

Fruits of Diversity

Global Justice and
Traditional Knowledge



**Fruits of Diversity.
Global Justice and Traditional Knowledge**

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An Association of the Protestant Churches in Germany (EED)
Ulrich-von-Hassell-Straße 76, 53123 Bonn, Germany
Tel.: +49 (0) 228 81 01-0, Fax: +49 (0) 228 81 01-160
E-mail: eed@eed.de

Author: Uwe Hoering

Editorial staff: Michael Frein, Erika Maerke, Angela Krug (editor in chief)
Translation into English: Janet Barton
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Women are at the heart of maintaining and further developing the foundations of food and health.

Preface

This brochure is about the need to protect traditional knowledge. What is it about it that is worth protecting and who does it benefit? And why is a developmental organisation of all things interested in this? Isn't its job to promote development that overcomes tradition and to pave the way for modernity? Isn't the call for the protection of traditional knowledge the romanticised conservation of things that belong in a museum?

Reality can answer these questions quickly and unequivocally. For many poor people, especially in the rural areas of the South, their own agriculture is the most important basis for their diet and, sometimes, also the source of a modest income. Over centuries farmers have bred local varieties that are adapted to the natural conditions of their environment. They have learnt how they have to deal with these varieties so that the yields are as high as possible over generations and the families can be fed. The traditional knowledge accumulated in this way is the basis for their survival today.

However, industrial production methods, operated by industry and promoted by politicians, have been gaining ground and suppressing traditional cultivation methods and local varieties for a long time now. The experience of the small farming population with modern agro-industrial agriculture is sobering. For every harvest, new seed has to be bought from the large multinational agricultural and chemicals corporations, and in addition plant protection agents and fertilisers are needed. The soils are quickly leached, the harvest yields are soon below expectations, the spiral of debt becomes ever more drastic.

Traditional knowledge does not belong in a museum; for the majority of the world's population it is the foundation for survival. The churches' ecumenical work, in particular, attaches great importance to conserving Creation and takes up the traditional knowledge of humankind. The protection and further development of this expertise do not mean a standstill or even a step backwards; they are a contribu-

tion to sustainable, and thus future-oriented, development.

Traditional knowledge is not only limited to knowledge about food production. Healers know how to use herbs, roots and extracts and to use them to fight disease. Natural preparations are used to combat pests and to preserve foods and seeds. Multinational corporations are interested in these plants, their active agents and knowledge about their use in order to make marketable products from them that can quickly be sold all over the world. While they secure themselves the rights to their products with the help of patents and other „intellectual property rights“, the rights of the local and indigenous communities and peoples to their intellectual property remains unprotected: as it is not covered by the patent legislation of the industrialised countries, the traditional knowledge in the countries of the South is freely available, as it were. Although traditional knowledge is protected by international agreements, this protection is inadequate and without the right force.

This is where politicians are called upon to greatly change the international treaties, their provisions and their political weight in favour of the poor and the marginalized in future. Those affected must be given the opportunity to play a key role in shaping these changes. At the same time, the local people must be strengthened in conserving, protecting and further developing their knowledge. It is obvious that this alone is not enough to solve all the problems of food security and rural development comprehensively and all at the same time. Questions such as land distribution, access to local markets and the international agricultural order also play an important role here. These questions cannot, and should not, be discussed exhaustively here. Neither is the focus on the problems that modern agriculture may cause with BSE, feed and hormone scandals. Much rather, the intention of this brochure is to use a specific example to illustrate that the protection and further development of traditional knowledge offer viable perspectives for many people

in the South – and, what's more, that it is a question of justice.

For many years the Church Development Service – An Association of the Protestant Churches in Germany (EED) has been cooperating with a number of organisations in Africa, Asia and Latin America that stand up for the conservation of biodiversity, the protection of traditional knowledge and the rights of local communities and indigenous peoples. It promotes their activities with funding and arranging for experts, if needed offers advice and is a partner in the representation of the political

interests of the poor people of the South in Germany, Europe and at an international level.

One of these partner organisations is the Deccan Development Society (DDS) in India, with which the EED has cooperated for a long time. The DDS does exemplary work that shows that not even the poor in the South have to helplessly accept international treaties and national policy that run counter to their interests. The protection of traditional knowledge does not belong in a museum, but on the agenda of policy that is aware of its obligations to sustainable development.

Monika Huber

Director International Programme

Wilfried Steen

Director Development Policy and Domestic Programmes



Diversity and self-awareness: This farmer proudly shows off her own seed bank. This means that she and her family are independent of commercial companies and their industrial seed production.

Of true seeds and false promises.

Traditional Knowledge Systems as a Contribution towards Food Security and Survival

Sarkari Vittanalu, „Government seed“ is what the women farmers in the Medak District call the high-yielding varieties of sorghum, rice or wheat distributed by the state agricultural advisors. They promise better harvests, higher incomes, food security. But the farmers have their own experience: they say that the new varieties make the soil „lifeless“. Moreover, white rice does not give you enough strength to work in the fields and wheat flour causes itchy skin and rashes.

By contrast, it is enough to eat one *roti*, a round flat loaf made of the local millet *jonna*, in the morning to last the whole day. Their own traditional crops not only provide nutritional food, but also animal feed and help to improve the soil. But they complain that there is hardly any seed for them. Even the dealers in Zaheerabad, the nearest small market town, sell only

modern seed manufactured by commercial companies.

Rainfed agriculture on the Deccan Plateau

Good seed is a key requirement for food security, alongside fertile soil and sufficient water. This is especially the case for the central Indian Deccan plateau, where the Medak District lies. The soils are mainly barren, leached and stony. For eight or nine months of the year not a drop of rain falls. But the short rainy season between June and August, September is all the more severe. In addition, the monsoons have become ever more unreliable since the forests that used to be here have disappeared. Rainfed agriculture is thus becoming an ever greater risk.

Nothing can be done against the moods of the weather gods. But the risk can be cut. Over generations the farmers, especially the women,

This farmer has a good reason to smile – he reaps good harvests. Not a matter of course in the arid Central Indian Deccan plateau, with its barren soils and low rainfall.



What is the „Deccan Development Society“?

