



Post-conflict reconstruction
Seeds of hope help rebuild peace 1

Algae
Sea Farming 3

Cassava
**Booming outputs meet
flagging markets** 4

IN BRIEF 6

LINKS 10

PUBLICATIONS 11

BETWEEN US 14

VIEWPOINT
Soil erosion
Developing agroforestry in Haiti 16

Website: spore.cta.int



In this issue

*From the seed sprout
the first shoots of a
plant. And in this*

*Spore we look at seeds of hope
and sprouts of change. In countries
devastated by war, seeds can
represent survival and hope, as our
opening article reminds us —
agricultural reconstruction is a
crucial step on the road towards a
lasting peace after war. But seeds
alone are not enough, it is also
vital to know how to produce and
how to profit from one's output.
Whether it is seaweed or cassava,
it is important to find buyers and
get a good price. For coastal
communities who venture into
seaweed farming, as well as for
cassava farmers who produce a
surplus, it is a question of
organising themselves to tap into
new market niches. There is no
shortage of ideas in this issue.
It's up to you to see that they
bear fruit!*



Graphics: Infocle DESIGN from photo: A. Polo © FAO/23329

Post-conflict reconstruction

Seeds of hope help rebuild peace

Poverty and inequality are major causes of tension and it is no coincidence that the majority of today's armed conflicts have countries of the South as their backdrop. But war also perpetuates poverty and hunger. Restoring and developing agriculture is a critical step towards lasting peace, provided it is part of a wider societal framework.

Farmer Miriam Kabugo prefers not to dwell on the 3 years she spent in internal displaced camps when she fled from the insurgency in Uganda's Bundibugyo area. But coming home was almost harder. "When we came back our houses were destroyed and the iron sheets were stolen from the roofs," she recalls. With help from a project involving the World Agroforestry Centre (ICRAF), Kabugo has been able to plant fruit trees and vanilla and start producing an income again. In Rwanda, widow Therese Rwaramubuniye has also returned to her village after years as a refugee. She was made destitute by the 1994-1996 conflict and the future looked bleak, but she is now raising goats with help from a project funded

by the International Fund for Agricultural Development (IFAD). A similar scheme has helped repatriated Rwandan refugee Alfonse Rubayita to rebuild his shattered life. He was given five rabbits to get started, and has since sold 50.

Like millions of other victims of fighting in ACP countries, Therese, Miriam and Alfonse escaped with their lives, but lost just about everything else. For poverty and food insecurity are the inevitable consequences of war, whose legacies invariably include refugee and food crises. Armed conflicts are now the leading cause of world hunger, according to a recent FAO report. Today's average conflict lasts about eight years — twice as long as conflicts before 1980 — and



many more people are killed by hunger and disease than by fighting.

Human lives aside, agriculture is one of the main casualties of war. Fighting forces farmers to flee the land, while bombs and landmines make it dangerous to tend crops or animals. Crops and livestock may be looted or destroyed, and vital services such as roads, transport, water, agricultural supplies and veterinary care are disrupted. Agricultural scientists are often killed or exiled — precious genetic heritages lost as crops are burned and seed banks and agricultural research stations destroyed. In times of war, large numbers of people flee to the cities.

Counting the cost of war

Such migrations create a host of social and humanitarian problems, but they also rob younger generations of training in agricultural practices. Women are often the innocent victims of war and civil strife, left to run households and produce food in conditions of acute poverty and insecurity. Mass rape by soldiers leaves many women with HIV/AIDS, which, quite apart from the tragic human cost, has a serious impact on agriculture. Conflict and refugee crises take a heavy toll on the environment, causing deforestation, erosion, loss of wildlife and water pollution.

Basic survival needs such as shelter, food and water are priorities in the immediate aftermath of war. But if recovery, and the peace which depends on it, is to prove durable, lasting solutions are needed to rebuild rural life and get farmers back in the fields. “Restoring agriculture is usually the first step in creating economic growth and laying the foundations for durable peace,” said Ian Johnson, chairman of the Consultative Group on International Agricultural Research (CGIAR), which is spearheading work to preserve local crop varieties in trouble spots around the globe. Many of the crop varieties being saved have unique attributes such as inbuilt resistance to drought or salinity. The approach, dubbed smart aid, stands in marked contrast to the times when aid agencies shipped large quantities of seed from abroad, much of it poorly adapted to local conditions. In Côte d’Ivoire, Democratic Republic of Congo

(DRC), Liberia, Mozambique, Rwanda and Sierra Leone, a programme launched by the Africa Rice Center restores seeds of lost varieties of rice which were looted or burned during fighting.

Delivering smart aid

CTA launched a series of information needs assessment studies in six African post-conflict countries — Angola, Eritrea, Guinea Bissau, Mozambique, Rwanda and Sierra Leone — in order to target help in the area of information and communication management as effectively as possible. In DRC, where more than 20 years of civil war and political turmoil drastically hit cassava yields, farmers are being helped to kick start production again. The war aggravated the virulent cassava mosaic disease, causing total crop failure in many areas, but batches of virus-free, resistant seedlings developed at the Nigeria-based International Institute of Tropical Agriculture (IITA) are now being distributed to farmers in remote parts of the country. As part of the initiative, thousands of farmers receive training in improved production practices, plant health protection and rapid multiplication techniques. IITA has supplied cassava processing machines to rural women’s groups, some of which have set up small-scale commercial production of unfermented flour for bread, cakes and meat pies.

Even when countries do manage to resolve conflicts, peace is not always lasting. Almost half of all newly peaceful countries revert to war within 5 years, a figure which speaks volumes about the need to find long-term solutions. Some of the most successful post-conflict initiatives deliver sustainable help such as seeds, tools and fertiliser, to enable farmers to re-establish crop production quickly. Restocking with animals helps herders produce milk, cheese and hides. Other valuable contributions include restoring veterinary services, ensuring supplies of drinking water, clearing landmines, managing the environment and supplying credit for small businesses. In Eritrea, FAO has rehabilitated 12 veterinary clinics inside the temporary security zone created on the border with Ethiopia in the wake of the 1998-2000 conflict.

In 1998, ethnic conflict erupted in the Solomon Islands. Since peace has been restored, the World Fish Center has been helping islanders find more remunerative

livelihoods to reduce the poverty that was fuelling frustration and anger. The scheme involves teaching environmentally-friendly ways of cultivating high-quality black pearls, giant clams, ornamental crustaceans, coral, sea cucumbers and fish. In Mozambique, landmines are being replaced with trees to combat deforestation and provide incomes for rural people. Scene of one of the longest running conflicts in recent history, Mozambique has proved one of the most successful cases of agricultural recovery. The process began well before the war actually ended, with farmers encouraged to grow vegetables and other crops to feed refugee populations fleeing to the cities.

Once the fighting is over, returning soldiers, as well as refugees, need to be reintegrated into mainstream society. An ICRAF tree domestication programme helps to provide a livelihood for refugees and ex-soldiers in DRC. Other ways in which long-term help can be delivered include ensuring property rights through land titling, and providing assistance to resolve disputes about precious reserves such as water, land and forests. Increasingly, traditional confrontations between major world powers for motives of ideology are being replaced by armed struggles with prosperity, natural resources and environmental issues at their core. In 1995 alone, disputes over water triggered 14 international conflicts.

Fighting to rebuild peace

Development agencies and NGOs are helping Sudan to get back on its feet. The scale of loss and devastation is staggering. But the agricultural potential is immense. More than 95% of the land is suitable for farming. A joint initiative by the Catholic Relief Services and the International Plant Genetic Resources Institute is helping some farmers in the south by supplying them with sesame seeds to grow as a cash crop. In Darfur, FAO has distributed field crop seeds, tools and donkey ploughs to conflict-affected households, in an effort to enable them to stay in rural areas and become self-sufficient as quickly as possible.

Said Sara McHattie, North Darfur Area Emergency Coordinator, “For one tenth of what is spent on food aid for a month, enough seeds can be purchased to help the same number of people produce their own food.”

See *Links*, page 10



Sea Farming

Marine algae have become essential ingredients for the manufacture of many food products, textiles, cosmetics and other goods. They offer interesting opportunities for ACP coastal communities, some of which have already moved into seaweed farming.

Stimulated by strong demand from the manufacturing industry, especially the food and textile sectors, seaweed farming is developing rapidly in coastal communities around the world. While harvests of wild seaweed have remained stable at around

The gelling properties of agars, extracted from red seaweed, are essential to all sorts of industrial preparations such as jams and sauces. Carrageenans, which are also derived from red seaweed, are mainly used in the manufacture of milk-based desserts.



1 million t for the past 30 years, global output of farmed seaweed has increased eight-fold in the same period. According to FAO figures, production levels of fresh seaweed had already exceeded 8.5 mt by 2003. And experts predict that this steady growth is set to continue.

There are several thousand known species of marine macroalgae, classified according to their green, red or brown colour. But only a few dozen are used, and these are becoming increasingly sought after. Much in demand are the red seaweed varieties *Chondrus*, *Eucheuma*, *Gelidium* and *Gracilaria* and the brown ones *Laminaria* and *Macrocystis*. Brown seaweed (5.6 mt in 2003) is the most commonly farmed type, with production easily outstripping that of red seaweed (2.8 mt) whose output, nevertheless, rose by 75% between 1993 and 2003. By contrast, farming of green seaweed, or sea lettuce, is undergoing a sharp decline, with production down to 7,167 t in 2003, compared with 91,169 t in 1993.

Remarkable properties

A wide variety of industrial sectors rely on phycocolloids or hydrocolloids — seaweed extracts which act as vital thickening, gelling and stabilising agents. Alginic acid, derived from brown seaweed and able to retain up to 140 times its own volume of water, is crucial to the food and textile industries.

Harmless and low in fat, all of these substances are also increasingly used in the manufacture of health foods. The food and textile sectors alone absorb an average of 80% of global production of these extracts, and demand is continuing to grow.

Since the harvesting of wild seaweed can no longer fulfil the demand, a number of coastal countries of the South have ventured into seaweed farming, sometimes encouraged by manufacturers who are keen to secure a reliable source. In Africa and the Pacific Islands, seaweed farms mainly produce *Eucheuma* algae. Labour intensive, but requiring little investment, seaweed farming is well suited to small-scale production. The technique involves fixing cuttings on lengths of twine stretched between stakes, or on nets. After 6 weeks, the seaweed is ready for harvesting. Dried in the sun, and protected from the sand, it can keep for up to 2 years.

