

SPORE

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GREEN GRABS
**Good intentions
on other
people's land**

EGGS
**A cracking
opportunity**

AGRICULTURE
AND NUTRITION

Strengthening ties





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Editorial

Food security and agriculture in the spotlight



2015 is a critical year for the future of sustainable development. Three major high-powered conferences are taking place during the year that will make major decisions and their impacts will reverberate for decades to come. These are: the Financing for Development (FFD) Conference in Addis Ababa, which took place in July, the UN Summit on the post-2015 development agenda in New York in September and the UN Climate Change Conference in Paris in December.

The UN Summit in September will approve the Sustainable Development Goals (SDGs) that will kick in as the Millennium Development Goals come to an end in 2015. Among the 17 goals and 169 targets proposed for the SDGs, Goal 2 and its five targets focus on food and nutrition security and agriculture, which set specific, nutrition-related targets on reducing stunting and wasting among children. They also include targets on improving agricultural productivity and incomes for smallholders, increasing resilience, boosting investments in rural infrastructure, reducing trade restrictions and distortions and protecting biodiversity. Other SDGs address important aspects of food and agriculture, including post-harvest and food losses, access to land, and regulation of fishing.

Achieving the SDGs will largely depend on the availability of financial resources, hence the importance of the FFD Conference in Addis Ababa. A key focus of this conference was on innovative ways to mobilise finance, including from the private sector. Given the high level of perceived risk associated with agriculture, smallholder farmers and small and medium-sized enterprises find it difficult to get credit from banks. Several organisations, including CTA, are exploring various ways to deliver inclusive value chain finance that could unlock capital for smallholders and SMEs. The Climate Summit is also expected to address financing issues.

In all these discussions, the challenge will be how to translate what is decided in Addis Ababa, New York and Paris into real benefits for millions of farmers across the developing world.

Michal Hailu
 Director – CTA

Good intentions on other people's land

Land grabs for green projects lock communities out of decisions about their future landscapes. Is this the cost of conserving the planet?

The trend of foreign companies signing agreements with cash-hungry nations for rights over vast areas of land, leading to displacement of the land's traditional users, is all too familiar. Large-scale land grabs have swept through developing regions in the last decade, driven by a speculative mania for food crops, biofuels and water reserves. But how should we pass judgement when the land deals are designed to support global public goods, such as the conservation of biodiversity and wild landscapes?

A return to fences

Journalist John Vidal first coined the term 'green grabbing' in 2008, when writing about a new wave of land purchases in developing countries motivated by conservation goals. Further analysis of the trend, notably in a special 2012 issue of the *Journal of Peasant Studies*, widened the definition to include deals for carbon sequestration, forest protection and ecotourism, among others. Biofuel projects may also fall under the label of green grabs, and offer an important example to heed. By 2013, only 2% of land authorised for biofuels in Ethiopia, Mozambique, Tanzania and Zambia was actually cultivated. The sector's early promise left a legacy of lost access to land for communities, with none of the promised benefits.

Green grabs are not only buyers purchasing land outright; they include any cases where rules of access to land and resources are changed to benefit green projects at the expense of existing users. However, instead of pitting small-scale local production against large-scale commodity production, green grabs complicate the land issue by setting production against protection of the environment. In doing so, green grabs are rekindling debates on the co-existence of people and nature that stretch back many decades.

Since the colonial era, local farmers, herders and hunters have been perceived as environmental threats. Authorities have given apparently empty land over to conservation, heedless of its customary uses. However, over recent decades, conservationists have learned that most schemes fail without local participation, and that communities really can be stewards of the land as much as users of it. However, in an intensified atmosphere of crisis



with unusual alliances of private capital, governments, international organisations and consumers taking on the defence of the planet, some of the lessons seem to have been forgotten.

Adventures in carbon

If there is one element that sums up the dilemma, it is carbon. One currently favoured solution for mitigating carbon emissions is biochar, charcoal made by burning biomass under low-oxygen conditions, which can be ploughed into soils as a long-lived form of carbon storage that also improves fertility. While some ventures are implementing biochar as a small-scale technology, others have sought to raise capital for biochar feedstock plantations on millions of hectares of “under-used” lands in Africa. In fact, farmers themselves regularly enrich their soils with waste organic carbon, including biochar, as recorded in rings of fertile black soil around many

West African villages. Practices like these draw little appreciation as ‘green technologies’, however, and there is a lot of space to recognise and support the highly efficient carbon-mitigating potential of smallholder farmers without taking large chunks of the landscape out of their hands.

The most land-grabbed country of the past decade is Papua New Guinea (PNG), where companies had acquired more than 5 million ha of former customary land by 2011. A big share of this was snapped up by carbon speculators following promising negotiations towards the Reducing Emissions from Deforestation and forest Degradation (REDD) standards in 2007. More than 90 carbon trading deals on customary land were under negotiation, but within two years almost all had stalled. In the end the great majority of the millions of hectares acquired in PNG have been used for short-term logging. Difficulties with securing community and legal consensus over long periods of time mean that potentially green projects with distant time horizons have lost out to quick extractive forestry.

Plentiful examples of such failures feed scepticism of green grabs, highlighting the mismatch between long-term green goals and the turbulent world of land deals. In 2008, Liberia nearly signed an agreement with a British company to hand over 400,000 ha of forests to be conserved for carbon trading. The leaked draft contract specified that all forest resources in the area must be left intact, and defined forest resources as “anything of practical, commercial, social, religious, spiritual, recreational, educational, scientific, subsistence, or other potential use to a human that exists in the forest environment, not limited to flora, fauna, or micro-organisms.” This was an excellent catalogue of the comprehensive use local communities derived from their forests, albeit for the purposes of revoking their access. In fact, if local users had interfered with the carbon value of the scheme, the Liberian government could have been liable to the British company for billions of dollars in lost revenue. After the contract was leaked, and the lack of benefits for the country itself became obvious, Liberia stopped the deal.

About one-third of Tanzania’s land is currently under some form of protection for wildlife, a trend which proliferated in the 1990s during a hopeful phase of community-based conservation of grazing lands. However, poor implementation of this approach led international donors to withdraw funds and the government to favour more direct state management of wildlife. Subsequently, many villages that initially accepted conservation as a community-led use of their land are seeing the benefits go to the tourism industry, while the costs – including lost pasture and crops damaged by wild animals – impact on the village. Some communities have entered into beneficial ventures with ecotourism operators, most successfully in Maasai villages of Lolindo, where well-coordinated local authorities have negotiated and invested earnings in village infrastructure, social services and conservation. Others have lost their land altogether to companies that find it easier to sign private leases for tourism areas.

Clearly, similar motivations – to conserve unique ecosystems, to make them available to ecotourists, to keep carbon out of the atmosphere – can lead to very different outcomes for local land users. What matters is how they are able to negotiate their own access to the land and its resources, and that means being there when the deal is ▶

Conserving unique ecosystems – to make them available to ecotourists or to keep carbon out of the atmosphere – can have very different outcomes for local land users



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► struck. Thus far, green land deals made without local participation have a poor track record for success, and that fact alone may be what puts the brakes on harmful green grabs. Respect for customary land users may, in the end, be better business, just as it is better conservation.

