



Compas Newsletter

for endogenous development



Bio-cultural diversity

Number 2, October 1999

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SUBSCRIPTION

The six-monthly Compas Newsletter is free of charge for those individuals and organisations interested in the role of culture, indigenous knowledge and cosmovision in agriculture and rural development. Active participation in the form of articles that document experiences, reactions on publications, opinions, theoretical reflections and suggestions for future initiatives are welcomed. Also available in Spanish.

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Compas (Comparing and Supporting Endogenous Development) is an international programme, designed to understand the diversity of rural peoples' knowledge, encourage local experimentation within farmers' worldviews and have intercultural dialogues on farmers' knowledge and indigenous learning. The Compas Newsletter hopes to stimulate development agencies and individuals to take indigenous knowledge serious and support endogenous development. The newsletter aims to be a forum for exchange on testing field methods, on-farm research and participatory approaches, based on farmers' own concepts, indigenous institutions and cosmovision. Compas presently works with 22 partner organisations in 10 countries and is funded by NEDA and NOVIB, the Netherlands.

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Creativity, culture and biodiversity

We are pleased that this second issue of the Compas Newsletter on bio-cultural diversity is now in your hands. We hope it will give you as much joy and insight while reading through it, as we have had while making it. This appears to be a time when people are looking back in history to search for security and to prepare for the challenges of the new millennium. In the contacts we had with the Compas partners and other friends when preparing this newsletter, it was striking to see the strength and resilience of many traditional cultures. Decades of interaction with modernisation processes have not been able to cut the heart out of these cultures, though most of them are under strong influence of globalisation.



Creativity is at the heart of all cultures. It's the identity of a people - how they sing their songs, dance to their music, paint their visions and hopes, design their ceremonies, festivals, rituals, agricultural systems - their life. In many traditional societies these cultural expressions have a clear link to the surrounding nature.

In this newsletter we have tried to present our understanding of the links between culture and biodiversity. We have also tried to give room to cultural expressions by showing how people make art and use music to communicate with their ancestors; how they paint totem symbols on their houses to express their connection with nature and its spirits.

Many indigenous peoples and rural communities are reviving their traditional ceremonies in relation to biodiversity, and are adding an element of reflection to its meaning. In that way they hope to be able to meet the challenges of the next millennium. The growing group of Compas partners are learning with

them and want to keep you informed through this newsletter. In that process your creativity, views and experiences are most welcome.

COMPAS Newsletter 3 will focus on:

Vitality, health and disease

What are the visions and practices on health and disease in nature, soils, plants, animals and humans? Little is known about the way peoples from different cultures perceive pests, disease and health according to their worldview and cosmovision. The way in which traditional leaders influence the learning processes, how they experiment and transfer knowledge on these issues are also poorly understood.

In development programmes the services are often offered independent of traditional practices, under the assumption that the latter are ineffective and should be substituted by modern services. These programmes specialise in protecting either nature, plants, animals or humans and the lack of health is generally considered the result of a narrowly defined cause. Rural peoples' practices in different cultures in the world show us, however, that traditional visions on health and disease in the domains of environments, soils, plants, animals and humans are based on a more holistic knowledge system. A balanced natural, social and spiritual environment is often seen as the basis for vitality. Vitality, or the energy to sustain life is called *Ch'i* in China and *Prana* in India. Experiences to inte-

grate this knowledge in development have been built up by people like ethno-veterinarians, healers and users of botanical pesticides. For the next newsletter we would like to have contributions of individuals and organisations that have accumulated insights related to vitality in ecosystems, plants, animals or humans in different cultures. We are looking for experiences and reflections on the following topics:

- Worldview and practices of rural peoples related to health and disease
- Relation between quality of food, nutrition and health
- Advantages, limitations and risks of traditional practices and their relation with modern practices
- Traditional healers, their practices as well as functions in the communities
- Description of field-based activities that document and build on traditional health practices carried out by rural people, possibly in co-operation with outside agents
- Suggestions for activities to enhance the dynamics of traditional pest and health management practices

Biodiversity in a cultural perspective

Irene Dankelman and Vanaja Ramprasad

Many rural societies are being confronted with the loss of biological diversity and cultures and traditions are becoming less diverse. Fortunately there are also experiences of rural people strengthening their knowledge, traditions and spirituality to meet the needs of the next millennium.



Photo: Bertus Haverkort

Mr. Subrhamanyam proudly showing his indigenous chicken breeds

This issue of the Compas Newsletter explores the relationship between culture and bio-diversity. People's livelihoods in rural societies are enmeshed within the complexities of nature. This is especially so for indigenous peoples. According to the Alliance of Indigenous Peoples, they have "the greatest cultural diversity in the world and live in the areas of highest biological diversity and have nurtured species variation for thousands of years". (IAITPTF, 1997)

Rural people's livelihoods are built within and upon these natural complexities and their existence is strongly influenced by their environment. Their social structures and cultures are largely determined by nature and vice versa. This intricate interrelationship between nature and culture takes us a step beyond the concept of 'natural biodiversity' towards 'bio-cultural diversity'.

Erosion of diversity

It is well known that in today's world biodiversity is degrading much faster than it would through natural processes alone. It is estimated that since 1600 AD about 500 animal species and more than 600 plant species have become extinct as a result of human interference. Many more are on the edge of extinction as their habitats are disturbed, isolated or disap-

pear. Before human life on earth the speed of extinction was about one species per year. Today it has been estimated that this is 1000 times higher or 2 to 8% per year at the global level. (Van Zoest, 1998).

According to the 'red list' of the International Union for the Conservation of Nature (IUCN) about 34% of all fishes, 25% of mammals, 25% of amphibians, 20% of reptiles and 11% of birds are currently threatened with extinction. The disaster of mass extinction looms. (IUCN, Red Lists 1996)

This phenomenon does not only take place in natural environments. Biodiversity has also decreased dramatically in agricultural landscapes over the past 40 years. In the name of development the diverse agricultural landscapes have been transformed into a monotonous environment in many parts of Europe and other western countries, and to a lesser extent, in non-western countries. All over the world the Green Revolution has replaced numerous species and varieties of crops, plants and trees with monocultures that are vulnerable to pests and diseases.

Cultural diversity

The erosion of natural biodiversity goes hand in hand with diminishing cultural diversity. The vitality of a culture may be

expressed in the state of its traditional leadership as well as its language. Both are closely linked with a people's worldview. At the moment one can still observe variation in ethnic names and use of local biodiversity every 100 kilometre or so throughout the length and breadth of India and Africa for example.

But languages are vanishing. More than half of the 6,000 languages currently spoken is unlikely to survive the next century. English is now spoken by more than 20% of the world's population and, due to globalisation, this is likely to increase (National Geographic, 1999)

Globalisation

Globalisation has contributed to fast communication and greater knowledge about the different societies, cultures and ecosystems in the world. At the same time, cultural expressions like songs, dances, art, rituals and ceremonies are being forgotten or considered outdated by the younger generations. Priests, traditional leaders, local herbal healers and cultural rules are increasingly neglected or depreciated. Indigenous people are attaching less value to their own cultural context.

The market-economy and globalisation of material needs has resulted in an increased homogeneity in culture and

Diversity	: The degree of difference between the components of a system.
Biodiversity	: Diversity of genes, species and ecosystems, and their interrelations.
Culture	: Manifestation of human existence (like food, tools, laws, art, myths) transmitted from one generation to the next.
Endogenous development	: Development based on the strength of the local knowledge, culture and ecosystem, with the openness to discuss and experiment with traditional as

Box 1: Definitions related to bio-cultural diversity.

values. In this process the linkages between culture and nature get lost. The global Coca-Cola culture has forgotten about the coca plants and the coca nuts from which its taste is derived. Globalisation is also characterised by an increasing individualisation and privatisation.

In endogenous development common resources and traditional institutions play a key role. Privatisation, however, results in limited control of the local people and communities over these resources. The current trend of privatisation not only applies to land, water, forests and minerals. Even knowledge of these resources is becoming privatised through patents 'owned' by mainly western-based corporations.

On the other hand, globalisation may also improve rural people's lives. James Watson, a Harvard anthropologist states: "The lives of Chinese villagers has improved over the last 30 years due to the opening of their economy; globalisation is the major force for democracy in China. They want to become part of the world."

Citizens in the West are also increasingly making efforts to preserve and protect the environment, for example, through critical consumer groups and stimulating ecological agriculture. The National Geographic magazine concludes in its August 1999 issue on global culture: "Apparently westernisation is not a straight road to hell, nor to paradise either."

What does diversity mean?

In order to clarify the terms diversity, biodiversity, culture and endogenous development, their definitions are presented in Box 1.

A diverse and balanced ecosystem is flexible and resilient because there are many species with overlapping functions that can substitute each other. In a more diverse network the patterns and relationships are more complex.

Capra in his book 'The Web of Life' draws a parallel between diversity in ecosystems and in cultures. A diverse community is flexible and can adapt more easily to changing circumstances. He emphasises that this requires awareness of and respect for different functions and perspectives, based on communication. Isolation of groups and individuals in a society leads to fragmentation and can be a source of conflict. Similarly isolation

and fragmentation in ecological systems can threaten the survival of species and complete ecosystems (Capra 1996).

Bio-cultural diversity

Guided by cults, agri-culture was shaped. In Latin the word cultus - or worship - is related to culture, which means cultivation. The words for cultivation, tillage, care, worship and honouring are all related and find their roots in the natural environment (Peter Nilson, 1994).

Many ancient cultures are deeply rooted in the belief that the spiritual world resides in nature, where humans can communicate with the supernatural forces. Not only people's houses but also the lands, waters, forests, mountains, plants and animals are perceived to be inhabited by spirits. In numerous sacred places people with special skills communicate with ancestral spirits, god(s) and goddess(es). Examples are the holy mountains in Tibet, rocks and wetlands in Zimbabwe, sacred trees like the Baobab in Africa, the *Ficus religiosa* in Nepal, India and Sri Lanka, and the oak in the old cultures of Europe. These sacred natural sites also have an important social function as meeting places and sites of common worship.

Certainly, this worldview often implies a deep respect for and adoration of the natural world and supplies guidance on its use. This is reflected in regulations and taboos in the management of natural resources, for example, on cutting wood, hunting and collecting fruits. There are also examples, however, of traditional

cieties that have caused severe ecological damage which has resulted in their extinction or decrease of their people. Examples are the Roman Empire, the Mayas and the peoples of Mesopotamia. (Douglass, 1984).

But most indigenous peoples have a holistic and sustainable life style: what has been taken from the earth has to be given back in some way. Conservation and preservation are central to these regulations. How then is culture linked to biodiversity in the articles described in this Compas Newsletter? Box 2 shows examples how farmers have confidence in their own knowledge and practices.

Lessons and constraints

The cases presented in this newsletter show that numerous groups are working to revive indigenous knowledge and cosmology. They are not romanticising cultural expressions, but rather try to understand and challenge them by means of experiments and innovations. Despite - or thanks to - globalisation, numerous farmer groups and indigenous people are engaged in endogenous development. We observe that at field level there is enthusiasm among farmers, spiritual leaders, NGOs and some policy bodies to experiment with ancient knowledge in the modern context. Initial results are promising, but more time is needed to consolidate them and come to more definite conclusions.

There are various constraints in the process of strengthening bio-cultural diversity. Negative aspects may exist within the traditional cultures themselves, like restrictions on women, black magic or the abuse of power related to secret knowledge. In extreme cases people may have fundamentalist tendencies.

Outside agencies may also want to romanticise and preserve cultures, for example for eco-tourism purposes. The threat of patenting knowledge and the pirating of bio-resources is very real. In



so- **Preparing a post-harvest ritual for different varieties of finger millet crops in Palli Village (India). Agricultural tools are fixed at the top of the heap and worshipped**

PHOTO: KRISHNA PRASAD

Compas partner	Cultural dimension	Related biodiversity	Development potential
KPP India	Mango is used in rituals, its leaves	Many varieties of tender mango	Rural competition for revival of tender mango varieties and
TIRD Indonesia	Adat house is place for worship	Different plants are used in pest	Revival of adat house and traditional pest control in crops
AGRUCO Bolivia	Potatoes have souls; Mother Earth is sacred	Many varieties related to altitude, microclimate and	Trace and stimulate traditional potato varieties
IDEA India	Tribals have totemic relations with plants and	Plants, trees and animals are protected	Changing hunting ritual into conservation ceremony
AZTREC Zimbabwe	Spirits have their habitats in nature	Wetlands are needed as	Rehabilitation of sacred wetlands
GREEN India	Sacred seeds and ceremonial germination tests	Diversity of food crops is maintained by women	Conservation and dissemination of traditional food crops

Box 2: Examples of the relation between culture and biodiversity.

this newsletter the articles from FRLHT, Utkarsh and Hosken refer to these controversial patent claims.

Based on earlier experiences, rural people may find it difficult to build a new relationship of trust with the staff of support organisations or to share the intimacy of their culture and spiritual knowledge. Field staff of support organisations, on the other hand, may not have the right attitude to respectfully dialogue about culture and cosmivision. Also donors may find it difficult to reserve finances to enhance bio-cultural diversity.

Opportunities

A consistent observation of the organisations working with Compas is that much indigenous knowledge, cosmivision and traditional leadership is still alive in many cultures although it is often under threat. These traditional institutions may have gone underground as they were threatened or did not feel respected by outsiders.

Among NGOs we can see an increasing interest in culture and cosmivision. This implies that methodologies, strategies and policy frameworks to increase biodiversity are emerging. Due to new communication technologies indigenous peoples find it easier to get more interaction and more public awareness for their quests. As Hosken points out, strategic alliances with like-minded organisations are essential in this process. Such alliances can lead to a deeper understanding of the dynamics of living systems, help identify critical areas that need protection and lead to the development of laws to protect cultural and biological diversity.

Public awareness is also growing on issues relating to cultural diversity and biodiversity. For example, the magazine National Geographic, in its August 1999 issue on 'Global Culture', showed the vanishing cultures of Kenya, Malaysia and Bolivia and cross-cultural exchanges.

Moreover, some major donors including the World Bank, IDRC Canada and Netherlands Development Assistance (NEDA) have made funds available to support indigenous knowledge systems. Compas itself is an example of a programme working to stimulate endogenous development. This means enabling rural people to change on their own terms in the face of modernisation. Compas partners work with farmers, elders and spiritual leaders to understand the strength of their own traditions and experience its contribution to a sustainable life style.

Our choice within Compas is to put our energies into strengthening opportunities and giving room to bio-cultural diversity. By means of alliances with like-minded organisations we want to create space and stimulate the process of learning about bio-cultural diversity in our colourful world.

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Many cultures perceive nature to be inhabited by spirits, like the sacred Baobab tree in Ghana

Photo: Bertus Haverkort

Photo: Cosmas Gonese



Collecting drinking water at a spring in Chihoriro wetland

Bio-cultural diversity in Zimbabwe

Cosmas Gonese

AZTREC is the association of traditional environmental conservationists in Zimbabwe. It is a coalition of village chiefs, spirit mediums and war veterans. AZTREC is engaged in several field activities related to environmental rehabilitation, taking the cultural heritage of the people as its starting point. Examples of AZTREC's involvement include the rehabilitation of woodlands and wetlands, tree planting and the production of organic vegetables. This article explains the way the local people manage the wetlands.

Zimuto in the Masvingo district is situated in the lands of the Shona, the most numerous ethnic group in Zimbabwe. The area is cultivated semi-intensively because water is scarce. Drought resistant crops, such as groundnuts, millet, finger millet and sorghum are grown. The vegetation in Zimuto is characterised by natural canopy forests, with trees like Musasa (*Brachystigia spiciformis*) and Mutondo (*Julbernardia globiflora*). Almost half Zimuto's grazing area is covered with patches of trees. The closed canopy forest has now been reduced to less than 10% of its former size through fires and because natural vegetation is being replaced by crops and pastures.

The major environmental problem in Zimuto is frequent drought, which causes crop failures, declining herds and depleted groundwater. Deforestation, uncontrolled grazing, monocultures and inappropriate tillage systems have led to widespread soil erosion, destruction of wetlands and the development of salty rivers. Soils and water are polluted with the chemical fertilisers and insecticides used in cash crop production. The rivers

are no longer reliable sources of water. Altogether these processes have resulted in a loss of biodiversity and a process commonly labelled 'desertification'.

Shona Cosmivision

The cosmivision of the Shona people is based on three worlds: the human world, the spiritual world and the natural world (see Compas Newsletter no.1, page 20). Spirit mediums act as intermediaries between mortal beings and the living dead or ancestral spirits. They educate the communities about the interaction between the three worlds. Communication between humans and the spiritual world can only exist through the natural world. Therefore nature is regarded as sacred. The spirit mediums are the authentic custodians of indigenous knowledge systems. Other traditional leaders are the chiefs, who administer the land in their chieftancies, the headmen and the kraal heads. Every chieftancy has a sacred place. These sacred places were chosen by AZTREC as entry points for conservation projects.

Study on wetlands

In Zimuto there are over thirty wetlands with an average size of six hectares. The vegetation is dominated by water loving trees and grasses. The wetlands under study are *vleis* and springs. Springs are water sources, where water continually oozes out of the ground. *Vleis* are lands subject to flooding. The *vleis* and springs are perceived to be the sacred habitats of ancestral and other spirits.

A case study was conducted in order to understand the situation of the wetlands in the area and to find entry points for participatory rehabilitation programmes. During the first consultative meeting with the local traditional leaders the objectives of the study were agreed upon. The spirit mediums gave formal permission and the number of wetlands to be studied was determined. The community identified resource persons for the study using criteria of seniority and knowledge about the wetlands. Each wetland has its own historical development and cultural dimension. In the boxes, the people's perception of three wetlands are described.

Communities and the wetlands

Chitafina wetland

People believe that this wetland started when a traditional ceremony was held. Afterwards water started oozing profusely from the ground. From that time on the Chitafina wetland grew in size; it is now very big and is the main source of water for all uses in the area. Kraal-head Mr. Chidavarume recalls how, during the early stages of the wetland, a few women made ridges to plant tubers. Shortly afterwards a lion was seen stretching himself on the prepared ridges. This was understood as a sign to stop growing crops there. The spirit mediums recommended abandoning the ridges and people were forbidden to enter the area. Only elders were permitted to visit the springs at certain times. From that time on the wetland developed well. The thriving vegetation and the perennial wetness of the area provided a good habitat for the ancestors.

Later on these cultural rules were violated and the Chitafina wetlands started to dry up again. Vegetation, including medicinal plants, disappeared. The people interpreted this as a sign from the spiritual world and revived the traditional way of utilising the wetlands. Medicinal plants started to grow again and have since contributed to the traditional healing practices. Water loving tree species are again flourishing.

Community members in the Zimuto area adore their wetlands. The wetland provides abundant grass for thatching as well as reeds for baskets. These are harvested following the regulations of the chief who is guided by the presiding spirit medium. The Zimuto area is normally affected by droughts, leading to a severe shortage of grazing for domestic animals. These wetlands provide an oasis of feed and water for both humans and animals, although the invasion of too many domestic animals is a major problem in several wetlands.

Relish in the form of mice, birds and grasshoppers also come from these wetlands. Fishing without nets is allowed and this has stimulated human health and income. The women in Zimuto use the clay soils of the wetlands for pottery. The pots are used in the community or sold for cash. The water from the wetland is also channelled for small-scale irrigation. Food security has improved and organic vegetables are produced for consumption and the market.

The people are clear about the importance of conserving the wetlands according to the local value system. Many wetlands are used for rituals and ceremonies because they embody the relationship between the spiritual, natural and human worlds.

