KENDBONA ECO-DEVELOPMENT PROJECT – A NOVEL APPROACH TO WASTELAND RECLAMATION

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Introduction

Reclamation of wasteland unfit for agriculture, by afforestation is a declared policy of the Government. While afforestation of blank, degraded land, wasteland within the demarcated forest land has been one of the routine activities of the State Government, the wastelands outside are under continuous degradation for lack of any concerted efforts to put them under tree cover. The social forestry activities in the decade of the eighties addressed the problem to some extent when some wastelands outside the demarcated forest lands were afforested. The National Wasteland Development Bank subsequently took initiative in the matter and a number of schemes for afforestation of wastelands have been framed and are being implemented, some carrying provisions for margin money assistance. Some of the Forest Corporations, which were earlier set up for production forestry purposes, have also switched on to wasteland development projects, especially after large-scale commercial forestry became redundant due to the National Forest Policy 1988, for which these Corporations were incorporated in the first place. After its activities in the North Bengal forests became severely restricted the West Bengal Forest Development Corporation started spreading its activities in South West Bengal where there was previously none. One of such projects was the Kendbona Eco-development Project in Purulia District, which centers round the development of about 54 ha of wasteland, through a variety of plantation models, aiming at an ecological and economical rehabilitation of the largest population in the immediate vicinity of the project area.

The Project

Area and Locality factors : In Kendbona Project, the land occurs in six patches, interspersed amidst villages and cultivation. The locality factors are typical of the eastern extension of the Chotanagpur plateau, with a long summer and short winter, both intense. The monsoon is usually spread over 3-4 months from June to September. The annual precipitation varies from 1000 mm to 1500 mm. The summer temperature hovers between 42°C to 45°C and in winter, the mercury settles between 9°C to 14°C. The soil is red lateritic, mostly in the nature of sandy loam with pockets of clayey loam.

Before the land was taken up under the project, there was no specific land use demand, though most of the time the area was used as a common grazing ground for the village cattle. Except for a few inferior grass and weeds, the area was barren with

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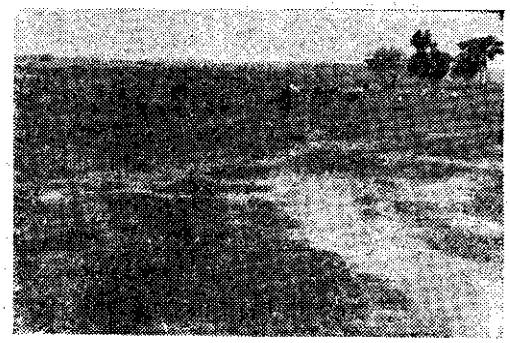
signs of sheet and rill-erosion manifest everywhere. (Plate 1)

Plate 1



The degraded wasteland before the same was taking up for development under the project.

Demography : At the time the pre-project survey was undertaken in 1988, the Kendbona village had 48 families, of which 13 families belonged to scheduled castes and 35 to scheduled tribes. The sex break-up for the scheduled castes population was, 47 males and 54 females, i e. a M/F ratio of 1:1.2 and for the scheduled tribes the same was 98 males and 108 females, with a M/F ratio of 1:1.1. The average family size for the scheduled caste population was 7 7 persons, while that for the scheduled tribe population was 5.9 persons. The land holding pattern was that, 30 families had land over 0.4 ha each, 15 families had a holding below 0.4 ha each (of which 3 families had no agricultural land). The total livestock population in the village was 225. The economic condition of the villagers, especially the landless and those with holdings below 0.4 ha per family, was below the poverty line. Agriculture was rain-fed and only monocrop. Due to limited agricultural activities, the lean period unemployment is high and seasonal labour migration was a common feature.

Project planning and selection of particulars : After a preliminary survey, discussions were held with the villagers and the Chirudih Gram Panchayat under which the village belonged regarding the approach and methodology of development, so that a generally acceptable package of schemes can be evolved. Since the project was based on the principle of participatory management between the West Bengal Forest Development Corporation and the local people, from whom the actual beneficiaries were to be identified, the discussions were important for involving ground-support to the eco-development project.