In Zaheerabad, a rural town in the barren arid region of the Deccan Plateau in the Indian Federal State of Andhra Pradesh, development specialists and committed intellectuals



The women are responsible for the food and health of their families.

founded the non-governmental organisation Deccan Development Society (DDS) in 1983. Its goal was to organise a self-determined and sustainable development initiative for the especially poor and disadvantaged population groups – above all the „Dalits“ (Untouchables) and ethnic minorities („Adivasis“), the landless and small farmers. They were convinced that they could succeed in enabling people without schooling and capital to greatly improve their social and economic

situations by means of organisation, further training and financial support. In the process women moved more and more to the fore.

Today DDS, starting from the little village of Pastapur, works in 75 villages in four sub-districts of the Medak District. In every village there is a women's group in charge of the numerous activities, such as seed collection and distribution, the savings and loan group, the children's nursery, etc. Together with these women's groups, which are now well integrated into a network, DDS is committed to

- strengthening the villages' independence with regard to access to resources,
- promoting food security and the further development of agro-biological diversity by using traditional knowledge and sustainable agriculture,
- advancing community development in the villages by setting up and strengthening the self-help structures and improving social and economic conditions,

- influencing local, national and international policy in the interests of these goals by network formation, public relations and lobbying.

Much has been achieved since this society was established. Over 80 traditional – ecologically and nutritionally valuable – grain and vegetable varieties have been „rediscovered“ and today they are helping to secure the food supply of small farming families. Adapted irrigation and farming methods have improved soil fertility and increased yields. The children of poor families study in the „Green School“ and evening schools, where they learn important things about food production, the protection of the environment and resources, health and community development as well as reading and writing. The production and sale of composts, biological pest controls and organic foods supplement the families' incomes. Healthcare in the villages has clearly improved thanks to the (re)distribution of traditional herbal remedies and methods. Women play a key role in all areas. Small-scale women farmers, who have never attended a formal school, are now even standing up in public discussion fora in order to present their interests to transnational groups.

The right to food, the protection of traditional knowledge and the conservation of biological diversity all have a high priority for the EED. They are important requirements for a form of sustainable development that can be supported and controlled by the poor themselves. For this reason the EED has been working with the DDS since 1985.

have developed a large number of different crops, especially millet and lentil varieties, that were ideally adapted to the climatic and geological conditions of the arid regions. The women farmers call this agro-biological diversity *sa-tyam pantalu* (crops of truth), which makes few demands in terms of water, soil or fertiliser.

A proportion of every harvest is stored for the next sowing, in a natural breeding process varieties with special properties selected and developed further. Food security is the prime objective, not high yields or income. *Pannendu Pantalu*, a well developed mixed cultivation system, combines risk reduction with the optimum use of scarce resources: at least twelve different crops, including forage crops, oilseeds and pulses, which also help to improve the soil, ensure a balanced, diverse diet. In this way even poor soils yield something and there is always an emergency harvest even with little rainfall. Added to this are numerous wild vegetables, medicinal herbs, fruit trees and forage grasses.

By contrast, rice, wheat, sugar cane, cotton or other high-yielding varieties that are promoted by dealers and agricultural policy are unsuitable for most small farming families. To achieve the promised yields they need good soil, fertilisers and irrigation. But the little black earth

land is in the hands of the rich families from the higher castes, such as the Reddys. They can also afford expensive deep wells with strong motorised pumps for irrigation. This is not the case for the small and marginal peasant families, many of them *Dalits*, who occupy the bottom rung in the Indian caste hierarchy.

Admittedly they did receive a small piece of land of their own in the land redistribution that took place in this region after Independence, unlike many other parts of the country. But the land is mostly poor, the fields hardly bigger than one or two football fields. That is not enough to live on. So they enter into service as day labourers on the Reddys' fields. The wages are low, and often they are paid only with grain. If they want to buy subsidised rice, soap or flour in the state *ration* shop they therefore have to borrow money. Many people are highly indebted and have to work as bonded labourers. As the summer months come to an end, when the stocks have been used up but the new harvest has not yet been brought in, the food situation becomes critical for many families.

Caught in this cycle of poverty, many of them leave their own fields unused. Sometimes the women plant a little sorghum or other

Plant Hit Parade

When asked which crops are especially important, the women place yellow sorghum at the top of the list, although its yield is lower than that of the new „improved“ varieties. It forms the basis of various farming systems, thus supporting diversity and, at the same time, provides food and animal feed. *Cash crops*, such as *voma* or *bishop's weed*,

which are mainly grown in monoculture, come far lower down for them.

By contrast, yellow sorghum occupies only place three among men. The top two positions are taken by two varieties of *pigeon peas*, or chickpeas, that are particularly profitable. Other *cash crops*, such as cotton or garlic, which need irrigation and agrochemicals are

much more important to them than to the women.

Many agricultural advisors and politicians are of the opinion that small-scale agriculture should produce mainly for the market because of its small fields. Basic foodstuffs could then be bought with the income. But the women want to grow their own food.



quick-growing, low-maintenance millet varieties that, however, bring only low yields. This fallow land speeds up erosion by the wind and the rain. Monsoon rains wash away the fertile soil layer that is often just a few centimetres. Instead of food, it is stones that „grow“.

Growing Gulf

The „government seed“ is one of the pillars of the „Green Revolution“ that the Indian Government launched in the 1960s. Its ambitious goal was to end the recurring famines and growing food imports that were costing India a great deal of money and making it dependent on suppliers such as the United States. With a combination of the new high-yielding varieties, such as hybrid seeds, agrochemicals and favourable loans, industrial, monocultural agro-economics moved into rice and wheat farming. Instead of giving the hungry the opportunity to feed themselves by redistributing the land, or improving traditional agriculture in semi-arid regions such as the Deccan plateau, for example, production increases due to technology and market-oriented incentives were supposed to secure food production.

At first this approach appeared to be working. Year on year grain production rose. The

state-owned *Food Corporation of India* bought the harvest at fixed prices and thus guaranteed sales. It then distributed the grain cheaply to low-income population groups via a nationwide network of *ration* shops. It looked as though this would guarantee an adequate supply of food for the poor. The phantom of famine crises and food aid seemed to have been overcome.

However, the „government seed“ only brings higher yields on good soils, with sufficient irrigation and fertiliser. But, it is mostly only wealthy farmers from the higher castes who have these resources and who therefore benefited mostly from the Green Revolution and the modernisation and industrialisation of agriculture, which then went on to revolutionise the cultivation of sugar cane, cotton, peanuts and fruit in the following years.

For many small farming families who were seduced by the promises of higher yields and incomes, loans and modern farming methods, the progress became a nightmare. For example, at the end of the season when the sugar factory decides which fields should be harvested first, the rich and influential farmers come first. The others often have to wait for months. They continue to run up costs, but the quality, and thus the prices, of their sugar cane are falling.