Traditionally the spirit mediums make decisions about the wetlands. They tell the

chiefs, headmen and kraal heads what rules and regulations they should follow. These traditional leaders have their own bylaws about the conservation of natural resources passed down from time immemorial. Traditional regulations prescribe that trees in the wetland cannot be felled, no washing is allowed, soap is prohibited and only traditional utensils such as earthen pots are allowed when water is collected. During menstruation women are not allowed to enter the wetlands and men must remain celibate when working on the wetland. Collecting firewood from the wetlands is prohibited as well as using other resources from the wetland without honouring the spiritual world first. When these rules are violated unusual things can happen and the wetland may dry up. In this way the ancestors express their wrath because their regulations have been disrespected.

The role of outside agencies

The communities manage the wetlands in collaboration with the government of Zimbabwe through the Department of Natural Resources. In a general sense the communities and the government have the same objective: to conserve the wetlands. The national government has also implemented a number of acts to enhance the sustainable management of natural resources. These stimulate the formation of so-called Conservation Areas, managed by voluntary committees of local landowners who make up a grassroots conservation movement that assists government agencies. The government has a conventional focus, however, not recognising the role of traditional leaders and indigenous knowledge systems in natural resource management.

The official church has interpreted indigenous methodologies in the management of natural resources as demonic and backward. Churches based on Christianity perceive the human world as the master of nature. The church becomes the substitute for the spiritual world and the natural world is exploited for human good. Communities implementing traditional rules are shunned and disregarded. Sacred places, like traditional shrines, are turned into churches and tourist attractions. In some

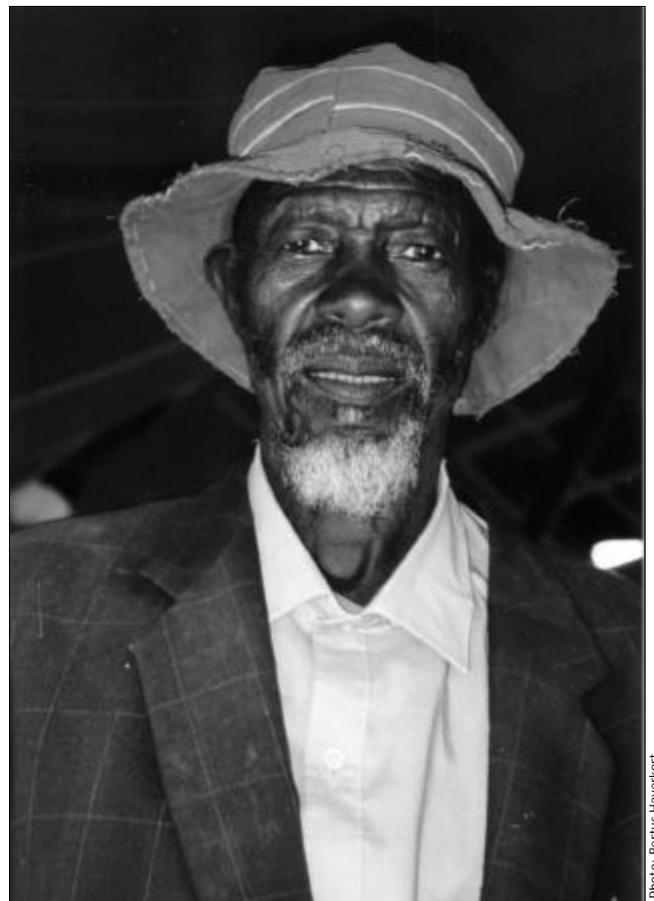
Mupata waPoshi wetland

This wetland was named after Poshi, a boy who went to the spring to fetch water with the wrong sort of vessels. As he was drawing water something splashed on him. When he told the elders what had happened they explained that young people are forbidden to go to the spring. Only aged women, using clay pots, can fetch water.

This wetland originates from a natural spring in the sacred mountain of Mazambara. The spring has a sacred python as guardian. Once the python was killed and the spring dried up. Later another python appeared and now more water flows from the Mazambara mountain to the wetland.

cases wetlands and springs have been transformed into baptism pools.

Several non-governmental development organisations, like AZTREC, center their work on the indigenous ways of conserving the environment. Good relations with the traditional leaders are essential. The NGOs assist with material resources, provide expertise and organise schooling activities to encourage rural communities to carry out their own programmes. The mass media play a role by giving publicity to these efforts.



Local traditional leader

Photo: Bertus Havertort

Development experiences

The study executed by AZTREC revealed that the wetlands have great development potential. The communities are eager to conserve, manage and use these natural resources in a sustainable way. Many wetlands have enough capacity to provide water for micro-irrigation activities to support household food security. For the people, protecting these wetlands means protecting the habitat of the spiritual world. Protecting the wetlands is necessary if the erosion of biological and cultural resources is to be avoided. The communities emphasise that culture and tradition have to be taken into account in all forms of natural resource management. Traditional ceremonies with regards to caring for nature should be held annually or whenever necessary.

The work of AZTREC in the communities is based on a good relationship between its staff and the Shona traditional leaders, like chiefs, spirit mediums and elderly people. These leaders guide the natural resources management and revive cultural norms that have been eroded. Generally the following activities are undertaken. After the initial phase of establishing contact, an exercise known as RAAKS, the Rapid Assessment of Agricul-

Chihoriro wetland

Elders remembered that the present pool in this wetland emerged after sounds of girls voices and women singing and pounding grain were heard. According to the kraal head Munhumeso, people used to swim in the pool, until one of the swimmers disappeared. From that time on even in times of drought, cattle would not drink water from that side. Some years ago cattle over-used the wetland during a drought and the pool dried up. The elders pleaded with the spiritual world to return the pool to its natural state. After a ceremony some dried grasses and tree foliage could be seen engulfing the pool. Afterwards the pool slowly became normal again, expanding sideways.

Another incident happened when tobacco farmers installed a water pump in the pool to irrigate their tobacco fields. After the installation a terrible sound was heard and water started to flow from the pool into a nearby stream. The farmers were astonished and took their pump away. Tobacco is no longer grown there. Now the local communities only fetch water from the pool during droughts, taking care to follow traditional procedures, rules and regu-



Photo: Bertus Haverkort

Ritual to rehabilitate a water body. AZTREC staff participate in the ceremony

tural Knowledge Systems, is carried out. Through this exercise those with special knowledge about the wetlands are identified as well as major opportunities and limitations of the local resources.

The next step is to plan village meetings where men and women discuss the different options for wetland rehabilitation. What activities can be undertaken, what resources can the community provide, what needs to be brought in from outside? Government development staff are also involved in these planning meetings, that generally result in a list of potential wetlands to be rehabilitated.

The chiefs play a crucial role in the process: after consulting the spirit mediums they determine with which wetland to start the rehabilitation, how to start this work and who should contribute what. During a village festival the conclusion of the planning exercise is celebrated. Chiefs and spirit mediums from adjacent villages are invited to share the rituals being performed for the ancestors and spirits.

Tree nurseries and eco-tourism

The community members then implement the project and both men and women are fully involved. AZTREC participates in the rituals, provides technical support and keeps in touch with the spirit mediums and village leaders. In a number of villages tree nurseries have been established, that produce indigenous tree seedlings for distribution.

In some communities the revival of cultural practices and the rehabilitation of wetlands also provides a good opportunity for eco-tourism. These eco-tourist attractions, in the form of cultural villages, have been set up to generate income. Tourists are invited and received by the villagers.

They can enjoy rural life and take part in the dancing and drumming sessions.

Experience shows that projects prepared in this way are highly successful. Newly planted trees have a high survival rate and rural people are actively involved in the tree planning programmes; *durbars*, or wetlands in communal areas are visited by hundreds of people; NGOs and government agencies co-operate and the traditional leaders are respected.

The basic principle of the work with the communities in Zimuto is that nature should be jealously preserved in order to maintain the communication with the spiritual world. In this sense the conservation effort from an African perspective is not merely to secure a balanced biological diversity. The main objective is to sustain the relation between the human, natural and spiritual world. Conservation in this respect is not something traditional institutions need education about. They basically require political, economic and social support to demonstrate their capacity to co-exist with nature.



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Cultural Richness of Green Pharmacy

Darshan Shankar, Abdul Hafeel and T.S. Suma

The people in India have an outstanding knowledge of medicinal plants acquired over centuries. A passion for studying medicinal plants is evident both in folk and scholarly traditions. The indigenous mode of understanding and using plants is different from the modern scientific way. It includes botanical, medical, astrological and spiritual elements.

Indians obviously care for medicinal plants because they know so many of them, so much about them and have worked extensively on their application. It is a remarkable fact that the use of medicinal plants is still a living tradition in the form of a million village-based folk carriers. These traditional birth attendants, bonesetters, herbal healers and wandering monks are invisible to policy makers and therefore not taken into account as a public health resource. Apart from these specialised folk healers there are also millions of women and elders with traditional knowledge of food and nutrition and herbal home-remedies. The revitalisation of this vast and diverse folk tradition does not appear on the Governments agenda, however.

and doctrines are similar to ayurveda. The unani system, with its origin in Greece, has a long and impressive record in India. It was introduced by the Arabs and Persians around the eleventh century. In India, the unani system closely interacts with ayurvedic and other local medical systems. Tibetan medicine in India is primarily a regional manifestation of ayurveda in the Trans-Himalayan regions and in parts of north-eastern India. The largest number of medicinal plants is used in the folk traditions (4671 species), followed by ayurveda (1769 species), siddha (1121 species), Tibetan (279 species), homeopathy (182 species), modern bio-medicine (105 species) and unani (59 species).

Bridge between traditions

there is no 'reliable bridge' between Dravya Guna Shastra and chemistry and pharmacology, or vice versa, although functional links have been established.

Some of the basic biological parameters along which plants are studied in the ayurvedic medical system are *rasa* (taste), *vipaka* (metabolic property), *guna* (qualities), *prabhava* (specific biological effect) and *virya* (potency). Possibly a correlation could be established between the taste, or *rasa*, of a plant and its biochemistry and biological effects. The ayurvedic tradition indicates that sweet, sour and salty tastes contribute to building body tissues, while bitter, pungent and astringent tastes support processes of breaking down body tissues. The traditional understanding of the effect of taste, is based on both empirical experience as well as the theory of *rasa*.

In modern nutrition, taste is primarily used for the purposes of identification. Further conclusions on the basis of taste to validate the ayurvedic medical theory would require experiments with the biological and bio-chemical effects of substances with these different tastes.

Ayurvedic Materia-Medica

The in-depth study required about a plant before it can be admitted into the indigenous Materia-Medica is quite impressive. This includes aspects like nomenclature, parts used, methods of purification, contra-indications, effect on physiological systems, effect on body tissues, effect on organs, effect on excretory system, qualities, metabolic activity, post-digestive effect, drug therapeutic class and processing strategies.

On the basis of these parameters, the pharmaceutical activity and therapeutic applications of thousands of plants have been worked out. In the codified tradition this has resulted in around 25,000 brilliantly designed plant drug formulations. In the folk system it is suggested that over 50,000 herbal drug formulations have been developed for a very wide range of applications by India's 4600 ethnic communities.

The value of folk knowledge can be illustrated with the example of *Phyllanthus amarus*, a plant used in Southern India for treating jaundice. The effectiveness of this plant in treating viral hepati-



Practical demonstration and oral teaching conducted by a traditional healer

Medical traditions

The Indian system of medicine consists of two major tendencies: the folk and the codified traditions. Folk traditions are handed over orally from generation to generation. The codified tradition consists of medical knowledge with sophisticated theoretical foundations expressed in thousands of manuscripts covering all branches of medicine. Examples are ayurveda, *siddha*, *unani* and the Tibetan tradition. Siddha is one of the oldest systems of medicine in India, largely therapeutic in nature and specialises in pharmacy. Its principles

It is interesting to observe that Indian knowledge about plants and plant products is not based on the application of western categories and approaches like chemistry and pharmacology. It is based on indigenous knowledge categories called *Dravya Guna Shastra*, the Science of Biological Properties of Natural Materials.

Establishing a bridge between western biomedical science and Dravya Ghuna Shastra is complex. Unfortunately, there is a lack of rigorous cross cultural studies and, in fact, a well accepted methodology for such studies is still missing. Therefore

tis-B was validated by an American Noble prizewinner who later patented this knowledge. Quinine extracted from the cinchona bark was traditionally used in Peru to cure malarial fevers. In South India the jelly of the *Aloe vera* plant, known locally as Korphad Kumari, is applied to burns and wounds and is taken orally for gynaecological problems.

In the province of Karnataka, a decoction of the bark of the *Alstonia scholaris*, locally called Sapta Parni, is used in virtually every household at the onset of the monsoon to prevent malarial fevers. *Boerhavia diffusa*, locally called Punarnava, is commonly used in the treatment of oedema and anaemia, particularly during pregnancy, and is often eaten as a vegetable.

Understanding a disease

The folk tradition often uses symbolic language to popularise the understanding of a disease. Modern sociologists do not understand this symbolism and tend to interpret symbolic expressions literally. We will give the example of curing chicken pox with neem leaves. Everybody in the local culture knows about the angry and hot temperament of the Mother Goddess Kali. Human chicken pox is attributed to Mother Kali, therefore it is also called 'Mother's disease'.

According to ayurveda, chicken pox is caused by excess heat generated in the body. This may be due to eating spicy, sour, fried or stale food or to changes of temperament, especially anger. The imbalance results in an excessive increase in body heat, or *Pitha*. As a treatment neem leaves are used externally as a cooling paste and internally, to cool down the physical body. At the same time neem leaves are offered to the goddess Kali, to cool down the person's temperament. The mental change is bound to have a physical effect. (Box 1)

Researching folk medicine

In South India, under the Compas-FRLHT project, we are studying folk health traditions. We found that, on average there is one healer for every 100 households. This is very impressive when you compare it with the modern doctor-population ratio

in rural India, which is one doctor for every 1000 households. Health conditions treated by folk healers range from fevers, colds, coughs, skin diseases and jaundice to bone fractures, birth, gynaecological conditions, mental diseases and paralytic conditions. Our survey has shown that most rural households are engaged in self-help healing of physical complaints that including menstrual problems, fever, diarrhoea, migraine and simple eye infections. FRLHT is seeking to legitimise local health traditions by drawing public attention to them. It presents factual reports on their presence and pinpoints the wide range of health conditions managed by local health practices. We are also pointing out to the fact that while on the one hand the local health traditions are being ignored by policy makers, on the other hand scientists and commercial firms are taking the trouble to document them.

We also denounced several examples of what is being termed as 'bio-piracy'. In India the troubles with patents on popular medical plants like Neem, Turmeric, *Phyllanthus Amarus*, *Piper longum* and, more recently, common vegetables like bitter melon, are increasingly recognised. All these controversies relate to folk practices.

Moreover, FRLHT is engaged in the assessment exercises of local health traditions. After the documentation in one area, we select certain practices in consultation with the communities. Then we invite medical professionals from various codified systems of medicine, like ayurveda, siddha, unani and modern medicine. Together with the communities the views on these practices are shared and documented. This way the project is presently working on a 'rapid assessment' methodology for evaluating the local health practices through cross-cultural medical dialogue.

Spiritual dimension

The spiritual dimension of local health traditions is included in communal meetings with folk healers and communal households. This way we can share the understanding that the traditions work in a holistic way. In our field studies in Southern India we have observed the spiri-



Photo: A. Hefeeel

On average, there is one folk healer for every 100 families in rural India

tual dimensions of healing. For example, some human disease conditions, particularly chronic skin ailments, are believed to have both material and spiritual causes. The physician usually advises patients to make a particular offering to the Snake God before starting the herbal treatment. In the treatment of conditions caused by 'wind disorders in the body' the healers recite a special *mantra*, a kind of prayer, before starting the treatment with roots of four different plants.

In traditional Indian literature too, the spiritual dimension of the use of plants is emphasised. For example, it is advised that the physician recites the following hymn when collecting herbs: "O, benevolent herb, relieve the sufferings by your power and radiance and do the patient good". The physician is advised to perform auspicious rites and fast the night before collecting the herbs from good places and in the proper season.

It is obvious that including the spiritual dimension is essential to understand the complexities and the potentialities of local health traditions in rural India.



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	Folk understanding	Ayurvedic understanding
Disease	Chicken pox (<i>Ammal noi</i>);	Chicken pox (<i>Visphota</i>)
'Symbolic' expression of cause	Anger of Mother Goddess Kali who has a fiery and hot temperament	Cause: Excessive heat in body. Symbolism: The deity's angry expression is of hot nature and
Treatment	Neem leaves consumed and applied on body. "Kali" worship with neem leaves on Tuesday, Thursday and Friday and patient lies with his head in	Appraisal of folk treatment: The neem is cold in potency and has anti-pitha properties

Box 1: Folk and ayurvedic understanding about Chickenpox



Photo: Dominique Nabben

A feeling of pride of being Atoni was restored due to the revival of indigenous knowledge

Revitalisation of the Adat house

Imanuel Nubatonis and Johan Kieft

On the island of West-Timor (Indonesia) threats to traditional land rights have triggered the development of peasant movements and the revival of indigenous cosmovisions. This article explains how the Atoni people in the community of Laob have reacted to claims to their ancestral land.

The Laob area in South Central Timor belongs to the Mollo Kingdom. It is divided into *kefetoran* or lordships. Under Dutch colonial rule and the early days of the Indonesian Republic in the 1950s these areas were 'self-ruling kingdoms'. Most people practised traditional religions, but this changed with a leftist coup in 1965. Traditional religions were banned, cult houses were burned and the people were forced to become either protestant or catholic.

In the mid-seventies, the government formally abolished all indigenous self-governing structures. This led to a further destruction of indigenous institutions at village level. Everything related to *adat*, the traditional customs and the cosmovision related to it, was seen as backward. Ceremonies, crucial for social coherence, declined in importance. People performing rituals were stigmatised as being uninterested in 'development'. However, rituals have the specific function of strengthening the unity of the community and this is essential to survive in the harsh climate of West-Timor.

When the government started claiming land, most farmers, unaware of the regulations, went on cultivating it. There was no major problem until the government

started handing out concessions to private companies. In 1995 an industrial forestry project claimed some 2400 hectares in the Laob area. The farmers were forced to give up their land with pastures and crops such as coconuts, candlenuts and citrus trees. This project area also included sacred sites, like the graves of the Neke clan, the war chiefs of the former Bijoba Kingdom.

Resistance and struggle

Unlike other villages in the area, the different clans belonging to the Laob community acted upon their feeling that they were being unjustly treated. They started lobbying and became part of a network of non-governmental organisations. Because of their unity they succeeded to some extent and 340 hectares were left out of the government concession to the company.

One of the main claims of the community was their indigenous right on the land. During one of the meetings the farmers made a resource-flow diagram. The drawings showed the link between rain, sacred forests and rituals to ensure sustainable livelihoods. During the whole process of struggle the village leaders gradually recognised the importance of

adat. A general feeling grew that revitalisation of *adat* was needed in order to succeed in their struggle against the industrial forestry project. As a result, they decided to rebuild their *adat* house, or *Ume Le'U*, where rituals could be performed.

The first question was where should the *adat* house be rebuilt? The answer came after a meeting between the villagers and the sub-district head. They were sitting at the top of a hill and suddenly sensed that it was a good place with the right spiritual activity. After consulting the elders it was decided to build the *adat* house there.

Most Laob people became Christians in the late 1960's and are not allowed to sacrifice animals. However, with the revival of *adat* and their traditional cosmovision they feel that sacrifices are an important element. The *adat* house is of crucial importance: without an *Ume Le'U* as the spiritual centre the farmers feel that it is inappropriate to have rituals.