Land beyond hectares

FAO's recently compiled Voluntary Guidelines on the Responsible Governance of Tenure seem to be tailor-made for protecting communities from land grabs in countries with widespread customary forms of tenure – a system that still dominates 90% of African land. When it comes to green grabs, however, FAO's guidelines will run up against other international pressures felt by states: to increase protected areas, to save carbon stores, or to bring threatened species back from the brink. While supporting local claims to land can slow the land grabbing, the larger question remains the same as ever: how to balance local life and development with ecological needs?

Non-inclusive green grabs cut off very real synergies between development and environmental goals, leaving only tradeoffs and conflict. The most promising way forward is probably not in buying up huge areas for any exclusive function, but in finding the most benefits from the whole landscape. The emerging landscape

approach is a more sophisticated attempt to answer some of the questions that green grabs ignore. For instance, the Reduced Emission from All Land Use project of the Alternatives to Slash and Burn Partnership for the Tropical Forest Margins has looked beyond forests to emission reduction possibilities throughout four different landscapes, working with users to find incentive strategies for carbon benefits everywhere. In Efoulan Municipality, southern Cameroon, these focus on both sustainable management of communal forests and intensification of neighbouring cocoa agro-forests mixed with other useful tree species. Projects like this suggest how communities can maintain higher-carbon landscapes while maintaining their livelihoods on the land.

Climate change, deforestation, degradation and biodiversity loss are serious problems that are growing ever larger. It is easy to imagine that inclusive solutions will not be wide enough to face them, and that big solutions have to leave some people out. But the story of green grabs so far shows that greening landscapes is not as easy as just leasing land. Real progress will not be measured in thousands of hectares, but in the commitment of land users working together towards shared goals. ■

Biochar is ploughed into soils as a long-lived form of carbon storage, improving fertility and carbon-mitigating

T Paul Cox

SPRAY SERVICES

Improved crop protection for cocoa

Fifty thousand cocoa farmers in West Africa are accessing crop protection advice and crop spraying services through the Africa Cocoa Initiative.

A preliminary study by the World Cocoa Foundation (WCF), one year into its five-year Africa Cocoa Initiative, has found that the majority (70%) of participating farmers have been able to increase their cocoa yields by an average of 45%. Educating farmers about how best to tackle the threat of pests and diseases is a major focus of the WCF initiative, which aims to double productivity and income levels for 100,000 cocoa farmers in Cameroon, Côte d'Ivoire, Ghana and Nigeria. Currently, 30% of these countries' cocoa crop is lost to pests and disease.

Access to authorised crop protection products has been identified as a major challenge to cocoa production in the region. The Initiative has therefore funded training for selected farmers as

Spray Service Providers (SSPs), who help the wider farming community by identifying pests, providing advice on their management and, when needed, applying crop protection products. Working with plant science organisation CropLife Africa Middle East, the Initiative has trained more than 3000 SSPs since its launch in 2013, who in turn have used their knowledge and skills to support 50,000 cocoa producers.

Scaling out the SSP approach to new cocoa growing regions now represents both a challenge and an opportunity for the West African initiative. Reasons for optimism, however, include the increasing number of certification projects being implemented by organisations such as UTZ, Rainforest Alliance and Fairtrade, and the high level of activity among NGOs in helping cocoa communities to take advantage of these. Certification schemes demand that the end product, chocolate, is produced to high environmental, social and agricultural standards, and the SSP scheme complements this work well. In Ghana, for example, the SSPs have helped farmers to meet their 'Good Agricultural Practice' standard, an essential component of achieving UTZ 'Sustainable Farm' accreditation. ■

Mike Davison



Spray Service Providers in Ghana have used their knowledge and skills to support cocoa producers

BANANA

Fighting Fusarium wilt

In December 2014, FAO launched in Africa and in the West Indies a programme to overcome the deadly Fusarium wilt disease in bananas. This programme works on three main fronts of action: preventing future outbreaks, managing existing cases, and strengthening collaboration and coordination among institutions, researchers, governments and producers. It also aims to develop new varieties resistant to *Fusarium oxysporum* sp. *Cubense*, the fungus responsible for the disease.

COCONUT

Exceptional compost

The few hundred inhabitants of Agaléga, an archipelago located north of Mauritius, are using coconut fibre to improve vegetable cultivation on the coral ground of the island, which is not well-suited to farming. The coconut fibre decomposes into compost and replaces soil in the gardens. Extremely porous, it has a high oxygenation and water holding capacity.

DISABILITY

A little help from 'survival yards'

Disabled persons from several communities in Niger are now earning a living thanks to 'survival yards'. These gardens enable them to produce fruits and vegetable for their own use and sale. Launched in 2005 by the local NGO Karkara with support from the Australian Christian international development organisation CBM, this program has inspired Burkina Faso, Mali and Nigeria.

MOBILE APP

Local language information service

In Ghana, Farmerline have developed a local language, interactive voice-response mobile phone application to provide crop production and aquaculture advice. One thousand farmers have been using the service in the last six months and have reported improvements in productivity and income.

SOFTWARE

Optimising soil management

In the Lake Alaotra region of Madagascar, a 'network of reference farms' is bringing together farmers cultivating under direct seeding mulch-based cropping systems to improve soil fertility. This type of network combines different kind of farms according to their cropping systems and breeding practices, for example. Once created, these farms are subject to technical monitoring to build postulated event sequences and assess their resilience to hazards (such as weather). To support this approach, three French research institutes – CIRAD, INRA and IAMM (Institut agronomique méditerranéen de Montpellier) – have developed the Olympe software package, a farm operating simulation tool that helps farmers optimising their crop management in a long-term perspective.

Mamy Andriatiana

NUTRITION AND HEALTH

WINNING FORMULA

Improving childhood nutrition

A joint study by the Government of Malawi, FAO and the Justus Leibig University in Germany, has found that the nutritional status of children aged between 6 and 24 months can be significantly enhanced through a combination of food security interventions and participatory nutritional education for caregivers.

HEALTH

Saving lives at a distance

An app that allows interaction between a doctor and patient in remote regions has won the 'Imagine Cup Angola 2015' technology competition, organised by the Ministry of Science and Technology and Microsoft. With this software, if the patient is incapacitated, another person online describes the symptoms, which can be seen by a specialist for diagnosis and monitoring from a distance.

PROCESSING

Upgrading hanza

Hanza (*Boscia senegalensis*) is a wild shrub found extensively in the Sahel that grows in arid areas and is very drought-tolerant. Its bitter seeds are consumed in times of famine. The Sahara Sahel Food NGO aims to add value to hanza seeds, which are rich in protein and carbohydrate, by processing them into flour and couscous.

BETTER BEANS

Iron-rich varieties reduce anaemia

In Rwanda, seven new varieties of iron-rich beans - now grown by nearly 800,000 farmers - have contributed to a fall in anaemia cases. Before the introduction of iron-rich beans in 2010 by HarvestPlus, 56% of Rwandans were anaemic, with young children and women worst affected. Since then, the rate has reduced to 38%, according to the Department of Health Services.