The situation is similar for many families who succumbed to the temptations of cotton growing. To supply the textile mills in Bombay and Ahmedabad with raw materials, the Government promoted the cultivation of the „white gold“. Representatives of the seed companies and dealers tempted farmers with favourable loans for seed, pesticides and fertilisers. But when the yields collapsed after a persistent drought and increasing pest resistance to the agro-poisons, many were trapped in debt. Hundreds committed suicide out of desperation.

In addition, the commercialisation of agriculture has exacerbated the water shortages. To irrigate their sugar cane fields the

This means that plants that need little moisture and are resistant to pests are important to them. And they set great store by plants that are needed for the rites and festivals – such as *foxtail millet*, a variety of millet that is used to prepare a pudding as a sacrificial offering, or *chick peas* for *bajji*, a popular snack during festivals.

These considerations and needs are of hardly any significance to the men. Furthermore, what the food looks like is more important to them than the nutritional value. They prefer the white, gleaming rice to sorghum, which appears yellowish and pulpy when it has been cooked.



rich farmers operate their motorised pumps around the clock with the result that the ground-water level is falling dramatically. Open wells and streams, upon which the poorer groups of the population depend for their water supply, are drying out.

The landscape changed with the Green Revolution – from traditional crops to modern, commercial varieties, from *food crops* to *cash crops*, from self-sufficiency to production for the market. This meant that the dependencies and involvement in the monetary economy grew. Alongside the rain, price policy, market demand and the multinationals' sales strategies now determine fate.

At the same time, the gulf between the losers and the winners of the Green Revolution, between wealthy farmers and the majority of the rural population, between the rich and the poor became even wider. The natural links bet-

Satyam Pantalu – Neglected and Suppressed

The Green Revolution and the industrialisation of agriculture, which favoured those regions with good soils and the wealthier farmers, brought the semi-arid areas such as the Deccan plateau, in particular, further marginalisation. Cheap loans and harvest failure insurance policies are available only for *cash crops* such as sugar cane, grain and fruit or cotton, but not for *food crops* in rainfed agriculture. And the state buyers take only rice and wheat, but no sorghum or lentils. White rice and wheat that reached even the remotest villages thanks to the state distribution system, PDS, also changed eating habits. Some millets were denigrated as „famine food“ even though they are more nutritious than rice and flour from the *ration* shop. Its advantage of still offering a degree of certainty, even under the most unfavourable

conditions, became a stigma. In the countryside as well as in the cities traditional foods became more and more forgotten.

Thus, in the past decades, the Green Revolution and the „government seed“ have largely suppressed *Satyam Pantalu*, the traditional farming methods with its diversity of adapted and nutritious plants. Whereas over 80 different varieties of millet, grain, pulses and lentils were used in the 1960s, today only 20 to 25 remain. Since the mid-1960s the proportion of foods in agricultural production has fallen from 80 to 60 per cent, especially due to the fall in coarse grains such as millet. And whereas on average more rice and wheat are avail-

able per head, the available daily ration of important providers of vitamins such as lentils and pulses has halved. This means that although there is more food, nutrition has deteriorated.

„As the large companies and market forces took over the agricultural market, they margi-



Manual labour instead of herbicides – women from Krishnapur weeding.

ween the environment and agriculture were also impaired: the water crisis has now assumed threatening proportions, chemical fertilisers, agro-poisons and incorrect irrigation methods are causing further serious environmental damage.



The Green Gold.
A DDS worker explaining
the many possible uses
of the neem tree.

nalised millet, the fields on which it grew and the producers with their knowledge and skills“, P.V. Satheesh, Director of the *Deccan Development Society*, the DDS, summarises the impact of the Green Revolution. This means that knowledge about traditional, well-honed usage systems, such as *Pannendu Pantalu*, which was handed down from generation to generation, were slowly lost.

The women say that it is mostly men who are susceptible to „progress“ in the form of high-yielding varieties and tractors. „They believe in a developmental leap“, are more ambitious and let themselves be seduced by promises from agricultural consultants and advertising, mainly aimed at men. „We women then have to carry the can for it“ is the complaint about the loss of food security.

Independence and Self-Awareness

That is why a few women farmers in Humnapur, Kalimela and other villages in the Medak District started to increase the cultivation of their traditional seeds a few years ago. They did not want to continue to be dependent on *Sarkari Vittanalu*, the „government seed“. The revival of traditional agriculture and the productive potential that had been lying fallow in the fields was, however, not easy. In order to break the vicious cycle of low yields, labour, neglect of their own fields, soil erosion and debt, several problematic areas had to be tackled at the same time. „Eco-employment“ is the buzzword that the DDS coined for this.

How it started

„We were well-meaning intellectuals“, recalls P.V. Satheesh about the founding of the *Deccan Development Society* twenty years ago by a group of senior white-collar workers, journalists and academics from the state capital Hyderabad. However, their „good intentions“ of helping the poor rural population soon proved to be unsuitable.

To improve irrigation, for example they helped farmers to dig wells. But as the soils are unstable, the wells have to be constantly maintained. And the pumps often broke down because of the strong fluctuations in the electricity supply. Instead of higher yields, the farmers ended up with debts and some lost their land.

The „well-meaning intellectuals“ have now changed their approach. „The people themselves have the solutions to their problems,“ explains Satheesh. The DDS therefore sees itself only as an „agent“ for implementing these solutions.

For example, when the Government planned a house building programme the women were critical: the building material was too expensive, this meant that the Government grant was not enough, what's more it was brought in from a long way away. And as builders from the city would be doing the work, there would hardly be any employment for the locals. Instead, they then built houses according to their own ideas, with locally quarried stones or out of clay, which were thus much cheaper.

In recent years the women have set up self-help groups, *sanghams*, savings and loans groups, which are also the organisational basis of the diverse activities for reviving traditional agriculture. Moreover, they have repeatedly carried out demonstrations to give further weight to demands such as the ban on alcohol or genetically engineered cotton, with which the American agribusiness Monsanto wants to conquer the Indian market.

Instead of toiling on the fields of the rich farmers for a meagre wage, the women farmers, especially single women such as widows, work on their own small plot of land supported by start-up finance from the DDS. Together they build low embankments to protect against ero-

sion, remove stones and improve the land bit by bit with natural fertiliser made of manure and straw. But even then, most of the fields are not suitable for the „government seed“ without artificial irrigation.