The example of Kiribati, the world's 15th biggest producer of red seaweed (3,900 t), shows that seaweed farming could well become a profitable activity for coastal communities in the Pacific, replacing copra, which is running out of momentum. *Eucheuma* produced in Kiribati is shipped to Norway for treatment. Thanks to the excellent quality of the product they offer, fishers from the atolls who have switched to seaweed farming have been able to command guaranteed prices from the

manufacturing industries. Their shift has had a positive effect on fish stocks and the coastal environment. Vanuatu is also seeking to set up seaweed farms, as are Fiji and Tonga.

In other ACP regions, South Africa is the only country with a significant output of brown algae (30,000 t), while Tanzania leads the field in terms of red seaweed production (115,000 t), followed by South Africa and Madagascar with 2,000 and 1,700 t respectively. According to FAO, there are also good prospects for countries such as Mozambique, Namibia and Senegal.

Coastal ACP countries are currently limited to supplying the raw material. But can they make the transition and begin extracting and marketing these highly sought after marine vegetable derivatives on their own account? According to the experts, extraction would require a level of investment that is beyond the means of most countries of the South. What is more, this is a highly

Kiribati has become the world's 15th producer of red seaweed.

concentrated sector — there are only a handful of factories worldwide, and all of them are located in industrialised countries, with the exception of Zanzibar in Tanzania (see *Spore* 102, page 8).

Sea vegetables

Farming seaweed as a food product is another avenue worth exploring. Rich in minerals (iodine, calcium) and in vitamins (A, C and E), seaweed have been eaten by Asian communities for centuries. Certain ACP countries such as Namibia and Tonga are starting to farm "sea vegetables" for the local market. But wider-scale production aimed at export markets is hardly an option, given the Asian experience and the dominant role played by this continent in the marketplace.

There are a number of other uses for seaweed, and the potential of the product is by no means exhausted. Flour made from seaweed is widely used in animal feed. Farmers, especially organic ones, are familiar with the fertilising properties of algae and use liquid extracts to promote the growth of their plants and protect them from disease. Finally, seaweed's anti-viral powers hold out hope for the development of new medicines, especially against HIV/AIDs.

See *Links*, page 10

Booming outputs meet flagging markets

The economic potential for cassava — a crop crucial for food security, especially in Africa — remains largely untapped, despite constant growth in output. Nevertheless, a range of markets, including consumer, industrial, local and international, are important as this tuber strives to become competitive.

Which crop grown in Africa produces twice as much as maize and three times as much as millet or sorghum? And which crop has seen Africa emerge as overall leader, accounting for more than half of the world output, with Nigeria as the biggest producer? Which same crop has seen production levels triple on the continent over the past 50 years? And now covers one-third of the dietary needs of its population? The answer is cassava. In the past few decades, this tuber has quietly taken over thousands of hectares and become the staple food of over 200 million Africans, or more than one-quarter of the continent's population.

According to FAO figures, Africa produced 103 mt of cassava tubers on 18 million ha of land in 2004. This shrub, with its long stems and parasol-shaped leaves is now as common in Sahelian countries as it is in the more humid climes of Central Africa and the Gulf of Guinea, where it has traditionally thrived. Output varies greatly between regions, ranging from 1.8 t/ha in Sudan to an average of 10.6 t in Nigeria (which still falls way behind the yields achieved in the Caribbean: 16.6 t in Barbados alone). Well established in countries such as the Democratic Republic of Congo (DRC), which for a long time was Africa's leading producer, the crop has now spread to southern Africa (Malawi, Zambia) at the expense of maize. Here, where HIV/AIDs is killing many farmers, families are turning to crops which require less labour.

Insuring against famine

A number of other factors explain this rapid expansion, especially on smallholdings run by poor farmers, where cassava is often grown together with other crops. Cassava has the advantage of being relatively undemanding, and will thrive on poor and even tired soils, where few other crops will grow. In places where land is scarce, it also serves as

Cassava, fuel of the future?

At a time when oil prices are soaring and global reserves dwindling, the spotlight is turning to ethanol made from fermented cassava starch, a particularly promising resource. Similar to other types of ethanol obtained from agricultural products, it can be used to substitute between 10% and 25% of petrol in vehicles with standard engines, and up to 100% in vehicles whose engines have been adapted.

Brazil, the world's leading producer of these substitute fuels or biofuels, makes more than 120 million hl per year from sugarcane and cassava. In Thailand and China, several projects for manufacturing cassava-based biofuel on an industrial scale are under way. In Africa, Nigeria is following suit and in early 2006, a law is expected to approve the use of 10% bio-fuel in petrol, thereby cutting both the country's oil bill and pollution levels. In the short term, the fuel will be imported from Brazil, but in the longer term it will be manufactured locally.

food security for many villagers vulnerable to malnutrition. With cassava, they can be more confident of having a low-cost, plentiful supply of calories than they would have had they grown cereals. For farmers living close to towns, it is a valuable cash crop, with a flourishing market. In West Africa, its development has been further helped by the rapid expansion of towns and by an initiative launched by the International Institute of Tropical Agriculture (IITA), which has distributed new, more productive varieties that are resistant to a number of diseases as well as to drought.

The flip side of the coin is that when this crop — vitally important to a number of regions — is hit by disease, the result is famine. That was seen all too clearly when the cassava mosaic virus devastated production in Uganda during the 1990s. Burundi, DRC and Rwanda are currently grappling



with the same disease and programmes to distribute resistant varieties are attempting to curtail the epidemic before it takes hold.

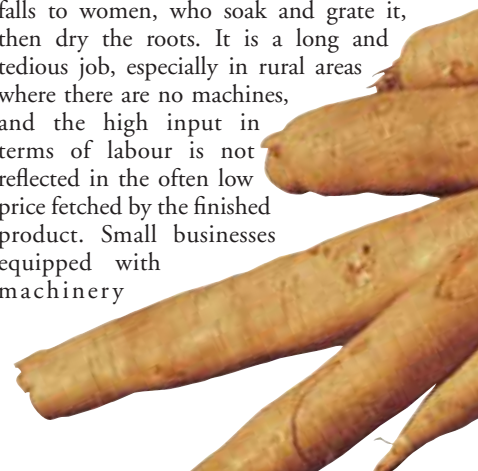
This plant has long been neglected by research in favour of cereals, but its recent rapid success and its key role in feeding a number of regions go a long way towards explaining the renewed attention it is enjoying today. In partnership with the IITA, The New Partnership for Africa's Development (NEPAD) has launched the Pan-African Cassava Initiative to encourage projects based on "the use of cassava as a food security crop and as a weapon against poverty".

However, the economic importance of cassava is still disproportionately low given the major role it plays in agriculture and food supply. Once the hydrocyanic acid has been removed from the bitter varieties, the edible leaves are rich in protein and the tubers lend themselves to a wide range of preparations: chips, flour, semolina and cassava meal (*gari*, *attiéké*, *foufou*, *chikwangue*) to name a few.

According to the IITA, close to one-third of all cassava is eaten fresh. The remainder needs to be processed quickly, as the tubers keep for barely 2 days under normal storage conditions. The Collaborative Study of Cassava in Africa (COSCA), conducted in the 1990s, found that only 20% of cassava-producing villages can be reached by motorised transport. Generally, farmers have to travel more than 10 km to take their heavy loads to market. In DRC, Africa's second largest producer, that is the case for seven out of ten villages.

Long preparations

Before cassava can be conserved and sold, it must first be processed. This task generally falls to women, who soak and grate it, then dry the roots. It is a long and tedious job, especially in rural areas where there are no machines, and the high input in terms of labour is not reflected in the often low price fetched by the finished product. Small businesses equipped with machinery





Photos: © Sylla International

Photo: © IITA

are springing up in some towns, especially in countries around the Gulf of Guinea, and this encourages a steady flow of production from farmers in the outlying areas. COSCA has estimated that a mechanical grater cuts the processing time by half and therefore increases profits. In West Africa, the IITA has developed and distributed a number of machines, but they are still not sufficient, especially in the villages, to increase the

commercial viability of a sector which in any case suffers from poor organisation.

But markets exist in the increasingly populated urban areas, as do technologies offering consumers cassava-based products that are easy to use. Good examples can be found in the Caribbean, the Pacific and South America, above all in Brazil, which has long been the world's leading cassava producer. Here, cassava is prepared in a host of different ways, often on an industrial scale, and the products — chips, cakes, frozen dishes — are sold in shops. In Brazil, one chain of stores sells cassava cheese bread. Cassava flour is used as a partial substitute for wheat flour to make traditional bread. In 2002, the Brazilian Congress even passed a law making it mandatory for bread to contain at least 20% cassava flour and 40% in the case of pizza. The idea was to reduce costly wheat imports and develop the commercial potential of local crops. Africa still lags way behind in this respect, though Nigerian bakers are now required to use 10% of cassava flour in their bread (see *Spoire* 117).

A number of techniques developed in Latin America could be used in Africa. Colombian researchers have managed to extend the shelf-life of fresh cassava roots to 3 or 4 weeks by dipping them in wax or paraffin.

Livestock fodder also offers interesting potential. In Africa, less than 2% of cassava is used to feed animals, compared with 30% in Latin America. In Cameroon, researchers estimate that poultry farmers could cut production costs by 40% if they used cassava as part of their chickens' diet. On a global scale, animal feed represents the main outlet for cassava. Thailand exports an annual 4 to 5 mt of it, mostly to the European Union.

Finally, there are the many industrial uses to which this tuber lends itself. Starch, the main product to be made from cassava, is used in the food and textile industries as well as in the pharmaceutical and rubber sectors. In Africa, few companies make starch, and production does not even supply domestic needs. With the rise

The food security of 200 million Africans depends on the tubers and leaves of the cassava.

in oil prices, the manufacture of cassava-based ethanol, already widely used in Brazil to replace additives in petrol or as a biofuel, could constitute another interesting outlet.

Multiple markets

Market prospects for cassava have increased. But these have yet to be accessed by African farmers, some of whom have difficulty in selling their crops, as is the case in Benin where production has increased significantly. Large-scale production of food or industrial products requires a steady supply of good quality raw material. That is the first precondition, and Africa has yet to fulfil it since most of its cassava output is sold by large numbers of small-scale producers with no quality control whatsoever. The second requirement is that production costs be sufficiently attractive, for local as well as for international markets.