DRYING TECHNOLOGY

An eco-friendly and healthy kiln

The FTT kiln is more energy efficient, has a greater fish processing capacity, improves food quality and reduces health hazards. These qualities have contributed to its wide adoption by small-scale processors.

The FTT kiln is a mechanical cooking and drying unit – the result of 5 years collaboration between the Senegalese National Training Centre for Fish and Aquaculture Technicians and FAO – which significantly improves on traditional stove designs and reduces carcinogens produced by smoking. Traditional fish smoking techniques need a large amount of wood or coal, causing a heavy environmental impact. In contrast, the FTT kiln is adaptable to various fuels, such as coconut husks and shells and maize or millet stalks, which are as efficient at fish smoking while having less environmental impact. The kiln also needs less fuel and has a loading capacity five

times larger than traditional barrel stoves and twice that of the widely distributed 'Chorkor' improved oven.

The FTT kiln is made up of a furnace, a fat collection tray, an indirect smoke generator system – consisting of a barrel and a metal housing – and an air distributor; these accessories are locally available. The FTT kiln has been developed to help women small-scale fish processors to produce and sell safe, high quality food products. Operation of the kiln helps to meet food safety requirements and can be performed regardless of weather conditions. Consequently, postharvest losses, which may exceed 50% in some fisheries during the rainy season or cloudy days, are better controlled. A cover protects the kiln and the fish during smoking and drying operations.

Smoked fish is a vital source of food and income for many coastal communities across the continent. In Côte d'Ivoire for instance, FAO estimates that 20-30% of local marine and freshwater fish catches are smoked for consumption. This new technique has been successfully rolled out to other African countries, including Ghana, Senegal and Tanzania. ■

Mame Aly Konte

Women from Abobo-Doume in Côte d'Ivoire cook and dry their fish in the dual-purpose FTT kiln



© FAO Côte d'Ivoire



Vaccinating against East Coast Fever in northern Tanzania

VACCINATION AND ERADICATION

Progress on East Coast Fever and PPR

A less deadly parasite could offer cost-effective protection against East Coast Fever (ECF) in cattle, while global efforts are mounting to eradicate Peste des petits ruminants (PPR).

Researchers have discovered a new and potentially more effective way of protecting livestock against ECF, a disease that kills over 1 million cattle in Africa every year. Scientists from the University of Edinburgh, UK, and the International Livestock Research Institute, have found that infecting healthy cattle with a *Theileria mutans* parasite - a close relative of the *Theileria parva* parasite that causes ECF - protects the majority of animals from the disease, while itself causing only a very mild infection. Out of 500 calves infected during the trials in western Kenya, an impressive eight out of nine were protected against ECF. Current vaccination practices for ECF typically involve infecting an animal and then treating it with antibiotics, to help the animal acquire immunity.

Work is also being scaled up to combat PPR ruminants, a highly contagious viral disease affecting sheep and goats. Earlier in 2015, Côte d'Ivoire hosted the first global conference for the eradication of the disease, in order to endorse a global eradication strategy. ■

Maina Waruru and Patrice Kouakou

DRUG PROVISION

Saving Malawi's flood-hit livestock

The Lilongwe Society for the Protection and Care of Animals (LSPCA) and the Ministry of Agriculture and Food Security have conducted a large scale programme to administer livestock drugs in three flood-hit districts of southern Malawi. Heavy rains in early 2015 contributed to numerous animal health problems, including pneumonia, lumpy skin disease, and foot rot, caused by water-logged soil. "The type of drugs that were delivered by LSPCA were in line with those diseases that we expected to emerge after the flooding situation, such as bacterial and protozoan," said Taurayi Mlewa, chief animal health and livestock officer.

Charles Mkoka

BIODIVERSITY

Combining conservation and tradition for development

Technical officers and traditional authorities are strengthening participatory governance in the Urok islands, Bijagós archipelago in Guinea-Bissau. The environment and local population are benefiting.

The EU considers the *Urok Osheni* project, created by NGOs Tiniguena and the Instituto Marquês de Valle Flôr, as a model for the region in protecting biodiversity and developing local communities. The initiative is based on strengthening the participatory governance process and building a sustainable development model.

Urok Osheni is managed by traditional and official authorities, community representatives, NGOs and research institutions. Communities have benefited through increased local entrepreneurship, rising youth educational attainment and protection of biodiversity.

One recent success was strengthening the inspection team, made up of community

COORDINATED ACTION

Satellite project tackles illegal fishing

In early 2015, Palau participated in the launch of Project Eyes on the Seas, a satellite technology-based system to monitor, detect, and respond to suspected illegal fishing activity. Within 24 hours of the launch, a suspected illegal fishing vessel, which had been monitored since December 2014, was apprehended through a process coordinated under the new system.

members, which controls environmental pressure as a result of hunters and fishermen. The team also monitors and identifies incidents where the balance of the ecosystem is harmed.

According to Tiniguena, *Urok Osheni*, which began in 2010 on three Urok islands (Formosa, Nago and Chediã), "is a pilot project for the rest of the archipelago of Bijagós." More than 30,000 inhabitants over 80 islands and islets make up the Community Protected Marine Area of Guinea-Bissau. ■

Sílvia Norte

FISHING

Weather text alerts

Over 1,000 Ugandan fishermen are receiving free SMS alerts to help them decide when and where to fish in Lake Victoria. Severe weather across the lake causes up to 5,000 fishermen deaths each year. The provision of text-based information is being facilitated by a partnership project between the World Meteorological Organisation and national meteorology departments in the Lake Victoria region. On a broader scale, the project aims to increase the livelihood security of both farmers and fishermen in the region, by strengthening climate observation, modelling and forecasting, and improving the sharing of information with local people.

James Karuga

ENERGY

Light for all

The town of Bambadinca, in eastern Guinea-Bissau, is now being lit by the first community-run renewable energy service in the country. Power is provided via a hybrid photovoltaic plant, which will supply the entire town at an affordable price. The participatory and sustainable management model was created by the Portuguese NGO, TESE, and its local partner, *Associação Comunitária para o Desenvolvimento do Sector de Bambadinca*, the community association for development in Bambadinca.

PLASTIC BAGS

Hurray for pandanus and vetiver

Mauritius has banned the manufacture and use of plastic bags with effect from 1 January 2016 in order to protect lagoons, rivers and streams. Alternative bags are made of pandanus leaves, vetiver and paper. At present, about 300 million plastic bags are produced every year for a population of 1.3 million people.

CLIMATE-SMART RESEARCH

Measuring GHG emissions from farming

The World Agroforestry Centre is working with around 1,200 households in Kenya's Rift Valley to quantify greenhouse gas emissions from farming systems. Scientists are sampling soils and advising on appropriate climate-smart agriculture practices in order to reduce emissions while increasing yields.

MIXED PLANTING

Bugging pests with biodiversity

Research by Bioversity International in Uganda has shown that mixed planting of pest-and-disease-resistant and susceptible varieties significantly reduces pest or disease incidence. In trials of a common bean variety, Kasirira, damage decreased by 50% when a resistant variety was mixed into the plot.