So they returned to *Satyam Pantalu*, their traditional crops. And to mixed cropping. It was quickly seen that high yields that are not far behind the modern varieties are possible in spite of the small fields because of the intensive land management. For example, *foxtail millet* can be harvested just ten weeks after sowing in mid-June. By then all stocks have usually been used up and this, quick, first harvest helps to prevent hunger. Two or three weeks later several varieties of sorghum are ripe, and then the *cowpeas*. The last harvest is of the *pigeon peas* in February. They used to live from hand to mouth as day labourers, says one of the women farmers, today in the kharif season in the summer alone she harvests enough to be able to feed the five members of their family for eight months.

One initial problem, however, was to procure the seeds that many believed had been

lost. Gradually, the old varieties were collected, from parents-in-law and grandparents, who still cultivated them out of contrariness and old habits, from relatives living a long way away and from neighbouring villages. Some even came from the gene bank of The International Agriculture Research Centre for the Semi-Arid Tropics, ICRISAT, in nearby Patancheru.

The women also know the characteristics of the various varieties, they know the soils on which they grow best, which need little rain, which add nitrogen to the soil, which are resistant to pests. Some women farmers became *seed keepers*, who store, multiply and distribute the precious seeds. Now at least 1,500 small and marginal farming families in around 75 villages once again have access to their own, traditional seed. „We don't need the 'government seed' any more“, say the women from the village of Humnapur in Medak District proudly.

The women farmers do not need any pesticides, either. Many of their plants are hardly susceptible to pests. In other cases, help comes from biological pest control with an extract of neem leaves or natural predators, such as ants

Keepers of the Seed

In Lakshamma's small, dark hut there are piles of baskets of all different sizes, sealed with a thick, grey layer of clay. They contain the treasure of the proud owner, the basis of her diet, her independence, her self-awareness – her own small seed bank.

Lakshamma keeps bringing more small, colourful clay pots from her clay hut: in the end there are 83 in rows on the terrace formed of stamped earth, arranged according to the harvest season and species – various millet varieties, two varieties of upland rice, peas, beans, peanuts, sesame, mustard seeds, ... The colour spectrum ranges from black through all conceivable shades from brown, orange and green to yellow and white. There are long and round grains, flat and lumpy ones, large and small ones.

Two thirds of the species and varieties are for the *kharif* season when the monsoon brings the rain, around a third for the dry *rabi* season when the plants largely depend on the soil's own moisture and a few brief showers. Lakshamma smiles mysteriously and reveals that she keeps a few secrets to herself, or just passes them on to a few women.

As a result of the regular sowing on the women's fields, the seed is regenerated and conserved – a living gene bank without refrigerated chambers. The baskets in which Lakshamma keeps her treasure are sealed with a mixture of clay and cow dung. Ashes and neem leaves protect against pests. In this way the seed can be kept for at least a year.



or birds that would have been dispelled by pesticides and herbicides, but are now returning.

On the one hand, they have no costs for seed or agro-poisons, but on the other hand they have more to eat. For this reason they are also less dependent on labour. They only work as day labourers when they have time and need money, for example in the sugar cane harvest. The Reddys, the wealthy farmers, report that they do not have enough people now. Wages have therefore risen, even though they are still below the state minimum wage.

The return to own seed also means much more than lower costs. Sowing can be adapted much more flexibly to different soil conditions and fluctuations in the weather, dietary wishes and other demands, such as animal feed or soil improvement, than is possible with commercial seed. And the women can help each other – they „lend“ seed that they get back with „interest“ after the next harvest. Some women's groups have even been able to sell seed and save the money.

Pirates and Patents

Resowing, exchanging seeds and selling seed used to be common practice in the traditional farming system. But this was scarcely possible with the „government seed“. Reseeding with high-yielding varieties results in reduced yields. So new seed has to be bought for every season.

And multinational seed companies, such as Monsanto, try to prevent the reuse and exchange of seeds, after all it ruins their business. Farmers who buy their seed must undertake not to use any part of the harvest for the next sowing season or to pass it on to third parties. Private detectives monitor compliance. To be absolutely certain, Monsanto and other multinationals are turning to „Terminator Technology“. Plants are made infertile by the insertion of specific genes. Protection against passing on and reseeded is therefore embedded within the plant itself.

One of the companies' strongest weapons for protecting their profits is patent law. The World Trade Organisation (WTO) international Agreement on „Trade-Related Aspects of Intellectual Property Rights“ (TRIPs) demands that „intellectual property“ be granted comprehensive protection, including by developing countries. But it is not absolutely necessary to protect a newly bred plant variety with a patent. In prin-

Anjamma's Field

At first glance Anjamma's field looks as though it urgently needs to be weeded and as though several plants at once have bolted. But order prevails in this green confusion: the traditional system of at least twelve different crops, including four different varieties of millet, two varieties of

red gram, lentils, beans and two oil-seeds, is called *Pannendu Pantalu*. „This means that even under the most unfavourable conditions there is still



something to harvest,“ she explains. „However, if I only grow one variety and it is lost, then I have nothing left.“

Anjamma and her husband have worked hard for a long time. When they got married they only owned a sickle. First of all they worked as day labourers, then as *sharecroppers* who had to hand over half of the yield to the landowner. After a while they had their own team of oxen that they hired out. Finally, they bought four *acres* of land, a large square plot, some of it even with fertile black earth.

Anjamma, too, has her own seed, over 60 varieties and species. She makes up her own „plant cocktail“ depending on how good the first rain is, for different soil types and changing according to the seasons, for food, animal feed and cooking oil. Her collection includes some plants that provide a yield even when there is little rain and one variety „that not even the crows touch“. She grows *mung* and *green gram* for sale.

What a contrast to this is the field of a wealthy farmer just next door. There only sorghum is growing, which looks wind-swept and paltry, interspersed with weeds. He obviously doesn't need to use the field better. But, Anjamma says, richer farmers are increasingly coming to her to borrow seed. The fact that her seed and knowledge are in demand makes her proud and self-confident.

ciple, other instruments, such as variety protection, would also be possible. However, patent rights offer the farthest-reaching protection to the holder of the right. Patented plant varieties, seeds and medicines may be used only in exchange for a licence fee. The TRIPs Agreement was decided in 1995 in response to urging from the multinational and industrialised countries, especially the United States, which wrested agreement from the Indian Government by using a carrot and stick approach – concessions in the textiles trade and, simultaneous, threats of trade sanctions. The multinationals now hold 44 per cent of the over 9,000 known patents for important crop plants.