Improving processing technologies is crucial if production costs are to fall significantly and both producers and processors are to earn enough income. On the world market, cassava starch faces competition from less costly maize starch. In 2002 for example, maize starch imported from Europe to Nigeria cost three times less than local cassava starch.

While small groups of fairly well organised processors do exist, they are not always big enough to take advantage of economies of scale. What is more, cultivation and harvesting are still done entirely by hand. According to COSCA, this is partly explained by the considerable variation in size between one cassava plant and another, and between the size of their roots, which makes it difficult to mechanise crop cultivation.

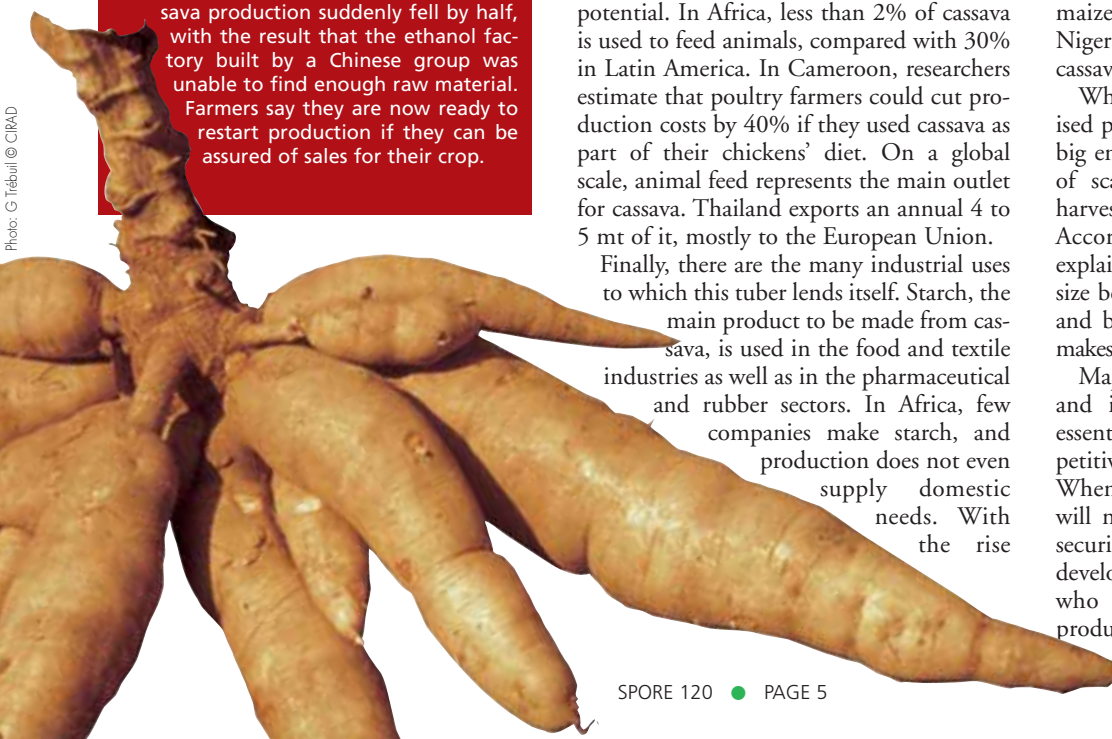
Major developments in both technologies and in organising markets are therefore essential if African cassava is to become competitive on local and international markets. When these conditions are met cassava will not only play a role in ensuring food security; it will also become a force for rural development. A just reward for producers who have worked so hard to expand production.

Beyond production

Between 1996 and 2003, cassava production doubled to reach a total output of 3.9 mt in Benin, while the per-ha yield increased by 25%. This strong performance was largely the result of the government scheme "a billion for cassava" which offered credits, fertiliser and cuttings of improved varieties to producers in a bid to encourage them to increase production. But nothing was done to improve marketing at the same time.

Poorly organised and lacking in processing equipment, the cassava sector proved unable to absorb the extra tonnes of cassava, and farmers found themselves forced to sell their crops off cheaply — in some cases, they were unable to sell them at all. Exports of cassava chips to Europe for livestock fodder, have also been falling since 2002 as European farmers have turned to less costly cereal-based feed. In 2004, cassava production suddenly fell by half, with the result that the ethanol factory built by a Chinese group was unable to find enough raw material. Farmers say they are now ready to restart production if they can be assured of sales for their crop.

Photo: G. Trébaud © CIRAD



Beat the beetle

■ A tiny parasitic wasp is helping to save the coconut industries of a number of countries in the Asia and Pacific region from a destructive pest that feeds on the developing leaves of the coconut palm. Severe attacks by the coconut hispid beetle (*Brontispa longissima* Gestro) destroy palm leaves and cause a sharp drop in coconut yields. If a palm is young or suffers from poor growing conditions, it may die. The beetle has recently invaded coconut plantations in Nauru, as well as Asian countries including China, the Maldives, Thailand and Vietnam, causing massive losses. It was already widespread in areas of Papua New Guinea and a number of other Pacific Island countries. FAO has launched biological control projects in all the affected countries, by mass-rearing the wasp parasitoid *Asecodes hispinarum*, which attacks the larvae of the beetle.

Milkly way

■ Zambian livestock owners are linking up with a market for their milk in the Kazungula Smallholder Milk Collection Centre Project. Finta Danish Dairies in Livingstone has the capacity to buy 40,000 l of milk per day, securing market linkage for some 360 farmers in and around Kazungula and adding valuable income in a drought-prone area. Farmers are currently earning about US\$1.5 (€1.25) per day with a potential to earn up to \$2.5 (€2) per day. This kind of return is encouraging farmers to obtain improved dairy breeds and employ artificial insemination technology to further expand the chances of increasing their income. The scheme is now being replicated in 10 other Zambian cattle-raising areas.

Quality bears fruit

■ The creation in Senegal of a horticultural production and marketing sector, in partnership with operators from Spain, and most notably the Canary Islands, appears to be bearing fruit: Greenmarket, which sells wholesale fruit and vegetables to the European market, has relocated to Senegal, tempted by the high quality of the country's produce. Behind Senegal's success is a long gardening tradition coupled with a decision taken in 1984, after the drought, to develop horticulture, following in the steps of Kenya, Africa's leading exporter of fruit and vegetables.

Mapping for good change



Photo: © G. Rambaldi

■ In Kasika conservancy, on the East Chobe floodplain in north-eastern Namibia, local people are using modern spatial information technologies to produce detailed maps showing the location of wildlife areas and livelihood resources. In Kenya, the minority Ogiek community is using new mapping technologies as advocacy tools to communicate more efficiently and fight for their ancestral rights. In Cameroon, meanwhile, three villages of the Tinto clan in Southwest Province have compiled a map and forest management plan to win a forest management contract.

In each case, the communities practised participatory geographic information systems (PGIS) to gather, analyse and compile spatial information and map their territory. PGIS practice marks a new and exciting development in the rapid evolution of participatory approaches to development. At a multi-donor-sponsored and CTA-led conference "Mapping for change, international conference on participatory spatial information management and communication" held in Nairobi, Kenya, in September 2005, 156 participants from 45 countries shared lessons and discussed benefits and risks deriving from the good and bad practice, as well as some of the challenges that still lie ahead.

PGIS practice combines a range of geo-spatial information management tools and methods such as sketch maps, participatory 3D models, community-based aerial photo maps and satellite imagery interpretation, global positioning system (GPS) and

GIS-based mapping. But it differs from conventional mapping approaches in that it closely involves local stakeholders in drawing up visual representations of their land, forests and other resources and in using these representations to efficiently communicate with political and economic bodies. "PGIS practice is geared towards community empowerment through measured, demand-driven, user-friendly and integrated applications of geo-spatial technologies," said CTA's Giacomo Rambaldi, one

information management tools and systems to record data and other spatial information about their land and resources. Although still relatively expensive, the cost of the technologies has fallen sharply and the hardware has become smaller, lighter and easier to use. Applications include planning and managing land use and resources, conserving wildlife, identifying tenure and rights, negotiating boundaries and resource uses, managing conflicts, safeguarding intangible cultural heritage, and participatory monitoring and evaluation.

But effective participation is the key to good PGIS practice and for the process to work well there must be a good balance between local participation and outside facilitators skilled in applying PGIS. There is also a need to develop guidelines for good practice if PGIS is to meet the needs of different groups in the South.

In tandem with the conference, CTA supported a PGIS course attended by 33 participants from Africa and Iran, organised and funded in collaboration with the International Institute for Geo-Information and Earth Observation (ITC), Ermis-Africa and the Christensen



The Nairobi conference on spatial communication stimulated lively exchanges between participants from 45 countries.

Photo: © J. Verplanken

of the key organisers of the conference. If used properly, the conference heard, PGIS can make a dramatic difference to communities' ability to assert their rights over natural resources and protect their traditional knowledge and wisdom from outside exploitation.

As the growing number of initiatives embodying PGIS practice in the South attests, local people with minimal basic training can use a vast array of geographic

Fund. In 2005, CTA helped launch a PGIS project in Fiji and has joined with the Center for International Forestry Research (CIFOR), the International Institute for Environment and Development (IIED), ITC and the Secretariat of the Pacific Community (SPC) for the publication of a special issue of *Participatory Learning and Action* (PLA) to appear in March 2006. A training video on PGIS is also planned for 2006.

Buffer stocks for gum



Photo © CIRAD-Forêt

■ Chad, Nigeria and Sudan have agreed to set aside the equivalent of a year's production of gum arabic (a total of around 40,000 t). These stockpiles will serve to supply the international market should outside events disrupt the harvest in any one of the three countries, which together account for 95% of global output. Signatories to the Khartoum Declaration have made the move

in an effort to reassure their industrial clients for whom the acacia tree sap is a vital ingredient in the manufacture of soft drinks and cosmetics, amongst other products.

In the past 2 years, world export prices for gum arabic have tripled due to the conflict in Darfur (see *Spore* 114) and the huge differences in production levels — ranging from 100 to

1000 g per tree — between regions.