WATER RESOURCES

New map helps prevent disasters and develop farming

The mapping of 53 km² of river basins in Cabo Delgado, northern Mozambique, is now complete, providing an essential tool for drafting agricultural programmes and preventing natural disasters such as droughts and floods. The map, drawn with support from the EU and the Government of Galicia (Spain), will help define the irrigation infrastructure and the province's water supply. It will also greatly help in the prevention and management of natural disasters, providing information about the topography and geology of the region, its climate, demographic and socio-economic profile and an analysis of surface and underground water resources from the Megaruma, Messalo and Montepuez Rivers, as well as all the coastal river basins.

Sílvia Norte

ENERGY

Green coal is coming to mangroves' rescue

Madagascar lost almost 21% of its mangroves (57,000 ha) between 1990 and 2010. Using green coal is a way to limit the destruction.

Charcoal is the main source of energy in most developing countries, Madagascar included. Whether cooking, heating or even ironing, on average, Malagasies are burning 50-100 kg of charcoal per person, per year. This is the cause of severe damage to forests and an environmental threat. Some 150,000 ha of forests are destroyed each year for firewood, with additional losses to the country's mangroves, which initially covered an area of 325,000 ha.

To reduce the pressure on forest resources, in 2005 Chan Huchoc, a Malagasy entrepreneur, developed 'green coal', a coal made from organic materials, such as compost, wood chips, stems and leaves, which are burned in a specially designed kiln. The use of this innovation has spread across the northern part of Madagascar.

On the coastal island of Nosy Be in the Mozambique Channel, green coal is made from carbonised eucalyptus. Local people are being encouraged to use the green coal by a number of organisations, in particular the tourism industry association *Groupement interprofessionnel de l'hôtellerie et du tourisme de Nosy Be* (GIHTNB). Supported by the German cooperation agency GIZ, a huge reforestation programme has also been launched to plant eucalyptus in the northern region of Diana.



'Green coal' will soon be distributed year-round in northwestern Madagascar

Green coal has solved many of the energy problems faced by the local population, including fuel price and quality. The price of a 10 kg bag is stabilising at €2 while the cost of mangrove wood is increasing each year during the rainy season, up to €2.5. GIHTNB is now designing a year-round distribution network in order to provide Nosy Be with a convenient and continual supply.

Green coal appears to be a way to limit mangrove destruction. For its part, the government has created a national integrated management commission to research ways to protect mangroves while sustainably exploiting their fishery resources. ■

Mamy Andriatiana

WEATHER FORECASTING

Combining old and new knowledge

A collaboration between traditional rain-makers, meteorologists and community radio broadcasters in Kenya's Vihiga County has enabled farmers to receive accurate weather information. Nganyi RANET Community Radio is one of five stations established by the Kenya Meteorological Service to serve climate change prone areas. It builds on a programme under which rain-makers (who observe plant and animal behaviour) and meteorologists compare their predictions and look for convergence. Resource-poor farmers are provided with a wind-up radio and information is given in the local language. The Nganyi Ranet Community Resource Centre also has a weather station that delivers updates every ten minutes.

Pius Sawa

CLIMATE CHANGE

Drought-resistant beans

In Colombia, scientists from the International Center for Tropical Agriculture (CIAT) are evaluating bean varieties resistant to high temperatures. This is an important discovery as bean is a staple for poor people in developing countries.

Climate change will severely affect global agriculture. According to the Intergovernmental Panel on Climate Change, wheat, rice and maize yields could globally drop by more than 25% by 2030-2049. Climate-sensitive crops include bean,

Scientists are evaluating new bean varieties resistant to higher temperatures



© CIAT/N. Palmer

which is a staple for 400 million people across developing countries. Often known as 'the meat of the poor' in Latin America and Africa, bean is a major source of protein.

Based on a study using 19 global climate models, panellists have concluded that with the actual varieties and their cultivation requirements, areas adapted to bean production could be cut in half by 2050, says CIAT. Rising temperatures could particularly affect this crop in Brazil, Haiti, Honduras and Nicaragua. In Africa, severe consequences could be seen in DRC and Malawi, and to a lesser extent in Kenya, Tanzania and Uganda.

However, in the CIAT experimental station in Cali, south-western Colombia, scientists are evaluating new bean varieties resistant to high temperatures. These new varieties result from a cross between common beans widely cultivated and the very drought resistant 'teparý' bean, a species traditionally grown by Indians in the north of Mexico and in Arizona. Using these beans could limit the decrease in cultivated areas to 5% in case of a 3°C rise in temperature.

This discovery shows the importance of protecting and using the genetic diversity of plants. "Seeds from our gene bank are a vital asset to help farmers from developing countries to face climate change," says Ruben Echeverria, CIAT director. The new beans are going to be evaluated in Costa Rica and Mozambique. ■

Anne
Guillaume-Gentil

ACCESSIBLE FORECASTS

Mobile agro-weather tool

The Kenya Agricultural and Livestock Research Organisation (KALRO) has developed a real-time weather forecasting service for farmers. After registering online or on a mobile phone, farmers can obtain information concerning crops and weather risks, including seasonal, monthly and 5-day forecasts.

IMPROVED QUALITY

Plastic sacks reduce grain losses

In eastern Ethiopia, where it is customary to store grain in underground pits, over 3500 households have reduced grain loss from over 30% to less than 2% using pit storage bags (PSB) made from thick polyethylene plastic sheet. PSB-stored grains retain their nutritional quality and are largely mould-free.

INNOVATIVE TOOL

Zambian youth's new fertiliser applicator

Musenge Silwawa of the Zambia Centre for Horticulture Training, Chapula, has developed a simple fertiliser application machine. The fertiliser flows from a backpack into a hand-held pipe, which has a digging tool at the other end. By a single depression and release into the soil, the applicator digs a hole and delivers a standard quality of fertiliser.

REMOTE SENSING

Scrutinising sugar production

It is hard to estimate sugar production in small producing countries due to the diversity of cultivation practices and the multitude of field plots. The solution lies in remote sensing, a technology that uses satellite sensors and images to provide vegetative indices. These indices enable the calculation of cane yield on a plot level.

BEYOND COMPLIANCE

Fair trader standards revised

Fairtrade International has revised its trader standards in order to strengthen its core requirements, increase transparency and encourage importers, exporters and businesses to deepen their commitment to sustainable trading practices. A new set of voluntary best practices in sourcing, capacity building and environmental performance are included.

RICE

Restricting imports

In view of the increase in both quantity and quality of rice production, Senegal has decided to restrict rice imports to 500,000 t in 2015. With production estimated at around 270,000 t, this West African country is on track to reduce its dependency on imported rice, the primary cereal consumed by the Senegalese people.

TAXES

Boosting organic production

In Mauritius, in order to protect soils, the environment and consumer health, any local or foreign firm that produces organic food in the island is eligible for exemption from taxes for 8 years. The government's aim is that half of fruit and vegetable production will be organic by 2020.



Smallholders in Africa face difficulties in accessing improved seeds of staple crops

SEEDS

Mapping out the state of the African seed sector

The TASAI index maps out the strengths and weaknesses of the African seed sector. Presently implemented in four countries, it should cover 20 within two years.