These strategies still leave small farmers like Anjamma and Lakshamma cold. With their own seed they are independent, Monsanto's business policy can't do anything to them. But the danger comes from „bio-piracy“. Whether in Asia, Africa or Latin America – everywhere in the countries of the South that are rich in genetic resources – industrious pharmaceuticals, seed or food companies are „discovering“

properties of crops or livestock that have been known to the local farmers and traditional healers for generations, and are privatising them as their own „inventions“ with patents.

For example, in 1997 the US corporation RiceTec was granted a patent for Basmati, a high-quality variety of rice, that is grown in many regions of the Indian subcontinent and is also exported. The corporation claimed the rights both to the genetic source material and to the name „Basmati“. Jointly, the Indian Government and non-governmental organisations succeeded in limiting the extent of the patent after vehement protests and lengthy court proceedings. But the fight against these machinations, if they ever come to light, is difficult and often in vain.

In particular, it is the many large gene banks, created with public monies, that have attracted the corporations. In their refrigerated chambers and greenhouses ICRISAT in India and other international research organisations have hundreds of thousands of samples of millet, grain, maize, potatoes, soya and a multitude of other

To honour life and celebrate diversity, artists have made a mandala out of various elements, such as grains, pulses, pest traps and botanical sprays.



Neem: A Eco-Drugstore Arouses Covetousness

Oil from the seeds of the neem tree is a tried and tested household remedy against mould. For women in the Sangham villages it is not only an important natural means of fighting pests; sale of it also presents a modest source of income.

Under the number EP 0436257 B1 the European Patent Office granted the US agribusiness W.R. Grace a patent for a fungicide based on neem oil. Only when Indian non-governmental organisations, supported by the Belgian Environment Ministry, used old records to prove that the effect of the oil has been known for a long time and W.R. Grace had therefore simply cribbed public knowledge was the patent revised. However, W.R. Grace has appealed against this decision. And the patent is valid as long as the case goes on. We will probably have to wait a good few years more for a final decision.

Another 40 patents have been applied for or already granted. Because the „miracle tree“ also provides fruits, protects against mosquitoes and, thus against malaria, small twigs act as toothbrushes and protective toothpaste in one. There are also investigations into whether the tree could provide active agents against cancer or Aids.

crops that are of inestimable value for nutrition as well as for industry. In many cases, companies have already „commandeered“ and patented these resources, often without anything in return.

However, only inventions that are really new can be patented. It is not really possible to patent existing knowledge that is accessible to the public. However, there are many examples of multinationals being able to acquire centuries' old traditional knowledge from local communities and indigenous peoples with the help of patents, even if this is done contrary to the law. But how can this be proved and prevented?

Knowledge, the Common Commodity

Women farmers, traditional healers and shepherds have obviously rarely written down their

diverse knowledge. It is mostly passed down orally, from generation to generation, from mothers to daughters, from shamans to their pupils – and sometimes it is secret and known only to a small group of the initiated. This is not just about the properties of plants or animals, but also about the cultivation conditions or processing methods – a wide-ranging, complex system of knowledge that has social and cultural as well as economic significance.

Women farmers in the Medak District have started to document their knowledge with a method in which all can participate. First of all, they place the seeds, fruits or leaves of the most important crops in a large grid drawn on the ground with lime. They then discuss their properties, cultivation methods and possible uses, which are then portrayed by different colours, simple symbols or small models of implements, such as tools or ploughs, that are used during cultivation. A group of village women who have learnt to handle video cameras and microphones records the entire process. Furthermore, the results are neatly transferred to a book, the *Community Biodiversity Register*, and confirmed as their joint common traditional knowledge by a thumbprint or signature of all the participants. In the meantime, groups independent of the government, merged in the „Coalition in Defence of Diversity“, have started this stock-taking in other parts of Andhra Pradesh.

Biodiversity is thus no longer just a concern of the intellectuals, explains DDS Director P.V. Satheesh. The knowledge and experience of the rural population are taken seriously and evaluated. And if potential „bio-pirates“ turn up and take too enthusiastic an interest in them, he hopes that the population will be alert as a sort of „Green Brigade“ because it now knows the value of biodiversity and its traditional knowledge.

One copy of the Biodiversity Register remains with the *Panchayat*, the village council. Others will be stored with the national patent office and the planned government authority for biodiversity. But Satheesh admits that this does not offer one hundred per cent security against bio-piracy. The „bio-prospectors“ of the food and agro corporations or the pharmaceuticals companies are inventive when they have to collect information and the game is easy for them because this knowledge is usually general-

ly available. But if they fail in one village, they try the next one.

The Biodiversity Register will therefore have to be supplemented and secured by new legislation. In this connection, the rural population and the women farmers must be given greater recognition and protection as breeders than has previously been the case, demands Satheesh. In India itself, groupings such as the „Coalition in Defence of Diversity“ are now increasing the pressure on the Government to take appropriate action. But the protection of community knowledge and the rights of traditional breeders must also be ensured at an international level, too. After all, in the negotiations about the Convention on Biological Diversity, CBD, about the International Treaty on Plant Genetic Resources or about TRIPs, governments, corporations and academics gamble with the „Green Gold“, but the farmers or the healers, who have conserved and further developed this wealth for centuries, do not sit around the negotiating table.

Benefit Sharing

The fear of bio-piracy, the dispute about the use of genetic resources and the increasing international awareness of the problem about the

unfair distribution of the profits have already made acquiring patents more difficult for the corporations. In view of the billions that can be earned in sales that the genetic resources of the countries of the South promise, especially since the upswing in genetic engineering, the governments of the countries of origin have been jealously guarding their „Green Gold“. With the *Convention on Biological Diversity (CBD)*, agreed at the 1992 „Earth Summit“ in Rio de Janeiro, they were given control over the genetic resources that had until then been viewed as a common property, as the „shared heritage of humankind“, and were freely accessible. Moreover, the CBD recognises the special role of the local, indigenous communities in conserving biodiversity and derives from this a special need for traditional knowledge to be protected.

Although the governments of the countries of origin have to enable access to genetic resources for commercial companies, researchers and other users, they do so only in return for an appropriate participation in commercial use. Since then, regulations about „*Access and Benefit Sharing*“, ABS for short, have been discussed heatedly in various international fora and with no holds barred. In this context, the aim of the countries of origin is to prohibit

These untouchable „dalits“ do not sit at the negotiating table with governments and corporations. Their struggle against bio-piracy starts with the documentation of their shared traditional knowledge.





