

## 4.6 THE PATH OF REDISCOVERY

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*Today in India, rural people are struggling to make ends meet in a fast changing environment. It is not only their ecological resource base that is threatened; also national and international legislation are not addressing their major concerns. Green Foundation, a NGO, situated in the dryland region of South India, is working to enhance biodiversity as a means of sustaining the livelihoods of the rural people. Innovative methodologies have been developed to recover traditional crop varieties, medicinal plants, and sustainable ways of producing food, within the cultural context of the people.*

The very foundations of traditional agriculture have been given hard blows over the past decades. The introduction of monocultures and high yielding varieties, and the associated application of external inputs, have increased the economic dependence of farmers and eroded the rich and diverse bio-genetic base. More recently, the removal of subsidies by the government has made farming a less viable option for many rural people. Increased contacts with the 'modern' world of towns and cities, as well as exposure to mass media and the influence of outsiders have had an impact, especially on the younger population. While the older members of rural communities are often independent and rich in skills and knowledge, the young people are at cross roads, still seeking their values. As lifestyles, values and knowledge change rapidly in the rural context, the need to conserve the fast shrinking natural resource base assumes paramount importance, so as to secure the livelihoods of the people who rely on these resources for their survival.

Development, including the perception of poverty, hitherto has been determined on criteria based on the western concept of economic growth. Governments that took over from the colonial rulers adopted this model of development, without realising the consequences on their people. This development process can be called 'exogenous', because it is initiated by external influence, is rooted in the market economy based on cash transactions, and includes unsustainable use of resources, often alien to the local cultural ethos. In a market-oriented economy, development means to increase people's purchasing power and participation in the consumer market. Peoples' non participation in the market economy is therefore often misconstrued as poverty. During an informal dialogue between a Green Foundation fieldworker and village elders, the latter explained their perception of welfare as 'sowbagya'. This concept of welfare includes 16 aspects, amongst others, having good children, good health, wealth, bravery, adequate food throughout the year, long life, good neighbours and friends, a healthy environment, a good family, communal harmony, as well as a good administrator who takes care of the people.

### The location and its people

The communities that Green Foundation works with are located in a highly complex rural environment not far from Bangalore, a major city. Around 90% of the farmers depend on rainfed agriculture. This area with a predominantly Hindu population is dynamic and driv-

en by the urban market. As a result, a plurality of strategies and a diminishing sense of identity as farmers can be observed. A third of the total population of 148,000, however, lives either inside or adjacent to the forest. The remoteness of their location has to a large extent kept their traditional culture and lifestyles intact. These remote villages, often with tribal populations, have been neglected as far as infrastructure and services such as approach roads, education, health centres, transport and communication, are concerned.



*Sowing finger millet, the major food crop, with other intercrops, using two types of seed drills simultaneously.*

The people still resort to the forest for their food crops and income-generating resources off-season or in summer. Bamboo shoots, tubers, gooseberries and special tender leaves are the most preferred food supplements. Due to increasing population and migration, deforestation is a common feature. The farmers have maintained crop diversity, the level of which depends on the influence of modernisation. In most areas a basic mixed cropping system still exists, while indigenous seeds have been replaced by high yielding varieties in varied measure. *Ragi*, or finger millet, minor millets, pulses and oil seeds are the main crops.

**The caste system and gender biases.** Traditional societies in India have certain deep-rooted caste differences and gender biases that need to be analysed and questioned in a constructive way. The caste system has divided the communities, and is very apparent in how the benefits of development are shared. People of the lower castes have for long been deprived of the opportunities, though the government in its political manifesto has attempted to reverse this through various interventions. Despite people like Mahatma Gandhi and other leaders, who have pursued the cause of educating the masses, many parts of interior India still retains the ugly face of the caste system. Women's development has also been denied over generations. Therefore, any attempts to bring about change through endogenous development have to give prominence to the poor and deprived.

Caste groups like Lingayat and Vokkaligas dominate the area. Other castes such as Vanniyar, Gounder, Vadda, Kumbai, Golla, Besta, Harijans, as well as Muslims, also live in the villages. Farmers belonging to the lower castes and tribes live apart, in separate

colonies with own water sources and poor conditions. Even today their involvement in day-to-day affairs and social occasions are taboo.