The beneficiaries were selected with the help of the Chirudih Gram Panchayat and 21 families with no land or very small parcel of agricultural holding around 0.4 ha, were chosen (Plate 2). One of the unique features of the project was that the 21 beneficiaries, who were finally listed from the identified families, were all women. This was considered desirable because it was thought that the women of the village should be assigned due role in a project that had societal good, like environmental amelioration, environmental maintenance and economic uplift as its objective. Combined with this idea was the presumption, that the women would be zealous to protect and preserve the assets that would bestow some economic benefits to their families in general and to themselves in particular, leading to a feeling of emancipation from the economic servitude that the women in a male-dominated

Plate 2

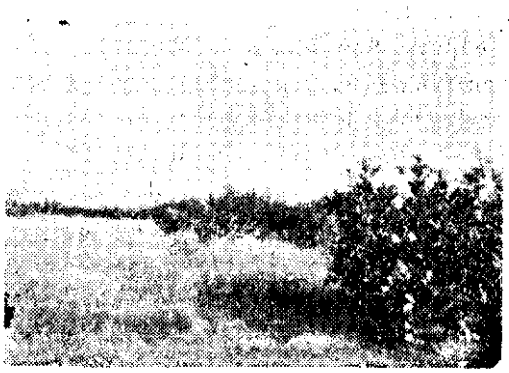
Discussion between the W.B.F.D.C. officials and the participant beneficiaries

village society are traditionally subject to. As most of the afforestation project, where popular involvement is sought for implementation and success, usually veer round the male member of the rural society, induction of women was thought to be a novel experimentation to assess the difference, both qualitative and quantitative that might ensure in planning and implementation of the eco-development project (see Front Cover).

Plantation models : Since the main objective was to cover the wasteland with a simultaneous or a quick return of benefits to the individual beneficiaries, plantation models with quick growing or early yielding species were chosen. Moreover, even the quick growing species have a minimum gestation period of 7-8 years and this, though reckoned as "short-rotation" in the conventional timeframe for forestry, was a hiatus long enough for the impoverished beneficiaries to wait. Therefore, intercultivation was adopted, so that yield begins from the 2nd or 3rd year. Three plantation models were adopted for the project which are briefly mentioned in the description below :

(a) *Cashew plantation with intercropping of Sabai (Eulaliopsis binata) grass* : This plantation was raised over 34 ha. The planting pattern for cashew was 10m×10m. In the intervening space, sabai grass were planted at a close spacing of 45 cm×45 cm. 17 ha were planted up in 1989 under this model and the balance was raised in 1990. The Cashew *Anacardium occidentale* seedlings were grown from the seeds obtained from the Corporation's cashew plantation Midnapore District, raised earlier from seeds suitable for lateritic tracts (Plate 3).

Plate 3



Cashew with intercrop of Sabai grass (2 year old).

(b) *Bamboo plantation* : Bamboo was raised over 10 ha in 1989 and 1990. In 1990, arahar (*Cajanus*) was raised as intercrop over 5 ha of the bamboo plantations so that some intermediate yield could be obtained by utilising the intervening space between the bamboos which were planted at a 7 m × 7 m espacement.

(c) As there were no nearby forests to serve the energy needs of the village, fuelwood plantations were raised over 10 ha in 1989 and 1990 in the form of peripheral

rings around the above plantations which were vulnerable to biotic damages like grazing etc. The species raised were *Acacia auriculiformis* and *Eucalyptus*. The spacing was 2.5m×2.5m. Out of the 1500 seedlings planted per ha, 1000 were Akashmoni (*Acacia auriculiformis*), 400 were *Eucalyptus* and 100 were indigenous species, like Karanj (*Pongamia pinnata*) Neem (*Azadirachta indica*) and Mahul.

Apart from these three plantation models by which the entire project area was covered, grafts of mango (*Mangifera indica*), guava, lemon, bael, anona, jamun and seedlings of coconut were distributed to the beneficiaries for planting on their homestead land. Each beneficiary received 28 of these fruit-bearing species. In all 588 grafts and seedlings were distributed during 1989-90 and 1991-92. The total cost of the project, earlier estimated (1989) to be Rs. 6 71 lakhs was subsequently revised to Rs. 8 74 lakhs. This cost increase was necessary as sabai was planted at a denser spacing of 45 cm×45 cm than originally planned and as also as arahar was raised as an intercrop in bamboo plantation which was not orginally provided for. The project is designed to be spread over a span of 6 years from 1989-90 of which the first two were utilised for building up the assets and the ramaining part will mainly involve some maintenance activities and setting up cottage scale facilities for making of sabai grass ropes.

Project benefits : In terms of direct employment to the beneficiaries, the project activities created 7366 man-days in 1989 and 7424 man-days in 1990. The average wage-income per beneficiary was Rs. 520/- and Rs 553/-per month in the years 1989 and 1990 respectively. The sabai, planted in 1989 was cut back, more by way of a tending operation than regular harvest, to induce better growth, in 1990. The cut sabai was sold and the beneficiaries were given 25% of the sale proceeds. Intercropping of arahar with bamboo was not very successful, however, whatever was gathered was sold and the beneficiaries received their predetermined share and the total amount that each beneficiary received from the sale in 1990 was Rs. 135.00.