The African Seed Access Index (TASAI) has been developed by the Cornell International Institute for Food, Agriculture and Development and the NGO Market Matters in response to the difficulties that smallholder farmers face in accessing improved seeds of staple crops, which continues to contribute to Africa's poor yields. TASAI maps out the strengths and weaknesses of the seed sector across African

countries. It monitors 16 indicators that are grouped into five categories: research and development, industry competitiveness, service to smallholder farmers, seed policy and regulations, and institutional support.

Initially, TASAI has been implemented in four pilot countries – Kenya, South Africa, Uganda and Zimbabwe – with highly differentiated results. In South Africa, the seed sector is competitive which enables farmers to get new seed varieties more rapidly than in Kenya (2 years), Uganda (3 years) and Zimbabwe (12 months). On the other hand, South Africa's results are not as good regarding the availability of seed in small packages, which are more adapted to smallholder farmers' needs and budget. Kenya's seed policy framework scores well, but its efforts to stamp out fake seed are poor. The index also shows that in the last three years, Kenya has released 35 maize varieties, South Africa 221, Uganda 12 and Zimbabwe 28. Within two years, the index should cover 20 countries. ■

Anne Guillaume-Gentil

RICH REWARDS

Commercialising indigenous plants in Zimbabwe

A 3 year programme to support product and market development, farmer and wild collector training, and Fair Trade and organic certification in rural areas of Zimbabwe has helped more than 8,000 smallholder farmers to commercialise underutilised indigenous plants, including baobab, devil's claw, rosella, and chili peppers. Participating farmers' average income rose from €25 per month to €95 per month, with the proportion of farming households facing moderate or severe hunger decreasing from 23% in 2012 to 17% by May 2013. The programme ended in December 2014, bringing benefits to twice as many farmers as initially projected.

M Makoni

These 6 pages were produced with contributions from: **N Ackbarally** (Mauritius), **M Andriatiana** (Madagascar), **B H Carreon** (Palau), **O Issa** (Niger), **J Karuga** (Kenya), **M A Konte** (Senegal), **P Kouakou** (Côte d'Ivoire), **M Makoni** (South Africa), **S Mbuguah** (Kenya), **C Mkoka** (Malawi), **N Mutemweno** (Zambia), **S Norte** (Mozambique), **P Sawa** (Kenya), **M Waruru** (Kenya)

Agriculture – in addition to generating produce – is a source of income for many people worldwide. Full inclusion of nutrition in specifically targeted agricultural policies would ensure a greater role for agriculture in combating malnutrition.

Strengthening ties



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Issatou Jallow:
Nutrition in the African Food
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Virtuous vegetable gardens

Twenty-two years after the first International Conference on Nutrition (ICN1), some 2,200 participants at ICN2 underlined the progress that has been achieved since then, with the proportion of undernourished people having declined by around 20%. Major challenges remain, however, including the new paradox known as the ‘double burden’, whereby malnutrition and overnutrition coexist.

The international community is increasingly mobilised in favour of nutrition. In 2013, the European Commission made nutrition a development objective and called for joint action, while pledging €3.1 billion in favour of nutrition-sensitive agriculture. These funds are earmarked mainly for food security and agricultural interventions. At ICN2, the EU and three international institutions, including CTA, also announced a collaboration to promote agriculture geared towards ensuring better nutrition.

Produce more by diversifying

Increasing agricultural production and productivity to meet the needs of a growing population is essential, and the avowed aim of all governments. The agricultural sector has faced increased pressure in recent years to be nutrition sensitive; boosting production is no longer automatically synonymous with reducing malnutrition. For instance, in the Sikasso region of Mali, malnutrition is chronic among young children despite a high agricultural production rate. Carbohydrate-rich, micronutrient-poor cereals account for most of people’s caloric intake. And this is not an isolated example.

Increased production should contribute to the food and nutritional security of the population and one way to achieve this is to diversify agricultural production towards horticulture, legume crops, dairy products, fish, poultry and livestock. Crop diversification can also enhance the soil structure and fertility, while facilitating the introduction of new and more sustainable farming practices and reducing risks for farmers, thus potentially improving their income.



Eggs against malnutrition

For poor families in Mauritius, the Movement for Food Self-Sufficiency (MAA) runs egg production micro-projects to combat malnutrition. Eggs are protein-rich and an excellent substitute for meat, which is too expensive for many families. They also help overcome the iron and protein deficiencies often affecting children. MAA provides poultry feed and poultry houses that can each host five to six laying hens, while training people on poultry rearing and egg marketing. The eggs are essentially for self-consumption, but families also sell surplus eggs to neighbours at less than the retail price. “People who have been trained are often able to develop their project to the tune of around 50 laying hens, which enables them to collect around 50 eggs a day,” says Eric Mangar, MAA Manager. All family members tend to be involved in these micro-projects, especially children, who maintain the poultry houses, collect eggs every morning and keep the accounts. These projects also represent an important economic activity, giving poor families an opportunity to start producing poultry on a small scale.

Nasseem Ackbarally

The biofortification of staple foods, such as rice, could provide a boost to nutrition and food security in ACP countries



© CIAT/N Palmer

Tapping biodiversity

Species that are under-exploited, forgotten or even threatened by climate change, deforestation and bush fires abound in the natural environment. Around 400 species of traditional vegetables and leafy vegetables exist in Africa, some of which have a high yet often unrecognised nutritional value. These traditional vegetables could be tapped to help overcome nutrient deficiencies. Moringa leaves, for example, can be dried, ground and added to sauces to take advantage of their high vitamin, mineral and protein content. Other examples include African locust beans and baobab. New Zealand spinach, grown in the Pacific Islands, has a high nutrient content, while breadfruit, which has been domesticated in Pacific and Caribbean countries, is calorie-rich and contains vitamins A, B and C, phosphorus and iron.

Promotion and awareness campaigns have led to a boom in the consumption of traditional vegetables in recent years. In Tanzania, it is estimated that traditional vegetables account for 70% of all vegetables cultivated and marketed in rural and peri-urban areas, while in Kenya there was a 135% market growth rate for these vegetables between 2002 and 2006. Focusing on vegetables, traditional or not, would help to curb obesity in the Pacific Islands and the West Indies, where high calorie/low nutrient processed foods are widely consumed.

Biofortification soars

The biofortification of staple foods could provide a way to overcome nutritional deficiencies. Substantial research is underway to increase the nutrient content of local cereal and legume varieties. HarvestPlus – a global alliance that aims to reduce micronutrient deficiencies – along with 60 partners worldwide, is developing biofortified crops. Some 10 million people in rural areas currently grow and eat biofortified foods, thus boosting their nutritional status, according to HarvestPlus. The case of beta-carotene-rich orange fleshed sweet potato is a prime example of this trend. Already cultivated in eight African countries, studies have confirmed its substantial nutritional value. High yielding iron-rich beans have been introduced in DRC, Nigeria, Rwanda and Uganda is promoting beta-carotene enriched cassava. Banana, wheat, maize and rice are also being biofortified.