By using buffer stocks to stabilise prices, gum arabic producers will have a better chance of protecting their product against competition from substitutes, both natural and synthetic. The goal is to double global consumption of natural gum over the next few years. FAO, the World Bank, the Association for the International Promotion of Gums (AIPG) and the Network for Natural Gums and Resins in Africa (NGARA) are all supporting the initiative, which should gradually be extended to other countries.

Producers will be able to choose from three options: selling their harvest by themselves, selling it to the gum arabic bank which will pay them on the spot and sell it at the right moment, or entrusting it to the bank for storage until prices pick up.

Melanesian farmers conserve banana diversity

■ A local NGO on the island of Makira in the southeastern Solomon Islands is helping subsistence farmers to conserve their hundreds of banana varieties. Thanks to the initiative of the Manivovo Rural Training Centre, several precious varieties, thought to have been lost, have been restored. While everyone in Melanesia eats bananas and plantains, the Makirans rely on the crop to such an extent that neighbouring islanders teasingly call them *huki* after their favourite food.

Makira has very few roads, so the first collecting expedition was made by motorised canoe. Villages with radio access were invited to donate their ancestral banana suckers to the collections. Local students were asked to bring 10 suckers each from their villages to the training centre, one of three collection points on the island. They documented the names and provenances of all varieties after being given training in the use of scientific descriptors. The students are paid a small fee for each variety they describe. So far, 55 out of 108 varieties have been characterised, using local names such as "three heads" and "eight heads"



Photo © Seed Savers Network

(referring to multi-headed bunches) or "5 minutes" (referring to cooking time).

The initiative was launched with support from the Kastom Garden Project in the Solomon Islands and the Seed Savers Network in Australia.

✉ Michel Fanton
The Seed Savers Network
PO Box 975
Byron Bay
Australia
Email: michel@seedsavers.net
Website: www.seedsavers.net

Precious fish waste

■ Fish waste, once a major problem since both bulky and unhygienic, is now being turned into flour and used as poultry feed or organic fertiliser. In Joal, Senegal's leading port for unloading fish products, the heads, scales, skin and other parts discarded by fishers are being recycled and put to commercial use. Senegalese company Biojoal was the first to spot this opening about 12 years ago, and the idea has caught on, so much so that the firm now sells its fodder and fertiliser in neighbouring countries (Burkina Faso, Ghana, Guinea and Togo amongst others). A 50 kg bag of this organic fertiliser costs just 3,750 F CFA (€ 5.6), compared with 6,500 F CFA (€ 9.75) for a bag of chemical fertiliser.

Saliou Ndiaye pioneered this processing industry, and in the early days he was the laughing stock of the women whose fish waste he bought. But his ingenious idea is now widely acknowledged, not least by city council officials who were wracking their brains over what to do with mountains of fish waste, a dangerous source of infection. These days, Joal is no longer known by its old nickname "the city of flies".

The right price for coffee

■ A website called Infoshare, aimed at giving coffee and cocoa producers a better idea of market prices, has been launched in Cameroon by the United Nations Conference on Trade and Development (UNCTAD). For the time being, access is limited to the national coffee and cocoa boards, the main farming associations (or planters' cooperatives) and exporters. The 900,000 small-scale coffee and cocoa producers without access to this restricted website will, from mid-2006, be able to obtain price information twice daily from national radio broadcasts. Noting that "African producers of cocoa and coffee earn as little as one twelfth of the international market rate for their crops", UNCTAD predicts that this programme will enable them to increase their revenues by 10 to 15% by helping them negotiate better selling prices.

Email:
olivier.matringe@unctad.org

Restoring Jamaica's wildlife

■ Jamaica's Portland Environment Protection Association has received a grant of US\$2.1 million (about €1.7 million) to restore wildlife habitats destroyed by Hurricane Ivan in September 2004. The funds, donated by the Environmental Foundation of Jamaica, are being used for the planting and protection of endemic and local plant species. The project is also working to restore the *in vivo* germ bank, a genetic library of plants located at the College of Agriculture. A Biodiversity Education Programme is being developed to include in-school presentations, teacher training and education in biodiversity. The initiative includes tree planting and seed collection in schools and the development of an instruction manual with lesson plans for biodiversity and conservation, focusing on species endemic to Jamaica.

Simple as SMS

■ Farmers in Mauritius can now receive prices of the main vegetables traded on the island via SMS (short message service) on their mobile telephones. All it takes is a message sent to 789. In return, they receive a list numbered from 1 to 6 from which they select the name of the market whose prices interest them. The information is updated weekly by the Agricultural Research and Extension Unit at the Ministry of Agriculture, Mauritius.

African monsoon

■ The African Monsoon Multidisciplinary Analysis is a scientific programme aimed at achieving a better understanding of the West African monsoon. The idea is to have far greater success in predicting its impact on soil degradation, food security and water in the region. Sixty African, American and European laboratories are taking part in the initiative in an effort to find out more about the complex interactions between the atmosphere, the biosphere and the hydrosphere. The issue is a crucial one for the Sahel region which, in the past few decades, has seen humid weather patterns give way to recurrent periods of drought.

Website:
amma.mediasfrance.org/francel/index

Water networks

■ The International Water Harvesting Alliance has drawn up a Charter for Membership in order to strengthen its network. Founded in Johannesburg after the 2002 Earth Summit, this NGO aims to promote rainwater harvesting and to encourage community initiatives for improving water management. Its members construct roofs, dams and reservoirs to collect water in Africa, Asia and Eastern Europe. Its website and newsletter offer numerous examples of rainwater harvesting programmes in Eritrea, Ethiopia, and Nigeria.

Website:
www.irha-h2o.org

Hot water for nematodes

■ Researchers at Uganda's Namulonge Agricultural Animal Research Institute are advising farmers to dip their yam seeds in water at a temperature of 100°C before planting. The hot water treatment has proved successful in preventing nematodes from attacking yams. "This preventive measure is still new and we have started sensitising farmers about it," said James Rwebikile, the Clean Yam project officer for Kayunga District, where nematodes have destroyed large quantities of yams. "Nematodes are very dangerous yam pests. They destroy the plant and it dries up completely."

■ NARO
 PO Box 7084
 Kampala
 Uganda
 Fax: +256-075-726554
 Email: fopio@naro-ug.org
 Website:
www.naro.go.ug/Institute/Namulonge/

Maasai and wildlife learn to live together



Photo: Ten © FAO/0066

■ More than 100 Maasai families living near the Kitengela Corridor, in Kenya's Nairobi National Park, have been persuaded to allow wildlife access to their land. Previously, they had fenced off land, which is on one of the last great wildlife migration routes of East Africa. As a result, the passage of zebra, antelope wildebeest and other herbivores slowed to a trickle, but lions, faced with a loss of prey, responded by killing Maasai livestock. The International Livestock Research Institute (ILRI) was brought in to quantify the value of the wild animals, and help the Maasai decide if an offer of US\$4 (€3.25) per year per hectare for access, made by the Friends of

Nairobi National Park (FoNNAp), was worth their while. The ILRI advised that the offer would double the incomes of poor households and help many families pay school fees. ILRI research also showed the grazing of wildlife could benefit Maasai livestock by encouraging the growth of high-quality grass.

The successful Kitengela programme is now being studied by communities facing similar challenges in other parts of the region. As ILRI ecologist Robin Reid observed: "Conventional wisdom says that the best way to conserve wildlife is to separate it from people, but in the East African context, this thinking may be seriously flawed."

Watch out for snakes!

■ Snake bites are 10 to 20 times more common in rural than in urban areas. The incomplete data available shows that there are about one million snake bites a year in Africa, with 600,000 cases of poisoning and 20,000 deaths. In 54% of cases, the bites occur during agricultural activities, while 19% happen during travel and 5% during hunting. In November 2004, the 2nd International Symposium on venom poisoning in Africa was held in Cotonou, Benin, to examine progress in efforts to occasionally reduce fatal accidents.

Some agricultural techniques used in large plantations inadvertently favour the presence of certain snakes. For example, in

banana plantations of Côte d'Ivoire, there are five to six times more *Causus maculatus* vipers — which are fortunately relatively harmless — than in the neighbouring forest. The use of mulching to retain water at the base of banana trees favours the proliferation of these snakes. Drainage techniques, involving moving water between groups of trees, promotes the presence of *Afronatrix anoscopus*, an aggressive water snake whose venom is, however, non-toxic. In high risk environments, or during agricultural activity, most accidents can be avoided through the use of thick clothing, boots, gloves and hats, when the climate allows it.

Cutting-edge potatoes for Zimbabwe

■ "Born again" sweet potato plants developed by a team of local scientists employed by Zimbabwe company Agri-Biotech are helping small-scale farmers in Zimbabwe to weather the country's food crisis. The plants make it possible for a 30-m square plot to feed a family of seven all year round. Over 35,000 people have benefited in the past 2 years and supplies have reached eight of Zimbabwe's 56 districts.

The scientists call the plants "born again" because they have found a way of removing the virus that plagues sweet potato crops.

In a GM-free tissue culture process, they literally employ cutting-edge science. They dissect out the 0.25 mm tip of the bud, which is free from viruses and



Photo: © Sylla International

other micro-organisms, and throw the rest away. They then grow the bud tip in a test tube for 9 months into a virus-free plant, and keep on sub-culturing it to increase numbers.

From there they transplant the plants into plastic greenhouse tunnels and take cuttings from them. These are bought by donors, such as the Swedish Cooperative Centre, which funded Agri-Biotech to supply 3,000 starter plants to 160 nursery farmers. The virus cleansing is not permanent and farmers return for new clean material every few years.

My tractor, your tractor



Photo: © Syifa International

■ The principle behind farm machinery cooperatives is that farmers club together to share the cost of buying and maintaining a tractor, trailer or threshing machine. In the South, in particular, the high price of farm machinery coupled with the small

size of plots means that it is hard to recoup one's investment. More and more farmers are discovering that the cooperative system offers a way of using equipment to make labour intensive farming jobs easier and more efficient, at a fraction of the normal cost.

In Benin, the first two such cooperatives were launched in 1997. Today there are 17 in just one region, Borgou-Alibori, a cotton-producing area in the northeastern part of the country, and demand for more cooperatives is growing. Compared with the classic service offered by private suppliers, these organisations guarantee a greater variety of equipment, ensuring better quality work for the farmers. They also provide access to credit from banks.