A place to learn

The *adat* house they had in mind would not only have a ritual function: it would also become a place to teach their chil-

dren about indigenous knowledge and the cosmovision of their ancestors. A group of young adults strongly influenced this decision, because, unlike their parents, they had never experienced any of these rituals. They felt it was now their turn. Luckily some old people were still practising rituals. Gradually their reluctance to talk about their *mantras*, or ritual prayers, and to perform them in public

changed. During one of the meetings the elders presented their experience of rituals related to agricultural practices.

The Laob people also decided to experiment with spiritual practices in pest management. For this purpose the area around the adat house was planted with medicinal plants and plants for natural pesticides and dyes. Part of the area will also be used for experiments with cropping methods.

The indigenous concept of pest management in Timor is strongly related to rituals and mantras. Atoni farmers perceive that every organism has its place in nature. When nature is disturbed there has been interference somewhere, and the cosmos needs to be restored with rituals and mantras (Box 1). Although some rituals are performed privately, most rituals require the presence of the whole clan. It is believed that unity is needed to empower the mantras; this is defined as *Nekaf messe*, *Ansaf messe* or 'one heart, one soul'.

Rituals for pest management

A recent rice bug (*Leptorisa oratorius*) outbreak stimulated farmers to experiment with the rituals. Some farmers tried to control the rice bug with chemicals like Killtop and Thiodan, but this had little effect. They harvested less than a quarter of their normal production. A few elder farmers started to use indigenous methods

Name of rituals	Purpose	When	Who and where
<i>Hel oe</i>	To ask for water and a good harvest	After water has entered the paddy fields.	Rice field owners and adat elders perform the ritual at the entrance of
<i>Tapotan mo'a</i>	To cool down the crop with a pest	When a pest population reaches a certain threshold level	<i>Tobe</i> and farmers perform the ritual at the meeting of two rivers
<i>Napeoba oel</i>	Thank the Almighty for the harvest and ask the water to leave the paddy fields	After harvest	Adat elders and rice field owners perform the ritual at the entrance of the irriga-

Box 1: Rituals performed at different times in the agricultural cycle

like burning certain leaves, while reciting specific mantras.

Then the idea came up to use these rituals in combination with natural pesticides. TIRD, an NGO working in the area, has experimented with this in the Kainbaun village to control a grass hopper plague. A natural pesticide based on tobacco was sprayed after the *Tobe*, the traditional clan leader, had performed a ritual called *Eka HoE*.

This year farmers have decided to

only after a long period of suppression. Because of the pressure put on them by the government, the people became aware of the potential that resided with their elders. This included elements of both natural resources management and spirituality.

Through the re-encounter with their cosmovision and spiritual resources, the farmers were encouraged to experiment with it in agriculture. This case shows that indigenous cosmovision can make people



Photo: Dominique Nabben

Tobe (sitting in the centre) performs Eka HoE ritual to control rice bug outbreak

The Atoni people live in clans in their communities. Their cosmovisions include Lord of Heaven, Lord of the Earth, cosmos, spirits and ancestors. Adat elders and the *Tobe*, the traditional clan leader with administrative and spiritual responsibility, decide on the timing of agricultural activities. *Dukuns*, or shamans, are consulted when people or animals are ill or when pests attack the crops. If rituals are part of the solutions, the *Tobes* have to perform these.

The *adat house* is the place where elders meet and consists of a circular wooden structure with a thatched roof of a particular design. Under this roof sacred objects like swords, ceremonial maize and bones of ancestors are kept. Next to the *adat house* is a place where

schedule planting crops together during the same days and use rituals in the agricultural cycle. The *Tobe* will perform the rituals. To do so, the farmers had to find a solution to the problem of ploughing the land. They were used hiring a tractor from outside and adjust their activities to the owners schedule. Now the farmers decided to train cattle, so everyone can plough the land during the same days.

Pride of the people

The new *adat house* symbolises the pride of the Atoni people in their culture, a culture that had nearly disappeared. The process of marginalisation of the communities has severely eroded indigenous knowledge and rituals. It is interesting that the farmers became aware of the importance of their traditional knowledge

aware of their own strength. This can create a path towards endogenous development that includes advocacy, nature conservation and agricultural development. In Laob it has resulted in a sense of unity between the clans; a feeling of pride of being Atoni has replaced the image of backwardness.

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Photo: Wolfgang Bayer

Africans manage livestock diversity

Constance M. McCorkle

After decades of development debacles with alien breeds, scientists and developers have at last come to appreciate the vast animal genetic resources that ordinary farmers and herders have developed through the ages, especially in the South. Today, all over the world, rural people keep about 4,500 breeds of domestic animals of more than 40 species. Based on a global overview of ethnoveterinary literature (Martin et al., forthcoming), this article summarises some findings on the local knowledge, management, and use of livestock diversity that has made possible the development and maintenance of 'living gene banks' of special animal breeds in Africa.

As many as 150 reported varieties of cattle, 60 of sheep, and 50 of goats are currently found in Africa. There is also considerable (but less well documented) biodiversity in horses, donkeys, mules, chickens, pigs, and dromedary camels.

Stock records

African stockraisers typically have a rich knowledge of multiple aspects of animal husbandry, including a practical, working knowledge of genetics. Many pastoral and agropastoral peoples keep detailed mental or oral livestock stock records. Indeed, any 10-year-old child of the Bororo pastoralists of Niger can easily identify the pedigrees of all the animals in his/her own and nearby families' herds. This is because an animal's ancestry is typically encoded in its name, and names are never changed when animals are sold or exchanged. Like the Bororo, Twareg herders of the Sahara Desert keep close track of their camels' pedigrees via permanent names for individual animals. These names reflect maternal ancestry. Rashaida camel breeders trace their racing and riding animals' pedigrees back at least seven generations.

Traditional institutions

Throughout Africa, stockraising peoples have indigenous social institutions for sharing, lending, or exchanging breed-stock. For example, the Sebei in Uganda practice *namanya*, in which households may borrow or exchange a heifer in a contract that can extend over three generations. In this arrangement, the recipient family cares for the heifer in return for her first-born plus the use of all the milk

from her and her progeny. At the contract's conclusion, an equivalent animal is returned to the donor household. While Sebei explanations for *namanya* centre on social, charitable, and labour-saving concerns, and on spreading the risk of losing animals, this mechanism has the added benefit of bringing fresh blood into family herds. For this latter purpose, Samburu and Turkana pastoralists of Kenya form 'stock friendships' in which friends exchange animals.

For at least 150 years, Lesothans and Western Zambians have used a similar institution, *mafisa*, expressly for genetically improving their cattle. They place a number of their cows in the herd of another family with superior bulls. After several years, the cows and their progeny return home; but in the meantime, in recompense for the stud services rendered and the cows' care, the host family enjoys the use of the milk.

Stockraiser logic

Virtually every long-time stockraising society has developed one or more distinct livestock breeds to suit its particular environment and animal-product needs. People often have multiple breeding goals for a given species, however. Still, the first consideration is sheer survivability. A number of overarching selection criteria can be identified in this regard, of which disease resistance is perhaps the most salient.

For example, eastern and southern Africans have developed the Sanga family of cattle, which are resistant to a major infectious disease, East Coast Fever, and to the ticks that carry it. Similarly, West Africans have developed many dwarf breeds of cattle, sheep, and goats that resist blood parasites and other common diseases. And whenever Fulani pastoralists

of the Sahel migrate into a new area, they always buy some local bulls and rams with the express purpose of enhancing their herds' adaptation to local diseases and other stresses.

Another critical breeding criterion is adaptation to conditions such as temperature, insolation, precipitation and mineral resources. Even seemingly simple features like coat and skin colour may be important in such regards. It is probably no accident that Bunaji cattle, developed by the Nigerian Fulani, have a pure-white coat and a black skin. These characteristics allow Bunaji to graze under far higher ambient temperatures than European cattle.

Other common criteria for selection are the ability to walk long distances in search of water, to resist periods of water and forage scarcity, and to be a good mother. The latter includes battling predators on behalf of progeny, paying close attention to new-borns and weaklings and, in poultry, devoted brooding.

Additional selection criteria relate to animals' particular production roles. An example is the D'Man sheep of Morocco. Developed by oasis dwellers as a meat animal, D'Man frequently produces twins, triplets, quadruplets, and even quintuplets. On the other hand, Somali pastoralists have developed a non-twinning dairy goat breed so as to ensure more milk off-take for human, rather than kid, consumption.

Religion and animal selection

Religious and cultural considerations also figure in stockraisers' development or maintenance of special strains or types of animals. For instance, Nigerian Hausa keep some unique types and colours of naked-neck and frizzle-feathered chickens because these birds are associated with spirits in local Bori rituals. Along with be-

havioural traits such as fierceness and good mothering, these physical qualities are required for the proper performance of rituals in which the birds are sacrificed to the Bori spirits. Apart from these religious considerations, many of the same qualities improve survival rates and production in Africans' free-range systems of poultry management.

Similarly, Bodi agropastoralists of Ethiopia carefully breed cattle of many coat colours, with whom people identify themselves. "These animals are imperative for certain rituals and are indispensable to the Bodi society. Without such coat colours, it is doubtful that the Bodi could exist socially and culturally" (Fukui 1988).

Indeed, keeping genetic variability on tap is a wise long-term hedge against changing circumstance and need. As some of the foregoing examples have illustrated, local breeds and breeding strategies are not static and unchanging. Africans continue to adapt and refine their animal breeding today. At the same time, people endeavour to maintain traditionally prized traits and beloved breeds. But their efforts are under attack from many sides.

Threats to livestock biodiversity

Nearly a third of the world's livestock breeds are currently at risk of disappearing, and the extinction rate now stands at about six breeds per month (NAO 1998). Even among Africa's nine traditional cattle breeds with resistance to blood parasites, all but three are endangered. A dismaying number of African breeds of sheep, horses, donkeys, and poultry as well as cattle have already gone extinct. This erosion in domestic animal varieties is all the more frightening when compared to cultivated plant species, which enjoy far greater genetic variation and which have many more surviving relatives in the wild.

Failure to pay greater attention to

stockraisers' efforts to maintain animal biodiversity is foolish in the face of recent research suggesting that, overall, indigenous breeds can be as, if not more, productive than imported ones. It is ironic that wider appreciation of local breeds has been accompanied by the realisation that this treasure trove of biodiversity is under attack by poorly thought-out 'scientific' methods of animal production and reproduction, and by market-oriented approaches to development.

According to some analysts, northern veterinary medicine has contributed to local breeds' genetic deterioration or near-disappearance. Veterinary extension efforts can weaken a hardy gene pool by keeping sickly and deformed animals alive until mating age. Veterinary medicine has also been implicated in the extinction of local livestock varieties on the grounds of disease eradication.

An instructive case is Operation Coq, a nation-wide program instituted in the 1970s in Nigeria. Northern or northern-trained veterinarians claimed that village birds were heavily disease-ridden and thus low-producing. The goal was to substitute all local cocks with exotics. Needless to say, Operation Coq was a resounding failure. The alien cocks could not compete with the hens' indigenous suitors. Indeed, they could not even survive village climatic and husbandry conditions.

Whether in Africa or elsewhere, a growing number of researchers blame the decline in livestock biodiversity on the high-risk, cash-based economies of the modern world. Traditionally, pastoralists exchanged livestock goods (meat, milk) and services (manuring, field clearing) for staple foodgrains from cultivators. The terms of trade in such transactions were much more equitable than those of the modern marketplace. Moreover, they were often flexible, such that herders, as well as farmers, were cushioned against

lean years.

But nowadays, stockraising peoples *en masse* may find themselves obliged to sell off their best animals just in order to obtain cash to buy foodgrain. This can leave whole ethnic populations of stockraisers with only inferior breedstock or with too few animals to continue in their profession. And when prime, young breedstock and even entire herds of unique breeds are sold for slaughter, their special genetic qualities may be lost forever.

In fairness, it should be noted that pressures to abandon indigenous breeds have not emanated solely from scientists and developers. Invading and colonising powers have been at work too. Such groups tend to prefer animals whose management and productive characteristics are already familiar to them. The military and cultural conquests of Islam, for example, have led to the repression of some local herd-animal breeds in favour of ones deemed 'better' in Islamic views.

Careful analysis

For whatever reasons, the literature indicates that fewer and fewer stockraising peoples are able to maintain their traditional breeds or to cleave to their social institutions and cultural rules for mating, exchanging, and selling animals. Indeed, many are unable even to remain in their profession. The result is a concomitant loss in the knowledge and existence of the livestock biodiversity that people have so long husbanded.

Thus, any proposed interventions in people's management of livestock must first be carefully analysed in the context of interlocking - or sometimes competing - production and marketing systems, as well as the logic behind people's keeping certain species and breeds. This includes the social, cultural, and spiritual values of the animals for their keepers' families. At the same time, interventions must be considered in terms of the benefit to all humans of keeping these 'living gene banks' alive, along with the peoples who develop and manage them.

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Photo: Wolfgang Bayer

Fulani herders with cattle herd at overnight camp on farmer's field in Central Nigeria

People's Biodiversity Register

Ghate Utkarsh

The People's Biodiversity Register is a programme set up to document people's knowledge of biodiversity, intended to protect people's rights to their intellectual property and natural resources. The programme was started in a few Indian villages in 1995 by the Foundation for the Revitalisation of Local Health Traditions (FRLHT). The initiative has now spread to villages all over India. Other countries are also interested in the Biodiversity Register idea.

Biodiversity has emerged as a major global resource for supplying the raw material for biotechnological inventions. Biotechnology is expected to contribute 30 to 40% to the global economy in the twenty-first century. Conservation of biodiversity has therefore been identified as a major issue on both global and national agendas, in sustaining the growth of the biotechnology industry as well as developing new drugs and crop varieties.

The initiatives of indigenous peoples to assert their traditional property rights to land, water, and forests were supported by the International Convention of Biological Diversity in 1993. Some 171 countries signed the treaty. Article 8j and 10c indicate that member states have to ensure that local knowledge and practices are respected and applied commercially only with the consent of the local communities, with equitably shared benefits.

The People's Biodiversity Registers programme includes two major activities: a participatory documentation process in the local language and the recording of people's traditional resource rights, including their options for sustainable use.

Intellectual Property Rights

Rich in biodiversity, folk knowledge and practices, the developing countries had barely thought of capitalising on them, before they succumbed to the inequities being promoted by another international treaty, the General Agreement on Trade and Tariff (GATT). This treaty was enforced in 1995 and has been signed by 130 countries. The economic liberalisation and globalisation perspective of this treaty poses serious threats to biodiversity. Moreover it stimulates the monopolisation of inventions based on biodiversity by industrial nations by means of the Trade Related Intellectual Property Rights (TRIPS).

TRIPS compels all member countries to accept strong intellectual property rights on processes as well as products based on biological resources. This implies that the price of drugs, new crop varieties and other biodiversity-based products will be in the hands of intellectual property right holders, most likely foreign, northern corporations. The developed countries are far ahead in their biotechnology innovations and in the process of protecting them through patents.

Developing countries, forced into globalisation and constantly seeking greater market access, cannot but accept the GATT obligations. Much hope has been invested, however, in the earlier Convention of Biological Diversity treaty that includes equitable benefit sharing and technology transfer. This treaty is extremely important and can be used to diminish the negative effects of TRIPS.

Control over information

Weak information systems are the greatest challenge the developing countries are facing in managing their biological resources. In addition, developing countries are making little headway in putting their wealth of living resources and knowledge to modern commercial use.

Most information is highly fragmented and disorganised. Often it relates to the identity of a species and resides with local people who supply knowledge and specimens to the agents of pharmaceutical companies. Meanwhile multinational corporations are forging ahead in developing applications and patenting them. As a result nearly two-thirds of the biochemical patent applications filed in India belong to foreign agencies. The corporations are at an advantage because they have money, technology and better access to information. As a result the best collections on Indian ethnobotany are located in London and Chicago.

People's Biodiversity Register

The objective of the People's Biodiversity Register is to build an open and transparent information system on biodiversity resources from village level upwards. The register can be used to promote the sustainable management of biodiversity resources. Moreover, claims of communities and individuals to knowledge about biodiversity resources and their uses can be supported.

The People's Biodiversity register was initiated in 1995 by a non-governmental organisation FRLHT in Bangalore, South India. It was financed by a long-term grant from the Ministry of Environment and Forests. to the Centre for Ecological Sci-



Photo: G. Utkarsh

Public function to release the People's Biodiversity Register, in presence of the minister

ences, a department of the Indian Institute of Science. Between 1996 and 1998 the Indian Institute of Sciences coordinated the activities of the People's Biodiversity Register at 52 sites in eight states. This was part of a national initiative, the Biodiversity Conservation Prioritisation Programme (Gadgil et al, 1998). The focus was to determine local resources and the conservation priorities of the local people.

Teachers from colleges, schools and universities as well as government officials and NGO workers were among the interviewers. The entire programme involved 350 researchers as well as 200 assistants from village communities. As many as 1000 villagers were deeply involved in the programme as individuals with extensive local knowledge.

The interviews included the identification of biodiversity user groups and knowledgeable individuals. Individual and group interviews were carried out as well as discussions with village assemblies. During these discussions not only biodiversity resources were identified. They also included aspects like practices for the sustainable use of local resources, perceptions and options for development and people's choices in their personal and social life.

Over-harvests and bio-piracy

In general this work carries two important risks. On the one hand the availability of easily accessible databases may promote over-harvesting of certain biodiversity resources by the communities. On the other hand information about biodiversity resources may be used by others without equitable sharing of benefits.

The stock of information on biodiversity resources in the People's Biodiversity Registers has facilitated monitoring and provided measures to check on the use of this knowledge. Establishing rewards for natural resources initiatives has also created opportunities for local communities to participate in conservation programmes.

The information from local registers was computerised at district level and made available to villagers throughout the countryside. The medicinal and seed industries were allowed access to this information for a reasonable fee. Some of the royalties accumulated in this way have been deposited in the biodiversity funds and are intended for the support of local initiatives. It was also intended to enrich these funds by taxing all biodiversity-based products. Of course, these efforts will not be successful without publicity, training and education at the grassroots level through a local self-governance system.

Experiences gained

The registers were accepted by the local

councils as official documents and distributed publicly. This process received considerable attention in the local media and helped raise awareness about these issues in neighbouring areas. It also worked as a signal to local politicians about the importance of local resource management and their responsibilities in this respect.

People in certain villages became aware of the problems related to local natural resources and started to search for solutions. For instance in Kigga village near Sringeri, one trader used to collect moss in large quantities from nearby forests. Aware of the global value of local resources, the people inquired about the price this trader earned for the moss in urban markets. Because he did not give a satisfactory reply, the people refused to give him permission to go on collecting moss. Similarly, people from Mala village decided to ask the government to authorise the local council to charge fees to outsiders for the collection of forest products.

In some areas Village Forest Committees were established as part of the Joint Forest Management programme launched by the government. Some of the funds for this Committee were provided by the researchers involved with the Register. People also looked for ways to reduce the pressure put on the forests by the continued search for firewood. Examples are the search for alternative fuel resources for brick making and the protection of sacred groves and related traditions.

Government and NGO response

The government of India has prepared a draft Biodiversity Act with many noteworthy provisions for discussion in the next parliamentary session. The draft act includes such aspects as local authorities, documentation of local knowledge and resources, and the funds for the conservation of these resources. Under the auspices of a local member of parliament, some NGO's organised the first, and perhaps the only, voluntary public hearing on the contents of the draft.

As the government takes its time to decide on the People's Biodiversity Registers, local NGO's are vigorously spearheading the exercise. These experiences have been widely published in English and the local language. After learning about these activities, many people from all



A knowledgeable folk medicine practitioner, Mr Kunjeera Moolya, being honoured by a local politician

Photo: K.P. Achar

over India have expressed an interest in undertaking similar exercises in their own areas. This has led to the establishment of an informal network called *Srishti-jigyasa Pariwar*, the 'Family of People Desirous to Learning about Nature'. To facilitate this process, the methodology manual and resource materials such as the treaty of the Convention on Biological Diversity have been translated into several local languages.

