

# Spring 1991

## CAMEL BREEDER NEWS



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"EXPLORING ALTERNATIVES IN INTERNATIONAL DEVELOPMENT"

### Beware of Agroforestry Miracles

by Bruce Petch

#### The Demise of the Miracle Tree

The last few years have not been kind to agroforestry components of rural development programs in Southeast Asia. First, in 1985-86 there was the infestation of a psyllid (leaf-hopper) that defoliated (often fatally) the miracle tree, leucaena (*Leucaena leucocephala*). Leucaena was by far the most widely used tree for rapid reforestation, improved bush fallow systems, contour hedgerows, fuel-wood plantations, fodder for stall-fed cattle and many other agroforestry systems. It was nearly always planted in monoculture. In many areas where leucaena had become the cornerstone of farming systems, the psyllid infestation was catastrophic, economically and psychologically.

#### Alley Cropping Works! But...

The second disappointment in agroforestry has been less acute but nevertheless strikes deep at the heart of many rural development programs. There has been increasing awareness that contour hedgerows (alley cropping) don't do quite what they were expected to do. In the alley cropping system, rows of fast-growing trees (planted along the contour) control soil erosion, provide green manure for the main crop, and act as a source of fuel-wood, fodder, and other products. Soil erosion has indeed been reduced where the technology has been implemented properly, and supplies of fuel-wood and fodder have been enhanced where the trees grow well. But the effect on crop yield has been decidedly mixed. Some farmers have reported modest or even dramatic increases in crop yield, others have found crop yield to be about the same as before, and still others complain of a decrease. The reasons for the variability are not yet known, but experiences with alley cropping throughout the tropics have been similarly uneven.

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# Negotiated Conservation: Experiences from India and The Dominican Republic

by Christopher Scott  
and Carolyn Richter

From extensive documentation of natural resource development projects in the Third World and our own experiences, it is clear that one of the most common causes of project failure is the inability of participants to conserve, protect, and otherwise maintain existing and regenerated resources. In other words, while agroforesters, agronomists and other "experts" are busy devising new technologies and integrating innovative project components, resources continue to degrade through lack of conservation.

Too often, projects address conservation only tangentially, or assume that participants will eventually view activities as being "in their own interest." Recent approaches to resource conservation and development have based protection on productive returns to conservation.

This article will briefly examine two such projects in an effort to draw lessons concerning the conservation of resources through negotiation prior to development. In both, irrigation serves as the catalyst for change.

## Hill Resource Management Societies Program (HRMS)

The HRMS program in the Shivaliks, foothills of the Himalayas in Haryana State in North India, has met with favorable response from local communities. Organized by the Haryana Forest Department (HFD) with support from the Ford Foundation, HRMS addresses comprehensive resource management.

In establishing a micro-plan for forest based resources, runoff water is considered a "minor forest product." In effect, supplemental irrigation from small, earthen, water-harvesting dams is used in negotiation over forest resource conservation agreements by HFD with local communities who have organized and registered themselves into societies.

The ability to withdraw the irrigation component allows considerable leverage on the part of HFD. Water is distributed to every household, regardless of landholding, and is subsequently traded among society members. Additionally, societies obtain assurance from HFD that they will receive first priority in the auction of leases for fodder and fiber grasses and other minor forest products. The societies harvest themselves while private contractors, who used to accumulate considerable profit from leases, are excluded altogether. Grass leases are purchased by societies through share contribution. Harvesting rights are then internally distributed such that each household's sickle costs a fixed amount per season.

With the availability of supplemental irrigation to produce fodder crops, most households have taken to stall feeding their livestock. Grazing in the forest is controlled through "social fencing," an innovative alternative to barbed wire and forest guards. Operational problems have implications for equity; water sharing has broken down in some cases. Prosperous households who can afford high milk-yielding buffaloes have benefited more than households who only keep goats. Labor input has increased

considerably, particularly for women, who bear the responsibility for livestock.

While these and other equity issues are being addressed, it is clear that conservation is extremely effective. The biomass productivity of forests has increased up to 40 times while erosion has decreased to 10% of previous rates. The societies are clearly pleased with their progress.

## The Fund for Investment in Natural Resources (FIRENA)

This project in San Jos\* de Ocoa, the Dominican Republic, provides a second example of how local communities use irrigation to achieve natural resource conservation. In the FIRENA case, the opportunity to irrigate offers farmers a powerful enough incentive that they are willing to: a) alter historical land tenure arrangements, b) modify agricultural production strategies, and c) employ sound conservation measures both on and adjacent to their farm lands.

Farmers on land with 20% slope or greater are no longer cropping on an annual basis. Instead, they receive permanent use rights to better lands whose former owners gave up access to part of these lands in exchange for irrigation, which is provided to all. The FIRENA case makes clear that full participation of farmers in protection of their resource base can be achieved if farmers recognize it is in their best interest to protect this base. In this way, new land use patterns are created that are environ

The FIRENA Project is di-

rected by the Association for the Development of San Jos\* de Ocoa (ADSJO). ADSJO is a locally based non-governmental organization with funding from a variety of sources including USAID and German Technical Services. In order to help the farmers involved in FIRENA, ADSJO believes it is necessary for farmers to learn to help themselves. Before farmers join FIRENA, ADSJO assists them in organizing into associations. ADSJO also believes that it is essential to develop and maintain strong ties with other organizations that support similar efforts. In particular, ADSJO works closely with the Secretary of Agriculture in order that each organization may learn from the other's expertise.

### Lessons Learned

Although a great deal differs between HRMS and FIRENA, both projects are located in rural areas, characterized by agrarian societies dependent on degraded, upland resources. It is striking to note the similarity in approaches they take. Several interesting lessons can be drawn:

1. Irrigation in Exchange for Conservation Agreements. Both projects use irrigation to attract farmers to conservation efforts. In other world regions irrigation could prove a suitable incentive as well. Where irrigation is not desirable or practical, other productive incentives could promote conservation.

2. Formally Structured Resource Users Association. HRMS and FIRENA both organize local communities into formal associations. Community members as a group, not implementing agencies, assume responsibility for the protection of the resource base.

3. Limited Geographical Coverage. HRMS covers 45 villages, all located within a half day's bus ride from the office. FIRENA projects are within a 4 hour radius (by vehicle) of ADSJO

headquarters. The implementing agencies stay in regular contact with the communities, thus diminishing potential problems.

4. Centralized Headquarters, Decentralized Approach. Both HRMS and FIRENA use the "hub and spokes" approach to development. That is, a central agency serves as the hub, while outlying communities are the spokes. Initially, important information flows outward as the implementing agency oversees the project development. Over time, the information flow becomes two-way. The central agency's involvement decreases as the decentralized communities take responsibility.

5. State-Local Collaboration. Each approach involves a particular blend of state, non-governmental and local organizations. The input of all actors is recognized and utilized since each has its area of expertise.

6. Sensitivity. A flexible approach is based on sensitivity. Since HRMS started 11 years ago, state officials

have been developing an appreciation for local attitudes toward resources. ADSJO was established over 25 years ago, and members have had time to develop a strong understanding of the needs of the peasants in the region.

### Conclusion

The HRMS and FIRENA projects provide insight on conservation strategies for negotiating resource development. It is likely that the lessons learned have widespread applicability. The utility of negotiated conservation should be tested in future development activities. ■

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The Rising Nepal