

Feature

Development

Helping the Tribes to help Themselves

An international aid and development scheme could begin to ease the burdens of landlessness, debt, hunger and destitution among struggling Indian hill-dwellers

LIFE is a continual struggle for survival among the tribes of Andhra Pradesh. Their only certain harvest is chronic privation and malnutrition. They are among India's 532 tribal groups, the most vulnerable of which are those in Andhra Pradesh State. There, population pressures have caused the over-intensive cultivation of steep slopes and insufficient soil conservation. Forest protection laws have restricted access to what were once sources of livelihood and food. And on the sidelines await unscrupulous moneylenders preying on chronic indebtedness. Using tribal expertise and traditional customs, the Andhra Pradesh Development Project is aimed at restoring an ecological balance in tribal areas to ensure food and raise incomes for over 63,000 tribal families (about 290,000 persons). Three basic obstacles will be tackled: environmental degradation, low crop yields and mounting indebtedness to outside moneylenders. With technical support, villagers will be encouraged to reforest hillslopes with trees and horticultural crops that will both arrest erosion and provide food or cash. Soil conservation measures will preserve and improve soil fertility. Food production will be increased through the expansion of small-scale irrigation, the introduction of improvements

in traditional dry-land farming methods and the planting of more nutritious crops, such as pulses. Chronic indebtedness to moneylenders will be combated by strengthening local credit and marketing systems. Small, informal thrift and credit societies of 25 or 80 members each will provide loans at reasonable rates for farm and community improvements. Women will be helped to form groups for processing and marketing minor forest produce, such as turmeric and tamarind and field crops, and for engaging in money-making enterprises. Like most of India's tribal communities, the tribals in Andhra Pradesh were once plain dwellers, gradually forced by other ethnic groups into isolated mountain areas where land is fragile, rural infrastructures primitive, and technical support non-existent. In the past, these small, close-knit communities were

able to fashion a decent life for themselves using the traditional rainfed podu methods, cultivating mainly millet, sorghum and maize. However, as population pressures grew and new laws restricted access to forests, they had access to less and less land. The tribals have been compelled to shorten the fallow period, with the result that soil fertility and crop yields are declining and food from forests is becoming harder to gather. The combination of over-intensive podu cultivation on the steep slopes and insufficient soil conservation measures on the lower slopes has resulted in severe environmental degradation. With podu cultivation no longer able to support a reasonable standard of living, the inhabitants are sliding into ever deeper destitution. Once food self-sufficient, these rural households now can hardly produce 30 to 60 per cent of their needs. As part of the government's

efforts to reverse this downward spiral into poverty and hunger, the US\$46.5 million Andhra Pradesh Tribal Development Project was launched in four of the State's most depressed districts: East Godavari, Rampachodavaram, Srikakulam and Vizianagaram. The project is financed by a US\$20 million loan by the International Fund for Agricultural Development (IFAD). Co-financing the project are the Netherlands, the United Nations Population Fund and the Government of India. The project aims to assist more than 60,000 families grow or buy enough food to become self-reliant. It will provide the poorest, particularly women, with the means to diversify their crops and introduce soil and water conservation works and other irrigation facilities. This is a delicate job, for it requires introducing improved technologies and more effective

practices without undermining traditional tribal values and customs. A major constraint is the fact that literacy among these people is the lowest of all tribal groups: 7.8 per cent overall and only 3.5 per cent for women. Drawing on lessons learned for IFAD's ongoing tribal development project in Orissa, the project will work from "the ground up" rather than from "the top down"; that is, it will build on village meetings that, from the start, will fully involve men and women in identifying needs, recognising the causes of environmental degradation and low crop yields, understanding the benefits of proposed initiatives, and planning and carrying out activities. A key factor will be the selection, by each community, of individual men and women who, after appropriate training, will serve as village agricultural extension agents, community health workers and the like. The tribes of Andhra Pradesh are now beginning to receive the additional attention and support they need to build a reasonable life for themselves. The process will not transform the environment or eliminate poverty and hunger overnight, but it does hold promise for many who are willing to participate in shaping a better future. — Depthnews



Local people engaged in labour-intensive rural public works. — ILO.