Though diverse in caste, people normally follow the common values, rules, customs and beliefs of their community. Along with the major festivals they also celebrate local festivals associated with the village deities to give thanks, to evoke blessings for good harvests, and to secure the welfare of the entire village community.

**Cosmivision and traditional agriculture.** Traditional agriculture in India is one of the oldest, yet one of the most advanced forms of food production. Traditional practices are a result of farmers choosing crop types or varieties depending on soil depths, water holding capacity, slope and drainage, and by observing their interactions with each other. The combinations of different agroclimatic conditions, such as low rainfall, high temperatures and different soils, gave rise to various crop combinations and crop rotations. The limitation of household labour further determined the type of crops and cropping patterns. Traditional agriculture generally ensured food security and preserved genetic diversity.

#### *Influence of the planets*

Some of the traditional beliefs about farming are linked to the influence of the planets. The sun is addressed in the *Vedas*, the ancient Hindu texts, as the soul of the universe. The texts describe the planets, and how the planetary positions of the sun and moon affect the sea, causing tides. They also affect the stores of fluid on the surface of the earth and its vegetation. It is an old belief in traditional agriculture that trees should not be cut close to the time of the new moon, for the sap dries quickly. It has been shown through experiments that the maximum growth of wheat corresponds with the period of the increasing moon and that maize was found to grow best when planted two days before the full moon.

#### *Women, seeds and rituals*

Gender and biodiversity are linked symbolically as well as in the material domain. Women play a major role in conserving seed at the farm level: they decide on the amount of seeds to be preserved, the variety, and the preservation methods. Because women share the sacred power of *Shakti*, the female power of reproduction, they are vested with the responsibility of selection, conservation and propagation of seed. These activities include a variety of ceremonies and festivals.

A few days before sowing, the seeds are taken out of storage. They are dried and those damaged by pests are discarded. Directly before sowing, the women take the seeds to the house deity for a blessing. Women also worship the draft animals and the farming implements that will be used for sowing. None of these rituals are followed for the seeds of high-yielding varieties bought at the market. While the local varieties are considered sacred, the high-yielding varieties are regarded as impure. Seeds of the latter kind are sent directly to the field and are sown only by men.

Coinciding with the appearance of mustard, the first flower to bloom in the field, a festival called *Gowri Pooja* is celebrated, in which the relationships between the plant and the soil, water and other crops are maintained. The Goddess Gowri is identified as the Goddess of water, essential for crop growth, as well as with the fertility of the flower for

good grain formation. Working in the fields, women continually observe the plants and decide which seeds to select. They identify plants of good quality on the basis of size, grain formation and resistance to pests and insects. To cover the risk of drought, women select enough seed to see them through two seasons.

When the selected heads of grain are brought into the threshing yard, women welcome the first cartload with a ritual. On the last day of threshing women worship the mounds of grain and a portion of each mound is given to the poor. A gift of grain is also presented to the families who have helped with the harvest. Before the seeds are carried away for storage, women ritually invoke the forces essential for a good crop in the next growing season. This ritual is also an important part of seed preservation as some of the leaves used in the ceremony have insecticidal properties.

Each region has its own way of testing the quality of the seeds. *Neglu pooja* is an important ritual performed as a test of germination before sowing. Two new ploughs are placed in a north-eastern position and tied together. A sheath of areca palm leaves is attached and a mixture of manure and cow dung deposited inside it. Nine varieties of seeds are then placed in this mixture to germinate - sorghum, finger millet, niger, field beans, red gram, horse gram, mustard, paddy and castor - and water is sprinkled. A symbolic deity made of mud is placed on top of the leaves and worshipped with flowers and fruits. After nine days the seedlings are examined. The varieties with the best germination results are chosen for cultivation. Healthy germination is crucial to cultivation, and the ritual marks the celebration of diversity.



Family members examine the results of *Neglu Pooja*, a germination test of different seed varieties.