With simple methods, knowledge about the cultivation, processing and properties of the plants is collected.

bio-piracy as well as to obtain means for their own development.

The worldwide turnover of the food industry is estimated at over US\$ 2 trillion per year – largely based on genetic resources. The countries of origin want to have an appropriate share in this, maybe in the form of profit sharing or usage fees. But they also want to use scientific cooperation, training and technology transfer to improve the conditions for using the biological resources themselves.

One key point: no biological material may be used or patented without the express agreement of the country of origin (prior informed consent). Another effective barrier against bio-piracy would be an obligation to provide information about the origin of the material used in every patent application. But an agreement of this kind has so far failed due to the resistance of industry.

The participation of the public also still needs to be clarified. The traditional breeders or local communities who have been using and conserving the resources for generations do not automatically benefit from profit sharing and other benefits for the governments. And the agreement of the government on the use of biological material cannot replace the agreement of the population and indigenous peoples.

In addition, it should not be possible to patent living material at all. In the meantime, a global front of rejection has formed around „patents on life“, ranging from the „Coalition in Defence of Diversity“ in Andhra Pradesh and the South Asia Network for Food, Ecology and Culture, SANFEC, to Greenpeace and African governments. All over the world, farmers' movements, developmental and environmental organisations and academics are mobilising themselves. Because thus, they fear, access to resources such as seed, vital drugs and traditional crops could be endangered for small-scale agriculture, which still forms the livelihood for the majority of the population in the countries of the South. This means that the right to food and self-determined development of entire societies will ultimately be sacrificed to private sector interests.

P.V. Satheesh therefore believes that the ABS negotiations are dubious. On the one hand,

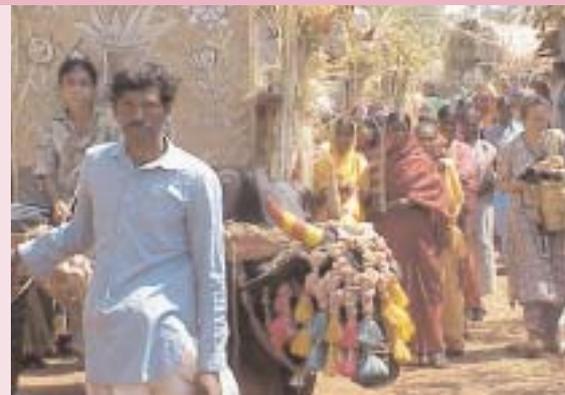
Biodiversity Festival: Love Parade for Biodiversity

The procession of 20 ox carts, decorated with sheaves of grain, garlands of flowers and colourful fabrics, lumbers through the fields and village lanes. Women have painted the horns of the draft animals and decorated them with plaited braids. In the imaginatively painted structures on the carts there are small glass cases containing seeds, a colourful shop window of biological diversity on wheels. When the procession enters the next village, it is greeted by singing women and a dancing group of men with sticks. Roads and houses are decorated with bright, geometric patterns, *rangoli*, the new arrivals get *tikas*, a red dot, on their foreheads.

Since *Sankranti*, the southern Indian „harvest festival“ in mid-January, the caravan has been processing

from village to village to show the wealth of local plant diversity and the associated festivals and rites. Women farmers give information about organic farming, others prepare traditional dishes. Some farmers are moved to tears when they rediscover seeds or foods that they had believed long gone, others make a ceremonial public promise to grow more local plants again in the future.

But the wandering festival for biodiversity is more than village information with simple, local means. In every village there are discussions in order to give a forum to the concerns and demands of the rural population, especially the poor and illiterate women. Village women document the discussions themselves with a microphone and a video camera.



After a month and over 60 villages, the procession ends in the seed bank run by the women's groups, sanghams. Over 80 small, colourful clay pots with seed are arranged in rows, an oil lamp is ceremonially lit in front of each one, to the background of the women's sung prayers.

for moral and ethical reasons that a privatisation of life by means of patents fundamentally prevent. On the other because we can hardly talk about equal partners in this context. The governments of developing countries and, especially, local communities and population groups are in too weak a position vis-à-vis the internationally operating corporations to allow „fair and equitable“ negotiations to be expected.

ABS in International Agreements

In the negotiations about the implementation of the Convention on Biological Diversity, CBD, by means of which the conservation of biodiversity, its sustainable use and a fair and equitable distribution of the benefits are governed, an important step was achieved in April 2002. In the form of the „Bonn Guidelines“, principles and practical procedural regulations for the access to genetic resources and, in return, *benefit sharing* with the countries of origin and local and indigenous communities were recognised internationally. However, these are voluntary agreements, compliance with which is therefore uncertain. Nevertheless, the CBD has made it clear that it will not leave the solution of the disputed question as to who decides on the use of genetic resources to the WTO alone.

The handling of the crops that are so important to food security, the status of the genetic resources that were collected in the public gene banks prior to adoption of the Convention and the central question of *farmers' rights* are not included in the CBD. In November 2001 an agreement in this respect was signed within the framework of the United Nations Food and Agriculture Organisation, FAO, which now provides for free access to many food and feed plants and a separate, multilateral system for „fair and equitable benefit sharing“. But the regulations on benefit sharing are still a promise that has not been kept, while industry has secured for itself far-reaching patent rights.

Farmers' Rights

To increase the role of small farmers vis-à-vis the interests of large landowners and agribusiness, the FAO has developed the concept of *farmers' rights*. In particular, small farmers, who ensure food security for over a billion people, should continue to be able to take their own seed from the harvest, swap it with other people and also, con-

tinue to sell it on. However, the farmers' rights are only inadequately included in the International Treaty on Plant Genetic Resources for Food and Agriculture, agreed at the FAO in Rome in November 2001. Every country can decide for itself what importance it attaches to these rights in its own national legislation and practice.

Market and Consumption Patterns

Even if the farmers of Humnapur, Kalimela or Yedakulapally become more independent with control over resources, such as seed and land, their food situation improves and their dependency on the moods of the monsoon, on dealers, corporations and market fluctuations diminishes, they cannot completely leave the monetary economy. They and their families need rupees for school costs, salt, soap or saris. Only when millet and the majority of other agricultural produce can also be sold, will traditional agriculture become attractive enough for more farmers also to move over to it. To be economically sustainable in the long term, it therefore needs a market. Its potential competitive edge: healthy and tasty food thanks to diversity and organic cultivation.