Bangla Women Prove Food Aid is no Dole-out

The question is whether the women will have the same zeal when wage support is withdrawn. But it seems certain they will continue to take interest if their livelihood is ensured. by Mostafa Kamal Majumder

BARAIBARI: It is a unique scheme to replant forests, involving partnership between the rich and the poor. The poor, in this case, are 90 per cent women, preferably the purely landless, destitute, widowed and divorced. And by taking care of tree seedlings, they are assured of daily wages for three years. The rich are big landowners who can afford to lend for free their idle and fallow lands to these women for 20 years, in return getting half of the timber and fuelwood produced. Bakaton, 40, is the main wage-earner in a family of four. They are landless and the husband is already old for manual labour. But the family received 4.67 kilograms of wheat a day. This is because Bakaton raises and nurses 200 trees on a plot of land owned by a prosperous farmer. When the trees will mature she will get 30 out of every 100 trees. Bakaton is a resident of Baraibari village in Gazipur district, about 50 kilometres north of Dhaka, the capital. Bakaton and many other women are beneficiaries of a unique afforestation programme launched by POUH, a non-governmental organisation, with support from the World Food Programme, which provides the wheat through a food-for-work scheme which diversifies the uses of food aid. A novelty of the food-for-afforestation programme is that the survival rate is close to 100 per cent. This is because workers like Bakaton tend the trees full-time. Like others like her, Bakaton plants a new sapling in place of a dead one. Another good thing going for the programme is that, landowners closely cooperate. At Baraibari, for instance, the landlady asked Bakaton to

build a thatched house beside the tree plantation so she can keep watch better. Like other workers, Bakaton used to do domestic work in other homes and could have food once or twice a day. Now their family have three square meals a day, with extra money for clothes. They grow vegetables and seasonal fruits, to which landowners are not entitled to a share. The aim of the food-for-work scheme, after all, is to enable these women to be independent after three years with other sources of income. Mostly from savings, Bakaton in just 16 months has bought a cow and two goats. The afforestation scheme was launched in 1988 with 10,000 sapling pilot project. Today it has spread to 156 similar schemes in the country. Scattered from Teknaf and Harvang in the south to Rangpur and the Dinajpur in the north. In 1991, about 2.84 million saplings will be planted under the supervision of 19 NGOs and three local councils. About 8,000 beneficiaries - 90 per cent of them destitute women - will receive 17,273 metric tonnes of wheat. The programme has been so successful that afforestation was made a regular component of the WFP in Bangladesh - 5 per cent, in fact, of WFP's activities in the country for 1991-92. The programme is growing faster than we expected. Even before we could sit down to reassess the whole thing," says Gaston Eyben, WFP Director of Operations for Bangladesh. The aim is to create regular income for the poor through more productive use of food aid, normally used for construction of roads, excavation of canals and other infrastructures. "Participatory forestry on private lands seems to be something new," says Mr Eyben. "It looks like a people's forestry." The long-term objective is to facilitate the faster growth of forestry, the near-term goals create more forestry re-

sources, generate employment for the poor and create livelihood from trees and other forest products. Under the programme, NGOs get afforestation schemes sanctioned according to WFP guidelines approved by the Ministry of Environment and Forests. NGOs motivate landowners to allow the use of their fallow land on a production-sharing basis and select destitute women from the neighbourhood to raise and nurse trees. What is supplied to NGOs from local government depots, Saplings come from local forestry offices which also advise on planting and nursing methods. The programme is badly needed in a country which has only about 8 per cent under forest cover. Dr Harour er Rashid, head of POUH, says it also helps prevent erosion as well as raise the economic status of beneficiaries. A key question, however, is whether workers like Bakaton will have the same zeal when the food-for-work scheme is withdrawn after three years. It is assumed that NGOs running the programme will continue to take interest (they also get 20 per cent share of the trees sold for institutional services). But officials are optimistic workers themselves like Bakaton will continue to be interested, once they find out that decent livelihood is possible. — DEPTHNEWS

