

Orchard development gives tribal communities new chances

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In 1995, BAIF Development Research Foundation initiated the Adivasi Development Programme in Dharampur, South Gujarat, India. The programme, which involved more than 11,000 families and 4000 ha of marginal land, is based on community-led participatory livelihood development. It seeks to promote horticulture, forestry species and crops. The WADI (orchard) model, as the approach is known locally, is becoming a very popular way of regenerating degraded lands and developing sustainable livelihoods for the rural poor. The programme has been selected for presentation at the UNDP Forum of Ministers on Poverty and Environment in New York, USA and EXPO 2000.

New economic perspective needed

Dharampur is one of the tribal blocks in Valsad District, South Gujarat. Over 90% of the population is tribal. Most of the tribals live in a forested hilly region. In former times there were dense teak forests but today tree cover has been reduced considerably and in the period 1986-1991 alone the forest was reduced by 8%. Part of this area has been brought under cultivation and about a third has turned into wastelands or is being used for settlement.

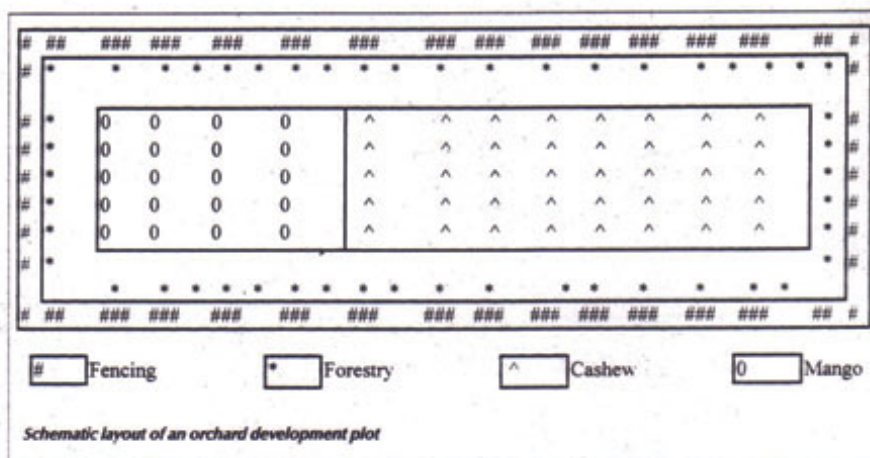
In spite of high rainfall (about 2000 mm), there is a water scarcity each summer. Most of the rainwater disappears in unchecked runoff. Tribal families have marginal land holdings often less than 1 ha and cultivate only rainfed crops: paddy, coarse millets, pigeon pea and oil seeds. Productivity is low because they practice low input agriculture under unfavourable land and water conditions.

Poverty in India is closely linked to a degraded environment. This is especially true for tribals, as they have a symbiotic relationship with the forest. Increasing population and the fact that they had little or no stake in forest management has resulted in the depletion of forest cover and the further reduction of ground water levels and increased topsoil erosion. As a result, food shortages are common and many people resort to labour migration leaving the area for nearby towns. Many loose hope and alcohol addiction is a serious problem. To provide tribal communities with more hope for a secure future a new, ecologically sustainable, economic perspective was urgently needed.

The Strategy

Land, Water and Manpower are the three major resources available in the area and an individual tribal family generates about Rs. 6000 or US\$ 120 each year by making use of them. This output is well below what families need to survive. Local people needed an assured income and livelihood. This could only be achieved by

involving tribal families in the upgrading of their resources in an effective way.



A three-pronged programme strategy was developed covering:

- Upgrading wastelands through orchard development
- Effective utilisation of available resources
- Involving and empowering people to manage their own resources

The orchard development programme provides long-term sustainable income for the family whereas effective use of available resources through soil and water conservation and crop cultivation provides the income needed to meet immediate demands. The programme aims to organise people and build-up their capacity for decision making and management. BAIF developed the basic concept underlying the programme during its work on the adjacent tribal block in Vaserda which started in 1982.

The Programme

- **Upgrading wastelands through orchard development**
The hilly terrain with limited water resources means that it is possible to develop either horticulture and forestry development on the tribals own land. A

programme for individual families has been designed taking into account average land holding size and the minimum income needed for subsistence. Each participating family cultivates horticultural plants in particular mango and cashew - on 0.4 to 0.6 ha of land. Some 600-1000 trees are planted on the border of each plot. A mixture of species are selected. These include teak, bamboo, *gliricidia*, *Leuceana leucepbala*, *Acacia auriculiformis* and *eucalyptus* to provide firewood, timber, fodder and green manure. The plot is protec-

ted by a live hedge of cactus or *Caesalpinia crista*.