During 1991, the total income from sale of sabai, was Rs. 83,750.00 and each of the participant beneficiaries received a share of Rs. 1000/- each during the month of September, which is incidentally, the leanest month for the village people (Plate 4). The yield frome sabai will continue to increase reaching its peak around the 7th year after planting, and the area has to be replanted on the 8th or 9th year. The total income from sabai from 1989-90 to 1997-98 is expected to be Rs. 12,74,000/-. The bamboo plantations will start yielding from around the 5th year of planting and continue over a long span of time. However, taking the project management period to be of 9 years i e. co-terminus with the sabai crop, the bamboo is expected to generate as total yield of Rs. 2,75,000/- upto 1997-98. Likewise the yield from cashew, another long yielding crop, is expected to be Rs. 3,46,000.00 upto the same period and that from the fuelwood plantations Rs. 1,80,000.00. Against an investment of Rs. 8.74 lakhs, the expected income from sale of the project products upto

1997-98 will be Rs. 20.75 lakhs. The internal rate of return works out to 14.6% even with a benefit change by '–' 20%, assuming a 14% rate of interest. The expected share of income for the participant beneficiaries out of the total income of Rs. 20.75 lakhs will be nearly Rs. 5.19 lakhs during these nine years, which works out to Rs. 2,750/- per family per year.

Plate 4

Sabai grass being harvested (with the fuelwood plantation in the background).

The possibility of augmenting the income by value-addition to the plantation product like sabai grass has also been explored. Sabai when made into ropes, fetches a price of Rs. 6/- per kg as against Rs. 2/- per kg for the grass. Hand operated rope making machines, that can be operated by a husband-wife team, have been designed and fabricated and five such machines have been supplied to the beneficiaries who are training themselves up in rope making. Moreover, some of the beneficiaries have also started cultivating vegetables in the interspace between the bamboo, where earlier, arahar was intercropped. Vegetables like sweet gourd, chilli, vindi have been cultivated by fifteen beneficiaries. Inputs like quality seeds, fertilizers have been supplied from the project and the beneficiaries have agreed to pay back the cost of the inputs supplied when they sell the vegetables (Plate 5).

Plate 5

Bamboo with intercrop of vegetable. (Sweet gourd)

Discussions

The sketch presented above depicts a concerted effort by the local people and the West Bengal Forest Development Corporation in evolving an acceptable methodology for wasteland development and environmental rehabilitation. Participation of the people, who are directly tuned to such a programme right from the planning stage, is called for, so that an attitudinal change of the local people to the Government or

institutional efforts for common good programmes may result, leading to a positive acceptance of such exercises. In the instant case, the local people and the gram panchayat were involved right from the time of formulation of the plan. Frequent discussions are also held with them regarding the management of the assets created. Such close contact and interactions will be vital to the completion of the project, which is now at the middle of the span and long after the project is completed, when the sustainable yield will be reaped over a long time span. The experiment of involving the women folk as the beneficiaries appears to have yielded positive result and the women have increasingly started sharing the interaction sessions. The income derived so far and that can be earned in the future on a sustained basis, if the assets can be successfully managed, is a total additionality, as the barren wasteland was of zero-income value before before being turned productive. It is worth mentioning in this connection that no provision for Watch and Ward, which is usually done by engaging forest watchers, was made in the project and the participants have been themselves protecting the assets created with the utmost zeal, as has been expected.

Comprehensive approach

The need for linkages that such a programme should have with the overall development strategy, particularly in the forest fringes may be examined. While restoration of wasteland or degraded forest land through active popular involvement, has been found to be a practical proposition, leading to a certain amount of economic gain for the hinterland population, most of the wasteland or degraded forest land will lack the carrying capacity required, even after being so restored, to become the sole economic support-system for the surrounding populace. Unless other measures to improve the economic condition are undertaken, the gains achieved by restoration of wasteland or degraded forest land may soon be negated as increasing economic needs may force the concerned people to resort to resource-mining, leading to eventual destruction of the forests created. It is here that consideration of comprehensive development package, with an area development approach and essentially multi-disciplinary in nature, comes in. Simultaneously or soon after the regenerated wasteland or degraded forest has given an economic foothold to the concerned population, who were earlier forced to a primitive subsistence-gathering economy, programme for development of agriculture, animal husbandry, fishery and other land-based natural production systems, that are ecologically compatible, should be taken up on the villagers' land or village-common areas.