INDIAN medical scientists may soon be providing the world with the latest contraceptives. The Institute for Research in Reproduction at Bombay appears to be making significant progress in the development of two contraceptive methods which are designed to overcome some of the misgivings over existing techniques as well as expand the range of choices available to those who want to have fewer children. These methods are a contraceptive pill for men and a nasal spray for women. Of the two, the contraceptive pill for men is the more radical as contraceptive development is generally designed for women. As a result, women often have to carry the burden of planning the size of their families. The new male contraceptive will enable more men to assume the responsibility of limiting the number of children in the family. Males have a narrow choice if they wish to participate in family planning — the condom, a vasectomy (sterilisation) or withdrawal. The Institute for Research in Reproduction has applied for an international patent for the study of the pill. The World Health Organisation (WHO) has also asked its family planning experts to look closely at the pill. According to Dr Chander P. Puri, assistant director of the Institute, the pill, which is taken at bedtime, weakens the sperm causing a decline in their functions. Tests were carried out on

India Works on Pill for Men

The male pill is radical as contraceptive development is mostly designed for women. by Prakash Chandra

four adult male bonnet monkeys who were treated with the drug for 75 days. Results showed a significant decrease in the sperm's ability to move without affecting their sperm concentration or libido. There have been other attempts to develop a male pill. But no acceptable fertility drug for men has been produced despite major research efforts. The problems relate to individual and ethnic responsiveness to the hormones tested and the complex process of sperm production by the testes (spermatogenesis), which is not yet fully understood," a WHO report says. The report points out that the number of sperm produced by normal men, which total hundreds of millions per day, presents a formidable problem for regulatory control by drugs. Most investigators believe that an effective male pill

should be able to suppress completely sperm production so that there are no sperm during ejaculation. But there are also theories that this requirement could be relaxed if it can be shown that, even if production is only partially suppressed, the residual sperm are incapable of fertilising an egg. From Dr Puri's explanation, the pill being developed by the Bombay Institute is capable of rendering the sperm released ineffective. But Dr Puri is quick to say that the pill's success, so far, has only been recorded in trials involving animals. "It is too early to say anything. The clinical trials on humans are yet to begin," he says. Dr Puri also reports very encouraging results from tests conducted for the nasal spray contraceptive. He says some 50 volunteers have shown signs of the spray's anti-fertility effects by changes in the hormones and cervical mucus. Experiments on the spray, which uses the chemical norethisterone (NET), were conducted on women at three institute centres in Jammu, the JJ Hospital in Bombay and the Institute for Research and Reproduction. The spray was administered for six cycles. Of those women who participated in the tests, only two were found to have conceived after using the spray. Earlier, the same experiment was carried out under controlled conditions on six women for two cycles at the

Bombay Institute laboratory. The spray was found to affect ovulation. The tests also showed that the NET spray was very well received by the volunteers. Side effects resulting from the use of other contraceptives — like menstrual disturbances — were not noted during the tests. The tests also indicated that the administration of drugs via the nasal route may be a quite efficient way of giving medication. It was found that the availability in the body of NET and other steroid hormones, among others, seemed greater when the drugs were administered through the nasal rather than oral route. This finding offers several other possibilities. The Institute is now trying to look into the potential of nasal drug administration for other purposes. One major experiment is the administration of insulin through nasal spray. Dr Puri says success in this experiment will be a blessing to diabetic patients who are given painful injections to get their daily dose of insulin. He points out that the nasal route is non-invasive, self-administrable approach of delivering drugs into the system. It rules out time-consuming trips to the doctor for injections. Despite the promise shown by the two products being developed, the Institute's senior officials stress that there is still a long way to go. Research is very encouraging but it will be a long time before either the pill or the nasal snuff contraceptives can be used in family planning. There is also the question whether or not the new products will be accepted. Researchers stress that it is not easy to persuade millions of people, particularly in rural areas, to accept new methods of contraception.