For smallholders, biofortification requires an initial investment in new seeds, which must be adapted to local conditions and profitable; ongoing costs must also remain reasonable. Farmers can then preserve the seeds and share them with other members of their community. Biofortification is focused on staple food crops that are used to prepare familiar foods, but problems of community acceptance of these varieties may arise. Nutrients supplemented via biofortification should also be preserved during processing and preparation. Finally, the technologies used to create new varieties may sometimes involve GMOs, raising the issue of seed ownership and capacity building for local research organisations.

Developing the value chain

Small and large farmers have to cope with dietary transitions that arise as a result of urbanisation and lifestyle changes. That may simply involve facilitating urban people's access to fresh fruit and vegetables, as proposed by the 'Green Collar Jobs' project in Nigeria (see field report in *Spore* N° 176), to ensure a more direct link between farmers and the market. Processing and packaging are other options. These are promoted by FasoPro, a company that has been marketing bags of fresh, protein, iron- and omega 3-rich shea caterpillars ►

DOSSIER

► since 2014 to help overcome malnutrition. Sterilised caterpillars are highly appreciated in Burkina Faso and may be consumed year round. Foods can also be enriched during processing. Many countries, especially in the ECOWAS region, now oblige manufacturers to fortify flour with folic acid or to enrich refined vegetable oil with vitamin A.

The nutritional value of foods should also be preserved while limiting waste throughout the value chain. A lack of storage and refrigeration facilities, as well as transport infrastructure, is widely responsible for net losses of many foods, including vegetables, fruits and fish.

Educating and targeting

Food insecurity and nutrient deficiency mainly affect developing countries. Targeting the poorest and most vulnerable people is an integral part of the fight against malnutrition. Adopting a gender policy that fosters the empowerment of women in the agricultural sector is also beneficial. This has an impact on agricultural productivity but also on households, in terms of food, education and children's health. Awareness campaigns – via local radio programmes, fairs and schools, for example – are crucial in this regard.

Many initiatives target the most vulnerable people at individual and community levels. In Rwanda, for example, the 'One Cow Per Poor Family' programme,



Orange-fleshed sweet potato, rich in beta-carotene, is an excellent source of vitamin A and is crucial in the fight against malnutrition

The global state of malnutrition



795
million

People suffer from chronic malnutrition

220 million in sub-Saharan Africa

7.5 million in the Caribbean

600
million

adults are obese

2
billion

people suffer from 'hidden hunger' (micronutrient deficiency)

NUTRITION-SENSITIVE AGRICULTURAL POLICIES



Incorporate specific targets on nutrition



Develop monitoring indicators



Build capacity of people and institutions

HOW AGRICULTURE CAN CONTRIBUTE TO NUTRITION

DEVELOP VALUE CHAINS



UTILISE BIODIVERSITY



INCREASE AND DIVERSIFY PRODUCTION



AND INCOME LEVELS

TARGET THE MOST VULNERABLE



TARGET SMALLHOLDERS, PARTICULARLY WOMEN



Sources : FAO, FIDA, OMS, PAM

whereby a cow is given to poor or vulnerable families that live off less than 0.7 ha of land, has already benefitted over 100,000 households. At the community level, the increase in home gardens throughout Africa has enhanced the nutritional capacity of families through the harvesting of fruits and vegetables from these gardens. This produce is grown for self-consumption but can also be marketed, thus generating extra income for households (see our field report on Niger). School feeding programmes are another example. These are mainly implemented by the World Food Programme to ensure that school children get a meal every day, while also increasing awareness on nutrition, especially through the creation of vegetable gardens in schools. Whenever possible, these programmes are also based on local production, thus improving the economic situation for smallholders and the community overall.

Nutrition-oriented agricultural policies

Nutrition is still only barely (or not at all) taken into account in agricultural policies, which are focused more on production and productivity. This is one of the conclusions of an assessment by Save the Children of agricultural policies in 15 African countries and of the plans of 18 African countries under the Comprehensive Africa Agriculture Development Programme (CAADP). Nine of the latter 18 countries explicitly specified that improving nutrition was one of their goals, but few of them actually incorporate targeted objectives in their policies, accompanied by nutritional and food consumption indicators. Burundi and Ethiopia have nevertheless indicated that stunted growth in children should be reduced by 3%. Setting targeted objectives can help in developing monitoring indicators and assessing the results, while ensuring accountability.

In addition, people working in the agricultural sector should be trained on nutrition issues. In Burkina Faso, nutrition courses are included in national agronomy training programmes, and in Kenya, a domestic economy section was created within the Ministry of Agriculture, which is responsible for implementing the ministry's nutrition mandate.

The international community is increasingly aware of the importance of nutrition and agrees that it should be dealt with in a multi-sectoral manner, through a coordinated, long-term approach. Ministries of agriculture should play a full role in developing gateways with other ministries, while participating in inter-sectoral coordination structures, as well as developing and integrating nutritional indicators in their public policies.

ICN2 endorsed the Rome Declaration on Nutrition, which includes 60 measures to combat all forms of malnutrition. Following on from the conference, FAO created a special trust fund in favour of nutrition and has incorporated nutrition as a cross-cutting theme in the organisation's revised strategic framework. Family farms seem to be the ideal intermediaries for disseminating the nutrition-sensitive agriculture concept, while sustainably taking full advantage of high biodiversity. Clearly, the family farming and nutrition agendas overlap. ■

Anne Guillaume-Gentil

Viewpoint

Issatou Jallow is senior nutrition and partnership advisor and head, Food Security and Nutrition Programme, NEPAD Agency.



Nutrition in the African Food Security Framework

What has NEPAD done to integrate nutrition in the CAADP processes at country level?

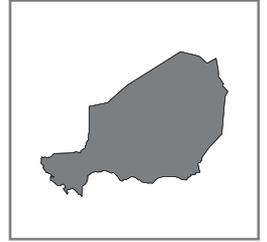
The Nutrition Capacity Development Initiative of the Comprehensive Africa Agriculture Development Programme (CAADP) was launched in 2011 following a review of the National Food Security Investment Plans (NAFISPS). This showed that nutrition had not been well integrated into CAADP country processes. Regional capacity development workshops were organised and multi-sectoral country teams from 49 countries developed roadmaps to address this shortcoming. However, integrating nutrition in NAFISPS was not enough; adequate domestic capacity and financial resources are also required. At the 41st session of the Committee on World Food Security in 2014, member states acknowledged the need to mobilise national resources. This is yet to be put into action.

What are the most important indicators when monitoring nutrition within the CAADP framework?

According to the 2014 Global Nutrition Report, only two out of the 54 countries in Africa are on track to meet the targets for reducing anaemia in women. This affects their health and productivity. Improvements in the nutritional status of women of reproductive age, adolescent girls and children under five, especially in households that depend on agriculture, need to be tracked.

How can the disconnect between agriculture and nutrition be overcome?

