14.96	35.16	26.67 (21607)	128350	6	28500	12	50700	4	9700	10	12200	4	22500
a) Total															
b) Average per family	-	0.52	1.21	0.92 (745)	4425	-	3526	-	4225	-	2425	-	1220	-	5625
Santhal	11	0.78	12.95	11.05 (7212)	69000	9	39800	-	-	1	4500	-	-	4	7000
a) Total															
b) Average per family	-	0.07	1.18	1.0 (656)	4455	-	4422	-	-	-	4500	-	-	-	1750
All	57	45.82	58.66	57.69 (4791)	334250	21	126800	16	95000	8	48200	11	12600	14	69100
a) Total															
b) Average per family	-	0.8	1.029	1.012 (733)	5864	-	6038	-	5938	-	6025	-	1145	-	5

Notes: a) averages in case of investments are presented only for families involved and not for all b) average investment by "general" category is pushed up by the extraordinary case of Sadan Pan.

Following the example set by Ashok Hazra and Sadan Pan in establishing a lucrative and mutually gainful ground water business, two wise scheduled caste families from neighbouring Baliaganj and Mangalbandhi promptly invested their money in sinking the first ever "shallows" in their respective villages. While they will, no doubt, earn substantial sums from sale of water, nevertheless, to the extent that water purchase possibilities help a rabi potato revolution in those villages, they will also help other small farmers to raise their cash incomes. Power supply is expected in these villages in the next year or so. This should further stimulate the development of ground water irrigation and help to reduce the prices at which water is sold for irrigation.

7. The emerging structure of the market for 'potas' in Nepura complex

The sale value of trees already harvested on 56 acres in Nepura complex, even at the low average sale prices, was about Rs3.3 lakh; in the coming five years over 1,000 more acres of first rotation crops will become ready for sale and after that a larger second rotation crop will begin to mature. The annual turnover of tree business in Nepura complex itself will be around Rs18-80 lakhs and Midnapur district already has eucalyptus farm forests on 10,000 ha. Surely, the tree trade has the makings of big business.

While interviewing the 30th household in our 59 family survey, we found, by accident, that the family had sold their plantation to Ashok Hazra. From then on, we discovered that two out of every three remaining families we interviewed had sold their trees to Ashok Hazra; that Ashok Hazra and Sadan Pan, the school teacher, had formed a partnership and entered the tree trade in a big way. We found that all distress sale cases involved Hazra and Pan; that those who had got relatively good prices had taken the trouble to go to Chandrakona Road to strike a deal and that Hazra and Pan were very reticent to talk about their tree trade. In fact, out of 29 families, 18 had sold their trees to Hazra and Pan at an average price of Rs6.10 per tree; the average price received by the remaining 11 families who had sold to traders in Chandrakona Road and from nearby villages was Rs11.6 per

tree. At least two families we met hinted that the supply of water to potatoes was linked to the sale of trees to Hazra and Pan. Hazra and Pan had moved swiftly to establish a foothold in two most important emerging businesses: ground water and trees!

8. Lessons from Arabari

What lessons does Arabari offer for West Bengal as well as for other states? Clearly, Arabari signifies a unique opportunity to use wasteland afforestation as a means to improve the livelihoods of poor people. It is also clear that the vested land distribution programme of West Bengal government would not help poor people greatly except through farm forestry since most vested land, especially in laterite districts, is unfit for productive agriculture use. On the other hand, the 99 year land 'patta' has helped to instil in 'patta' holders a confidence and a feeling of ownership that has encouraged them to invest effort in improving the productivity of their land. Whether the shorter term 7-10 year 'tree' pattas that some other state governments are contemplating will be able to produce the same sense of security and ownership is an open question; but the answer most likely is negative.

We might stress here that the farm forestry success in West Bengal has little to do with that state's overall performance in land reform implementation which is average; it is linked with the distribution of land pattas. Many other states have more vested and other revenue lands under government ownership than West Bengal has and, therefore, the West Bengal farm forestry success is easily replicable in other states provided they are willing to distribute the land 'patta' to landless families.

The stake that the patta holders have in raising trees has made West Bengal's farm forestry programmes easy to implement on a large scale and one of the most cost effective ways of afforesting wastelands. Unlike in some other states where NREP wages are paid to tree growers for working on their own fields and cash subsistence allowances are offered during the gestation period,⁹ in West Bengal, all that the forest department has offered so far are free seedlings, incentives

and some free inputs. Even these have been gradually phased out. Incentives have already been discontinued; nursery raising is expected to be completely decentralised to Kisan nurseries which will sell seedlings to tree growers from the 1987 planting season.