In an effort to ensure an even more efficient supply and maintenance of farm machinery, the cooperatives of Borgou-Alibori have regrouped under a regional umbrella organisation. A spare parts warehouse and a repair service managed by a specialist mechanic have also been set up. Launched in 2003, this regional grouping is aiming to encourage the mechanisation of agriculture in Benin.

Banking on African values

■ Combining African tradition with modern banking management: that is the challenge that Community Growth Banks – better known by their French acronym MC2 (Mutuelles Communautaires de Croissance) – have taken on and won in Cameroon. In just a few short years, this network of rural development microbanks in the south and west of the country has changed the way of life of the communities where it operates. Created and sponsored by a private commercial bank, the Afriland First Bank, the microbanks extend small loans, repayable at harvest time, to producers wanting to buy fertiliser, as well as larger loans to traders. The network is unique in that it places a high premium on "socio-cultural, religious and ancestral values" in an effort to bring the banks closer to the communities they serve. Indeed, drawing inspiration from the methods used by village elders to settle disputes, the MC2's governing body includes a committee of sages, which presides over the board of directors.

Mutual benefit societies are created and managed according to an agreement drawn up

between local farmers, the bank and an NGO in Cameroon, the Appropriate Development for Africa Foundation (ADAF). By encouraging farmers to participate in bank management, the system is better protected against problems such as in Rwanda, where since 1994, savings and credit cooperatives have spiralled out of control with business entrepreneurs setting up such

schemes in an effort to lay their hands on liquid assets, promising rich rewards to people who join up. Savers, unaware that they have a right to a say in how these funds are managed, are now complaining that they cannot obtain loans. Rwanda's national bank, the Banque nationale du Rwanda, has now published a list of 118 registered centres in an effort to reduce these scams.



Photo: © Syifa International

Agricultural airport for Nigeria

■ Building is under way on Nigeria's first Agricultural Cargo Airport. The project is a joint venture between the public and private sectors. The airport will serve to transport agricultural produce from the area, across the rest of the country and throughout the West Africa region. It is expected to be a major benefit to farmers, agro-allied and processing companies. The airport is located at Ilishan-Remo, 120 km from Lagos, in the heart of a farming community which serves as one of the food baskets to the nation. It will be used exclusively for the transportation of agricultural produce. The site chosen for the airport is highly strategic since cocoa, cassava, yam cultivation and one of Nigeria's largest forestry areas are all close by.

PNG coffee for Starbucks

■ US coffee giant, the Starbucks Coffee Company, has introduced Kigabah Estate coffee, from the Western Highlands of Papua New Guinea to its range of products. At 1,676 m above sea level, in what was once a swamp, coffee is nourished by abundant rainfall and rich nutrients found in the thick black topsoil. The plantation contributes 10% of its profits to the community.

The seven keys to the European market

■ The European Commission has published a fact sheet for all operators from European or other countries wanting to sell their food products on the European market. On a single page, they offer simple explanations of rules regarding safety, responsibility, traceability, transparency, emergency, prevention and co-operation.

Downloadable at:
http://europa.eu.int/comm/food/food/foodlaw/responsibilities/obligations_en.pdf

Donkey work

■ The introduction of donkeys in the Ugandan districts of Iganga, Kasese and Katakwi is freeing girls and women from time-consuming chores and helping farmers get their goods to market. Some 200 households have benefited from the 3-year research project on improved food crop marketing through appropriate transport for poor farmers in Uganda. Janet Biira, a donkey trainer from Kasese, said donkeys are proving especially popular with women, who used to do most of the carrying of goods, water and fuelwood.

When the fighting stops



Photo: M. Linton © FAO/23962

Sources that focus on post-conflict recovery from an agricultural perspective are few and far between. But there is a wealth of information on this topic in general, and with a little patience you can find the angle which interests you most.

The **International Fund for Agricultural Development (IFAD)** funds a number of initiatives in ACP countries affected by war and civil strife, and since it concentrates on rebuilding the agricultural sector, this is a fertile source of information. Visitors to its website will find details of IFAD-supported projects in

war-torn areas as well as an excellent fact sheet on conflict, packed with facts and figures.

FAO is another good place to look and, although it does not have a specific department dedicated to post-conflict reconstruction, the issue is one which features prominently on the pages of its website. Take a look at its **Emergency Agricultural Relief and Rehabilitation** section for information on some of the current initiatives to aid rural recovery in conflict zones.

Fair and equitable access to land in post-conflict settings is an important pre-requisite to lasting

peace, and this complex subject is tackled in a number of FAO publications. *Access to rural land and land administration after violent conflicts* is a guide written to help in the difficult task of restoring land to rightful claimants and resettling people who are landless or who cannot return to their home.

Conflict also takes a heavy toll on the environment. A report entitled *Civil Conflict and the Environment in the Upper Guinea Forests of West Africa* charts the impact in Côte d'Ivoire, Guinea, Liberia and Sierra Leone of population displacement especially in terms of deforestation, reduced wildlife, water pollution and erosion.

The **United Nations High Commission for Refugees (UNHCR)** has a well-designed website, with regularly updated information on emergencies in countries affected by conflict. Here you will find news and statistics on refugees around the world, as well as initiatives to help and protect them. You can also read UNHCR's magazine *Refugees* on-line.

The World Bank's **Conflict Prevention and Reconstruction Unit** designs development efforts targeting conflict-affected countries. Its Post-Conflict Fund provides financing for physical and

social reconstruction initiatives in post-war societies and is currently active in Africa's Great Lakes region and Sierra Leone, amongst others. It offers a range of sources and information, but also more practical help, including an on-line tool kit for helping with orphans and vulnerable children in a post-conflict setting and a task manager's guide to landmine clearance.

For further information:

- **Civil Conflict and the Environment in the Upper Guinea Forests of West Africa**
By T Bishop & T Garnett
downloadable from:
www.worldwildlife.org/bspl/publications/africa/postwork/postwork.html

FAO

Website: www.fao.org
• Access to rural land and land administration after violent conflicts
FAO, 2005, 82 pp.
ISBN 92-5 105343 X
US\$12.00 • €8.50

IFAD

Website: www.ifad.org

UNHCR

Website: www.unhcr.ch/cgi-bin/texis/vtx/home

World Bank Conflict and Reconstruction Unit

Website:
<http://lnweb18.worldbank.org/ESSD/sdext.nsf/67ByDocName/ConflictPreventionandReconstruction>

More about seaweed



Photo: © P. Pignatelli

The mounting interest in the many current and potential commercial applications of seaweed has given rise to a growing body of literature on the subject. For an overview, start with the *Guide to the seaweed industry*, an 118-page booklet published in 2003 by FAO and available free on-line. In spite of its title, this guide does not simply deal with the industry, but covers the entire sector, from cultivation right through to processing. *Prospects for seaweed production in develop-*

ing countries, by the same author, presents both successful and less successful experiences in seaweed cultivation in Africa, Asia, Latin America and the Pacific Islands, and takes a look at the countries offering the best prospects for production. The entire document can be downloaded from the FAO website.

Search for 'seaweed' on the bilingual (English-French) website of the French Research Institute for Exploitation of the Sea (IFREMER) and you will find data about global production as well as information on uses and a range of other interesting articles on the topic.

Well worth a visit is the **Surialink** website. This very busy site was created by an alliance of professionals involved in the sector and it is packed with infor-

mation on topics ranging from biology to seaweed-based products. It offers links to other more specialised portals and a search engine which enables you to find out if a particular variety is cultivated or harvested in the waters of a given country.

Meanwhile, **Seaweed Africa** seeks to give an African perspective to the global database **AlgaeBase**, which can be accessed directly from its site. For the Pacific region, take a look at the aquaculture portal of the **Secretariat of the Pacific Commission (SPC)**.

For further information:

AlgaeBase

www.algaebase.org

FAO

• Guide to the seaweed industry
By D J McHugh

FAO, 2003, 116 p.
ISBN 92 5 104958 0
US\$35 • €29
Downloadable from:
www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/006/Y4765E/Y4765E00.HTM
• Prospects for seaweed production in developing countries
By D J. McHugh
FAO
2002, 28 p.
ISSN 0429-9329
Downloadable from:
www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/004/Y3550E/Y3550E00.HTM

IFREMER

www.ifremer.fr/anglais

SeaweedAfrica

www.seaweedafrica.org

SPC Aquaculture Portal


www.spc.int/aquaculture/site/home/index.asp

Surialink

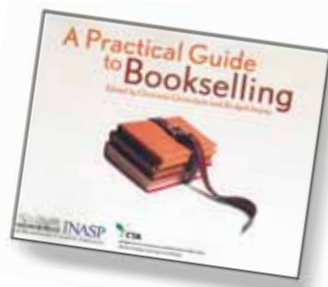
www.seavegetables.com

Publications

Bestselling bookshops

 Running a bookshop is a business. But it is also an art and, in some countries of the South, a vocation. The bookseller is an essential link in the long chain which stretches from the author to the reader, passing through the publisher and the printer. The best book in the world will never be more than paper and ink unless there is someone who wants to read it. It is the bookseller who matches up a book and its public, performing the miracle without which the whole chain would have worked in vain.

On the other hand, a good bookseller must ensure that feedback from clients, together with their expectations, filters back to the author and publisher. It is quite an art, and one which relies on a solid talent for communication! This guide makes an interesting parallel between the role of the bookseller and that of the agricultural extension agent, for the latter is also a middle-man, between researchers and producers — neither can do their job



successfully unless they are firmly rooted in their community and tuned in to its needs.

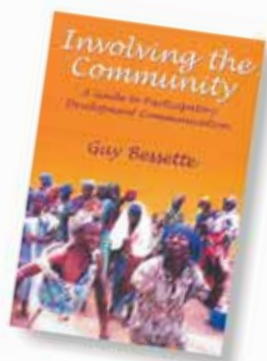
Being a successful bookseller requires sound knowledge (or at least some familiarity with the subject matter dealt with in the book) and passion, especially in a difficult financial climate, and all this must be coupled with a true sense of professionalism. Developed in close cooperation with the Pan African Booksellers Association (PABA), this stimulating and very readable guide examines the role of the bookseller in both rural and urban communities in the South. With its highly practical approach, the

book acts as a guide for anyone wanting to succeed in this very special wholesale business. As a first step, a bookseller needs to have a business plan and to be able to programme his/her business, as well as manage the stock efficiently, finding the right balance between having too many and too few books on the shelves. And if the bookshop does well, he or she will also need to know how to hire and manage staff. One chapter looks at other sales outlets for books, including door-to-door sales, book clubs and street sales.