Some NGO's have also initiated 'Festivals of Biodiversity' to display local cultivars, on-farm gene banks and innovative schemes for traditional crop varieties. Meanwhile other NGOs, including the International Union for Conservation of Nature and Natural Resources, have expressed interest in initiating this movement in countries like Nepal, Brazil and South Africa. People's Biodiversity Registers may become a global movement in the near future.

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Biodiversity: Green Gold or Sacred Teacher?

Liz Hosken

Global corporations are using their instruments of world-wide governance, such as the World Trade Organisation, to facilitate their access to biodiversity resources. This directly influences the livelihoods of indigenous peoples and the biodiversity upon which they depend. This article looks at the origins and implications of these developments and proposes activities to counteract this tendency.

We are living through an unprecedented moment in the Earth's history. Never before has one species of the planet developed mechanisms which actively destroy the life-support systems of the Earth, to the point that it is likely to annihilate the continuity of life as we know it today. Over the last few hundred years, a fraction of time in the Earth's history, these destructive processes have reached global proportions.

The main instigator of such devastation is the western industrial worldview, which sees nature as a resource to be dominated and used to satisfy human needs. Over the last few decades global corporations have consolidated their control over nature and society to the point where they are more powerful than most nation states. They have forced governments to participate in the World Trade Organisation, also called 'the new Global Government'.

Through the WTO the corporations are able to further concentrate their control, not only over minerals, fossil fuels and genetic material of living organisms, but also over scientific research, public institutions and indigenous knowledge. The slogan 'free trade is good for you' has penetrated deep into the psyche of individuals and societies around the world. Even in the most isolated parts of the planet communities are tempted with the promise of corporate wonder-products, like 'super-seeds to feed the world', if they hand over their biodiversity and knowledge to corporate control.

New green gold

New developments in genetic engineering have been monopolised by corporations to develop instruments of draconian control, such as the terminator technology that prevents seeds from germinating. This technology forces farmers to buy new seed packages each year. These new possibilities of mixing and matching genes have turned commercial attention to biodiversity, 'the new green gold'.

An example is Shaman Pharmaceuticals, a bio-science company based in the

US that has found a use for indigenous people: by using Shamans, the local healers, the time needed to identify commercially interesting plant properties is significantly decreased. Thus a new era of colonialism is introduced where both living organisms and indigenous knowledge are reduced to saleable commodities, controlled by western commerce. A rationale is developed which asserts that this is the natural course of progress for the benefit of mankind.

The philosopher Brian Swimme considers that western society has developed powerful tools through its reductionist world view, but it has not evolved the emotional maturity to use these tools with discrimination and compassion. The Kogi indigenous people from Colombia see it this way: "The white man is like a younger brother who rebels against the laws of life, without realising the consequences of his actions".

The whole movement of western development creates uniformity, standardisation and mono-cultures in nature and in society. However, nature abhors uniformity: it produces not only species diversity but also individual diversity. Human communities throughout history have contributed to this through the free exchange of knowledge and biological specimens. Property and individual rights therefore encroach on what are essentially communal knowledge processes, blocking the very capacity for their generation.

How to respond?

Essentially, there are two schools of thought responding to global trade interests in biodiversity and local knowledge. The one believes that the commercialisation of living organisms and knowledge is an inevitable trend. This pragmatic viewpoint aims at extending intellectual property rights to communities and getting them a financial deal in exchange or benefit sharing. This is thought to be a just and fair demand under the circumstances, but is proving difficult to achieve.

The other school sees this trend of commercialisation of living organisms and

knowledge as a self-destructive, one-dimensional reality. Further dissection of nature, knowledge and culture will lead to greater disintegration of biological and cultural systems and human potential.

At such times of deep crisis in the human community, the archetypal hero myth in all cultures calls upon the more adventurous members to go beyond the status quo, with imagination and courage, to search for new insights. Ailton Krenak, an inspired leader of the Krenak people in Brazil sees it this way: "We need to build 'affectionate alliances' amongst people from different cultures and perspectives, to fertilise imaginative responses to this challenge".

Say it as it is

When fundamental life principles are being violated, there is no place for negotiating a sweeter touch to the poison. We must bear witness to what we see so that others can be warned. Gandhi demonstrated the moral strength necessary to withdraw support from the offending systems of violence and control and to give attention to those practices that enhance diversity, democracy and self-reliance.

Recently, the genetic engineering issue has re-awoken this spirit and given strength to many civil movements, across the world. They have naturally combined their rejection of genetic engineering, with support for non-corporate, locally controlled indigenous and ecological alternatives.

Intercultural alliances

A concerted inter-cultural effort is needed to understand the dynamics of diversity and complex systems, so that we can better defend them. Examples of such an inter-cultural commitment are the COAMA Programme and the Tropenbos projects in Colombia. These projects have helped to transform the negative historical relationship between indigenous and occidental traditions, thus creating the possibility for mutual respect, reciprocity and innovation. Suggestions for concrete actions for these alliances will now be described.

Areas of protection

Corporate exploitation is moving rapidly into the most isolated areas of the planet. Civil groups and local and indigenous communities need to redouble their commitment and capacity to protect areas of major cultural and biological importance. The aim of this strategy is to ensure that some areas on the planet are able to follow their own evolutionary path, as reference points at least, for the future.

It is essential, however, to insist that these areas are protected on their own terms and not distorted or compromised by commercial interests. These are non-negotiable areas, protected for future generations. Examples exist in Colombia where broad areas of cultural and ecological significance have been demarcated for protection. The details of 'management' and 'development' are left to the communities to evolve at their own rhythm and according to their own cultural criteria and practices.

A new jurisprudence

The World Trade Organisation is in the process of creating global rules for all countries. In the area of biodiversity and knowledge, the Trade Related Intellectual Property Rights Agreement (TRIPs) is an attempt to force countries to allow commercial monopoly control of plant varieties.

Objections to the injustice of excluding communities and countries from developing their own biodiversity resulted in the World Intellectual Property Organisation (WIPO). This programme wants to extend intellectual property rights to communities. Some projects, such as the People's Biodiversity Register programme in India, support this strategy as providing the best deal under the inevitable circumstances.

But the few studies that have been done show that, simply from an economic point of view, communities and poor countries would never be able to participate in this game. The cost of the necessary scientific research and legal support required to claim patents, and later on to maintain and defend them, are prohibitive. In other words, in a match between two grossly unequal worlds, it is an illusion to believe that communities or even developing countries can benefit.

Instead, our energies should be channelled into developing a new jurisprudence that genuinely protects the dynamic collective processes that generate human knowledge. A jurisprudence that truly reflects the laws that govern life on the planet, rather than the interests of the

powerful. There are signs of this world-view emerging in law in South America and in Africa, where the multicultural, collective nature of societies and their relationship to biodiversity are being protected in jurisprudence (OAU Legislation). If the human species is to survive in the future, with the species which it has not annihilated and upon which it depends, this project is urgent.

Sacred teaching

The anthropologist Jeremy Narby, in his ground-breaking work 'The Cosmic Ser-



Photo: Gaia Foundation

pent' argues that Shamans through hallucinogens, are able to see the molecular structure of living organisms. The role of the Shaman is to maintain a dialogue with other species and elements of nature in order to help keep the balance between the individual, the society, and the environment. For this they are trained to move easily between different levels of perception.

Speaking from this worldview, one of the Huitoto shamans of the Colombian Amazon, Oscar Ramon, reflects on the idea of intellectual property rights:

"It will never work. Plants have a spirit of their own. They can never be owned and controlled. People who try to do this will get burnt. It will leave confusion and unhappiness, and it will never work. We must not let this interfere with our tradition of sharing knowledge freely. That is

the condition; knowledge has to be shared, otherwise you get sick."

The confusion already created by intellectual property rights is undermining research and development, even in the competitive occidental world. Researchers guard their findings and do not dare to publish, in case someone 'steals' their ideas. Indigenous and local communities are potentially set to battle between themselves for monopoly rights on common crops and cures.

This is no way to generate knowledge and understanding as the spontaneous joy of sharing discoveries and innovations are choked by the spirit of greed. Jeremy Narby opens up new dimensions of intercultural exploration, including the dialogue with the rest of nature (Narby, 1998). But this requires, however, a genuinely free spirit of exploration and exchange, from which we experience the Earth's reality: to violate any life is to violate ourselves.

One of the Huitoto shamans of the Colombian Amazon, Oscar Ramon, reflects on the idea of intellectual property rights: "It will never work. Plants have a spirit of their own. They can never be owned and controlled. People who try to do this will get burnt. It will leave confusion and unhappiness, but it will never work. We must not let this interfere with our tradition of sharing knowledge freely. That is the condition; knowledge has to be shared, otherwise you get sick."

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Gaia Foundation
18, Well Walk, Hampstead



For the inhabitants of the Andes 'living with biodiversity' is more than just an attitude of mind. It is a state of being that indicates the way material, social and spiritual life is reproduced. What the people are able to produce through farming depends on the way they care for their crops and for *Pachamama* or Mother Earth.

Living with biodiversity in the Andes

Juan Carlos Mariscal Castro and Juan San Martin Morales

Many professionals see biological and cultural diversity as an obstacle to improving production in rural communities. This is probably why many development efforts include the diffusion of monocultures and high-yielding agrochemical dependent varieties. Such an approach, however, drastically modifies traditional diversified agro-ecosystems. The long-term consequence is genetic erosion and the deterioration of natural resources. Ultimately this can lead to a reduction in opportunities for ensuring local self-sufficiency in food.

Farmers in the Andean region, however, regard diversifying agriculture and living with Mother Nature as the best way to safeguard their food supply and way of life. Rather than fight nature, they strive to adapt to its dynamics. Their culture symbolises living with biodiversity and *Pachamama*. Rituals expressing gratitude are ways of manifesting this outlook. Unfortunately, those responsible for promoting rural development rarely consider this perspective.

It would seem logical to adapt the conventional view of rural development and harmonise it with the farmers' perspective. Why not let the farmers guide their own development for they know their needs, aspirations, resources, natural surroundings and culture best.

For over 10 years, the University of Cochabamba Agroecological Programme (AGRUCO) has been conducting participatory research in rural Bolivian communities. The methods of supporting development in these sectors include revaluing, revitalising and strengthening local knowledge and Andean culture.

Diversity in the Andes

Belén de Urmiri is an indigenous community located on the high plains of the Department of Potosí where the altitude varies from 3,650 to 4,250 metres above sea level. The climate is dry and cold. Annual precipitation does not exceed 400 mm and the average temperature is around 11°C. Fluctuating altitude and topography produces countless micro-climatic variations and these form the basis of agricultural diversification.

There is a remarkable diversity in agricultural varieties. The eight main species grown are potatoes (*Solanum ssp.*), *papalisa* (*Ullucus tuberosus*), *oca* (*Oxalis tuberosa*), *mashwa* (*Tropaeolum tuberosum*), quinoa (*Chenopodium quinoa*), barley (*Hordeum vulgare*), wheat (*Triticum aestivum*) and beans (*Vicia faba*). These eight species comprise over 93 local varieties of which nearly 95% are original Andean crops. The great variety of crops in the Andes cannot simply be attributed to ecological diversity. Andean farmers have been continuously experimenting with their species, particularly with the indigenous varieties.

In quantitative terms, a family in Belén de Urmiri cultivates at least six to eight crops a year. These six crops consist of up to 40 varieties. Potatoes can be found in about 27 varieties, making it possibly the crop with the greatest diversity of varieties and species. This proves that the diversification of both species and varieties is a constant feature of Andean agriculture. It is a practice with many advantages.

On the one hand, diversification en-

ables the efficient use of ecological diversity and is an adequate way of dealing with the agroclimatic risks that vary greatly from one planting season to another. On the other hand, it allows for rotation and combining crops. Farmers can diversify their diet using at least a mix of tubers (potatoes, *oca*, *papalisa* or *mashwa*), cereals (quinoa, barley and wheat) and legumes (beans). The variety in diet is further enlarged through different types of consumption and cooking of the assorted varieties of the same crop.

Reciprocal growing methods

Andean agriculture actually depends on a concept like the *reciprocal* growing methods, which include a continuous dialogue between all forms of life. In other words, everything takes care of everything else: humans grow plants and, in turn, are tended by the plants. The inhabitants of the Andean highlands depend on this reciprocity between all forms of life; from humans, plants and animals to hills, rocks and rivers. It is a type of non-compulsory giving and receiving that involves growing and taking care. Development is therefore seen as 'all being united to live well and better'.

Putting your heart into it

This dynamic cultivated biodiversity also reflects the idea of 'complementarity', another important concept in traditional Andean life. The farmers aim to balance between cultivated biodiversity and other resources, such as soil, climate and labour. The idea is to achieve multiple agro-economic, ecological, economic, culinary and socio-cultural objectives.

The way households use crop varieties is dynamic and depends on the family's decision to keep and take care of these varieties. Some farmers clearly avoid growing particular varieties, while others in the community are happy to cultivate them. As Demecio Poma, of the community of Japo K'asa stated: "I got the varieties I grow from my parents. They are old crops and have done well thus far. The *pituhuayaca* is the only one that doesn't want to thrive. Probably I am not putting my heart into it."

Thus, spiritual empathy must exist between the people and the crops they grow. This idea is known as *Ispalla* and can also be conceptualised as the 'small God of seeds' or 'the Spirit of food'. The Andean cosmivision, combined with mixed cropping, provides the basis for food and life security. By living with biodiversity the inhabitants of the Andes seek to reproduce their lives not only socially but also spiritually.

Three souls of potatoes

According to the inhabitants of the Andean highlands potatoes have three different souls.

They believe these souls dwell in the different parts of the potato. The *axayu* resides in the stem and guides the plant's growth. The *janayu* dwells in the stalks and influences germination. Finally, the *ispiritu* is believed to be the potato's main soul and resides in the tubers. The farmers say that without three souls, the potato would not spring forth from the earth. Each soul guides the plant's growth and takes care of the crop.

The farmers are as conscious of the souls of the potatoes as they are of their physical appearance. The farmers commu-

nicate with the soul through various rituals, such as the *P'aquma* or potato's birthday, for example, which is celebrated during carnival. During this ritual the souls of the potatoes and Pachamama are asked to watch over the potato crop.

In this sense potatoes provide not only material food but also spiritual sustenance. Both are considered indispensable for the reproduction of life.

Communities and students

AGRUCO supports the communities in the revitalisation, conservation and on-site improvement of their biodiversity. It aims to enhance food and life security in the communities within the framework of endogenous development. After an extensive process of research AGRUCO has come to the conclusion that spirituality is always present in Andean technology and society. The region has its own cosmivision and culture, in which social, material and spiritual aspects are inseparable from each other and from the reproduction of life.

Today, however, Andean culture is being overwhelmed by outside influences that seriously threaten life security. AGRUCO decided, therefore, that instead of merely transmitting concepts and new technologies, it would provide support to the communities and help them to revalue their own knowledge. This effort implies strengthening Andean culture and cosmivision.

AGRUCO has launched several research projects based on an intercultural dialogue and participatory research, involving both professionals and students. Postgraduate students get involved in community life by paying regular visits; five days a week over a period of about 10 months. Throughout this period the students live in a community and participate in production activities and ritual festivities. They try to communicate with the farmers in their native language in order to understand the community's way of life and cosmivision. They record their experiences in research papers or reports.

These studies yield information for those studying agroecology, sustainable development and the revaluation of Andean knowledge at the Faculty of Agronomy, Universidad Mayor de San Simón (UMSS). In fact, teaching at the university helps AGRUCO's technicians share their research

and fieldwork experiences. In addition to classroom instruction, undergraduate students participate in productive activities and festivals within the communities. The aim is to raise general awareness among future professionals about the importance of local knowledge and Andean culture.

Endogenous development

Research results have revealed ways of supporting self-sustaining development in rural communities. The communities, with the help of the technicians, define small local projects for the so-called Self-Management and Sustainable Development Integral Community Programme (PICADS). After co-ordination with other communities and regional organisations, these projects are submitted to the corresponding municipality. If approved, the communally designed plans become part of the annual operating activities of the municipality.

Another experiment has taken place in Ayllu Majassaya Mujili. In this area the communities are now managing an on-site seed bank containing over 45 varieties of native potato seeds. This supply includes seeds of some varieties that are no longer grown, or are gradually disappearing. The system entails working with the farmers to multiply the seeds of one or more varieties. After the harvest, seeds are re-deposited in the bank. In this way the biodiversity of potatoes is sustained and revitalised.

Moreover, a fund has been established to multiply seeds in communal plots and this provides another source of seeds that are managed by the farmers themselves. Other local experiments to improve potato seeds include selecting plants, hand-picking tuber seeds and storing seeds under diffuse light in special greenhouses. These experiments also include western practices like multiplying potato seeds from rooted cuttings taken from the sprouts. This is a complex practice and helps free potato tubers from disease.

Thus far the communities have achieved encouraging results. Promoting endogenous development seems possible if local skills and potential are taken into account. AGRUCO's experience also suggests that revaluing local knowledge and culture can be achieved by combining support to communities with research and with the training of students.



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Photo: AGRUCO

A family in Japo celebrates *P'aquma* or birthday of potatoes, which includes a dialogue with the 'three souls of the potatoes'

Colourful cultures r



Gonda's, or chalk marks, are symbols of communication with supernatural beings used by tribal people in the Eastern Ghats, India

1. To protect harvested paddy in the Threshing Grounds.
2. To protect children from illhealth.
3. To protect from illhealth and poverty.
4. To protect crops in shifting cultivation patches.

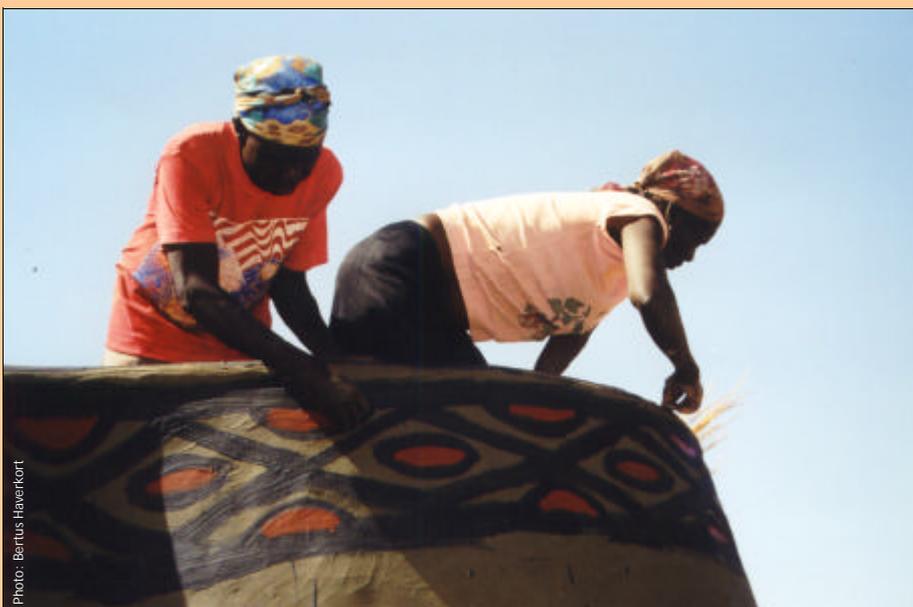


Photo: Bertus Haverkort

Wall painting in Sirigu, Northern Ghana, with symbolic representation of cattle and wealth. Also symbols of fertility, food security and sacred animals with messages from the spiritual world are painted.