We need to focus more on the 'how to' and make resources available to bridge the gap. Phase 2 of the CAADP Nutrition Capacity Development Initiative will be developed and implemented through the regional economic communities. The Home Grown School Feeding Programme, a NEPAD flagship initiative, which benefits smallholder farmers especially women will become a continental programme. The Africa Day on Food and Nutrition Security will be our advocacy platform for promoting the agriculture and nutrition link and the soon to be revised and rebranded CAADP Pillar III Framework for African Food Security and Nutrition will be launched and implemented with the support of our partners.



Virtuous vegetable gardens

A community garden run by a women's cooperative in Niger helps feed the community and diversify its diet while providing an opportunity to generate extra income.

In Guillardjé, a small village in Dosso region, southwestern Niger, the quality of the daily diet of many households has improved in recent years through a community vegetable garden. This roughly 5 ha garden is tended to by a village women's cooperative with the support of a local NGO specialising in water systems and food security, along with *L'Organisation Nigérienne pour la Promotion de l'Hydraulique et du*

Développement à la Base, a Niger water and development organisation (ONPHDB), which promotes grassroots development, with a focus on water projects. Boureïma Garba of ONPHDB says that the idea of creating this vegetable garden for the benefit of women from the village emerged as a result of the cyclical food crises that have hit Niger, seriously affecting rural people who are exclusively dependent on rainfed crops for food.

The village chief allocated a field for the women's cooperative to grow vegetables and fruits on, ensuring a better diet for villagers



Combatting malnutrition

The aim of the community garden is twofold: to diversify the food production habits of Guilladjé residents in order to reduce their dependence on rainfed crops, which are vulnerable by nature, while simultaneously fighting malnutrition, a serious problem affecting children in a country where millet is the main staple food. The villagers have been readily involved in this initiative.

“The NGO approached the village chief regarding the project, who kindly offered a field to the women’s cooperative,” says Daouda Abdou, deputy mayor of Guilladjé. Once the land was obtained, ONPHDB created the conditions necessary to begin production activities by enclosing the site with wire fencing, building a modern well to facilitate access to water and supplying farming implements and inputs. An agricultural technician was provided to support and to help boost productivity.

Around 30 women cultivate the community vegetable garden and produce various vegetables (cabbages, tomato, carrots, cucumbers, okra, peppers, green beans), tubers (potatoes, sweet potatoes, cassava), fruit (melon, watermelon) and moringa, etc., under the supervision of the extension agent.

President of the cooperative, 50-year-old Oumou Seydou, cultivates a piece of land of around 300 m² at the site, with the help of her three daughters. “Our food habits have dramatically changed in the village since we began cultivating this vegetable garden. Before, households that managed to get two meals a day invariably prepared a breakfast of millet porridge, often without curdled milk, and dough seasoned with a baobab leaf and soumbala sauce for dinner,” she says. “We have now diversified our diet with the vegetables, tubers and fruit we produce and also earn money by selling part of the harvested crops,” she adds.

“Millet porridge is not the only food served daily. We

sometimes also prepare a stew made with potatoes, sweet potatoes or cassava along with the necessary condiments. In addition, we make very nutritious meals with cabbages, green beans and moringa leaves,” says Mariama Sambo. They also eat fruit, which offer a supplementary supply of calories and vitamins.

Surplus and savings

The surplus production is sold at local markets and the generated income has enabled some of these women farmers to launch into small livestock and poultry farming. “I initially bought two goats, a chicken and guinea fowl eggs with my savings, as of the second year of cultivating my plot. I now have about 10 dairy goats and guinea fowl which produce eggs to tide us over through the rainy season,” says Seydou, proud of her achievements. When sales are stagnant, the products are preserved by drying techniques that the women farmers have learnt.

The success of this initiative in the fight against malnutrition has fostered its dissemination to many other parts of the country with the help of national and international NGOs such as CARE, Action Against Hunger and Save the Children, among others. Some of these vegetable gardens are equipped with a drip irrigation system developed by researchers at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in 2010. This system has generated real momentum in the development of so-called ‘African vegetable gardens’ in several Sahelian countries. Some 7,000 smallholdings located in around 100 communities in Benin, Burkina Faso, Niger and Senegal are now equipped with this innovative irrigation system, thus enabling them – according to ICRISAT – to produce better, have a balanced diet, and make money. ■

Ousseini Issa

Women generate extra income from surplus production sold in local markets



A cracking opportunity

Containing many essential vitamins and minerals required for a healthy diet, eggs are an affordable and accessible source of high quality protein. Increased production of quality eggs for local markets is stimulating integrated efforts to supply poultry feed and layer chicks.

Worldwide, around 65 million t of eggs are produced each year, with 65% coming from medium and large-scale commercial producers, according to the Worldwatch Institute. Backyard systems are also a valuable, low-risk farming enterprise for small-scale farmers. For those with little resources, a few hens can be kept, fed largely through their own foraging, to provide eggs and even meat for the household. But many developing countries are working to expand their commercial poultry sector, and develop cost-efficient systems which can compete with the low-cost eggs imported from developed nations (e.g. the EU to Africa and the US to the Caribbean).

Successful examples of poultry sector development can be found throughout the ACP regions. In northern Rwanda, where rates of chronic malnutrition are high (over 40%), poultry farms have been set up to provide sufficient eggs for all children under five to eat one boiled egg each day. As well as providing an income to those employed on the farms, the eggs are transforming the health of pre-school children, who would otherwise eat few, if any livestock products. In the Caribbean, poultry production is vital in ensuring food security within the region. Recent years have seen encouraging growth in the sector, although despite this, significant amounts of chicken meat, eggs and egg products continue to be imported.



Demand for high-quality eggs for local markets is transforming domestic poultry sectors

Beating the competition

For egg production, Jamaica is the biggest contributor within the CARICOM region, providing over 80% of total regional output. With just over 2,000 small farms and 100 large facilities, the industry produced more than 130 million eggs in 2014; import of eggs is now only necessary if local production is impacted during the hurricane season. President of the Jamaica Egg Farmers Association, Roy Baker, attributes that success to the restructuring of the industry, which has included upgrading its production systems, ensuring compliance with standards and constructing a liquid egg plant. Established in 2007, the facility was built to meet the demands of the hospitality and commercial food sectors, which had previously preferred imported products. However, table egg production costs remains a challenge for many farmers due to the cost of feed, which is mainly imported.

In northern Mozambique, to compete against low quality imported eggs from neighbouring countries, Mozambique Fresh Eggs (MFE) uses an out-layer model by which small-scale farmers look after 500-1,000 specialised layer chicks supplied by a local hatchery. Land around the hatchery is used to grow soya and maize feed for the chicks, and is

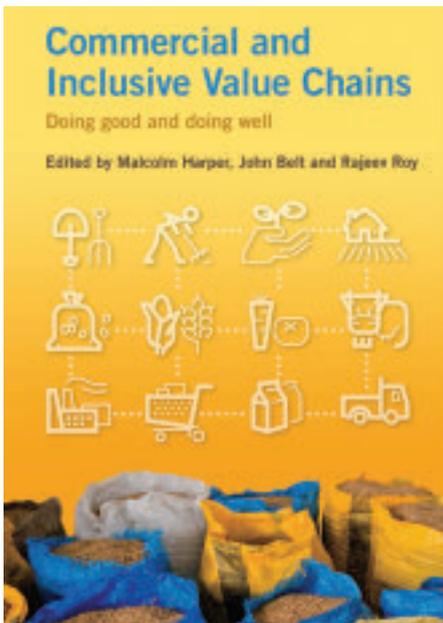
fertilised using the chicken manure. Eggs are collected from the farmers and transported for marketing by a sister company. MFE is currently working to upscale its model with an aim that the majority of eggs consumed within the region will be produced locally.