The book highlights examples of successful bookshops in both English- and French-speaking Africa. Much of this guide should also prove of interest to NGOs and universities which publish good quality books, but often have difficulties selling them.

A Practical Guide to Bookselling
Edited by O Orimalade and B Impey
INASP-CTA, 2005, 108 pp.
ISBN 1 902928 16 4 (INASP); 92
9081 269 9 (CTA)
CTA number 1247
10 credit points

Communicative development



■ Development aid mobilises a host of stakeholders all over the world — with varying degrees of success. Sometimes, communities intended as the beneficiaries of projects are less than enthusiastic about the results, seeing the initiatives as a form of interference in local affairs. Compounding the problem is the fact that outside players often fail to grasp the complexity of local situations. This may be due to lack of information, dialogue

or common cultural points of reference.

This book aims to make communication successful, in spite of the obstacles. Its author, Guy Bessette, identifies the nature of the problems and suggests possible solutions, as well as ways of putting them into practice. His approach is both practical and theoretical and places communication firmly at the heart of any development project, seeing it as crucial to success.

Whatever form it takes (verbal, written or visual), communication aims to establish a consensus between the community and other stakeholders so that together they may become not simply players, but co-authors of development. Progress towards this goal emerges as the chapters develop, examining how roles should be divided up and offering 10 steps and a range of tools for implementing this communication and participatory development process.

Through various examples, the importance emerges of the early involvement of all concerned, and with it the need for joint decisions. It becomes clear that sometimes, concessions will be necessary and that an innovative approach is a must. Flexibility is the key to achieving local involvement in development projects, which in turn, ensures that they are lasting. In short, this is a guide for the development of development.

Involving the Community: A Guide to Participatory Development
By G Bessette
IDRC/Southbound, 2004. 162 pp.
ISBN 983 9054 41 4
US\$18 • €14.50
Southbound Books,
Northam House
55 Jalan Sultan Ahmad Shah
10050 Penang
Malaysia
Fax: 604 228 1758
Email: chin@south.p.c.my
Website:
www.southbound.com.my
Downloadable free from:
http://web.idrc.ca/openbooks/066-7

Women's energy



Women living in rural areas spend an average of 13 h a day on domestic chores, 60% of which is taken up with strenuous work such as collecting fuel wood, water, and grinding millet. This takes valuable time from agriculture and other cash-earning activities, perpetuating the cycle of poverty. A trio of publications — two books and a bilingual CD-ROM — presents the problem through real life stories from women living in Senegalese communities. They speak eloquently about their hardships and frustrations, but also present some of their solutions and coping strategies.

Communities on the Margins of Development: Real Life Stories of Gender, Energy and Poverty
By F Denton
Enda
2005. 78 pp.
ISBN: 0 9549408 0 6
CTA number 1251
10 credit points

The Faces of Energy-Related Poverty as Seen Through the Eyes of Women and Men in Senegal
By F Denton & E Seck
CTA/ENDA/JNDP
2005. 24 pp.
ISBN: 0 9549408 0 6
CTA number 1249
10 credit points

Gender, Energy and Poverty / Femmes, énergie et pauvreté
CD-ROM
ENDA, 2005
CTA number 1253
5 credit points

Getting certified

■ The demand for forest certification has grown rapidly since *The Forest Certification Handbook* was first published in 1995. This second edition has been completely rewritten to take account of developments over the past decade, including some of the many controversies surrounding the issue, and the proliferation of certification schemes. It examines the practical aspects of certification as well as policy implications and impacts. As such, it is a useful reference book for a wide range of users, including forest owners and managers, processors, buyers, environmental organisations, local communities, researchers and trainers.

The Forest Certification Handbook, 2nd edition
By R Nussbaum & M Simula
Earthscan-IIED-ProForest
2005, 300 pp.
ISBN 1 88407 123 5
GBP35.96 • €53.50
Earthscan
8-12 Camden High Street
London NW1 0JH
UK
Fax: +44 (0)20 7387 8998
Email:
earthinfo@earthscan.co.uk
Website:
www.earthscan.co.uk

Improved food

■ This report from an international workshop on ways to improve nutrition in West Africa, focuses on household food processing methods, as well as techniques for producing and fortifying food for small-scale enterprises.

Food based approaches for a healthy nutrition in West Africa
Proceedings of the 2nd international workshop, Ouagadougou 23 to 28 November 2003
 Edited by I D Brouwer, A S Traoré & S Trèche
 Downloadable at:
www.univ-ouaga.bf/fn2ouaga2003/

The tale of an ancient tree

■ The world's best-quality gum arabic comes from the *Acacia senegal*, which grows in the Sudano-Sahelian belt and as far south as Mozambique. It offers a wide range of benefits to people living in the semi-arid zones of sub-Saharan Africa, especially in Sudan, where gum production is an integral part of many farming systems. This book traces the long history of the gum arabic trade — it dates back to ancient Egyptian times — and provides a full and fascinating portrait of the tree itself, including information on planting, management and yields.

Acacia senegal and the gum arabic trade
 By G Allison & C Fagg
 Oxford Forestry Institute/2004.
 262 pp.
 ISBN 0 85074 157 2
 GBP25 • €37
 Oxford Forestry Institute
 University of Oxford
 South Parks Road
 Oxford OX1 3RB
 UK
 Fax: +44 1865 275074
 Email: ofi@plants.ox.ac.uk
 Website:
www.plants.ox.ac.uk/ofil/home.htm

Rice and fish

■ In this report from a workshop held by FAOWARDA (Africa Rice Center), a key conclusion was the considerable potential that exists in several African countries for developing integrated aquaculture activities, particularly in irrigated systems dominated by rice production. The combination of rice and fish production requires little in the way of investment or technical knowledge. According to the report, this approach could be successfully applied in the nine countries which were involved in the workshop: Benin, Burkina Faso, Chad, Côte d'Ivoire, Ghana, Mali, Niger, Nigeria and Senegal.

Report of FAOWARDA Workshop on Integrated Irrigation Aquaculture. Bamako, Mali, 4-7 November 2003
 FAO, 2005. 50 pp.
 ISBN 92 5 005271 5
 US\$16 • €13
 (for FAO's address, see opposite)

Farmers caught in the price trap



■ This FAO report confirms what many ACP farmers know to their cost that the long-term decline in agricultural commodity prices is threatening the livelihoods of millions of people who rely on the sale of produce. *The State of Agricultural Commodity Markets 2004 (SOCO 2004)* describes how farmers are finding themselves caught in a trap by the downward spiral of prices — they produce and export more than they did in the past, but they earn substantially less income. The report acknowledges that some ACP countries face a particularly difficult situation, due to price slumps for

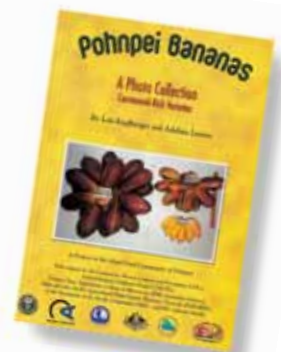
tropical beverages, sugar and bananas.

SOCO 2004 highlights the perils of depending on a few agricultural commodities, which leaves producers exposed to unfavourable market or climatic conditions. But FAO also has strong criticism for market distortions caused by high agricultural tariffs and producer subsidies in developed countries, which limit market access and depress commodity prices. The report urges World Trade Organization (WTO) negotiations to give priority to reducing agricultural tariffs, producer support and export subsidies in developed countries, calling for the elimination of tariff escalation that penalises exports of processed goods from the South. At the same time, it urges developing countries to reduce their tariffs in order to encourage trade among themselves and to allow their consumers to benefit from lower world prices. The report also stresses the need for developing countries to improve their capacity to take advantage of opportunities opened by trade liberalisation. Diversification is

seen as the most promising avenue, though FAO accepts that countries face major challenges in mobilising the investment and training required to shift to new crops, as well as difficulties meeting the high quality standards and strict delivery deadlines of supermarket chains in developed countries.

The State of Agricultural Commodity Markets 2004
 FAO, 2004. 52 pp.
 ISBN 92 5 105133 X
 US\$25 • €19.50
 FAO Sales and Marketing Group
 Viale delle Terme di Caracalla
 00100 Rome
 Italy
 Fax: +39 6 5705 3360
 Email: publications-sales@fao.org

Bananas brimful of benefits



■ A colourful booklet presenting photographs of 31 different local banana cultivars has been developed by the Island Food Community of Pohnpei. The idea is to increase awareness about these varieties, some of which are now rare, and to encourage islanders to plant and consume more of them.

This slim volume lists the Pohnpei names of banana varieties, as well as international classifications, beta-carotene content and flesh colour. In common with many fruits and vegetables, the yellow or orange colouring of bananas is a good indication of high carotenoid content. For the people who eat them, that means better protection against vitamin A deficiency, anaemia, diabetes, heart disease and certain cancers.

Pohnpei Bananas: A Photo Collection.
 Carotenoid-Rich Varieties
 By L Englberger & A Lorens
 Secretariat of the Pacific Community (SPC), 2004. 28 pp.
 ISBN 982 00 0038 6
 US\$10 • €8

Murky waters

■ The crisis currently affecting fisheries and aquaculture poses a major challenge to just about everyone involved in the sector, including policy makers, practitioners, researchers, and, last but not least, millions of poor fish workers, mainly living in the South. Key issues include ecosystem health and management, livelihoods and employment, food security and food safety. Fisheries and aquaculture systems are at the best of times unpredictable and uncertain, and managing them involves a wide variety of stakeholders, many of whom have conflicting interests.

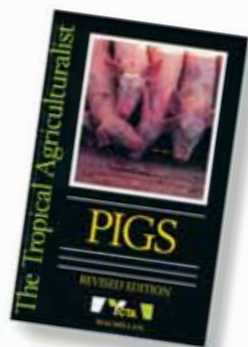
This guide aims to help people involved in the business of managing and administering fisheries and aquaculture — in whatever capacity — towards a new way of understanding fisheries and aquaculture processes. In the words of the authors themselves, it is intended as “a practitioner's guide, a travel guide, as it were, to help navigate the otherwise



murky waters of fisheries and aquaculture.” The guide presents some of the main challenges facing the sector, as well as some solutions. It provides a framework for understanding the dynamics of fisheries governance and offers a set of guiding principles, based on best practices.