In spite of these, the area under farm forestry in West Bengal has been increasing at a rapid pace and the business in fast growing trees, as a consequence, is expected to grow by leaps and bounds. If we project on the basis of the Arabari experience, the 62,000 ha of mostly patta land already brought under farm forestry would imply a six yearly cash flow of some Rs100 crores which, unlike many other development programmes, is sure to reach poor people.

Table 6
Prices received and market value of Eucalyptus trees

Dia in inches	Prices received by Arabari seller (Rs/tree)	Prices they could have received (Rs/tree)
2" (firewood)	2.5-3.0	12
2.5" (firewood)	4-5	15-17
3" (pole + firewood)	7-8	20-22
4" (pole + firewood)	11-12	30-35
5" (2 poles each of 16' length + firewood)	16-22	55-65
6" (3 poles each of 16' length + firewood)	-	90-100

The large emerging business is sure to bring in its wake a multitude of second generation problems to which West Bengal's forest department will soon have to address itself. Although the Hazra and Pan type monopoly phenomenon may be a freak case, nevertheless, the Arabari experience highlights the need to organise this business on modern and professional lines. That doing so could enormously increase benefits

to "patta" holding tree growers was clear from what we learnt in informal discussions about the huge differences between market prices of eucalyptus trees of different girths in Midnapur district and prices actually received by Arabari tree sellers (Table: 6). It is true that the prices received by Arabari sellers were net of harvesting costs which were borne by the buyers but even then the difference is too great.¹⁰ We tried to compile a clear picture by examining transit passes issued by the range office for any one wanting to move out forest produce. While we could not obtain a sufficient number of observations, even the few that we saw confirmed our belief that money received by tree sellers was far less than commensurate with the output of poles and firewood. An effective marketing intervention would therefore have powerful and salutary effects on returns to tree growers and incentives in farm forestry. Already, in the nearby Bhagwantpur complex, each of the 21 villages involved have formed marketing committees to streamline tree marketing; some have also pooled individual member contributions to form a fund. This fund is used to provide credit for tiding over contingencies and to prevent distress sales.

A unique aspect of the Arabari farm forestry complex is that almost all tree growers derived no value from land before it was planted with trees and had therefore learnt to subsist through other means. Income from trees is thus an additional bonus to them. In a few other areas where patta land was used for some purpose, howsoever, unremunerative, tree growers have been clamouring for credit to subsist through the gestation period. How exactly the future inflow from tree sales will be linked to present subsistence needs is another major question that West Bengal farm forestry experience raises.

Notes

1. In conducting this study, the author received valuable assistance from Shri U Banerjee, CCF; Shri S Roy, CF (SF); Shri D N Shukla, DFO (Midnapur), Shri P G Bhattacharji, ADFO (Midnapur) and Shri K B Ghosh, Range Officer, Arabari. The author gratefully acknowledges their help and contribution.
2. See, for example, D P S Verma, "Who benefits? A case study regarding flow of benefits from Dhanori village woodlots" mimeograph, Forest Department, Government of Gujarat, Baroda, 1986.
3. National Sample Survey, Reports No.144 and 215 21, State; West Bengal.
4. See, N Bandyopadhyaya and associates, "Evaluation of land reform measures in West Bengal : A report", mimeo, Centre for Studies in Social Sciences, Calcutta. Also see, Bishwajeet Sen, "Land reforms and forestry programmes: The case of West Bengal", paper presented in National Workshop on Landless People and Wastelands Development, 3-6 April 1986, New Delhi.
5. West Bengal Forest Department, "Social Forestry gaining ground" Social Forestry Wing, Calcutta, 1986.
6. So acute is the scarcity of common lands in rural West Bengal that in many parts there is no common space to bury the dead. It is usual for rural people in some parts to bury the dead on canal or river banks or pondshores or even on road sides.
7. Forest Department, Government of West Bengal, "Evaluation: An interim report - West Bengal Social Forestry Project", Monitoring and Evaluation Cell, Social Forestry Wing, Forest Directorate, Calcutta, 1983. Also see, Forest Department, Government of West Bengal, "Field testing of an Operational Guide to the Monitoring and Evaluation of Social Forestry in India", M & E Cell, Social Forestry Wing, Forest Directorate, Calcutta, 1985.
8. Robert Chambers and Melissa Leach, "Trees to meet contingencies", IDS Discussion Paper, 1986.
9. For Gujarat example, see for instance, Rohit Shukla and M K Dalvi, "Evaluation of Gujarat Social Forestry Programme", Sadar Patel Institute of Economic and Social Research, Ahmedabad, 1985.
10. We also compared market prices in Midnapur with those prevailing in other states. See, A N Chaturvedi, "Eucalyptus for farming", UP Forest Bulletin No.48, 1983.



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