Painting by Putli Ganja of the Ganiu T pyramid Yoni, or female symbol of Mo

Maintain biodiversity



Traditional leaders and their wives celebrate a harvest ritual with the whole community. Through the smoke there is communication with *Pachamama*, or Mother Earth. The different potato varieties and utensils in the centre represent the agricultural activities (Highlands of Bolivia).



Photo: Casula Power House Arts Centre (Sydney)

ring cow/bull. Between the horns the
less, is represented.



Photo: Bertus Haverkort

At IDEA's training centre the training rooms are decorated with traditional art (India).

Women and biodiversity conservation

Vanaja Ramprasad



Photo: Krishna Prasad

The loss of diversity in food crops is the greatest threat to food security. Today, there is an alarmingly narrow genetic diversity among the plants, fish and livestock that make up the world's food basket. An analysis by the GREEN Foundation of the activities of women in agriculture and food processing clearly illustrates their key-role in conserving diversity.

Putteeramma is a farmer, mother, grandmother, seed conservator and organic cultivator. She lives in a small village hidden in the valley between the hilly slopes that border Karnataka and Tamil Nadu. Frail in body but strong in her convictions about her heritage and traditions, she holds on to her five acres of rain-fed land.

She wakes up to the sound of the birds on her plots of finger millet, dry-land paddy, lentils, red gram, field beans, cow-peas and sorghum. She believes that one has to give back to nature something of what one has taken. Besides tending various species of crops and animals, Putteeramma also grows exclusive varieties of *ragi*, or finger millet, and paddy.

Foodproducers

Putteeramma is not the only woman who has understood the need to conserve food-crop diversity; women in rural communities all over the world contribute to sustaining food production. While the diverse tasks of women are extremely difficult to quantify, their role in securing household food cannot be disputed. In addition to being responsible for the farm and the household, women are the custodians of the family's food basket.

Studies have shown that women in India are the major food producers in terms of value, volume and quality. An interesting study of the gender division of labour has shown that women do 37% of sowing, 59% of interculturing, 60% of the harvesting, 59% of threshing and 69% of all the work involved in tending farm animals.

Generally men and women work together in a complementary way although difficulties may arise when decisions have to be made about whether to produce for

market or home consumption.

Rituals and seed selection

In the finger millet growing areas of southern India, mustard is the first plant to flower. This is the moment when *Gowri Pooja*, the ritual for the Goddess Gowri, is celebrated. Gowri is the goddess of water and a symbol of fertility. Flowers of the mustard plant are taken home and worshipped. In some parts of Karnataka young unmarried girls sing songs of praise to the goddess and collect contributions from the public. They also bring fresh soil and make an image that symbolises fertility. After the ritual, the image is immersed in water to reaffirm the connection between plants, soil, water and fertility.

Women play a major role in conserving seeds: they decide the quantity and variety of seed to be saved and the method of preservation. Seed selection by women is a continuous activity, starting the moment the crop begins to flower. Working in the fields, they observe the plants and decide which seeds to select. They identify plants of good quality on the basis of size, grain formation and their resistance to pests and insects. To cover the risk of drought, women select enough seed to see them through two seasons.

Seed storage

When the selected heads of grain are brought into the threshing yard, women welcome the first cartload with a *pooja*, or 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 an important part of seed preservation. Water is symbolised by a winnowing pan, protection from pests by certain leaves, soil fertility by cow dung and weeds by grass. Some of the leaves used in the ceremony have insecticidal properties. Lakkli leaves (*Vitex negundo*), for example, are used when paddy seeds are stored; neem leaves are used as an alternative when lakkli is unavailable.

In some cases paddy seeds are mixed



Photo: Krishna Prasad

Negilu Pooje, ceremonial germination test of 9 seed varieties

with the seeds of field bean (*dolichus lab lab*) and mustard to help preservation. *Tur* is mixed with sand for the same reason. Sometimes seeds are stored above the kitchen where the smoke helps to keep the pests away.

Ceremonial germination tests

Each region has its own way of testing the quality of the seeds. In the sorghum region farmer families celebrate a festival called *Kammanna Habba* when they finish threshing. In this festival people express their gratitude to the planets for the crops they have received and, for three days, the women worship symbols that represent the planets. At the end of the ceremony they make small mounds from the different seeds they have harvested and sanctified water is poured on each heap. Women believe that the water will carry away only the good quality seeds. If nothing is carried away they will look for other seeds.

This quality test is followed by a germination test or *Negilu Pooje* (see photo). In the finger millet growing areas this test takes place at *Ugadi* or the Hindu New Year. Nine seed varieties of cereals, pulses and oil seeds are put into the shell with good manure. These are worshipped and inspected after seven days. If there are only few sprouts or if these are too small, the seeds of that particular variety is not considered suitable for the coming agricultural season. The farmer will then exchange or borrow seeds until a suitable replacement has been found. It is considered unfavourable to purchase seeds for money.

Sowing sacred seeds

A few days before sowing, the seeds are taken out of storage. They are dried and those damaged by pests are discarded. Directly before they are sown the women take the seeds to the house deity and worship them. On their way to the field the woman carrying the seeds will visit and make offerings to the seven village goddesses, known as the 'Seven Sisters'. These seed offerings are later on collected by the poor. Women also worship the draft animals and the farming implements that will be used for sowing.

None of the above procedures 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. They are sent directly to the field where only the men are responsible for sowing them.

Rains and food availability

During a participatory activity with women farmers an agricultural calendar was drawn according to the rains. Each two weeks the rains are indicated with a different name. This calendar was compared



Photo: Krishna Prasad

Farmers display a collection of traditional seed varieties at the Kollagondanapali seed fair

with seasonal food availability and the jobs done by men and women. The women indicated the seasonal availability or lack of food.

According to this calendar the agricultural season begins with the *ashwini rain*, which is the signal to farmers to start preparing the land. Crops are sown at the time of the *kriethika* and *rohini* rains. Reserves of lentils and cereals for consumption are usually low for both humans and animals during the growing season. At this time the entire farming community depends on local biodiversity for a supply of greens, fruits, vegetables, tubers, potatoes, sweet potatoes and bamboo shoots.

During the following period of *magge malai* or big rain and the *ubbe* and *utharai male* rains, the fields and forests are full of green plants. Most of these are considered unproductive weeds by modern agriculture. The role of rural women as food producers is thus directly related to the diversity of local food crops and to the surrounding bio-diversity. The local market only has cereals and pulses to offer in the months after the harvest.

For farmers like Puteeramma, biodiversity is manifest in both cultivated foods and wild plants. Women's specialised knowledge of wild plants includes leaves, fruits, berries, nuts, seeds, edible roots and pulses. Diversity in cultivated foods is under threat, however, due to modern agriculture. Part of the traditional genetic material is replaced and natural resources that serve as biodiversity reservoirs are affected. These threats are particularly dangerous to the people who rely on natural resources for their survival during several months a year.

GREEN and biodiversity

GREEN Foundation is a committed, non-governmental organisation that works with farmers in general and women farmers in particular. GREEN strives to conserve the agricultural biodiversity that is based on local culture and knowledge. In some 50 communities there are activities to collect, multiply, characterise, conserve and

distribute traditional crop varieties like millet, gram, lentils, finger millet, rice and sorghum.

GREEN's Biodiversity Conservation Centre is located in the rural area of Thalli in Southern India. Here research and documentation on organic farming is carried out. Activities include food processing, annual seed fairs, group training, documentation, publications like seed catalogues and strengthening indigenous knowledge and its related practices.

The traditional Indian system of *panchayats*, or local self governance, was dismantled during British colonial rule. After independence the panchayats were restored but only for administrative purposes. Local knowledge, skills and social diversity in the use of natural resources are not acknowledged in the modern panchayati institutions. Women like Puteeramma are struggling by themselves to maintain their culture, biodiversity and identity.

GREEN believes that when there is a quiet revolution in reviving people's belief in their knowledge and cosmovision, processes of endogenous development are set in motion. Working with people like Puteeramma brings to light the possibilities to understand the cosmovision and its relation to enhancing biodiversity.



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Cultivating Seed Links is a new CD-Rom produced by GREEN Foundation that describes bio-diversity from an ecological, economic, gender and cultural perspective. In a highly informative way, using visuals and traditional Indian music, one can learn about biodiversity and the work of GREEN Foundation. Agrobiodiversity conflicts and on-farm conser-

Biodiversity in Dutch Agriculture

Henk Kieft

Although it is generally recognised that agro-biodiversity is decreasing in the Netherlands, relatively little attention has been given to the subject. Only a minority of organisations perceive agro-biodiversity as crucial to sustainable development. Recently, however, the Dutch Ministry of Agriculture, Nature Management & Fisheries drew attention to this ambivalence in its Work Plan Biodiversity. This article describes the perceptions relating to biodiversity in conventional and organic Dutch agriculture. It also explores the potential for strengthening agro-biodiversity in the Netherlands.

"In the Netherlands biodiversity in agriculture has seriously decreased since 1950. This statement holds true at all levels, from genetic diversity in crops and animals to the agro-ecosystems as a landscape unit". This was the message sent by the Rathenau Institute to the Dutch parliament in March 1998. Some examples were presented to illustrate this trend. The production of potato, sugar beet and wheat strongly dominates Dutch farming. In 1989, the top three varieties of sugar beet and wheat covered 69% and 79% respectively of the total planted area with these crops. In barley and rye this was even higher: 89% and 95% respectively. (Rathenau Institute, 1998). In livestock production, similar examples can be given. By 1996 some 942,000 inseminations had been carried out in the Netherlands with semen from one single Holstein Friesian bull, named Sunny Boy. In that period the Dutch dairy sector averaged some 1.7 million milk cows! The survival of many Dutch traditional breeds like Lakenveld cattle, Kempen sheep, Veluwe Land goats and Gelders horses is being threatened.

Wild species

The development of bird species in the Netherlands is another indicator of how landscapes have been simplified. In this century seven native bird species have become extinct, especially birds that need a specific environment. Some 24 non-native species, mainly birds that thrive in various habitats, have been able to settle in the country. The main reason for this decline in specialist species is the change of specific habitats and the up-scaling of agriculture. Before 2010 ten other native bird species will probably have disappeared.

Dutch homogeneous agriculture has also influenced the diversity of other wild organisms. Modern farming trends are

'very negative for butterflies, negative for mushrooms, amphibian and reptiles, moderately negative for grasshoppers and fish,

and landscape elements. Environment and nature-oriented organisations have particular interest for life support functions and the landscape dimensions of biodiversity.

As most organisations have no clear perception of the complexities of biodiversity, they tend to under-estimate its relevance as well as the reasons for its decline. In general, there appears to be little feeling for the ecological, economic or social importance of biodiversity for mankind and society. On the other hand landscape diversity is now more actively promoted. Substantial interest in biodiversity exists in several research organisations and at the Wageningen Agricultural University.

In an inventory by ETC- Ecology of recent Dutch initiatives that support biodiversity, it became clear that only a small number of organisations in conventional agriculture are involved in this subject. The majority of initiatives comes from ecological orientated organisations. From the ten organisations most active with biodiversity, four were found in the organic agriculture sector, two in the environmental movement and one among critical consumers. The other three were two breeder organisations and one wholesaler, part of the conventional sector.

Different perceptions

Very different perceptions of biodiversity shape the management of rural areas in the Netherlands. The most general is the 'non-perception' of the importance of biodiversity. However, insights prompted by particular interests are growing. Some farmers, particularly those involved in organic agriculture, see bio-diversity as the basis of farming. Breeders may perceive bio-diversity as a driving force behind evolution and see the loss of biodiversity as threatening further develop-



Photo: Hans Dijkstra

Mono-cultures are the most common form of agriculture in the Netherlands

neutral for mosses, higher plants and mammals and moderately positive for birds' (Bink et al, 1994).

An abstract concept?

Agro-biodiversity is generally perceived as a vague and abstract concept in the Netherlands. Only a few organisations have developed a systematic approach to biodiversity in the agricultural sector; very often one or more of the four dimensions of biodiversity are overlooked (box 1). The dimensions that are taken into account depend largely on the specific position of each organisation. Breeders pay special attention to the genetic dimension but tend to overlook life-support functions

Genetic level: the number of different genes in (wild) species, breeds and varieties of plants, animals and other organisms.

Life support level: the number of different organisms with life support functions for agricultural production, like pollination, natural enemies of diseases and plagues, and soil-organisms for improving soil fertility and structure.

Nature and landscape level: the number of different elements without direct agricultural production function like meadow birds, flora and fauna in hedges, field borders and along ditches.

System level: the number of different agro-ecosystems, characterised by a certain combination of crops or animals and technology.

Box 1 The four dimensions of biodiversity

ment and breeding. An economist may argue that diverse ecosystems are more flexible in the way they react to change and thus more efficient in their use of natural resources. Moralists tell each other to conserve the natural heritage and hand it over intact to the next generation. And what would become of the artist within all of us without the miracles of colour, smell, song and feeling impressed by the kingdom of animals and plants? Mankind's own spirituality and its expression is rooted in the diversity of the surrounding nature.

Politicians and consumers

The recently endorsed European Union's Common Agricultural Policy called 'Agenda 2000', gives opportunity to a more extensive agriculture through agri-environmental programs. It is designed to give income support to those farmers who actively promote the environment in their farming system. The more they comply with ecological policy objectives, the higher the payments they receive. The budget for this is tight, however.

Another major question is if the principal underlying these measures can be maintained in the next round of trade ne-

gotiations of the World Trade Organisation. 'Agenda 2000' is already under attack by USA negotiators for being too protectionist. There is reason to fear that further competition on the world market will eventually result in even lower biodiversity.

A potential source of support for biodiversity within conventional agriculture appears to be the consumers' quest for higher quality and more assorted foods of a regional character. Slightly higher product prices are paid for this type of labelled products if quality control can be guaranteed. Market signals suggest that this trend is receiving support from the consumer lobby and other market players. If this is true, conventional producers may gradually move towards more diverse cropping patterns and locally adapted varieties. These developments will only result in a very slight increase of genetic diversity, however.

'Organic' biodiversity

Biodiversity in organic agriculture is generally stronger than in conventional farming. Comparative research confirms this for genetic diversity, life-support functions and landscape diversity. In terms of

acreage, however, eco-farming is still very marginal and occupies between 1% and 10% of Europe's agricultural area. Eco-farming accounts for less than 1% of agriculture in France, the UK and Spain, in the Netherlands around 1%, Sweden, Finland and Denmark between 5 and 7% and in Austria and Switzerland 10%.

Organic farming pays closer attention to biodiversity because it is both a production factor and important against pests and diseases. In the regulations of the European Union genetic manipulation is not accepted in organic farming. Organic farmers indicate that land management should be developed further to promote biodiversity, because the genetic diversity is still too narrow. Some researchers and breeders are starting to speed up the development of varieties for organic farming.

Comparing potential

When comparing the potential for biodiversity, it is substantially higher in organic agriculture than in conventional agriculture. The 10-50% higher market prices of certified organic products give the farmers more room to improve biodiversity.

At the same time small improvements on the large areas under conventional farming would also be helpful. But this does not receive support by means of higher product prices. The current free market system influences both conventional and organic farming. Biodiversity, therefore, needs to be 'protected' not only by today's consumers, by paying higher market prices, but also by society through policy support.

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Photo: Chris Pennaerts

Critical consumers pay higher prices for organic products, thereby stimulating agro-biodiversity

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Photo:KPP

A mango competition

Aruna Kumara V.K. and Anand A.S.

Diversity is the law of nature. India is extremely rich in bio-cultural diversity. In this article the farmer's organisation Krishi Prayoga Pariwara (KPP) describes some of their recent activities. They work in Sagar, an area in the Shimoga district of Karnataka State in Southern India. One of their major goals is linking organic agriculture and health with the local environment.

Traditional Indian food is highly diversified; an ordinary lunch consists of many vegetables, grains and herbs. There are wide varieties of dishes and any one particular dish can be prepared in many different ways. KPP is interested in the relationship between the preparation of local dishes, human health and agriculture.

In 1998 KPP invited schoolchildren to ask their mothers and grandmothers for recipes for *tambli*, a traditional dish in which many local herbs are used. Some 160 different recipes were found! KPP listed the different types of *tambli*, described how they were prepared and recorded their ayurvedic background. It turned out that some 130 plant species are used in the preparation of the different *tambli*s. The parts used vary from tender leaves to flowers, fruits, seeds, bark and roots.

The area and the people

The Shimoga district is situated in Karnataka in the Western Ghats, where the flora and fauna are rich and diverse. The main crops are the arecanut, paddy and coconut. There are medicinal herbs, shrubs, trees, vines and fruit yielding trees, like mango and jack. The areca gardens are maintained on *soppinabetta* land, a forest area where the leaves are used to fertilise the gardens. However, deforestation and the use of *soppinabetta* for commercial purposes are threatening

this traditional system. Moreover the *go-malas*, or communal grazing areas, are slowly disappearing. Some organisations like KPP are working towards restoring the ecological balance of the area.

Each of the four major communities in the district has its own customs, beliefs, norms and values. However, all of them observe Hindu festivals such as *Ganesh Chaturthi*, *Dashera*, *Yugadi* and *Bhoomi Hunnime* and use nature's diversity in different rituals. Knowledge of natural diversity is important in weather prediction, crop production, pest control, natural fertilisation and food preparation. The people of Sagar respect bio-diversity and Mother Nature. Trees like *Ficus religiosa*, *Neem*, *Phyllanthus embellica*, *Feicus glomerata*, *Butea monosperma*, *Jack (Atrocarpus)*, *Mango (Mangifera indica)*, *Ashoka (Saraca ashoka)* and *Bilwa (Aegle marmelos)* are used in religious ceremonies. They are considered sacred and are worshipped.

Tender mango pickle

Pickle is an indispensable side-dish in traditional Indian food. There are many varieties including tender mango pickle, lime pickle and vegetable pickle. The tender mango pickle is famous for its taste. Besides being used for food and timber, the tender mango tree is also used in specific rituals. Leaves are tied around the house and in front of doors. People be-

lieve that this will protect the house from the pollutants in the atmosphere. The tender leaves of mango and jack are also used in *Kalasa*, a copper pot with water. The leaves energise the *Thirtha* or Holy water of *Kalasa*. A coconut is kept and worshipped above the *Kalasa*.

Two things surprised us in KPP about the use of tender mango and lead us to further study. First, we found a large number of varieties of tender mango in the vegetable market in Sagar. They differed in size, shape, flavour and juice content. This made us wonder about the mango varieties in the region and the quality parameters used by the local population.

Second, it surprised us that local sellers harvested the tender mangoes by cutting down the big branches. The mangoes were then transported by lorry to big cities like Shimoga, Bangalore and Chennai to be processed as industrial pickle. This worried us and we wondered why people were involved in such unhealthy harvesting practices.

Human relationships

Sri Anand, Director of KPP, expressed his concern: "We see lorries take some 250,000 mangoes to distant market centres every day during the 30-40 day harvest period. This is in the Sagar area alone. We do not know how many more are taken out of the villages and neigh-

bouring areas.”

This practice has several implications one of which is that employment and income from processing the mangoes takes place in the cities and not in the small villages. Moreover, due to industrial pickling, the technology and know-how of local pickle preparation is being lost. The younger generation is not interested in learning it because they can buy pickle on the market. Social relations are also affected: the young generation no longer interacts with the older generation in the process of pickle making. People have lost the habit of offering a gift of homemade pickle when visiting friends or relatives. Even during community gatherings industrial pickle is now commonly used.

Tender mango competition

KPP organised a competition to find answers to the following questions. To what extent are villagers involved with the tender mango crop? Why are these tender mangoes being exported out of the region? How many pickle industries are flourishing? What is the state of the local technology of pickle preparation today? What is the effect of the presence of industrial pickle on the market?