## Green Foundation

Green Foundation is a grassroots organisation working with marginal farmers based in the dryland region of Thalli, some 70 km from the Bangalore metropolis in Tamil Nadu, South India. The main objective of this NGO is to restore faith in the indigenous farming system and re-establish valuable practices that are on the verge of extinction, so as to ensure rural livelihoods on a sustainable basis. In the activities directed towards conserving, promoting, and reviving genetic diversity, seed and soil conservation are its major concerns. Though the main conservation activities focus on traditional agricultural crops, they also include bio-pesticide plants, green manure crops, medicinal plants for humans and animals, agroforestry, and wild plant species.

Green Foundation considers cosmovision as a basic element in its development strategy. Animators and knowledgeable people like spiritual leaders and local healers, who know the local language and culture, form an essential link between the staff and the farmers. Therefore, in 1998, before engaging in field activities and group formation, a survey to assess the prevalence of traditional healers, spiritual leaders, existing wild flora and fauna, and resourceful people was done. It also allowed for the identification of potential animators and volunteers. The survey brought to light the existence of traditional practices in agriculture and health in most villages. It also allowed the mapping of biodiversity at village and ecosystem level.

Green Foundation is aware of the cultural difficulties related to the caste system and gender biases, and this concern cuts across all its interventions. In rural India women play a central role in agriculture as well as in all other walks of life. When it comes to decision making and social positioning, however, they are often marginalised. We have observed an increasing awareness among women about the need to conserve biodiversity and the local knowledge base, and women are thus central in the activities.

**Biodiversity conservation and training centre.** Green Foundation has established a biodiversity conservation centre in Thalli. On this demo-farm seed varieties from various eco-regions have been collected and are experimented with, to determine their viability and acceptability in the farmers' fields. Germination is tested; crops are monitored on the effects of drought, as well as pest and disease resistance; grain and fodder yields are determined. Presently the seed bank consists of: 41 varieties of dry land paddy, 36 varieties of wetland paddy, 70 varieties of finger millet, 10 varieties of little millet, 6 varieties of pearl millet, 10 varieties of sorghum, and 6 varieties of foxtail millet. The centre has a herbarium and many photographs and slides on traditional crop varieties. Activities of the centre include food processing, annual seed fairs, documentation, publications like seed catalogues and strengthening indigenous knowledge and related practices.

The centre also provides training programmes for farmers, women's groups, and school children in the areas of seed, soil, water and biodiversity conservation. For example, youngsters have been trained as 'barefoot taxonomists' who then analyse the local biodiversity. Green Foundation has also hosted two meetings of spiritual leaders at its training centre. On both occasions spiritual leaders chose to display their skills in communicating with the supernatural powers, and a forum where traditional healers and spiritual lead-

ers could share their experiences was initiated. Among them were Goravas, a singing nomadic sect; Kanikara of the Irula tribes; and Dasas, a religious sect, who are also story tellers and traditional healers. Having identified a select number of spiritual leaders, we will work closely with them to explore the use of spiritual powers in conserving biological diversity and promoting the well-being of the community.

**Training and attitude of field staff.** Green Foundation staff is involved in various activities with the villagers to get a better understanding of their cosmovision and indigenous practices. Village fairs, festivals, village agricultural rituals and ceremonies are some of them. Interactions with village elders and informal discussions with prominent persons are also important in this respect. The meetings with the spiritual leaders have given insights into many traditional practices. The leaders have also stressed the need for reviving the traditional rituals and boosting the morale of villagers in continuing with these practices. The need to cross caste barriers and gender differences was obvious, though not always easy. The field staff would sometimes come across practices about which they would question the rural people. In one case they were able to discourage a particularly barbaric sacrifice ritual of buffaloes; in another village the sacrifice of goats during a Karibanta ritual was replaced by vermin mixed with water.