Effective utilisation of available resources.

Land development: Heavy rainfall and poor vegetation cause severe erosion. Therefore, orchards are protected by building slope-specific, soil conservation treatments. Trench-cum-bunds are constructed on land with slopes less than 15%. Where slopes are more than 15%, trees are first protected by platforms and subsequently overall plot treatments such as trenching, gully plugging, and terracing are applied.

Water harvesting and utilisation

The area experiences two extreme situations - heavy rainfall during the monsoon and water scarcity during summer. Therefore, activities for harvesting available water and its efficient utilisation have been developed. These include:

- **Temporary check dams:** Immediately after the monsoon, the run-off water is harvested by constructing temporary check dams across the rivers and streams. These are constructed

inexpensively by using empty cement bags filled with sand and silt.

- **Spring development:** A number of well-dispersed perennial springs exist in the hilly areas. Though ground water resources are poor, the springs provide sufficient water to irrigate the orchards and cultivation of cash crops on a small scale.
- **Pot drip:** Pot drips are used in order to reduce the drudgery of irrigating orchards from head-loads of water and to reduce losses from evaporation and infiltration. The pot drip system consists of four clay pots dug in around the plant. The water in the pot diffuses into the soil through a hole in the bottom of the pot and in this way becomes available to the plant. This can result in water savings of over 50%.

Water resources development and land shaping through soil conservation measures are also used to encourage the cultivation of additional crops. Improved crop varieties are used and participants are given both training and the necessary inputs.

The Effect

- **Development of marginal lands:** The programme operates in 133 villages in the Dharampur Block. The measures have helped to turn 4253 ha of marginal lands and wastelands into productive orchards. Over 200,000 mango and 400,000 cashew trees have been established. About 30% of the plants have already started to produce fruit. At the same time the 5 million forest trees also planted are developing well.
- **Soil conservation measures:** Soil conservation measures have started showing results and treated plots show less soil erosion, improved plant growth and a better conservation of soil moisture.
- **Effective utilisation of land and water:** 200-250 temporary check-dams are built each year. Spring development work is in progress and more than 1500 families have started to use pot drips.

The effect of land and water resource development is clearly reflected in the changing cropping pattern of those participating in the programme. Rain-fed cropping practices are now combined with irrigated cropping. The type of crops grown has also changed. Participants used to meet their basic food requirements by cultivating only paddy and coarse millets. Now, they cultivate wheat, groundnut, turmeric, onion, watermelon, bananas and vegetables for the market.

Orchard trees
protected
by platforms.



Looking forward to a rich harvest.

People centred approach

The programme's main entry point is *the people*. The approach aims to encourage:

- **Peoples participation** by generating awareness and motivation,
- **Peoples education** to stimulate thinking and training and
- **Peoples capacity building** to create a basis for making independent decisions and monitoring work.

It includes:

Farmer to farmer extension: Exposure visits are arranged so farmers can visit similar or new activities established by other farmers both within and beyond their region. This provides an opportunity for direct interaction with fellow farmers and also motivates participants by making them feel: *We can do this as well!*

Peoples choice first: The overall programme has been planned with full regard to the people's needs. Peoples perceptions and choices are carefully considered when implementing the programme. Activities are selected or modified in the light of these requirements. Decisions relating to the selection of land for orchard development, the choice of tree species, the type of water resource development and soil conservation to be undertaken and the choice of crops to be cultivated are taken by all participants collectively.

Local resources development: Local resources have to be developed to ensure the success of the programme. In this context local youths have been trained as field guides (to provide agriculture-related services); technicians to repair hand pumps and engines; masons; barefoot accountants (for village-level record keeping) and health guides (to provide health services to the villagers).

Village planning committees: Village-level participant planning committees are

formed to organise village-level activities and develop local leadership. These are representative bodies of participants set up to plan and review programme activities, identify participants' needs and develop appropriate mechanisms to fulfill these.

Each planning committee has between 10 to 15 members and each member represents a group of 5 to 6 participants. The members of the committee are selected on the basis of specific criteria, such as having a good orchard or having a good rapport with villagers. In this way the right candidates are selected.

The committee holds monthly meetings to review ongoing work and plan work for the coming month. Village-level problems are sorted out and participants' needs are discussed. Planning committees are in operation in all programme villages. All the programme work, from the selection of participants to providing them with credit is routed through these committees. Their range of activities now include the provision of inputs for inter-crop cultivation, grain bank development, the operation of Agro-Service Centers, and the collection and processing of cashew nuts. Members from all these committees meet once in a year to share the experiences and find new directions. The synergetic effects of these joint efforts are leading to sustainable development!

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