The workers of the KPP team first prepared the small group of local people who would conduct a survey. This team developed a questionnaire to collect information on the varieties of mango trees. Questions included the local name, the age of the tree, its fruiting pattern, yield and propagation. The team listed nearly 150 varieties and indicated that there are probably more.

In April 1999, with the help of the Karnataka Forest Department, the *Midi mavina spardhe*, or tender mango competition, was organised. During the opening ceremony the co-ordinator of the team, Sri Suryanarayana Halasinaghata, stated that the aim of the programme was to create awareness about the diversity of the tender mango and its quality parameters. He also emphasised the economic and the cultural aspects of tender mangoes and pickle.

During the competition nearly a 100 entries were exhibited in classes like raw

tender mango, tender mango in brine and ready pickle. The judges were two farmers and two housewives experienced in pickle preparation and tender mango selection. They judged according to eight local criteria: size, shape, flavour, texture, stalk length and girth, sap content, thickness of skin and seed.

Long, well-flavoured tender mangoes with a high sap content and a thin skin are more in demand on the market. Generally the villagers prefer tender mangoes from their own locality. Tender mangoes with 70 to 80 per cent of the desired qualities are in particular demand. Only a few varieties meet this standard and most varieties fall below the 50 per cent line. Nearly ten varieties of high quality were selected during the competition.

Some reactions

Nearly 150 local people, the KPP team and officials of the Government Forest Department attended the ceremony. Local leaders and writers were also present. Mr. Patel, one of the participants exclaimed that he was unaware there was much diversity in tender mango. “I was also unaware of the importance of tender mango preparation in human relations in earlier days”, he said.

Mr. Sridhar wondered whether the variations in quality could be related to the health of the local people. Some farmers proposed grafting and propagating the high quality varieties on a larger scale.

Sri Thimmappa Hegde, another local leader, released two other products made from tender mango. He cautioned the participants not to harvest tender mango by



Photo:KPP

Mangoes were judged by local criteria like flavour, size, shape and sap content

cutting its branches. The growing demand for tender mango means that optimal use should be made of the trees.

Sri Vinaya Kumara, an official from the Divisional Forest Programme, expressed his department's interest in maintaining and propagating local tender mango varieties. He congratulated Sri Devappa, the first known farmer to graft tender mango trees, and presented him with a grafting kit.

There were many questions and comments from the participants. KPP staff feels that this is just the beginning. Local varieties of tender mango can be preserved and propagated for further study, as well as other types of biodiversity.

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Photo:KPP

The ceremony was attended by officials of the Government Forest Department as well as local leaders and representatives of the media

Of love and learning

a Greek approach to organic olive growing

Gaston G.A. Remmers



According to the farmers in Apokoronas county on the Greek island of Crete 'an organic farmer must be a systematic farmer'. But what does the term 'systematic farmer' mean to them? Does 'systematic' go beyond the western perception of carefully planned and well organised activities? Yes it does. Apokoronas farmers understand that for good farming 'love' and the 'anxiety to learn' are essential.

Olive growers in Apokoronas identified four different groups or farming styles among themselves. Two groups obtain a relatively low production of three litres of oil per tree. The first group are the retired farmers who maintain their groves with relatively little input. The second group are the small farmers with other economic activities; farming is only a minor part of their total income.

The other two groups obtain six litres of oil per tree, a much higher production. First there are the so-called big farmers who dedicate themselves to full-time agriculture and second there are those farmers who obtain a limited part of their income from other sources, for example, from hairdressing. These last two groups were labelled 'sistimatikos agrotis' or 'systematic farmers' by the farmers in the area. Being a sistimatikos agrotis is a local cultural notion constantly reoccurring during conversations with farmers. Let's see what meaning the Apokoronas farmers attribute to it.

Photo: Gaston Remmers



Sistematikos

The term sistematikos refers to the way in which the farmer manages to organise production successfully: there is coherence between all activities. According to the farmers there are five crucial elements in doing a job in a sistematikos way: work, technical and practical knowledge, goal orientation, love and learning capacity.

Working personally on the farm is an essential part of being a systematic farmer. As one farmer pointed out: "a sistimatikos agrotis makes a living by farming and dedicates his work to it. Such farmers love their work." So dedication to and love of work are inseparable and considered crucial to good production. This is reflected in expressions such as 'they take

care' or they love doing this work'.

Furthermore, a systematic farmer is in command of his job. He or she is 'someone who knows how to achieve his goal'. This includes knowing when and how to perform such agricultural tasks as pruning, ploughing and harvesting. It also means that they perform these tasks on a regular basis and with a clear purpose in mind.

But there is more. 'Systematic work'

also refers to the way this knowledge is achieved. The aspect of learning while working is important. Constant experimentation, a dedicated search for improvements, requires being *ansichos*, a local term for 'anxious' and 'restless'. This includes the eagerness to learn and apply new things. It also means the ability to reflect on one's own activities, combining traditional with modern knowledge.

The five characteristics work, knowledge, goal orientation, love and learning capacity, are not exclusive to farmers and can include many other human activities. Moreover they are not exclusive to one particular cosmovision. Like cosmovision, love and learning are endogenous resources. The farmers from Apokoronas County considered them crucial for the

successful development of organic olive production.

Endogenous resources

Organic olive oil production as an alternative in rural development requires developing an entirely new network that involves producers, millers, merchants and consumers. To establish this, the farmers need the capacity to commit themselves to what they really like to do and dialogue and negotiate with other people. In conventional agriculture aspects like work, goal-orientation and technical knowledge are acknowledged for farm development and 'integrated' rural development. Normally aspects of love and learning capacity are not taken into account; yet these qualities are essential for creating new possibilities. They are, in fact, crucial to any human effort.

This is evident to the Apokoronas farmers - and probably to you as a reader too - but little attention has been paid to it in science and policy. Somewhere in the western adoption of the Greek

word 'system', aspects of love and learning capacity have been eroded and an essential part of its meaning has disappeared. This is regrettable because love and the capacity to learn and wonder, are truly endogenous resources. They are essential elements in the search for alternative ways of using local resources, a crucial element in the process of endogenous development.

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In all tribal communities in the Eastern Ghats, India, the ecosystem is inseparable from their beliefs, customs and social organisation. Their life style is the product of the dynamic relationship between People and Nature over several generations. They have evolved a pattern of life that worships and preserves their natural environment.



From hunting to ecological protection

Gowtham Shankar

Tribal peoples are the direct descendants of the original inhabitants of the Indian subcontinent. The Aryan invasion from the North around 1500 BC replaced most of the hunter-gathering society by settled cultivation. By 500 BC settled agriculture and pastoralism had covered wide tracts of the country. This transition permitted the new elite to introduce the caste system that divided the society into priests (Brahmans), warriors (Kshatriyas), traders (Vaishyas), peasants (Sudras) and untouchables (Panchamas).

The conquered food gathering tribes were assigned a low status. Most of them maintained their hunting, gathering and shifting cultivation practices. Today, tribal populations constitute about 7% of the Indian population. They live in some 450 communities or tribal units of varying size. In the Eastern Ghats there are 60 tribal communities with about ten million people. There are many differences between the tribal communities culturally, socially and linguistically.

Recent developments in India have caused large-scale environmental degradation, especially in the tropical forest areas inhabited by the tribal peoples. The rich forest, land, river and mineral resources have attracted both industry and government. The growing pressure on the forests in the Eastern Ghats has severely affected the living standards among the tribal peoples. The capacity of the ecosystem to replenish itself has been affected and the tribal peoples have been forced to become part of the process of degeneration.

Totem Symbols

Tribal peoples believe that their ancestors originated from nature. Each clan, therefore, is the direct descendent of a bird, an animal or a tree. This totem is a supernatural power that protects them. Thus, in each community, people identify themselves as belonging to clans such as the Barking Deer, Peacock and Jungle fowl. Each clan has a strong affinity for the species whose names they have adopted. There are many different totemic clans in each community. They will never harm this animal or plant and will protect it as much as possible. This cultural practice was found to be an important starting point for IDEA (Integrated Development through Environmental Awakening). This NGO is trying to halt the degradation of people and nature in The Eastern Ghats. IDEA is documenting the totemic clans and practices of different tribal communities in India.

The totem symbols gradually evolved as the basis for ceremonies, festivals, customary practices and taboos in tribal communities. These taboos act as regulatory mechanisms helping to maintain the stability of the natural and cultural identity of the clans and communities. IDEA considers the concept of totemic clans the basis for conserving biodiversity.

A hunting ceremony transformed

The tribals traditionally hold a ceremonial hunting festival once a year. In some clans this occasion is known as *Ittukala Panduga*. During the first month of the lunar almanac, when the monsoon is about to

begin, a spirit of camaraderie prevails. The men go hunting for three days while the women and elders prepare a festival that lasts for several days. During the festival the people eat what the hunters have caught. However, this festival has created an image of the tribal people as ones who destroy the forests and indiscriminately kill animals.

IDEA has started an environmental project based on Environmental Protection and Development Groups (EPDGs). These groups have a strategy based on discussions with traditional leaders and older tribals. During a meeting the declining number of plants and animals and the deteriorating environmental situation were identified as well as the generation gap that affects the care and knowledge of the natural environment. It was collectively decided that the traditional hunting ceremony *Ittukala Panduga* could be transformed into a natural resources celebration. The objectives of this initiative were to protect nature and to perpetuate the customary living style.

First, courses were organised to exchange views on the traditional environmental protection system. The ancient practice of celebrating hunting was then transformed into a collective exercise in environmental observation and protection of the forest region around the villages. This was initiated in 40 villages in 1988 and has since then spread to some 450 villages. The membership of the EPDGs has risen from a small number of families to 35,000 families in recent years. While the executive committees in each village



During a village-level exchange meeting, farmers indicate where to find herbs and how to use them

are responsible for this activity, IDEA assists in recording and documenting the information.

Two days in the forest

During *Ittukala Panduga* the villagers divide themselves into four subgroups based on age, sex and vocation. Each group spends two or three days in the forest making detailed studies of the availability and location of wildlife, herbal plants, fruit bearing trees, drinking water sources, medicinal herbs and edible tubers. Children between 10 and 15 years record the status and number of each variety of fruit-bearing tree, bird, small game, and note the footprints of animals and common medicinal plants. The principal intention is to prepare them for the complex environmental issues they are likely to meet in the future.

Groups of villagers between 16 and 35 years of age survey tree species observing their qualities for construction, agricultural implements and as sources of income. Grasses, wildlife, sources of water and wastelands are also being recorded. Youth acquainted with the village economy and the resources required for the material wellbeing of the village, observe and record findings. Older members of the community, over the age of 36, survey more complex aspects such as the pattern of shifting cultivation, wastelands, social forest activity and the progress and survival of trees of timber value.

Finally, a group consisting of traditional leaders and tribal medicine men

survey the number and status of plants with medicinal properties. Every group has a leader, selected among its members. Each member's findings are discussed by the group and observations are recorded systematically.

Village discussions

On the third day of *Ittukala Panduga* all the groups assemble in the village and a ritual is performed in front of the goddess *Sanku Devatha*. Each group tells what it has found out about the changes taking place in the environment and the ecology of their village. Together they identify the plants and animal species that are disappearing and that require protection. They note which resources are becoming scarce and try to understand the factors responsible. This sharing of knowledge

works like a sort of seminar on the situation of the flora and fauna of the region. Elders often provide information about the state of particular species when they were young. In this way a rough idea is formed of how much plant and wildlife has dwindled over the years.

This practice, culminating in a village status report, is better than a modern survey done by scientists. It assesses the exact strength of natural resources and the state of biosphere as well as the position of flora, fauna, minerals and water resources. The tribals' knowledge of the lives of animals and plants, the medicinal use of herbs and the nutritional value of plants is amazing.

The Environmental Protection and Development Groups also decide on future activities. There has been considerable improvement in the status of the 50 species on the endangered list. Among the protected animals and bird species are barking deer, rabbit, tiger, leopard, jungle cat, Indian giant squirrel, peacock, red jungle fowl, red spur fowl and the spur fowl. Enforcement of conservation measures is effective since the norms have community support and sanction.

Revival of Adivasi Dharbar

Adivasi Dharbar, or the eco-cultural meeting, is another ancient tribal practice being revived by IDEA to address contemporary issues. Traditionally, group leaders and active members from hundreds of villages would come together to share their experiences. Now the leaders discuss the

outcome of the observation and protection activities taking place in their villages during the festival *Ittukala Panduga*. They discuss the strategies used to stop wildlife and ecological deterioration. They also discuss the experiences of the previous year in improving their ecology and punishing those who disobey the code of behaviour.

The Adivasi Dharbar meeting also helps the villagers to understand the ecological situation on a regional scale. Moreover they come to understand the relevance of their actions in a larger context and respond to macro problems through collective action within EPDGs and like-minded organisations. In recent years, these meetings have been taking place between 20-25 villages and resolutions are made on subjects of regional importance.

Enforcing the resolutions

To enforce these rules, the communities have set up a coordinating committee that closely interacts with the traditional village heads and clan heads. Violations of

Examples of resolutions adopted during Adivasi Dharbar:

- *Podu*, or shifting cultivation should only continue in old patches of forest. New forest patches should not be cleared for *podu*.
- Large trees should not be felled in old *podu* patches
- 50 species of animals and plants have been identified for protection. Children should not destroy the eggs of birds and reptiles they come across while grazing cattle in the jungle.
- All the communities should revive and protect their clan totems.
- Wastelands must be improved. They must be identified and government requested to issue legal rights.
- Government must be asked to provide technical and financial assistance for the rehabilitation of *podu* lands or areas with shifting cultivation.
- Bullock carts belonging to outsiders should be watched and no cart should be allowed to enter the village if it is collecting timber or wood for sale.
- Seeds of local species must be collected from the forest and sown by Environmental Protection Development Group (EPDG) members in degraded/deforested patches in the forest. Every member of EPDG must plant a minimum of 10 plants each in the open lands in the village or in the forest this year.
- EPDGs must develop and strengthen relationships with governmental and non-governmental organisations and people's organisations engaged in similar activities.

the Adivasi Dharbar resolutions are considered a violation of customary law. Punishments are enforced and individuals have to apologise to the heads of the community or pay a fine in cash or kind. In case of a severe violation, like killing or cutting a clan totem - animal or tree - the accused will be ex-communicated. The clan and the community will not allow him to participate in any communal ceremonies until the *Koya Konda*, or Chief of all clans, visits the village. Then a purification ceremony is performed and offerings are given to the killed totem. When the crops, animals or health of the accused are effected because of a curse by the totem, the priest has to perform a purification ceremony for the whole family.

IDEA's trainings, the totemic concepts, the festivals, traditional songs (see below) and the experience of the elders all play a role in taking up these resolutions. As a result of these resolutions, families are dissuaded from practising shifting cultivation. This has prevented approximately 200,000 acres - some 90,000 hectares - of forestland from being reduced to barren patches. The existing cultivated patches are being used for combined reforestation and sustainable agricultural production. Agro-forestry, medicinal plants and horticulture using local varieties are part of this. The EPDGs have also taken up reforestation with local species. Other objectives include stopping the felling of trees for the market and initiating minor irrigation projects.

Major threats

Major threats in the tribal area come from timber merchants who are responsible for



Photo: Bertus Haverkort

Totem symbols in IDEA's training centre

extensive forest destruction and deforestation. Moreover, population growth amongst the tribal groups is leading to increased shifting cultivation and collection of minor forest products. In time, there may not be enough food for people to survive and individual families may decide to take up hunting and shifting cultivation practices again. There are now plans for a watershed development programme to recover agricultural lands that have been eroded and to increase soil erosion control. The communities have asked IDEA for support with the process of maintaining their environment and life styles. In the near future, IDEA may begin to revive other festivals, like the first-eating ceremonies and the seed and soil testing

rituals.

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**SONG for ITTUKA PANDUGA
(Environmental festival)**

**WELCOME -WELCOME - WELCOME-WELCOME
TRIBAL FESTIVAL - OUR FESTIVAL
LET US CELEBRATE - TO GIVE RESPECT TO THE FORESTS AND THE GODDESS
|| WELCOME ||**

**OUR RELATION WITH THE NATURE IS AGE OLD
OUR CLANS AND COMMUNITY NAMES ARE ALL BORNE IN THE WILD
THE GIFT OF OUR MOTHER NATURE
|| WELCOME ||**

**THE JUNGLE FOWL CLANS PROTECT THEIR TOTEM,
LET THE PEACOCK CLAN PROTECT AND WORSHIP PEACOCK
AND LET THE PICUS CLAN WORSHIP PICUS TREE.THese ARE OUR TOTEMS
-THE SYMBOLS OF OUR CLANS.
|| WELCOME ||**

**LET THE BARKING DEER CLAN PROTECT ITS TOTEMIC CLAN.
THE DEER - DEER LET US TOGETHER PROTECT OUR MOTHER NATURE
AND CLAN TOTEMS - LET US PLEDGE.
|| WELCOME ||**

Shrines and Groves

David Millar, Richard Aniah and Peter Atoyure



Photo: Bertus Haverkort

Concerns for environmental degradation are more real now than ever before. The loss of biodiversity and natural resources is occurring at an alarming rate in Ghana. Some perceive this loss from a biological perspective. Others put more emphasis on economic, political or legal aspects. These partial perceptions lead to limited responses and interventions. This article presents the biological and cultural aspects of natural resource management among the Gowrie-Kunkwa community in the Boosi chiefdom, Northern Ghana.

In Northern Ghana the worship of the ancestors is central in the worldview of the rural people, especially in the use of common property. Since 1997 CECIK has been part of development efforts in the Gowrie-Kunkwa area. We gradually recognised the vital role of the worldview of the people in community initiative and responses.

In relation to agriculture, people distinguish between crops and animals that are used for rituals, for consumption and for commercial purposes. Commercial crops are frequently introduced from outside and lack a relationship with the ancestors. Rituals are associated with food crops and ritual crops, but to a far less extent to commercial crops.

In the worldview of the people the traditional crops were received from the ancestors. The spirits of the ancestors are the owners of human kind and responsible for their well being. A decision to adopt a new crop or a new variety, therefore, can not be taken without asking the advice of the ancestors. Spirit mediums play an important role in this process. The spiritual world is integrated in nature, because the spirits reside there. Working with natural

resources and agriculture implies working with traditional leaders and institutions because they are the ones that can mediate with the spiritual world.

Shrines and groves

A shrine is a sacred place of worship. A grove is a forest patch; some are the remnants of the original forests. A grove may or may not be worshipped, but it is perceived sacred by the people. Some groves are also shrines. Usually groves are part of nature, but shrines can be any item of worship; sometimes within the house. Shrines and groves vary in their physical and biological appearance. They can include a cluster of trees and shrubs, water bodies, a range of rocks, a river with a valley or a few stones gathered in a heap. Shrines and groves can be located in low lands, flat lands, highlands, near homes or far in the fields. They may be near water bodies or be a part of a water body.

The location of a shrine or grove is related to a historical site. It may indicate the location of settlement of the first ancestor of the village or his burial place. It can also be a site identified by a sooth-

sayer or a location commemorating an important occurrence of mythical or spiritual nature.

The existence of shrines and groves despite numerous battles and ongoing degradation, calls for special attention. In the Boosi Chiefdom one can find most of the land barren, depleted of permanent vegetation. Yet various small clusters of bushes, trees and grasses are prominently there. Almost invariably these are shrines or groves. To survive the test of time some degree of protection must have regulated these isolated clusters.

A study

CECIK has conducted a study to look at natural resource management of the shrines and groves. The following questions were addressed: what are the historical changes of shrines and groves in the Gowrie-Kunkwa area? What structures guarantee the survival of shrines and groves and how do the regulatory mechanisms operate? How are the shrines and groves perceived by individuals and by communities? What is their role in bio-cultural diversity maintenance; can they

be regenerated and how? How can they be a part of development intervention?