**Field methodology.** Our Compass field programme, which was implemented 4 years ago, aims at enhancing endogenous development by linking biodiversity with culture. Against the backdrop of the hybrid culture in the rural area where Green Foundation is working, a two-pronged strategy was adopted, according to the level of modernisation of the different areas: 'in-situ' and 'on-farm' conservation. There is a subtle difference between these two conservation approaches. In the areas where the agricultural societies remain relatively untouched by market forces, and modern crop varieties have not been introduced vigorously, the farmers have conserved traditional varieties for generations. Green Foundation's strategy here has been to encourage farmers to be aware of the importance of this 'in-situ' conservation. In areas where a plurality of cultures exists, for example, near large urban centres, Green Foundation is stimulating the farmers to make informed choices by conserving traditional seed varieties on a small portion of their land and by evaluating them. This 'on-farm' conservation has been extended with seeds from similar climatic regions, which has added to the genetic pool in the area.

"What methodology did Green Foundation use to revive the cultural and biogenetic diversity?" is a logical question at this point. Here, we present the five major aspects of the methodology Green Foundation has followed in the past few years: creating awareness, documenting indigenous knowledge, experimentation, creating institutional structures, and networking.

#### *Creating awareness*

One of the major concerns, and the first step in the methodology, was to create awareness about the importance of biodiversity and culture, and foster bonds with and amongst the rural people. Over the years we have developed several ways to create awareness, such as organising regional and local seed fairs. These fairs bring together farmers from vari-



*The annual seed fair provides a forum for exchange of indigenous seed varieties, knowledge and practices.*

ous states and provide opportunities for the collection and exchange of indigenous seed varieties. The regional seed fairs are held annually at the Green Foundation farm since 1993. Over the years the seed fairs have extended to the villages and are usually held after the harvest. With the start of the Compas programme in 1998, a new dimension was added on. The event now starts with a traditional ritual, thereby testifying its importance in Indian agriculture. Traditional seed varieties are displayed, as well as 'cosmovision charts'. Folk songs and dances, that were threatened by extinction, are presented during these seed fairs. Local groups of folk artists, local health healers, school children, and women who go from village to village telling stories of the flora and fauna, are honoured for their contribution to promoting genetic and cultural diversity.

#### *Documenting indigenous knowledge and practices*

Documentation of indigenous knowledge and practices related to crop diversity is the next step in the Green Foundation methodology. This is an ongoing and integral component of the programme. Besides specific data related to the traditional crop varieties, the documentation includes more general aspects, such as technologies to increase disease and pest resistance, pest management, agricultural rituals, weather forecasting, community fairs/festivals, health care systems, plant genetic resource conservation practices, food security practices, spiritual perceptions, folk tales, and tribal culture and traditions. Most of the documented techniques are simple and often quite effective. For example, a mixture of sand with cow's urine functions as an organic nitrogen supplement to the soil; controlling rats with mint leaves has been successful.

To document indigenous knowledge and record oral culture, a combination of meth-

ods like observation, participatory rural appraisal, guided field walks and interviewing the elders in the villages is used. Many times we found that the information is incomplete as far as form, content, language, and a host of other factors are concerned. Eroded cultural values may explain this problem in part. The fact that indigenous knowledge has a strong practical base, but a weak theoretical foundation, is another reason. We have concluded that, unless a concerted effort is made to document oral knowledge, the next generation will have very little of it in written form.

### *Experimentation*

Though well aware of the advantages of traditional crops, farmers are often hesitant to switch back to them all at once. Instead they follow a very cautious and step-by-step approach that enables them to withstand risks. Therefore, if practices and rituals are to be revived, it is necessary to experiment with them, to understand their nuances and give them more scientific validation. Traditional seed treatments for withstanding stress and ensuring early germination are important practices that we have documented and experimented with. In this process a participatory breeding programme of finger millet and rice has been initiated, which involves farmers in the selection process. Farmers determine their selection criteria and after suitable material is identified, on-farm trials are carried out to test acceptability in farmers' fields. Other experiments include rituals and ethnoveterinary methods to treat and prevent livestock diseases. An example is the experiment with the *maddina madike*, or 'medicinal pot', which includes soaking 16 medicinal plants in a pot for several days and using the water for treating various livestock ailments.