Hu, Wheat Breeder — An Outstanding Woman in Chinese History

by Zhao Qinghua

AS a middle-school student in Shanghai, she was unable to tell wheat from leek. Today, at 57, Hu Daoen is known internationally as the first to develop a viable wheat variety with another wheat culture, and the only one to have produced three excellent varieties with this method. Another is that part of a flower containing pollen. In another culture, wheat plantlets are bred from anther in bottles before they are cultivated in fields. Another culture is deemed better than the conventional method of hybridisation. In the latter, cultivation is done in wheat fields and superior gene types obtained from previous hybridisations tend to degenerate. In contrast, plantlets derived from anther culture retain the good qualities of their parents, thanks to their stable gene combinations. Because of her achievement, Hu Daoen has been named one of the 15 Most Outstanding Women in Chinese History in a primer published by the State Education Commission and endorsed by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). As the only girl among five children, her parents had hoped Hu Daoen would study medicine or music. However, she was drawn to agriculture

by the strong influence of her grandfather, an activist concerned with the relief of victims of incessant floods in northern Jiangsu Province. "Every time I heard a story about starving peasants, I thought I should do something in the future to help," she recalled. In 1954, a well-known Soviet agronomist who bred more than 50 new varieties of fruit trees through hybridisation, became her idol. Two years after graduating from the Beijing Agricultural University, Ms. Hu was sent to Timiryazev Agricultural University in Moscow, where she studied hereditary breeding for five years. Famine spread in China in 1961 following natural disasters and erroneous government policies. Ms. Hu, who was working with the Beijing Municipal Academy of Agricultural Sciences, was asked to lead a team of young scientists to breed fine wheat strains for the Beijing area. It took the team eight years to breed two fine varieties of wheat with conventional methods. In 1976, the Beijing Municipal Science Commission assigned her a new project: breeding high-yielding wheat varieties with another culture. Although many scientists had used the method to improve crops, no one has yet bred a wheat variety for commercial production.

MONK AS A SAVIOUR

Global 500 Laureate 1990

Phra Tejadhammo is a Buddhist monk living in the jungle of northern Thailand. He established a monastery to achieve a balance between society and nature. Using his Buddhist philosophy and intuition, he saved villages from starvation and engineered wide reaching conservation projects.

Phra Tejadhammo is a forest dwelling monk who spent part of his life wandering the forest trails of northern Thailand. In the Mae Soi Valley, Phra Tejadhammo has a special path that leads to an ancient meditation cave. The path winds seven kilometres through a forest laced with streams that are shaded by enormous teak, ironwood and mango trees. The forest is alive with wild birds singing and at night Phra Tejadhammo would lie under the stars listening to the sounds of wild elephant and the occasional cry of a leopard. After several years Phra Tejadhammo returned to find that the forest and wildlife had disappeared. The once lush forests had been reduced to kilometres of knee-high stumps, cracked gullies and barren hills. Northern Thailand's "Garden of Eden" had crumbled and now resembled a sunburnt desert. During Phra's absence, companies requiring wood to cure tobacco had logged almost all the forest from the roadside halfway to the ridgetops. International companies had also obtained concessions to cut teak in the forest of the valley, while others secured similar concessions to fell hardwoods in the area. Yet this destruction of the Thailand forests was not confined to large international companies. Among hill tribes fleeing from Vietnam, Myanmar (Burma), Laos, and

Cambodia had also devastated the ridgetops with their traditional slash and burn farming practices. Watershed forests had been slashed and burned to grow traditional crops of rice and maize and the cash crop, opium. Mae Soi villagers had also cut down the remainder of the forest for firewood. This deforestation, and the subsequent slash and burn agriculture, was causing widespread destruction of watersheds in certain areas of northern Thailand, especially in the Mae Soi Valley. Water supplies in the valley suddenly disappeared and the clear felling of forests was causing severe erosion, leaching and the silting up of rivers. Dejected but not defeated Phra Tejadhammo decided to cease his wandering and start a monastery in one of the small remnants of forest that had survived the devastation. The temple was an unofficial wildlife preserve and he began teaching the practice of sustainable resource management to hill tribe and valley farmers. The monastery also provided a meeting place for Thai and Tibetan scholars, educators and conservationists. Before long, books had been written to teach conservation at the grassroots level. In 1988, Phra Tejadhammo, with friends and a grant from the Ford Foundation, formed The Dhammanat Foundation. Their philosophy is to strive for a balance in society (Sila-dhamma) by changing government, business, and lo-