A total of 20 shrines and groves were encountered in an area of about four square kilometres. Four of the shrines were on highlands, nine in valleys or lowlands, two on flatlands and five near rivers or other water bodies. The largest shrine occupied an area of about four acres. It consisted of a chain of rocky mountains. The smallest shrine of half an acre was found in a valley. The average size of the shrines was around two acres. Four of the shrines were submerged by the Vea Lake, an artificial lake for irrigation purposes. Yet the original locations are still worshipped and the lake is divided into four points for sacrifices.

Methodology

In a study like this, one has to prepare oneself to be an active and respectful part of what one encounters. The researchers' attitude is easily read by the rural people and determines the quality of the responses. The people are aware that their traditional lifestyle is often perceived negatively by outsiders. They are inclined to react with some suspicion to questions about their worldview. To give the opportunity to process their acceptance or rejection, the people were informed of the study long in advance. Moreover, the elders consulted their ancestors about the project through a soothsayer.

It is our experience that one can rely on key informant interviews in order to connect with people's spirituality. So we started talking with the chiefs, the *Tendanas* or earthpriests, the spirit mediums, elders and opinion leaders in the communities. On a few occasions we started with one person and a group was formed spontaneously. We wanted to deal directly in the local language and were lucky to find a key facilitator from a Tindamba family, the family of the Earth God. We tried to make the interviews a fluid discourse with few interjections.

Funerals, markets and festivals were good opportunities to have more in-depth dialogues. We also used participatory observation during the visits to the shrines and groves. We wanted to see what was there and feel the sacred aura of these places. The 'snowball method' of investigation was used in which the next key informant could elaborate on issues mentioned by the previous key informant. Specific case studies were undertaken to reinforce some of the findings.

Vital link

The spirits inhabiting the shrines and groves are important to the people; not the shrines and groves themselves. These are perceived as the residing places of the ancestral spirits that protect the community. When sacrifices are performed correctly and by the right people, the spirits

will go on protecting the community. In this way the ancestral spirits serve as a vital communication link between the people and their creator.

The living see themselves as the children of the shrines and groves, that are supposed to guide and guard the people. The shrines and groves are 'the eyes for the unseeing, ears for the inaudible and defenders of the defenceless'. They are to drive away all evil spirits and ensure that deceased family members reach their Creator. The shrines and groves, therefore, maintain a vital link between the living, the dead and the yet unborn.

The physical role of the shrines and groves is to provide rain, fertility and health. They propel livestock development, reduce deaths and increase births. They ensure peaceful co-existence between mankind, vegetation and other parts of nature like stones, mountains and rivers. Children can go to eat fruits or play in the trees and they will never get injured.

Socially, shrines and groves are significant for the fact that they provide a common place of worship, where the community meets to perform various sacrifices and resolve conflicts. The sacred tree that symbolises the soul of the ancestral spirit must receive a special treatment. This tree, that is said to have germinated out of the grave of the ancestor, is either the father or mother of the shrine.

Restricted area

Traditional rules have to be followed for all shrines and groves. Re-planting is not done but natural regeneration is stimulated, like for example the introduction of new plant species by birds. Appeasing the spirits is an important component in the conservation effort as well as proclaiming the shrine or grove as a restricted area. Offenders face strong punishments.

The traditional rules are quite strict. Hunting, fishing and cutting wood is only permitted on special days indicated by the *Tendana*. The community is not supposed to harvest the vegetation there for private use. Wild life in the shrine or grove is considered sacred and should not be killed without the consent of the *Tendana*. Trees should not

be cut for musical instruments. Dead wood should be picked before live wood can be cut.

Communal de-silting is carried out once a year in groves with water bodies and only then fishing is allowed. The first couple of catches with big fish and numerous flora and fauna are kept aside and put back into the pond when de-silting is completed. This perpetuates life in the ponds.

The chief, *Tendana* and the elders all play their role in enforcing these unwritten rules, which are understood by all. Moreover myths and legends exist in the communities about what can happen to members who abuse the shrines and groves. Punishment by the spirits may affect an individual's family or clan and can include floods, drought or disease. The punishment by the spirits may be immediate or delayed, direct or indirect. This aspect has been a major reason of the survival of groves and shrines.

Traditional rules

The *Tendana* explains: "With the coming of Christianity and modernity, the position of the shrines and groves has been undermined. The traditional rules for the use of shrines and groves are weakening. We have lost some of the trees, but the spirits of the good trees still remain there. Most of the wild animals have also escaped but their spirits are also still in those shrines and groves. Above all, the spirits of our



The son of the *Tendana* is the caretaker of the sacred grove in Gowrie and performs rituals

Photo: Bertus Haverkort



CECIK staff dialoge with the elders of the Bongo community.

ancestors have remained intact. People that claim to be Christians go in to fish, kill wild animals, pick dry wood or cut trees. Only the elderly keep to the tradition. However, when the young encounter problems in their newly chosen way of life, they run back to us to 'look into things' for them".

One of the elders: "We lament it that a majority of our youth today has become the victim of these unfortunate ideas. Despite this we foresee the return of our youth to their roots at a more advanced age. They need to be sufficiently informed about important aspects of our culture."

Who decides?

There are private and communally owned shrines and groves. The head of the household controls the private ones. The Tendana is the person responsible of the communally owned shrines and groves. Although the decision process includes consultation with soothsayers, elders, the chief and key clan members, the most important influence comes from the Gods. After sacrifice they can give spiritual clearance.

Women are not to take part of the decision making process because their original homes are somewhere else. Even back there they have no say in the decisions, but they are required to comply and help enforce the rules. They prepare the materials for sacrifices, like fetching water and firewood, grinding flour, brewing *pito*, the local beer, preparing meals and cooking the meat after the sacrifice. Only when they die they become a very important component of the people's spirituality: then they are worshipped as 'mothers' and 'grand mothers'.

Children learn informally how to relate to shrines and groves through riddles, songs, legends, myths, proverbs and direct instructions. This way they are called upon to be responsible for the management. They may be involved in the sacrifice, help to produce the music or take part in the dancing ceremonies - as part of

their tutelage.

Any member of the community can make special requests to the *Tingani*, the Earth God, through the Tendana. Community members living outside the village are expected to come home during ceremonies and to contribute towards sacrifices. They often request the Tendana to perform special sacrifices for them.

The community and outsiders

The rural people in Northern Ghana perceive a disregard for their cultural heritage in the relation with outsiders.

They blame this on a lack of understanding of their worldview and negative influences of formal religion and modernisation. Local development staff looks at shrines and groves with suspicion. They acknowledge the shrines and groves to be an important feature of the community, but at the same time see them as a hindrance for 'real development'. For them the shrines and groves are unsustainable, because "only old people are interested in them".

Many foreigners working in these areas, however, see that shrines and groves have potential for sustained action, although they have no idea how this could be done. They find them to be fascinating pieces of the people's culture. They are impressed how shrines and groves have survived over time in spite of the 'wars' waged against them by Christianity, Islam and modernisation.

Development potential

In our project we were surprised that the communities reacted very positive when discussing the idea of working on the shrines and groves. The communities are

very tolerant with someone from outside of the community who is interested in assisting them to develop this heritage. They take the development worker serious if they feel that the purpose is not to ridicule them, nor to change their worldview or anger their ancestors. Community members indicate that they can determine the degree of seriousness of outsiders. They also argue that shrines and groves can be developed when the right process is followed. This includes allowing the people to do it their own way, with minimal input from the outsider, and abiding the traditional rules.

As an elder explains: "We should make sure that new trees speak the same language as the indigenous ones. They will have a problem of communication if they are from different parts of the world. When this is done, we, through the Tendana and with the help and guidance of the ancestral spirits, will ensure that they survive and we will control their uses as we have done with those already there".

The community leaders in Gowrie-Kunkwa think the development of shrines and groves should start in partnership with outside organisations. They indicate that it will be difficult for them to start it alone. There are already some ideas, like planting trees and de-silting water bodies in the shrines and groves. Other possibilities mentioned by the communities are re-activating the water bodies that have dried up and re-stocking them with fish.

CECIK intends to give priority to rehabilitation and development of shrines and groves. In close co-operation with the elders and earth priest the methods for this will be developed, priorities set and resources mobilised. Shortly after the study, some of the communities indicated they were ready to do something this year with mud walls as protection for grove rehabilitation. We will keep the readers of the Compas Newsletter informed about the results in due course.



Sacrificing millet and a chicken by the Tendana, or Earth priest

Intercultural dialogue

In the first semester of 1999, several meetings took place in the context of the Compas Programme. In March a workshop between old and new Latin American Compas partners was held in Huancayo, Peru. In April, a sharing workshop was held in Bangalore, India, for Asian Compas partners. Furthermore, workshops were organised in Indonesia and Nepal to share experiences and discuss findings. In September workshops were held in Ghana and Zimbabwe for enhancing indigenous knowledge in agriculture (ENIACA project). A general African ENIACA workshop will be held in December '99.

Platform for Andean cosmovision, Peru



In the Peruvian Mantaro valley several NGOs are interested in working with Andean cosmovision. Talpuy has considerable experience and has been a Compas partner since 1995. GIAREC is a working group consisting of three NGOs, one university and one research institute. CEAR is a NGO working on sustainable agriculture. Talpuy, GIAREC and CEAR have worked in a participatory way with farmers and now want to include the cosmovision dimension more systematically in their work.

A workshop was organised in March 1999 to compare different participatory method-

ologies with the methodology of Compas. As a result the 'Platform for Andean Cosmovision' was set up. The workshop established trust and working relations between the partners in Huancayo. Through this platform, the Andean cosmovision in Mantaro Valley can be understood from various practical entry points: animal husbandry (GIAREC), nutrition and traditional medicine (Talpuy), and sustainable agriculture (CEAR). Moreover, participatory methodologies can be compared as well as the gains and pains of working together at an institutional level.

AGRUCO, the Bolivian Compas partner, also participated in the workshop. This enabled the Peruvian partners to look beyond their borders and compare their experience with those of organisations and farmers in Bolivia. For AGRUCO, it was a chance to renew the relations with the Peruvian partner Talpuy and become aware of the work and methodologies of the new Compas partners, GIAREC and CEAR.



Drawings: Edgar Sanabria G.

Traditional drawing of the way the Sant ago Festival in Peru is celebrated to honour the animals with music and dance.

Ancient roots and new shoots, India

The Compas Asia-level workshop was held between 7 Compas partners in April 1999 near Bangalore, India. The objective was to share experiences after one year of field activities with endogenous development and cosmovision. The title of the workshop 'Ancient roots and new shoots' underlines that the ancient roots of wisdom are already there. Within Compas we try to water it, so that new shoots are produced to which will feed us in the future.

The Compas partners from India, Sri Lanka and Nepal were present at this workshop; unfortunately the partner from

Timor was unable to attend. During the workshop the organisations presented their experiences on issues such as documentation, training and experimentation. The discussions that followed included appropriate ways of information sharing, the pros and cons of the People's Biodiversity Register and the marketing of organic products. An interesting discussion on culture took place: "Is culture a mixed bag of good and bad and who are we to judge what is good and what not?"

The meeting concluded that rituals have their meaning and impact at different levels, often in an indirect way. We

have to understand the context of a culture, but it seems wrong to romanticise everything. The workshop also included field visits to the different partner organisations, where the participants could interact directly with the farmers. On the last day discussions took place on how experiments can be carried out in a cosmovision perspective. Mr. Balusubramanian from CIKS agreed to take up the role of Asia-level Compas co-ordinator. Moreover, plans for the future were discussed, including the need for more exchange between the Compas partners.

Protecting sacred forests, Indonesia

As the Compas partner TIRD was not able to participate in the Asia-level workshop in India, a separate workshop was held in June 1999 in Kefamenanu, West Timor (Indonesia). The 5 NGOs, working together as a consortium in TIRD, wanted to deepen last year's experiences with cosmovision and endogenous development.

An interesting video made by one member, Timor Membangun, showed one of the learning experiences related to the sacred forest near the village of Teakas. The cave in the sacred forest is a source of drinking water for the village and different clans claimed ownership of the forest. Trees were cut, medicinal plants and nests were stolen, and the place deteriorated. The video shows how a banning

ceremony came about, which included reading of organs of sacrificed animals to see whether ancestors had heard the prayers. Approximately 10 ha of land are now a protected area. The role of the NGO was not only to mediate in the conflict, but also introduce a discussion on why the sacred forest and *adat*, the traditional customs and cosmovision, are important.

Mr. Balasubramania, the regional Compas co-ordinator, was invited to participate in this workshop in West Timor. In his report he states: "It is interesting to compare the cosmovision and indigenous knowledge of India and other countries in Asia. The concept of hot and cold, for example, is often present in the people's

thinking with regard to agriculture. But in contrast to other parts of Asia, like India and Sri Lanka, we see in this region that the traditional practices have been preserved only in oral tradition. There does not appear to be much textual literature except for the writings from the last century or so. The stay in the village of Luniup was extremely interesting. It was amazing to see the similarity between West Timor and India in the use of plants for medicine, food and dyes. In discussions with the village elders I heard that women are active participants in all stages of agriculture, but at the same time are forbidden to participate in any agricultural activity, particularly touching seeds, during the days of menstruation. This is exactly

Gurau enthusiastic, Nepal

Since 1998 ECOS has been working in the context of the Compas programme with three different ethnic groups in Dibya Nagar area: Hindu, Buddhist and Tharu. There is a lot of mixing of culture and cosmovision among the indigenous Tharu and settled Hindu and Buddhist communities. In this complex situation ECOS has concentrated on the value of traditional knowledge and organic agriculture, rather than on cosmovision and experimentation with indigenous practices.

A workshop was organised in August 1999 to reflect on these experiences. A representative of the Indian Compas partner IDEA also participated in this workshop. IDEA shared the findings and the approach to eco-development and cosmovision developed in the work with tribals in the Eastern Ghats, India. Interestingly Sikkha Gurau, the spiritual leader of 22 Tharu villages, participated in the workshop and the village meetings. He is concerned about farmers losing their confidence in traditional practices and is very supportive of carrying out experi-



Gowhtam Shankar of IDEA, India shares experiences of tribals with farmers of Dibya Nagar, Nepal

ments with rituals. Plans were made to focus more on the indigenous Tharu people and to do experiments involving spiri-

tual leaders. A network of Goraus will also be initiated to trace and document ancient wisdom and exchange experiences

ENIACA in Ghana and Zimbabwe

As part of the CTA-sponsored programme Enhancing Indigenous Agricultural Knowledge in Africa (ENIACA), the Compas partners Cecik and Aztrec have made an inventory of available literature on indigenous practices in agriculture in Ghana and Zimbabwe. More than 200 different documents could be found and were summarised according to a consistent format. During regional workshops in September 1999, a number of gaps in this docu-

mented knowledge were identified and steps were formulated to bridge these gaps. In-depth field studies were planned to complement the existing database.

The Compas staff in The Netherlands did an on-line search in the major databases in the North and found more than 1000 titles on indigenous knowledge. During the last five years there is a sharp increase in the number of publications on this subject. A reader was produced with

relevant case studies on African belief systems, soil and water management, crops, and animal husbandry. During the upcoming African workshop in Masvingo, Zimbabwe (13-17 December 1999) resource persons will assess the findings and formulate proposals to enhance indigenous agricultural knowledge in Africa. Topics to be discussed are: initiatives for replication of national inventories in other African countries, in-depth

New Compas partners

In the Mantaro valley, Central Peru, two new Compas partners have joined Talpuy since April 1999. This will enable a concerted effort to be made, in the form of 'the Platform for Andean Cosmovision' to understand the importance of cosmovision in rural peoples' lives and to compare participatory methodologies. In Sri Lanka too, five organisations have joined the former Compas partner ECO and will be exchanging their views and activities on cosmovision and endogenous development.

Andean culture dates back some 8000 years and this is still manifest in indigenous knowledge and technologies. Ritual expressions, ceremonies, rites and production are interdependent and reveal themselves in daily activities. This festive, productive and ritual character of Andean culture is being lost due to imposed non-Andean technologies. Fortunately much of the Andean spirituality remains in the collective memory of the people and can be revitalised. With this objective the three organisations in the Platform for Andean Cosmovision, Talpuy, Giarec and Cear, will meet regularly to exchange views and experiences and also arrange visits between the different rural communities.

Giarec

Giarec stands for the Collaborative Working Group on Agroecological Research in the central region of Peru. This organisation consists of 3 NGOs and 2 research institutes that have been co-ordinating

participatory technology development (PTD) activities in the Montaro Valley. Since its establishment in 1995, its main aim has been to strengthen farmer experimentation in the field of animal health and nutrition. Specific themes include forage storage methods, organic pesticides and control of liverfluke with a local plant, named 'Chepita'. The challenge is now to include farmers' cosmovision in this participatory research. The long-standing relation of trust between Giarec partner organisations and the communities will undoubtedly facilitate this process.

Cear

The Centro de Apoyo Rural is a NGO that has been working with Andean cosmovision among the Tayacaxas and Wankas, two ethnic groups in the Mantaro Valley since 1989. Cear works with the peasants on sustainable agriculture, reforestation and animal health. Several experiments have been carried out with sustainable



Marina Porraz from Viques, farmer and traditional healer

agriculture, like fertilisation with foliar sprays using organic liquid manure and the use of green manures. Now the aim is to explore their cultural identity with the farmers and to give it reality in a process of endogenous development. Farmers as well as spiritual leaders and other knowledgeable persons will take part in this process to understand the importance of cosmovision in productive, social and spiritual life.

Six new partners

In Sri Lanka the work of Compas is gaining considerable momentum. In July 1999 the Compas partner ECO, together with the University of Peradeniya, organised a national conference on traditional knowledge, spirituality and agricultural development. More than 400 participants attended including government officers, NGOs, farmers, scientists and Buddhist monks. During the meeting the participants exchanged their experiences with rural development and the different ways for building on traditional knowledge and spirituality. The meeting received national press and television coverage.

After this meeting ECO made a contract with the University to support field research to test the effectiveness of traditional ecological and spiritual practices. Moreover, 6 new organisations will officially become partners in the Compas programme: Negampaha Govi Sanvidhanaya, Future in Our Hands, Helabima Saubhagya Sanvidhanaya, Janodaya, Samastha Lanka Govi Sammelanaya and Damulla Community Resources Centre. ETC Lanka will be co-ordinating the activities of this 'network for endogenous development' in Sri Lanka.



Meeting of the Compas partners in Sri Lanka

For your information

Conference: Participating in Development: Approaches to Indigenous Knowledge, 2-5 April 2000, London, UK

The conference will explore and challenge the 'local' and 'global' polarity, and question knowledge making processes that separate technology from power and politics. Anthropology has a wealth of experience and much to offer to the indigenous knowledge movement. We wish the conference to assess how it can do so more effectively by exploring a number of related issues.

Conference Administrator: Jennifer Law, School of Oriental & African Studies, Thornhaugh Street, Russell Square, London WC1H 0XG, United Kingdom. J14@soas.ac.uk or paul.sillitoe@durham.ac.uk or <http://lucy.ukc.ac.uk/ASA/asa2000.html>

Conference: Cultures and Biodiversity Congress 2000 June 2000, Kunming, P.R. China

During the ten days, we will attempt to deal theoretically and practically with the following topics: the state of the art of indigenous cultures and bio-diversity; the cultural differences and particularities of indigenous uses of space and resources; main dilemmas of the impact of modernisation on indigenous ways of dealing with and nurturing nature; the intercultural communication between knowledge of indigenous people and of the scientific community; the Yunnan Agenda 2000 on Ethno- and Biodiversity.