Interactive Fisheries Governance:
 a guide to better practice
 By M Bavincq et al.
 CTA/EBURONIMARE
 2005. 72 pp.
 ISBN 90 5972 079 2
 CTA number 1254
 10 credit points

Pigs for profit



The latest figures (FAO 1999) put the global pig population at 913 million or one pig for every six people in the world. More pork is produced than any other meat, and although the number of pigs in the tropical and sub-tropical developing regions of Africa, Latin America and the Caribbean is relatively small compared with Asia, that figure has grown significantly in recent years. Much of the growth has taken place since the first edition of *Pigs* was published in *The Tropical Agriculturalist* series. That was back in 1991. Since then, a number of technological developments have offered new prospects for developing pig

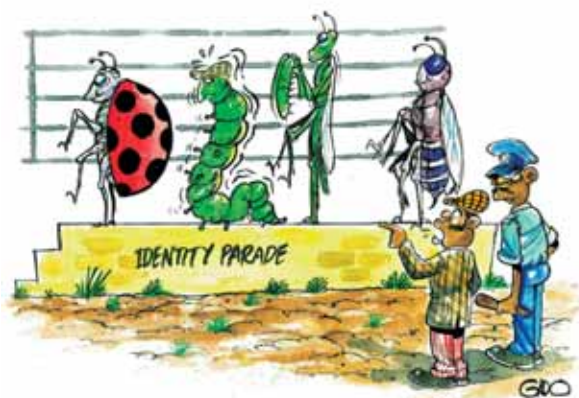
production in the tropics, though not all of them are suitable for small-scale producers.

In this thoroughly revised edition, David Holness examines some of the most interesting developments, including new findings on the effect of the immune system on pig productivity, genetic improvement techniques and changes in selection priorities. An entirely new section looks at feed additives while another discusses genetically modified feeds.

Along with the more theoretical discussions, there is plenty of practical information in this very readable book. One chapter looks at housing, including general design considerations and the relationship between pig productivity and comfort. Another examines health, with advice on disease prevention and diagnosis, while the final section deals with processing and marketing, with pages on transport, slaughter and meat hygiene.

Pigs (revised edition)
By D H Holness
CTA-Macmillan, 2005. 160 pp.
ISBN 0 333 79148 7
CTA number 1235
10 credit points

Planning the year with IPM



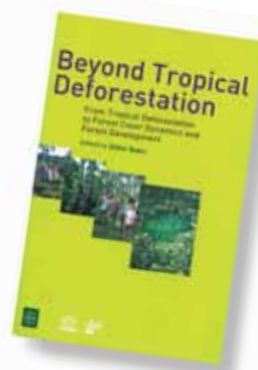
Vegetable production is an important component of the livelihood strategies of poor farmers, providing jobs, revenues and nutrition. But producers are often plagued by pests, diseases, low yields and hazards resulting from excessive or inappropriate use of pesticides. There is a need for alternative and effective sustainable pest management strategies and the implementation of appropriate tools for dissemination.

The 2006 calendar gives humorous but clear tips on integrated

pest management (IPM) and food safety in vegetables. Available in English and French, the calendar is a joint project of CTA, the Natural Resources Institute (NRI) and the Department for International Development (DFID). Calendars have proved to be useful tools for information dissemination and a good basis for discussion and training.

2006 IPM Calendar
Co-publication CTA/DFID/NRI, 2005
CTA number 1255
5 credit points

Managing forests with people in mind



■ Around the world, tropical forests account for more than half the total forested area and they are shrinking fast. According to FAO estimates, the annual rate of tropical deforestation over the past decade has been 12 million ha, or around 0.7%.

But, as the title suggests, this book seeks to go beyond the overall picture to look at local realities in order to help draw up sustainable and realistic strategies for tropical forest management in the future. The central message is that too much focus on global statistics carries the risk of clouding the real challenge — that of grasping the fact that people are an essential part of forest systems, and management strategies must therefore take the needs of local groups and communities into account.

According to the latest World Bank figures, as many as 900 million of the world's poorest people are heavily dependent on forests for their livelihoods. Using examples which include case studies from Burkina Faso, Cote d'Ivoire and Madagascar, the authors press their case for new avenues of research, arguing that "no solutions to forest problems can succeed if they do not also address the needs of this vast population of people living in poverty."

Beyond Tropical Deforestation
Edited by D Babin
CIRAD-UNESCO, 2004. 488 pp.
ISBN 2 87614 577 4
€78
CIRAD
Avenue Agropolis
TA 283/04
34398 Montpellier Cedex 5
France
Fax: + 33 (0)4 67 61 55 47
Email:
librairie@cirad.fr
Website:
www.cirad.fr

10 years of forestry on CD-ROM

■ FAO has been producing the State of the World's Forests every other year since 1995, and this volume has become widely accepted as a major source of up-to-date information on key issues concerning the forestry sector. To coincide with the tenth anniversary of publication, FAO has released a CD-ROM containing the entire collection of the report since its first edition, offering an overview of the development of forest resources over the past decade.

State of the World's Forests
Collection 1995-2005 - CD-ROM
FAO, 2005
ISBN 95-5-005288-X
US\$25 • €20
(for FAO's address, see page 12)

Power cards

■ Managing natural resources is something that most rural dwellers do every day of their life. Yet very few of them are ever given the chance to have a say in the rules and institutions which govern their use. The Power Tools initiative aims to close this gap. Coordinated by the International Institute for Environment and Development (IIED) in partnership with NGOs and policy researchers from a range of backgrounds, it consists of a resource box, which contains 26 reference cards offering a range of techniques, tips and tactics based on experience in natural resource management around the world. They come with a handbook that explains their use.

Power Tools Resource Box
IIED, 2005
ISBN 1 84369 541 3
US\$40 • €32.50
Earthprint
PO Box 119
Stevenage,
Hertfordshire SG1 4TP
UK
Fax: +44 1438 748844
Email: order@earthprint.com
Website: www.earthprint.com

Gender and ICT

■ Good information and communication technology (ICT) policy can promote economic empowerment, but the gender implications of ICT policy are seldom taken into account. GenderIT, a new portal for women and policy-makers, will help ICT advocates, especially women's organisations, to ensure that ICT policy meets their needs. The site, which uses refreshingly clear and simple language, acts as a clearing house for all resources, papers, and articles on gender and ICT policy issues.

Website: www.genderit.org

Don't miss the boat

ACP governments are encouraged to focus more on biotechnology and biodiversity if the region is to have a better future. That is according to ACP experts who drew up policy briefs after a series of CTA-supported consultations between December 2004 and October 2005. The documents, now available on CTA's *Knowledge and Development* web portal, outline the benefits of developing biotechnology and valuing biodiversity. Although treated separately, the two issues are related. Biodiversity can provide the building blocks for biotechnological advances.

The brief on biotechnology highlights its importance for economic and social development and urges ACP governments to "avoid being left behind in yet another technological revolution." The scope goes beyond the debate on genetically modified



Building on biodiversity, fish bred for research in the Caribbean.

Photo: S van Oortveld/CTA

(GM) crops. The experts emphasize that the technology can also be used to produce plants with desirable characteristics, develop valuable diagnostic techniques and vaccines, make biofuels and recycle waste.

A number of biotechnology initiatives already exist in ACP countries, but to develop and expand these, governments need to set up policy, legal and regulatory frameworks, provide more investment, strengthen scientific and technical expertise and provide facilities for information

sharing, public-private partnerships and intellectual property protection. Regional cooperation is essential if the biotechnology industry is to flourish. More dialogue and biosafety regulations are needed to dispel public mistrust over the technology, including GM products.

Unsustainable harvesting, poor management, the degradation of ecosystems and the destructive impact of alien invasive species all threaten biodiversity in the ACP region. The biodiversity policy brief warns of the danger of neglecting this valuable natural capital.

Progress in conserving and harnessing biodiversity is hampered by insufficient knowledge, lack of investment and the low priority the issue holds in many ACP countries. The biodiversity brief argues for governments to enact policies and legislation to better manage biodiversity while safeguarding the interests of local communities, and for more support for scientists, with better regional cooperation to offset resource constraints. Conservation and management of biodiversity is crucial for the sustainable development and economic growth of the region and ACP governments ignore this warning at their peril.

Website: <http://knowledge.cta.int>



Spore magazine



Spore is the bi-monthly flagship publication of the Technical Centre for Agricultural and Rural Cooperation (CTA) – ACP-EU. CTA operates under the Cotonou Agreement between the countries of the Africa, Caribbean and Pacific (ACP) Group and the European Union.

© CTA 2005 – ISSN 1011 0054

Publisher:

Technical Centre for Agricultural and Rural Cooperation (CTA) – ACP-EC Cotonou Agreement.

CTA, PO Box 380,

6700 AJ Wageningen, The Netherlands

Tel: +31 317 467 100

Fax: +31 317 460 067; email: cta@cta.int

Website: <http://www.cta.int>

Editorial staff:

Executive editor: Marie-Agnès Leplaideur

Syfia International

20, rue du Carré-du-Roi

34000 Montpellier, France

Fax: +33 4 67 52 70 31

Email: redaction.spore@syfia.info

Editor of English version: Clare Pedrick

Via dello Spagna 18

06049 Spoleto (PG), Italy

Email: english_spore@hotmail.com

Editor of French version: Denise Williams

Syfia International (see above for address)

Email: redaction.spore@syfia.info

Contributors to this edition of *Spore*

included: N Ackbarally, G Afangbèdji,

T Babaleye, S Babalola, J Bodichon,

A Brahima, V Hild, F Le Meur, A Linard,

J Madeley, M Malengrez, D Manley,

E Tassé, W Van Opzeeland and with

the editorial support of CTA.

Layout : Intactile DESIGN, France

Design: B Favre

Printer: Imprimerie Publique, France

Back to old habits



Making use of local products can help achieve better nutrition.