It is not only in reviving and strengthening lost practices that Green Foundation intervenes, but also in adding elements of external knowledge. An example is biodynamic farming, which has influenced our farming practices in the cultivation of rice. The biodynamic concept (see chapter 7.2) is quite similar to those that rule Indian traditional science and folk knowledge. A group of farmers in 8 villages has experimented with so-called 'preparations', herbal medicines prepared according to the biodynamic methods, on their paddy crop. Farmers have found the results to be positive with improvement of yield, grain colour, tillering, pest and disease tolerance, and lodging resistance, in both millet and paddy crops.

### *Creating institutional structures*

Strengthening village-level organisations is another central element of the Green Foundation methodology. Distribution of seeds was first conducted from the centre in Thalli. Later on, the aim was to strengthen and promote decentralised systems of seed distribution. The villagers opted to revive or start farmers and local artisan *sanghas*. The general membership of these groups is between 15 and 25. These village-level organisations, which include a large number of women, take their own initiatives. They identify seed requirements for the following year, and select and purchase their stock from the savings of sangha members. In each of the sanghas a central storage room has been set apart, and seeds are being conserved by using traditional methods.

### *Networking*

Networking is the fifth and final important element in the methodology used, and is taking place at various levels. Networking between the different villages and farmers' groups within the project area is stimulated, for example, by the dissemination of the quarterly newsletter 'Pairu Pacche' in the local language. Other publications in the local language include the agricultural calendar, with details of auspicious days for agricultural activities, and posters on specific themes. The national and international level of exchange is stimulated by the publication of the GREEN Update in English. Three books and two CD-ROMs have been produced. Networking also takes place with other organisations in Karnataka state, and at national and international level, also with Compas partner organisations.

## Examples of field activities in cosmovision perspective

**Enhancing biodiversity and related cosmovision.** On-farm conservation of traditional crops and marketing of the surplus of their seed to fellow farmers is being re-established in the villages. The objective of this exercise is the continuous improvement of crops and the conservation of sustainable livelihood systems. Apart from seed conservation by individual farmers, the highlights of these seed conservation efforts include community seed distribution, training of farmers as seed keepers and an association of farmers who will take the movement forward. The revival of appropriate traditional seed storage facilities has brought down the costs of inputs.

The impact of this work is quite impressive. For instance, in the year 1997, only one farmer in Yerandapanahalli was growing 'Godivari', a wetland paddy variety. By the year 1999, 25 farmers from his and surrounding villages had begun to multiply seed of this unique wetland paddy. Between the year 1994 and 2001, the number of farmers who participated in seed conservation has increased from 10 to 794, and the number of villages has increased from 2 to 113. Many other farmers have informally acquired seeds from the conservation centre. Through seed fairs and awareness campaigns, there has been a consistent increase in the varieties that have been conserved by farmers, in the case of ragi, from 21 in 1998 to 52 in 2000. Dryland paddy varieties grown on-farm have increased in the same period from 14 to 37 and wetland paddy varieties from 11 to 32. This shows that farmers have broadened the genetic base of ragi and paddy varieties. The traditional crop varieties revived cover a range of food-crops, like finger millet, dry land paddy, wet land paddy, pearl millet, sorghum, maize, little millet, foxtail millet, kodo millet and proso millet. Also traditional varieties of beans, peas, greens, brinjal, tomato, red gram, green gram, black gram, horse gram, chilli, gourds, oil seeds and other vegetables have been revived. Traditional village organisations that have been revived in 31 villages now manage seed diversity. Community seed banks (8 at present) have also contributed to a broader genetic resource base and provided seed and food security to the farmers.

**Involving school children.** School contests in biodiversity conservation are used as a means of involving school children, the first of which was held in August 1995. Our first step is to establish contact with the head of the school and explain Green Foundation's



*Enthusiastic children at the government high school show the medicinal plants they have identified in the wild.*

philosophy and the relevance of indigenous knowledge. This is followed by a slide show on traditional practices and agricultural biodiversity, and stories and songs reflecting the need to preserve culture are shared. For the school competition, children are requested to collect information from (grand)parents or often knowledgeable people. So far five schools have organised such a contest, which has resulted in information on several topics. 'Traditional health care for humans and cattle' attracted the most entries; the other subjects were wild flora and fauna species, agricultural tools, indigenous varieties, riddles, folk tales, village fairs, agricultural rituals, religious ceremonies and traditional recipes. Two prizes and eight consolation prizes were awarded to successful entries. Parents were encouraged to attend the prize giving ceremony. With the encouraging response, school competitions have been extended to include several primary schools,

twelve high schools, three pre-university colleges and a university.