Information: Therese Grinter, e-mail: <xujc97@public.km.yn.cn> or cbik@public.km.yn.cn

People and plants website

<http://www.kew.org.uk/peopleplants>

For information on local knowledge and management of biological resources, conservation and community development, the website and services of People and Plants is interesting. People and Plants also produces the P&P Handbook, which is especially designed for people working in the field like park managers, foresters, cultural promoters and members of non-governmental, governmental or indigenous organisations. The first three issues are available in English on this website. Issue 4 deals with 'Measuring Diversity', methods of assessing biological resources and local knowledge.

The Kogi - The Elder Brothers - website

<http://www.lamp.ac.uk/tairona>

The Kogi, living in the north of Colombia on the Sierra Nevada de Santa Marta, were almost unknown until they agreed to make a television documentary in 1990. Faced with a deteriorating environment, they decided to point the Westerners, their 'Younger Brothers', at their responsibility. The Kogi consider themselves as the 'Elder Brothers'. The Tairona Heritage Studies Centre (THSC) aims at studying the indigenous groups in the Sierra Nevada and co-operates with the Gonaivindua Tairona, the political organisation of the Kogi tribes. The centre has a very interesting website, with information on the struggle of the Kogis and the other tribes, historical information, graphics. It also includes newsletters, links to other websites related to indigenous peoples.

Conference: From the sources of knowledge to the medicines of the future, 11-13 May, Metz, France

The symposium will cover some new aspects of ethnopharmacology. It will try to establish the modes of transmission and the access to therapeutic knowledge in different cultures and civilisations. Topics will deal with the Origins of traditional pharmacopoeias, the Development of scholarly pharmacopoeias and Medicines of the XXIth century.

Contact: French Society of Ethnopharmacology, 1, rue des Recollets, F-57000 Metz, France.
sfe-see@wanadoo.fr

Conference: Medicinal Plants, Traditional Medicine and Local Communities in Africa, 16-19 May 2000, Nairobi, Kenya

The aims of this conference are to assess the current situation and status of the activities, experiences and research initiatives relating to medicinal plants and traditional medicine in Africa; to identify the key challenges, experiences, opportunities and perspectives involved in promoting medicinal plants and traditional medicine in Africa; to contribute to the knowledge base of medicinal plants and traditional medicine in healing systems; and to provide interested parties with updated information as well as project and action-oriented recommendations.

Please contact: Environmental Liaison Centre International (ELCI), P.O. Box 72461, Nairobi, Kenya or Barbara Gemmill at herren@africaonline.co.ke or Ernest Rukangira erukangira@iconnect.co.ke

Best practices website

<http://www.unesco.org/most/welcome.htm>

UNESCO's site 'MOST' - Management of Social Transformations - deals with various events like education opportunities, publications and conferences related to topics like multiculturalism, linguistic rights and religious rights. Ciran, the Centre of International Research and Advisory Networks, that publishes the Indigenous Knowledge and Development Monitor, has made a selection of 'Best practices in Indigenous Knowledge' available on this website.

ILEIA Newsletter - Biodiversity Issue

<http://www.oneworld.org/ileia>

The next issue of ILEIA's LEISA Newsletter will focus on biodiversity in agriculture. The issue focuses on the importance of biodiversity for subsistence and market farmers and for indigenous people. Articles highlight how to design effective strategies to prevent the further decline of biodiversity and to improve its management, trying to understand the processes that lead to its erosion. The newsletter addresses the strategies to protect local farmers, consumers and indigenous biodiversity from unfair competition and the dumping of genetically modified products.
P.O. Box 64, 3830 AB Leusden, Netherlands.

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Conference: From the sources of knowledge to the medicines of the future, 11-13 May, Metz, France

The symposium will cover some new aspects of ethnopharmacology. It will try to establish the modes of transmission and the access to therapeutic knowledge in different cultures and civilisations. Topics will deal with the Origins of traditional pharmacopoeias, the Development of scholarly pharmacopoeias and Medicines of the XXIth century.

Contact: French Society of Ethnopharmacology, 1, rue des Recollets, F-57000 Metz, France.
sfe-see@wanadoo.fr

Conference: Medicinal Plants, Traditional Medicine and Local Communities in Africa, 16-19 May 2000, Nairobi, Kenya

The aims of this conference are to assess the current situation and status of the activities, experiences and research initiatives relating to medicinal plants and traditional medicine in Africa; to identify the key challenges, experiences, opportunities and perspectives involved in promoting medicinal plants and traditional medicine in Africa; to contribute to the knowledge base of medicinal plants and traditional medicine in healing systems; and to provide interested parties with updated information as well as project and action-oriented recommendations.

Please contact: Environmental Liaison Centre International (ELCI), P.O. Box 72461, Nairobi, Kenya or Barbara Gemmill at herren@africaonline.co.ke or Ernest Rukangira erukan-gira@iconnect.co.ke

Best practices website

<http://www.unesco.org/most/welcome.htm>

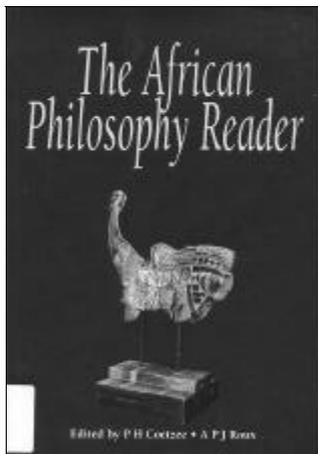
UNESCO's site 'MOST' - Management of Social Transformations - deals with various events like education opportunities, publications and conferences related to topics like multiculturalism, linguistic rights and religious rights. Ciran, the Centre of International Research and Advisory Networks, that publishes the Indigenous Knowledge and Development Monitor, has made a selection of 'Best practices in Indigenous Knowledge' available on this website.

ILEIA Newsletter - Biodiversity Issue

<http://www.oneworld.org/ileia>

The next issue of ILEIA's LEISA Newsletter will focus on biodiversity in agriculture. The issue focuses on the importance of biodiversity for subsistence and market farmers and for indigenous people. Articles highlight how to design effective strategies to prevent the further decline of biodiversity and to improve its management, trying to understand the processes that lead to its erosion. The newsletter addresses the strategies to protect local farmers, consumers and indigenous biodiversity from unfair competition and the dumping of genetically modified products.

P.O. Box 64, 3830 AB Leusden, Netherlands.



The African Philosophy reader
P.H. Coetzee and A.P.J. Roux.
 (eds). 1998, 467 pages. ISBN 0-415-189055. Routledge London

This book offers a starting point for those coming to African philosophy for the first time and is essential reading for all those studying African thought. It is a comprehensive reader containing overviews and 25 articles on the following topics: African culture; trends in African thinking (ethnophilosophy, sage philosophy, ideological philosophy and professional philosophy);

African metaphysics and religion; African sociology of knowledge or epistemology; morality and community; African political philosophy; African art and esthetics; African and European philosophy. An introductory essay prefaces each of these sections giving an overview of the subject. The book sketches the problems created by the Eurocentric constructions of the African person and his or her worldview. It raises critical questions about metaphysics, epistemology, ethics, politics and the nature of African philosophy itself.

The tensions between tradition and modernity figure prominently. This book is recommended for professionals in development. It covers a wide array of subjects, gives insights in current debates and, unlike many other books in this field, provides the materials in an open, readable way.

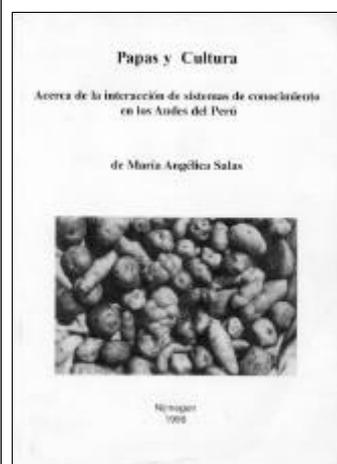
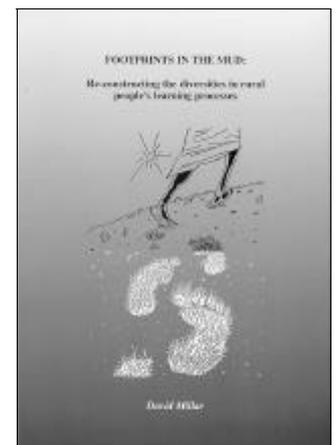
Footprints in the mud: Reconstructing the diversities in rural people's learning processes
David Millar, 1966. 210 pages
 ISBN 90 5485 525 8 Wageningen Agricultural University

In this doctoral thesis the author presents his research carried out in Northern Ghana on the way rural people learn. Based on his own experiences as a development worker both for government and for NGOs, he critically reflects on the lack of attention given in development interventions to indigenous

learning and traditional farming concepts. Theoretical reflections include an overview of literature on indigenous knowledge, indigenous experimentation, the cosmovision concept, the actor-oriented approach and indigenous learning.

The results of this study provide insights into the way young people learn. Millar's strongest criticism is that development agencies gives little attention to peoples' identity and their spirituality. He therefore designed a framework for 'empathic learning and action' that implies a

double learning and action path. Based on the assumption that farmers and development agencies have different views on reality, the development workers invite farmers to collaborate with their plans and look for opportunities to collaborate with the farmers' activities. This approach enables the community to conduct their own learning with minimal outside support.



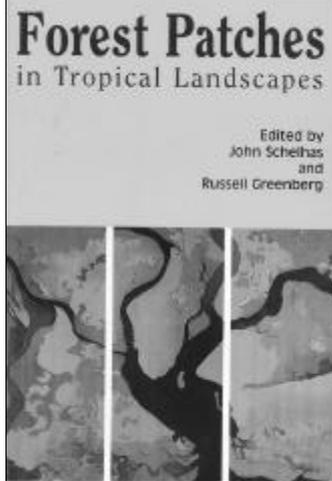
Papas y cultura; acerca de la interacción de sistemas de conocimiento en los Andes de Perú (Potatoes and culture: the interaction between two knowledge systems in the Peruvian Andes). *By María Salas. 1966, 267 pages. University of Nijmegen the Netherlands. Spanish language, with summary in English.*

This study analyses the scientific and the traditional Peruvian knowledge system related to the potato crop. Four aspects are taken into account: what do the different actors know; who

benefits from the knowledge; the changes taking place in agriculture and the processes of communication. The research has reconstructed the indigenous knowledge from different sources: prehispanic pottery, early chronists, rituals, myths and graphic presentations on gourds carved by contemporary peasants. Some of these are represented in the book.

The author advocates that non-western cultures must have the right to apply their own agricultural knowledge. Cultural diversity and local knowledge should have enough space to contribute

to the survival of mankind. Departing from a full recognition of the differences of the two knowledge systems, a mutual learning process can take place. Conditions for such a dialogue include: widening of the scientific perception, appreciation of cultural diversity, self-critical attitudes and awareness of the cultural dimension and power of knowledge.



Forest patches in tropical landscapes

John Scheihas and Russel Greenberg (eds). 1996 426 pages. ISBN 1-555963-426-x. Island press, Washington D.C., USA

Every year millions of hectares of tropical forests are being converted into agricultural fields and pastures, threatening many species with extinction. Forest clearing is rarely complete and often not permanent, leaving forest patches. These forest patches provide products for sale and subsistence, protect watersheds and have cul-

tural and social benefits. For that reason rural people maintain forest patches, thereby protecting the diversity of the organisms that live there. Yet forest patches are changing, and in many cases disappearing, under the pressure of human population growth, the integration of rural households into the market economy, the breakdown of traditional patterns of forest use and government policies.

The book has an interdisciplinary approach and presents examples of forest patch conservation revealing their social and

biological benefits. It brings together renown scientists and conservationists to address the biological and socio-economic value of forest remnants and examines practical efforts to conserve them. While providing an overview of theory and practice that will help foster effective approaches to tropical forest conservation. this book is also a valuable source of information with a good balance between technical and socio-cultural issues.

La tierra no da asi no mas; los ritos agricolas en la religion de los aymara-christianos.

The earth needs something more; the agricultural rituals and religion of the Aymara-cristians)

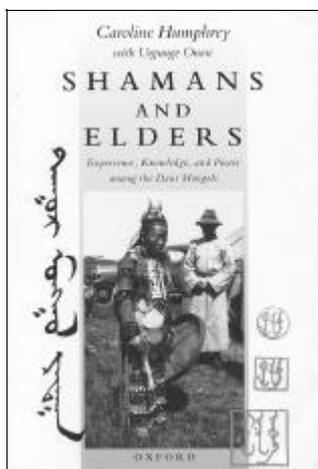
Hans van den Berg, 1989. ISBOL-UCB/ISET Cochabamba Bolivia 350 pages. Published in Spanish by the Catholic Univity in Cochabamba Bolivia).

This book is one of the first comprehensive studies of the cosmovision, the religious and the agricultural practices of the Aymara people on the central highlands of the Andes.

The author, an European catholic missionary, makes a great effort to understand the traditional belief system of the Aymara people, describing their astrology, meteorology, relationships to animals and plants,

and the traditional systems of water management. Rituals such as those associated with the opening of new pieces of land, for rains, before and after harvest and for storage are described. In the Aymara cosmovision the concept of 'reciprocity', or balanced giving and taking between supernatural beings, soil, plants, animals and people, plays an important role. Harmony can only be

achieved if this balance is nurtured and involves the natural world, the human world and the spiritual world. The book describes the different spiritual technologies used to balance these different worlds. It ends by advocating an approach to evangelisation which deepens the synthesis between Aymara and Christian belief, enriching the religion of both.



Shamans and Elders - Experience, Knowledge and Power among the Daur Mongols.

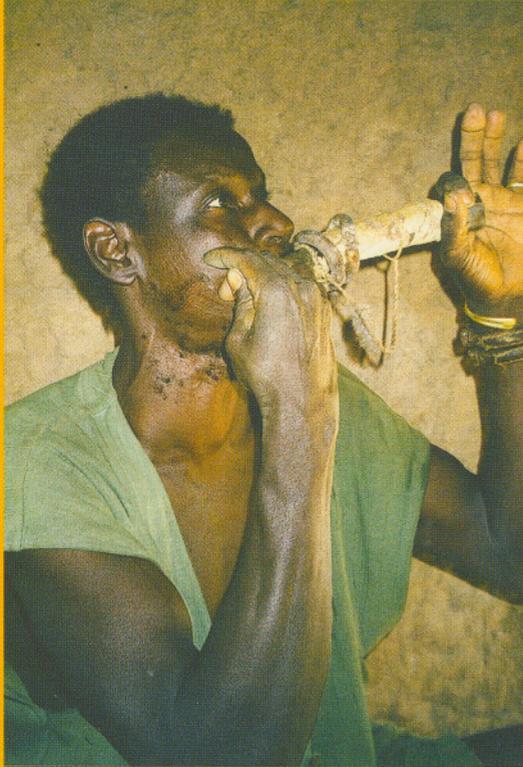
Caroline Humphrey
Urgunge Onon (1919) grew up in the village of Bokorchien near the Naun River in Mongolia, Inner Asia. Being a Daur Mongol, he was fascinated by shamanism, but he had to leave his country because of Chinese repression. He travelled to USA and England and taught in universities. At the age of 70, he sat with the anthropologist Caroline Humphrey to explore his memories during a long series of conversations on Mongo-

lian Shamanism. Chinese rulers condemned Mongolian shamanism in the early 20th Century. During the land reform of 1952, Daur shamans were prevented from shamanizing and their spirit-representations were burnt. An official study in 1956 concluded that beliefs were still strong and rituals carried out secretly. The book is authored by Humphrey and includes many stories from Urgunge Onon. It covers the nature and transmission of shamanic knowledge; the notion of gender in Mongolian society, including male and female traditions in rituals; atti-

tudes to death and regeneration; the importance of different types of ancestry in power relations of elders and shamans; the Daur notions of landscape. The book indicates that there are great differences between the various knowledge traditions of shamans and other practitioners. Elders gained their knowledge through social experience, bonesetters through physical touch and some shamans had an altered state of consciousness. Urgunge states: " Shamanists have a religion without dogma. They are free, each person rules their own life" .

Colourful cultures enhance biodiversity

Photo: Bertus Haverkort



1. Soothsayer in Bongo, Northern Ghana, using a whistle for divination purposes. 2. Women harvesting different varieties of Amaranth in Northern India. 3. Family celebrating carnival in the fields (Bolivia). 4. Ritual as part of the purification ceremony of cattle after the dry season with chanted water, sacred symbols, ritual prayers and a sacrifice (tribals of Eastern Ghats, India). 5. Kurmi tribal woman decorating the house wall with a Peela leaf (*Ficus Religiosa*) symbolising the Mother Goddess Devi (India).

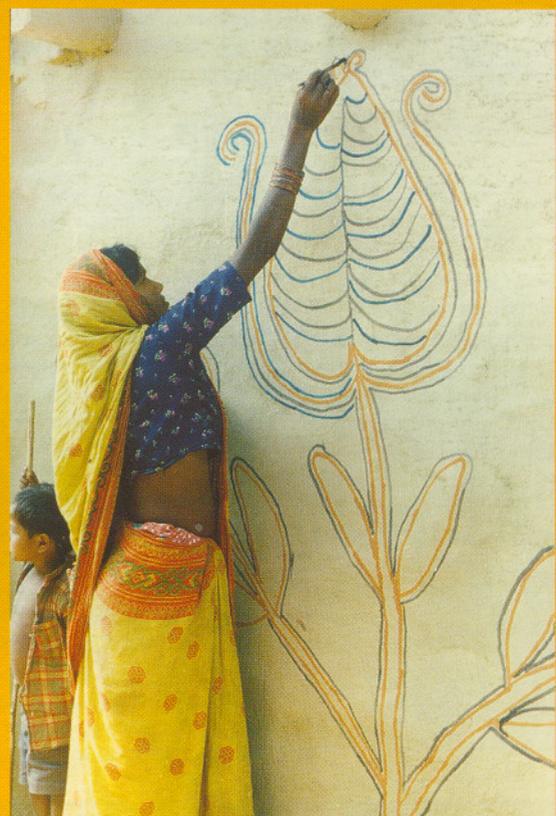
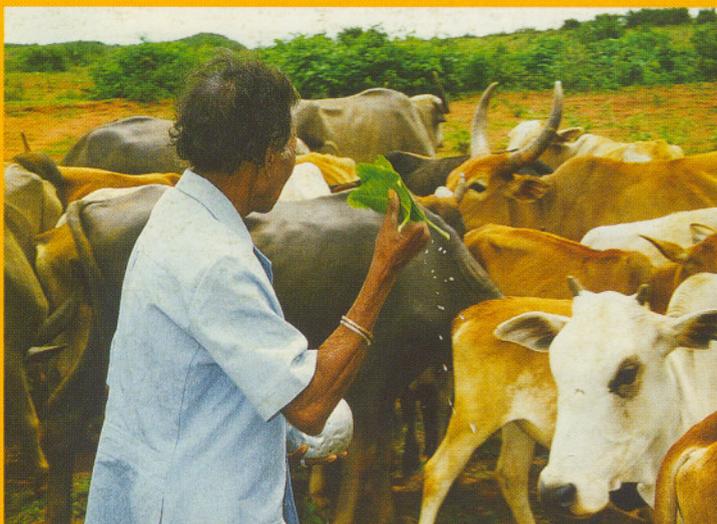


Photo: Bertus Haverkort

Photo: Bulu Imam

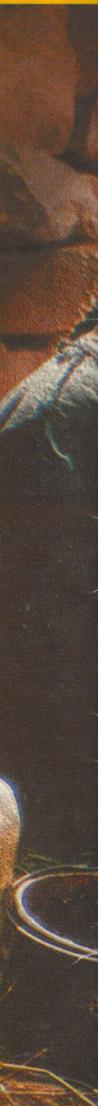


Photo: AGRUCO