Recent editions of *Spore* have dealt with the rise in obesity, diabetes and hypertension in the Pacific region, largely caused by increased use of imported foods and a move away from traditional farming. In September, a seminar on the Role of Information and Communication Tools in Food and Nutrition Security in the Pacific Region heard more evidence that urgent

steps are needed to address these worrisome public health problems. The 5-day meeting, organised in Apia, Samoa, by CTA and the Institute for Research, Extension and Training in Agriculture (IRETA), was the third in a series on food and nutrition issues in ACP regions based on the different issues experienced in the three regions on this topic — the seminar for Africa was held in

Photo: G. Stenmler © Herbox Ltd

Mozambique in 2004, and for the Caribbean in Belize in March 2005.

The Pacific seminar urged better promotion of traditional foods as a key part of any strategy aimed at helping communities return to healthier diets. The participants discussed the important contribution of information and communication technologies and the range of ways in which these could help. Regional networks such as e-forums, databases and websites are useful, while better information on exotic food crops and trees adapted to atoll islands can encourage islanders to return to better diets. Similar to the case in the Caribbean, National Food and Nutritional Committees exist in the Pacific, but often work poorly due to a lack of staff and resources. A com-

mon thread in all three seminars was the need for greater political direction and clear policies to put food and nutrition security plans into action.

Healthy eating aside, Pacific communities need better information on many topics to ensure greater food and nutrition security: trade agreements, marketing, pesticides, organic certification and post harvesting. Participants identified a package of tools, including posters, pamphlets, manuals, study visits, training courses and information and communication technologies (ICTs). Armed with these, Pacific communities stand a far better chance of growing and eating the food they really need, and using local crops and trees as a source of revenue.

Reader services

Write to Spore

Spore Mailbox, CTA
PO Box 380
6700 AJ Wageningen
The Netherlands
Fax: +31 317 460067
Email: spore@cta.int

Subscribe to Spore

■ Subscriptions for the printed version are:

- **free** to organisations and individuals in ACP (African, Caribbean and Pacific) and EU countries:

CTA Spore subscriptions
PO Box 173
6700 AJ Wageningen
The Netherlands
or spore@cta.int

- for other individuals and organisations: €36 annually (6 issues) from commercial distributor (see below)

■ Subscribe to Spore Ennouncement

Subscribe to the free Spore email summary (90 Kb) at:

<http://spore.cta.int>

or send a blank email to
join-spore-en@lists.cta.int

For text-only:

join-spore-text-en@lists.cta.int

■ See Spore on a screen

- Web distribution: spore.cta.int
- Satellite distribution: capture Spore 'n More broadcasts on the Afristar channels of the First Voice International's multimedia programmes. Further information available from: spore@cta.int

Reproduce Spore

- Articles in Spore can be freely reproduced for non-commercial use, if credited as coming from Spore. Please send a copy to the editors.
- Reproduction for commercial use requires prior permission.



Publications

How to obtain them

CTA publications mentioned in Spore are marked by the green leaf symbol, and these are available free-of-charge to subscribers to CTA's Publications Distribution Service (PDS). Other readers can buy these titles from CTA's commercial distributor. Only agricultural and rural development organisations and individuals resident in ACP countries can apply for PDS subscriptions. Each PDS subscriber is assigned a certain number of credit points annually for purchasing publications on CTA's list. The list of CTA publications can be consulted on CTA's electronic catalogue: www.cta.int

- All other publications, indicated by an orange square, are available from the publishers listed, or through commercial booksellers.

Commercial distributor

SMI (Distribution Services) Limited
PO Box 119
Stevenage
Hertfordshire SG1 4TP
UK
Fax: +44 1438 748844
Email: CTA@earthprint.co.uk
Website: www.earthprint.com

Mailbox

Poultry continues to feature strongly in Spore's postbag, and books on this subject are always a hit with subscribers to CTA's Publications Distribution Service (PDS), as one Spore reader enthusiastically attests.



Talking turkey

Small-scale farmer **Mr Uche Nwosu** from Imo State Nigeria was prompted to try his hand at poultry rearing after receiving various publications on the subject from CTA's PDS. The results were so good he now has 30 turkeys and 200 chickens. A friend, who picked up one of the books when he came round to visit, has done even better — he now has 1,500 layers. That is partly because he has been helped with funds from his brother abroad. "The major problem facing we local farmers is finance/sponsors," remarks Mr Nwosu. "It is difficult to obtain loans or financial assistance."



assets and a lower school drop-out rate than other rural dwellers who do not keep chickens or guinea fowl.

"The findings revealed that local poultry production forms the basis for reducing rural poverty among households in the Upper-East region," writes Mr Apiiga. "They are used for immediate cash needs, help diversify rural livelihoods and as a starting point for the acquisition of other livestock." However, he also points out that the sector faces a bewildering array of constraints, including disease, poor feeding, lack of credit, poor housing and seasonal breeding. He and his co-author recommend a range of initiatives, beginning with better credit, extension and inputs for poultry keepers. Other suggestions include improved access to vaccines for Newcastle disease, simple housing designs for small-scale poultry farmers and more help for women to become active in poultry keeping.

Disappearing oil palm

Meanwhile, **Doyin Olusina** and **Olukayo-de Akinsanya**, from the Agricultural and Development Division of OAE Nigeria Ltd, write a joint letter to tell Spore readers of their concern over dwindling supplies of local oil palm. "We are a grassroots organisation committed and dedicated to the provision of excellent technical and business support to the development of agriculture," they write. "We have placed great emphasis on the development and advancement of oil palm. Presently, we are pioneering a crusade for the commercial rehabilitation rather than careless destruction of local oil palms, which grow in wanton profusion within our ecological zone. This is to form a sustainable basis for the adoption of improved breeds by rural dwellers."

The power of poultry

Mr S Y Apiiga is a busy man. When not working as an agricultural extension officer in Bolgatanga, Ghana, he practises as an animal scientist and conducts a weekly programme dedicated to agriculture on a local rural radio station. But he takes time to write with the results of a survey that he carried out with fellow animal scientist Dr Irene Annor, on the important role played by poultry in improving livelihoods in Ghana's Upper-East region. The survey showed that poultry keepers earn more income, spend less on food, have better food security, more



In the early 1980s, Louis Buteau, an agronomist, worked with the Soil Conservation Service at Haiti's Ministry of Agriculture. Later, as head of the Forestry Department, he worked on a major initiative to protect trees and forests by involving communities in rural development projects.

Soil erosion

Developing agroforestry in Haiti

Developing agroforestry in a mountain setting means battling with soil erosion and breathing new life into Haiti's agriculture. At present, sloping land is being damaged by inappropriate farming techniques practised by farmers who take the line of least resistance to ensure day-to-day survival.

Between independence in 1804 and the 1980s, Haiti witnessed a struggle between large and small-sized properties. The evidence speaks for itself: only the small-scale properties have remained in place to feed the population — it is these that have shaped Haiti's agriculture. But in the early 1980s, these concerns began to lose momentum, a process which became even more marked in 1985, with the onset of the troubles that led to the departure of Jean-Claude Duvalier. Today, in some departments, the average farm is just 0.32 ha.

Between 1985 and 1989, agriculture's contribution to Haiti's gross domestic product (GDP) fell by an annual 5% and, from 1990 to present day, that trend has continued. Agriculture currently accounts for 27% of the GDP and 7.4% of exports. Yields of the main crops are lower than those of any other country in the region and Haiti imports nearly all the products it consumes. One reason for this constant fall in output is erosion, which causes a loss in soil fertility. And in Haiti, the problem of erosion is tied up with poverty, insecure land access and inadequate farming methods.

Tonnes of lost soil

Farming as practised in Haiti eats away at the country's soil capital. When a farmer notices a decline in fertility on the plot of land he is farming, he looks for other land, whether it is arable or not. This constant search damages our country's natural resources. Wooded land and forest cover is diminishing due to the advance of agriculture and the search for fuel wood. Techniques do exist for effectively combating erosion, but they are not practised. As with agriculture, the fight against erosion suffers from a lack of investment, and for almost 2 years now, Haiti has been living under a transition government which cannot make a long-term plan.

If the fight against erosion is closely connected with the challenge of developing mountain agriculture in Haiti, that is because 63% of the land is mountainous. Half the population lives in mountainous terrain. So an integrated system of mountain agriculture is essential if environmental protection and economic development are to co-exist.

How much soil is lost in Haiti? Nobody knows. During the American occupation, between 1915 and 1934, demonstration plots were set up to quantify the country's particularly acute erosion phenomenon. FAO did the same in the 1970s. Soil scientists

worked out that Nature takes 30 years to produce a layer of arable soil 25 mm thick, or 11 t/ha, and that figure represents the minimum thickness if the land is to be profitable. Now in Haiti, soil losses sometimes exceed 120 t/ha!

Farming is practised on any kind of land and any kind of slope. Slopes with a gradient of 60% are ploughed. We need to establish a typology: all land with slopes of between 0 and 20% would be cultivated, with no soil conservation intervention. Land with slopes of between 20 and 50% would also be farmed, but using drastic soil conservation techniques: contour channels, terraces, alley cropping, living hedges, etc. All land with slopes of more than 50% would be used for growing fruit trees and agroforestry. On flatter land and plains, agroforestry systems established around land plots would allow farmers to diversify their source of revenue.

Previously, coffee was widely grown in Haiti. It is still grown, but due to the fall in

world prices, farmers have largely replaced it with more profitable crops such as beans and yams. But growing these crops causes more erosion. Fruit farming has suffered due to political instability and lack of road transport — the fruit did not reach its destination quickly enough, even for the domestic market.

An alternative for farmers

Let's be practical, unless there is more research, information and assistance, farmers are never going to change their practices.

There is no point in trying, unless we have alternatives to suggest to them. So there needs to be funding, and better access to land and credit. The farmers need some kind of subsidy. That is crucial if fruit farming and agroforestry are to be developed. Increasing access to land for farmers is just a half-measure if you don't also give them a suitable technology package to go with it. We need

to help them buy inputs and farm tools, to diversify their revenues by supporting on- and off-farm activities such as fruit processing, honey production, small-scale livestock rearing and ecotourism. We need to help them develop and improve post-harvest storage techniques, so they can access outside markets, as well as domestic ones.

All this needs to be achieved within a well established macro-economic framework, without infringing the rules of the World Trade Organization.

But we also need to work out a programme for subsidising agriculture. And there is the rub, for at present we are living in an economic climate that is far too liberal.

The opinions expressed in Viewpoint are those of the authors, and do not necessarily reflect the views of CTA.

“Here, the problem of erosion is tied up with poverty”