Our experience is that establishing contact at the school level has been an effective way of disseminating information. Children from different villages attend the same school. Thus the school is important for gathering information that might not otherwise be found. School competitions have made it easier to involve children at village level meetings. Through these contests teachers have also been sensitised. Villagers are often reluctant about sharing hidden knowledge, particularly with outsiders, whereas they share it readily with children and other family members. Elders were happy to see their children being involved in reviving knowledge, customs and traditions and have therefore significantly contributed to the effort. Other initiatives with school children involved 'demonstration plots', in which groups of high school children tended various finger millet varieties and observed their performance.

**Village-level biodiversity registers.** A more recent effort was to document indigenous knowledge related to natural resources. Patenting and intellectual property rights have become crucial issues in recent times and awareness on these issues seldom reaches the

grassroots level, where the major custodians of the natural resources are found. In order to create people's awareness and ownership of these resources, and avoid any bio-piracy, the concept of 'biodiversity registers' was introduced in 32 villages of Achubalam Panchayati. A central 'biodiversity conservation committee' was formed, together with village sub-committees consisting of local health practitioners, farmers, cattle grazers, forest guards, school teachers, village elders and other resourceful people.

The initial work of the village-level committees was to draw a resource map of sacred groves, rivers, fields and forests. Thematic concerns, such as renewable energy resources, traditional healing, traditional artisan skills, medical plants and their uses, and traditional farming practices were also documented. The data was consolidated through field visits under the leadership of local resource people. At the end of a six-month period the village level biodiversity registers were drafted. Updating and protecting the natural resources in the area is easier now, because this biodiversity document serves as a frame of reference.

**Reviving agricultural rituals.** Two agriculture related rituals, *Negilu pooja* and *Karibanta*, have been revived in different project villages. *Karibanta* was once an important ritual related to pest and disease control, performed before the harvest in drought prone regions. It has now ceased in popularity and is on the verge of extinction. Farmers have expressed a desire to revive this ritual as part of their cultural practices. *Karibanta* is a community ritual performed with the advent of the rains, when the ears of grain begin to mature or when crops are especially prone to pest attacks. A platform is constructed in the plot with branches and leaves of the *Karibanta* tree. A big branch is fixed in the middle of the platform, and a turmeric soaked cloth containing 5 varieties of grain (ragi, horsegram, little millet, paddy and field bean) is tied to the pole indicating the commonly grown varieties of crop. Three uncut stones are placed in front of the platform and worshipped by applying vermilion and turmeric. Villagers worship the *Karibanta* branch and request that their crops be protected against disease and pest attack. *Karibanta* is believed to protect crops from pest attacks or diseases, e.g. Leaf Blast or Leaf Spot in millet.

Farmers assess the impact of *Karibanta* by looking at the size of the area in which crops are protected, the level of aphid attack, the degree to which ears of grain wilt, and the presence of red spots (*Kembatti* disease) or neck blast on the crop.

**Bio-cultural seed villages.** The concept of the 'bio-cultural seed village' as a single market area, and centre for endogenous development, has been developed over the years. Laxmipura, a village located approximately 20 kilometres from Thalli, was identified as an ideal location, being in the midst of indigenous communities and tribal groups. Initiatives undertaken in this village include community organisation, seed conservation, strengthening health traditions, promoting kitchen gardens, reviving the cultural heritage, children's activities and marketing. The local sangha organisation is now promoting on-farm conservation and multiplication of traditional crops, such as paddy, foxtail millet, areca, chillies, and red gram.

A community hall was restored and painted for the sangha meetings. A children's group is growing traditional crop varieties of paddy, finger millet and vegetables on com-

munity lands. Composting using earthworms has been adopted by some of the farmers in the area. Village-level mapping of Laxmipura and surrounding villages was undertaken and the village level biodiversity registers were completed and subsequently handed over to the headman of the village at a village gathering. A herbarium of medicinal plants has also been developed, to cater to the growing health requirements of the farming communities.