Some dealers in Zaheerabad are now prepared to include the traditional products in their ranges. One of the shop owners has several jars of various millet and lentil varieties on his counter, a good place to draw customers' attention to the new, organically grown products. But although they are cheaper than comparable foods, he sells only a few kilos a month. By contrast, he sells two lorry loads of rice in a year.

The packaging will have to be better, he believes, and holds up a cellophane bag with a colourful label next to the brown paper bags in which the DDS supplies its products. Traditional foods have a hard time against pizzas and burgers, potato chips and popcorn, which are finding ever more customers by means of heavy advertising from multinational corporations. And India's housewives want dishes that they can prepare easily and quickly: *fast food* is in. Traditional food is now largely unknown or is considered as old-fashioned, the food of poor people. Organic foods and whole foods are only gradually catching on among the wealthier middle class consumers in cities such as Bombay, Bangalore or New Delhi.

For this reasons, DDS Director P.V. Satheesh is not overly optimistic, after all the overwhelming power of advertising and consumer trends is too strong for a rapid, triumphal march of organic agriculture and traditional products. But he believes in time. The Government's agricultural policy is „an out and out disaster“ he says, a collapse of Indian agriculture is foresee-

able. Monocultures, the use of chemicals and rising costs are becoming an incalculable risk for increasing numbers of farmers. If it is not the moneylenders or the banks who are economically breaking their necks, then it is the pests, the drop in the water table or the lack of labour. „We must prove that traditional agriculture is a real alternative and keep on until the bubble bursts“.

The World Market and the WTO

The collapse of Indian agriculture could be accelerated by the further liberalisation of global agricultural trade that is currently being negotiated at the World Trade Organisation, WTO. Duties and regulations that limit the import and export of agricultural products should be dismantled, just like subsidies for farmers and exporters. Even now, ever more agricultural products from the EU and other export powers, such as the United States, are being dumped onto the Indian market and are, first of all, pushing prices to record lows and then sending farming families into ruin.

The Indian Government is still resisting a complete opening of the market. At the WTO

Conference in the Emirate of Qatar in November 2001 it, together with African governments and non-governmental organisations, therefore demanded a *food security box*, exceptional regulations on protecting food and small scale farming. Food security, so the argument goes, must not be subjected to trade interests without barriers.

But the pressure of the economic globalisers and strategists for liberalism is growing, both within the country and internationally. India is highly indebted and, in foreign policy in its conflict with its neighbour and arch enemy Pakistan, dependent on the goodwill of the industrialised countries, above all the United States, who have the most weight in the WTO. In the global horse trading about competitive edges and new markets, the Indian small farmers are threatened with becoming a negotiating pawn.

The advocates of liberalisation have already given their plans for the future of Andhra Pradesh agriculture a name: Vision 2020. Advised by the World Bank, the State Government of Andhra Pradesh is advancing a radical restructuring programme that threatens to completely revolutionise agriculture. The many, small, dis-



Heavy work is easier to bear jointly. Women from Narsapur tilling the fields.



The travelling festival for biodiversity ends in the local seed bank with a celebration of the seed.

parate fields should be consolidated to form „economically viable“ units and mechanisation and the cultivation of genetically modified organisms (GMOs), such as Monsanto’s bt-cotton, should be furthered. Farmers should draw up contracts with foreign corporations on growing potatoes, cucumbers, tomatoes, peanuts or maize, which will then be processed and exports (*contract farming*), whereby they would surrender their independence.

As with the Green Revolution, the loans running into the billions, with which the World Bank and the Government finance these programmes, mainly go to the wealthier farmers. Once again, traditional and small scale farming is disadvantaged. What’s more – it should be suppressed: the proportion of the population that lives from agriculture should – according to the planners’ targets – be cut from 70 to 40 per cent of the population. This would mean that 20 million small scale farmers would have to give up agriculture and find new work in the already overflowing urban services sector – an illusion.

Alternative Visions for the Year 2020

At the *Farmers’ Jury, Prajateerpu*, organised in the summer of 2001 by the DDS and other

organisations, Vision 2020 was put to the test by those affected, who are not normally asked when agricultural policy is being drawn up. For three days a panel of 18 small farmers, two

Resistance to GMOs

Genetic engineering has introduced the next stage of the commercialisation and industrialisation of agriculture. With genetically modified organisms (GMOs), breeding is shifted entirely to the laboratories of the corporations, which want to control the whole of agricultural production, from the manufacture and supply of seeds, through cultivation to sales.

However, this march is still coming up against strong resistance among consumers, the rural population and non-governmental organisations such as the DDS and the „Coalition on the Protection of Biodiversity“ because of incalculable health risks, the increased economic dependency of the farmers and the threat to biodiversity. In spite of encouragement from the Government, Monsanto could acquire far fewer farmers for the genetically modified bt cotton in Andhra Pradesh than planned.

thirds of them women, heard the testimony of experts. It then made its judgement: unanimous rejection of Vision 2020 – instead traditional, ecological agriculture and local food systems should be strengthened. This was not only an important contribution to food security, but would also strengthen the foundations for self-determined, sustainable development.

The Indian farmers are not alone with this demand. Farmers' representatives from Europe, too, who took part in the hearings about Vision 2020 see an alternative vision as the future for their own European agriculture. „We have the same goals“, emphasised Michael Hart, President of the Small and Family Farms Alliance in the United Kingdom, „We want to protect the environment and we don't want to compete against each other“. After all, the competition for the world market, heated up by the WTO, the EU and the US, ultimately serves only the interests of the big and pushes the small farmers off their farms. But as long as Lakshamma and Anjamma keep hold of their traditional agriculture there is one thing they do not need to worry about: that sorghum, *foxtail millet* or *Bengal gram* will be grown in the fields of Europe and exported to India.

The crux for the realisation of this vision is control by the small farming community over its resources, especially land and seeds. Above all, its rights resulting from centuries of care and development of crops and medicinal plants must be recognised. However, in turn the national and international framework conditions

that have prevented recognition of this kind so far must change.

In particular, a change in the WTO's TRIPs Agreement is urgently needed for this so that traditional knowledge can be better protected. Regulations must be introduced to prevent bio-piracy. For example, this means that an application for a patent must include information and evidence about the origin of the biological and genetic resources and that these resources have not been obtained by the applicant without the agreement of the Government and local communities of the country of origin and their appropriate involvement in the profits. Furthermore, it must be guaranteed on a global scale that patents cannot continue to prevent the

Keeping control of her knowledge: Farmer Beesu Bagamma chooses Sorghum seeds for breeding.