cal people's attitudes and practices toward the forests. The Foundation's aim is also to campaign for forest conservation by raising funds and training village people in conservation methods. Maintaining this balance within the nature of the individual, the society and the environment is a concept already familiar to Buddhism, known as Silatham. By using this concept, Phra Tejadhammo and his colleagues have succeeded in giving the villagers a new impetus to care for their forest. Silatham has taught the villagers to recognise that the forest is not only a saleable commodity but is the foundation of all life. "When we protect the forest we protect the world. When we destroy the forest we destroy the balance, causing severe hardships to the people," said Phra Tejadhammo. Since its creation the Foundation has succeeded in developing agricultural holdings, irrigation systems, reforestation programmes and rice banks to alleviate food scarcity in certain forest areas. Nurseries have also been established to grow seedlings. Phra Tejadhammo is now supervising the construction of bridges, huge holding tanks for water and tree planting. To prevent further damage to the Hmong watershed, Phra Tejadhammo and the villagers have also fenced off the ridgetops and set up around the clock patrols to guard the area. In 1986, Phra Ajarn led

500 people from Mae Soi Village in Chiang Mai on a march up the mountain to erect a fence around their forest catchment area. The Mae Soi project is visited regularly as a pioneer model project in sustainable development by national and international groups. Recently, the Royal Forest Department of Thailand released degraded forest land to be developed as new Forest Villages, and non-governmental organisations and governments have provided machinery for irrigation systems, seedlings for reforestation and labour. The Mae Soi project has encouraged some 90,000 people from a neighbouring valley to follow suit. Rural Development now aims at relieving dependence on the forest, and conservation projects begin to restore the valley's natural balance. The initiative and action undertaken by Phra Tejadhammo is a magnificent example of how one man can provide the impetus for turning destruction to construction. Phra Tejadhammo's positive action has helped these in need today and his ideas will provide for those of tomorrow. In 1990, UNEP presented Phra Tejadhammo with the Global 500 award. The award has reduced opposition to Phra Tejadhammo's project and his once controversial initiatives are accepted in official circles.

Ancient and Modern Methods

RAINWATER catchments are as old as the dug wells found in ancient human settlements. Rainwater was stored in cisterns for domestic water supply as early as 2000 B.C. The greatest of the ancient Sri Lankan kings, Parakramabahu (1153-1186), built or restored 163 major water reservoirs (called tanks), 2,167 minor tanks and 3,190 irrigation channels. One of the tanks covered 3,000 hectares and was called the Sea of Parakramabahu. In India, rainwater harvesting is still widely practised in Nagaland and Mizoram. There, seasonal rainfall is available for half of the year and is the only source of water supply. It is the only region in India where household cisterns provide domestic water for a large segment of the population. A 200-bed hospital, for example, gets all its water needs from roof catchments and a huge underground reservoir. In high-tech Japan, ponds (called tameikes) hundreds of years old are still used by farmers. Tameike ponds have been built in 20-30 per cent of the flatland in the Setouchi region where it is an essential

part of rice cultivation. There are now 30 tameikes in north-east Thailand, introduced by Kyoto University and Thailand's Chulalongkorn University to drought-stricken and saline areas. About 800,000 million cubic metres of rain fall on Thailand each year. Most is lost to evaporation and absorption, and only 200,000 million cubic metres are left to fill waterways and rivers, lakes and low-lying areas. Of this Thailand can only store 20 per cent, or 40,000 million cubic metres. Cement jars to collect rainwater thus go a long way. The Thailand Jar Project is aimed at providing 9 million cement jars for 3 million families. The 2-cubic-metre jar costs US\$20 each; two are needed for a family of six using 30 litres of water a day for drinking and cooking. Indonesia is a leading country in rainwater catchment development. In 1977, a non-government organisation called Yayasan Dian Desa (YDD) began to work in the Gunung Kidul area and, together with the local community, developed rainwater tanks. The next year, YDD introduced a 9-cubic-metre ferro-cement tank which was low-cost, easy to build by villagers and simple to operate and maintain. Because the villagers are good in working with bamboo a water tank made of cement and bamboo (instead of iron bars and wire mesh) was developed.