Apart from the area development, works, concerted efforts to uplift the quality of life of the local population is necessary so that a value system, commensurate with the socio-economic regeneration, is built up to sustain and improve upon the gains made through the eco-development works at the initial stages. In the instant case it is also proposed to initiate programmes for total literacy, immunization against the commonly occurring diseases, Integrated Child Development Schemes, family welfare and other similar types of environmental maintenance programmes through the

cooperation of the like departments, which will act as strong support for the rural development hinged on wasteland afforestation or forest regeneration programmes.

SUMMARY

Reclamation of wasteland through silviculture has been the declared policy of the country since the mid eighties. Ambitious programmes have been drawn up for afforestation of wasteland both within the demarcated forest land and outside. It is being increasingly realized that peoples' participation in such efforts is most important for such projects to succeed. However, popular involvement can only result if the people, who are essentially poor, can find some immediate and tangible benefit flowing out to them from such projects. Forestry schemes, even when based on short rotation, quick growing species, calls for a minimum gestation period of 5-7 years, which is rather too long for the rural poor to wait. It is here that experimentation in multi-tier forestry is called for, where quick-yielding cash crops like Sabai (*Eulaliopsis binata*), etc. can be grown as a second tier with tree crop. Where permissible, interspace between the tree crop may be utilised to raise agricultural crops that are compatible with the tree crops. Such intercrops will ensure an immediate economic return for the people participating in the afforestation and eco-development project leading to popular involvement and active participation in the effort. This paper describes the success story of a micro-level eco-development project through afforestation and intercropping, with the active participation of beneficiaries, who were all women

बंजर भूमियों के पुनसंस्कार की एक नई दृष्टि— केंदवन परिस्थिति विकास परियोजना

एम०के० चौधरी

साराँश

वन संवर्धन द्वारा बंजर भूमियों का पुनसंस्कार करना इस देश की नवें दशक के मध्य से ही घोषित नीति रही है। सीमांकित वन भूमि के अन्दर और उससे बाहर दोनों जगह की बंजर भूमियों को पुनः सुधारने के लिए बड़े-बड़े महत्वाकांक्षी कार्यक्रम बनाए गए हैं। अब यह बात अधिकाधिक महसूस की जा रही है कि ऐसे प्रयत्नों में परियोजनाओं की सफलता के लिए जनता की भागीदारी मिलना सबसे अधिक महत्वपूर्ण है। किन्तु, जनता को इसमें तभी साथ लिया जा सकता है जब लोग-बाग, जो अनिवार्यतः गरीब हैं, ऐसी परियोजनाओं से तत्काल और आंखों दिखने वाला लाभ प्राप्त कर सकें। वानिकी योजनाओं में, चाहे उन्हें छोटे आवर्तन वाली, शीघ्रवर्धी वृक्ष जातियां लगाने के आधार पर बनाया गया हो, कम से कम 5–7 वर्ष का गर्भकाल अवश्य लग जाता है, जितना समय ग्रामीण गरीब लोगों के ठहरे रहने के लिए कुछ ज्यादा ही है। यही वह जगह है जहां बहु-अवतान वानिकी में सपरीक्षण करने की जरूरत है, जिसमें जल्दी प्राप्ति देने वाली नकदी फसलें जैसे सबई घास (इयुलालियोप्सिस बायनाटा) इत्यादि वृक्ष-फसल के द्वितीय अवतान के रूप में

उगाई जा सकती हैं। जहां संभव हो वहाँ, वृक्षों के बीच छोड़ी जाने वाली जगह का उपयोग ऐसी कृषि-फसलें उगाने के लिए किया जा सकता है जो वानिकी फसलों के साथ उगाई जा सकती हों। ऐसी अंतर्वर्ती फसलें परिस्थिति-विकास वनीकरण परियोजनाओं में साथ देने वाले लोगों को तात्कालिक आर्थिक प्रत्याय उपलब्ध कराएगी और उससे लोगों की प्रिय और सक्रिय भागीदारी इन प्रयत्नों में मिलेगी। प्रस्तुत अभिपत्र में छोटे स्तर पर लाभ प्राप्तकर्ताओं द्वारा जो सभी स्त्रियां थी, वनीकरण के साथ अन्तर्वर्ती फसलें उगाने की परिस्थिति-विकास परियोजना चलाने की सफलता कथा वर्णित की गई है।