Millet Meets Potato

„Journalists only write for people who can read, we need a direct exchange in order to learn from each other,“ says Narsamma. She, together with other small women farmers, has now been to the United Kingdom, Bangladesh, Nepal and even Peru. And Narsamma, who has learnt to make video films, has documented some of these trips: the films are now doing the rounds of the villages.

For example, Samamma reports of her shock when, during a visit to farmers in the United Kingdom, she learnt that they can hardly live off their farms any more although they have one hundred times more land than Samamma. „They are deserting Mother Earth,“ was her comment on the fact that many family farms have to be given up.

In Peru the Indian farmers were not only impressed by the terraced fields and the hard graft on the slopes, but also by the barter economy at the market: potatoes for vegetables, fruit for onions. And of course, by the diversity of maize and potatoes at home in Peru. In return, the women were able to show their Peruvian hosts how to compile a biodiversity register.

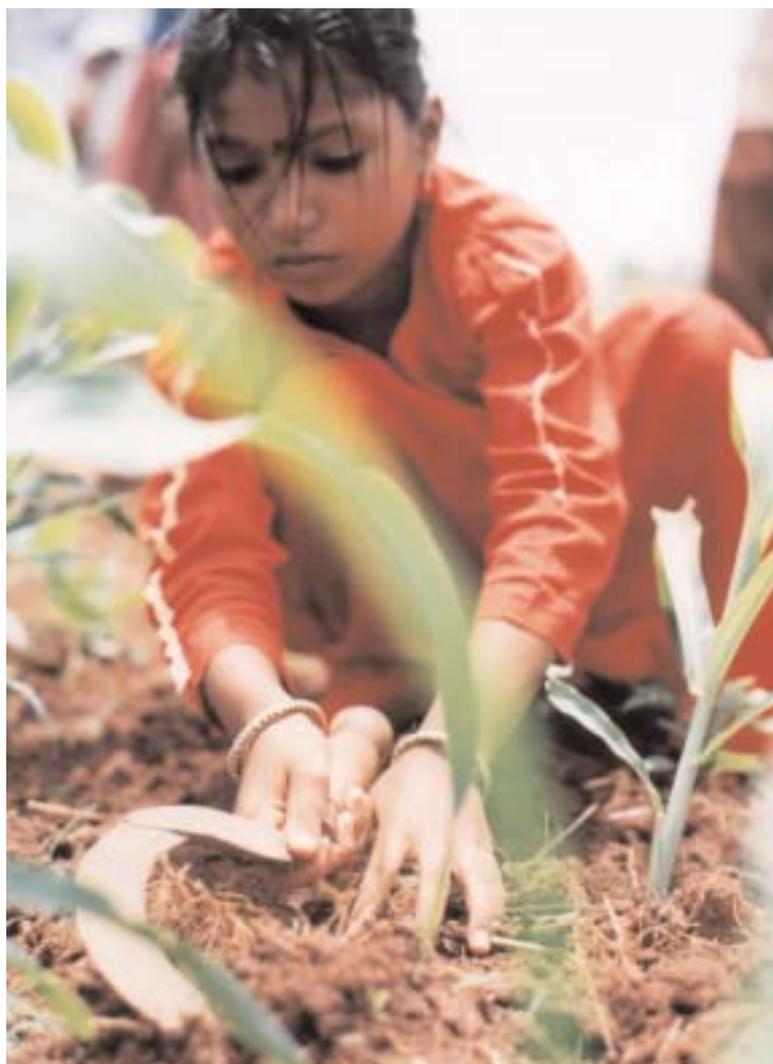
The women say that the experience has motivated them to carry on with their form of agriculture. And has strengthened a feeling of solidarity. When she experienced the hard working conditions of the women in the mountains of Nepal, she burst into tears, says Ratnamma.

exchange of seed and re-sowing, in other words that the *farmers' rights* must be strengthened and implemented consistently.

Such regulations would also give the Indian Government the required scope to encourage traditional knowledge with appropriate laws. And they would strengthen the position of farmers' organisations and groups, such as the „Coalition“ that are calling for laws of this kind. The Indian Government could then no longer hide behind the WTO and international agreements.

The women farmers in the Medak District show that an alternative Vision 2020 is possible. Their traditional agriculture not only means safer and healthier food, greater economic independence, the conservation of biodiversity and the further development of tradition knowledge – a perspective for a solution for the marginal and small scale farming in India, who

have been marginalised by the Green Revolution and industrial, commercial agribusiness. This also includes a message for the agricultural sector in the industrial countries rocked by BSE and other scandals. A form of agriculture is viable for the future only if it is based on broad biodiversity and its equitable use, strengthens local areas and production systems and allows the rural population's control over knowledge, resources and development scope. This vision must now be turned into reality all over the world.



For the survival of future generations to be secured traditional knowledge must be maintained and further developed – because food security is possible.

Acknowledgements

Of the many people in Bonn and India who have in so many ways helped this brochure along the way, I would especially like to mention those in Pastapur and other villages in the Medak District of Andhra Pradesh. First of all there are the many Sangham women who answered my questions about their lives and activities with patience and involvement – inka? enduku? etla? How? Why? In what way? The three Narsammas and their colleagues demonstrated to me the possibilities and the power of media such as microphones, video cameras and radio stations in women's hands.

I will always remember my long conversations with P.V. Satheesh under the enormous tamarind tree, with monkeys and birds leaping overhead, about the activities and the complex socio-economic web of developments in rural India in the village-like DDS Campus in Pastapur. Neither will I forget the support of the DDS employees, especially Swaroopa's patience in choosing photos, Yesu's enthusiasm in finding yet more videos and photo albums from the impressive documentation archive, Shakuntala's lighting of the mosquito coil every evening, and, of course, Vimalamma's excellent – chala bagundi – rustic cuisine.

Many others, who cannot all be named here, have helped me in various ways. But I must mention Srinivas. He put aside his own research work in order to act for me in the dual role of interpreter and walking reference library. He thus played a major role in shaping this text. My warmest thanks to all of them.

Uwe Hoering

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Fruits of Diversity.
Global Justice and
Traditional Knowledge

In July 2002 Uwe Hoering travelled through the state of Andhra Pradesh in central India. There he learned to appreciate the work of farming communities and their struggle to preserve the biological diversity of the region. This report documents that struggle.