Next to sanghas, other village-based groups of resource people, spiritual leaders and local health practitioners are being built up in four villages. At Laxmipura, twelve spiritual leaders were brought together, while at Mastapanadoddi the tribal Irula cultural revival is a major undertaking. In Bellalam village, knowledgeable persons, spiritual leaders and health practitioners as well as the youth are actively involved. At Aralagadakalu, village experiments with traditional farming are being carried out. All these groups are engaged in the finalisation of agricultural calendars.

**Marketing of organic products.** Farmers, who grow food crops like ragi, rice and minor millets organically, keep what they require for household consumption; the rest is collected and sold to consumers of organic food in the city Bangalore. Women at different sanghas have also been encouraged to add value by making organic food products, which are also marketed. Examples are ragi and rice pappads, ragi flour mixed with edible spices and jaggery, ragi and pulses fried and flavoured with edible spices. Products like honey, chilli powder, tamarind and pickles are also included. Though the demand for organic products remains inadequate, the sale of organic food has generated an income for farmers and improved the economic and social status of women.

## Reflections on endogenous development

Diversity in agriculture is the heart of sustainability. The approach adopted by Green Foundation has enabled farmers to control the choice of crops adapted to local conditions. Critically evaluating the relative merits of a wide range of cultivars allows farmers to have confidence in the varieties they choose. This makes them less dependent on the market. Marketing of seeds and grains may have great potential in the future. The increased demand for local seeds from different regions is supporting economic security. We have found that the alternative seed systems need to be enhanced by an alternative marketing system, both for seeds and grains. In this sense, endogenous development involves supporting strong farmers' networks, which can continue with developing sustainable practices for better yields and enhancing the marketing infrastructure.

Rural people are enthusiastic to reveal information on indigenous knowledge and culture. The majority of the farmers mentioned that it was the first time that anyone inquired about their traditional practices. With awareness spreading about the significance of reviving their culture and crop varieties, the farmers are positive and are interested in retaining many practices. The local healers are feeling encouraged and are showing keen interest in recovering local herbs that are becoming extinct. The role of the local spiritual leaders has been strengthened by reviving agricultural festivals and rituals.

At the same time, several constraints need to be tackled. It has been observed, for example, that many indigenous practices and rituals cannot be tested by simply using standardized tools or techniques. Since they are not laboratory-based experiments, it is difficult to control the environment and observe consistently and make analyses. Experiments which involve beliefs, spirituality and other non-quantifiable components are difficult to measure.



*The local concept of welfare includes having good children, good health, wealth, bravery, adequate food throughout the year, long life, good neighbours and friends, a healthy environment, a good family, communal harmony, as well as a good administrator who takes care of the people.*

The methodology for implementing these experiments needs to be worked on.

An external evaluation in April 2000 concluded that the efforts of Green Foundation have contributed to an appreciable increase in seed diversity in the project region. The creation of sanghas, village-level seed management committees and farmer seed conservation networks leads to decentralising and strengthening activities at the grassroots level. But, the rapid globalisation process makes the task of genetic diversity conservation a difficult one. Therefore, policy advocacy, through strategic alliances, at all levels is important. Moreover, in-house resourcefulness among staff is needed to address overall development issues within a rapidly changing internal and external environment. Maintaining the enthusiasm of the farmers to reinvent the good elements of traditional practices will also depend on the ability of Green Foundation to facilitate a wider movement. This up-scaling needs to be done at several levels: at the village level, by strengthening the village level organisations, at the NGO level, by networking and experience sharing with other institutions, and at the general policy level.

Culture and indigenous knowledge generated by resource users are under constant threat by external forces. It is our belief that crucial aspects of endogenous development such as the local economy, livelihood and culture can be protected from total erosion. Small initiatives to protect culture and indigenous knowledge, such as these, facilitate the conservation effort and thereby the kind of agriculture that stands at the basis of the livelihood of millions of farmers.