In the Pacific, Tonga is largely self-sufficient in eggs, although production is seasonal and dependent on the temperature. When supply is short, eggs are imported from New Zealand. The national market is dominated by Tonga's largest commercial egg and chicken producer, which contributes around 80% of production, selling to supermarkets and smaller retailers. Day old chicks and feed are currently imported from New Zealand by the company, with some being sold on to other poultry farms and small farmers. Whilst the company is interested in developing a more integrated value chain and establishing a hatchery for chicks, it recognises that this would involve significant costs and challenges, not least that half the chicks would be male. ■

Susanna Thorp

See also Spore 174 field report: Integrating poultry and poultry feed

Success factors



Commercial and Inclusive Value Chains: Doing Good and Doing Well

Edited by M Harper, J Belt & R Roy
Practical Action, 2015; 198 pp.
ISBN 978-178-044-867-1
£19.95 . €27
CTA No. 1841 20 credit points
Downloadable as a PDF file from:
<http://tinyurl.com/nf8vrwm>

actors, which frequently collapse when external support comes to an end.

In drawing together lessons from the case studies, the editors conclude that value chain success is aided when the 'micro-participants', such as small-scale farmers, are engaged in familiar activities and require little or no training in order to participate in the chain. Also important is that many players in the chain have access to alternative markets of similar value, which minimizes the risk of monopoly and exploitation. Each chain assists many poor people to improve their livelihoods, often in a more sustainable way than other types of development projects, and at no cost to donors, NGOs or governments. In addition, chains led by small businesses can often achieve a better match with the smallest and weakest producers, entering into balanced business relations with them.

The potential and limitations of value chains in the context of smallholder development are a hot topic at present, with some regarding them as a panacea for progress while others take a more cautious view. This excellent account of chains led by small business entrepreneurs makes a timely and well informed contribution to those discussions, and deserves to be widely read.

Managing displacement



Land Access and Resettlement: Guide to Best Practice

by G Reddy, E Smyth & M Steyn
Greenleaf, 2015; 425 pp.
ISBN 978-1-78353-213-1
£31.99 . €40
Green Leaf Publishing Ltd,
Aizlewood's Mill,
Nursery Street, Sheffield
S3 8GG, UK
www.greenleaf-publishing.com

■ Resettlement of communities, for example to make way for mineral extraction or large infrastructure projects such as dams, is under increasing scrutiny and pressure to 'get it right'. Poorly planned projects often underestimate the social impacts, and can have a devastating effect on communities. For companies, getting the process wrong can lead to protests, delays and inflated costs, as well as reputational damage.

This comprehensive, clearly written and supremely practical guide to land access and resettlement succeeds in demystifying the process, presenting a strong business case for doing it right, and drawing lessons from a multitude of project experiences in the developing world. It is written by and for practitioners, outlining the key steps to take and tools to use in planning, implementing and reviewing resettlement projects, and how to avoid common pitfalls along the way. Chapters include discussion of stakeholder engagement, compensation frameworks, and the planning and implementation of both physical resettlement and livelihood restoration.



This account of 15 profitable and inclusive value chains from Africa and Asia examines the factors behind value chain success and sustainability. Rather than focus on large scale chains led by international companies, the authors set out to document less well known chains led by small businesses. Examples include banana beer making in Tanzania, rice production in Malawi, green beans in Senegal and stove liners in Kenya. In each case, the driving force behind the chain have been profit-oriented entrepreneurs, in contrast with development-oriented chains promoted by NGOs or state

▼ Analysis tool



Value chains for horticultural and other high value Pacific Island products have often found short-term success, but lacked sustainability. This guide highlights the many opportunities to reduce failures and expand success, in order to achieve sustainable increases in income for value chain participants. It targets value chain members and the organisations that support them.

Agricultural Value Chain Guide for the Pacific Islands

By Koko Siga Pacific
CTA, 2014; 134 pp.
CTA no. 1837

Downloadable as a pdf file
from: <http://tinyurl.com/purmxbb>

▼ Policy review

Reviewing the major food policy issues, developments and decisions of 2014, and highlighting challenges and opportunities for 2015, this important report from the International Food Policy Research Institute (IFPRI) offers timely and expert analysis. Topics include helping small family farms to move into commercial production (or else supporting them to leave the sector completely), social protection for the rural poor, reducing and managing food scares, the importance of sanitation for nutrition, and the rise of aquaculture.

2014-15 Global Food Policy Report

IFPRI, 2015; 139 pp.
ISBN 978-0-89629-575-9

Downloadable as a pdf file from:
<http://tinyurl.com/pydecl8>

▼ CSA adoption factors

Based on surveys with over 700 men and women in two areas of Kenya, this working paper analyses the factors that are associated with the adoption of a wide range of climate-smart agricultural (CSA) practices, in order to improve the design and targeting of CSA interventions. It particularly focuses on the importance of gender, raising the broad issue that much greater awareness of CSA practices is needed if adoption is to become widespread.

Gender and Institutional Aspects of Climate Smart Agricultural Practices: Evidence from Kenya

By Q Bernier, R Meinzen-Dick, P Kristjanson *et al.*
CCAFS, 2015; 63 pp.
CCAFS Working Paper No. 79

Downloadable as a pdf file
from: <http://tinyurl.com/nhacyla>

Science showcase



Agricultural Innovations for Sustainable Development: Contributions from the 3rd Africa-wide Women and Young Professionals in Science Competitions
CTA, 2014; CD-ROM
ISBN 978-92-9081-560-0
CTA no. 1828
10 credit points

More information from:
<http://tinyurl.com/o5crn8>

 The 3rd Africa-Wide Women and Young Professionals in Science competitions, held during 2012-13, were an opportunity to showcase work being done by African women and young scientists in addressing the food and nutrition security challenge. This CD-ROM contains all the papers that were selected for the semi-final stages, and illustrates the huge diversity of work being done across the continent, and the need for such work to be both communicated and supported.

The range of subjects is huge, from high-tech genetic research, such as the winning entry in the young professionals' competition which mapped genetic resistance to stem rust in durum wheat, to simple, appropriate, practical technologies: the second placed entry in the women's competition is a labour-saving forage chopper for smallholder dairy farmers. CTA, the Forum for Agricultural Research in Africa and other partner organisations behind the competition urge African governments to meet the target of investing 1% of GDP in science, technology and innovation, so that such promising scientists can be properly trained, financed and equipped.

Increasing resilience

Having a diversity of crops and livestock on a farm, and even a diversity of varieties within a single crop, can act as an insurance against crop failure in the instance of a climate shock, such as a high temperature spike, frost or drought. Planting locally adapted species, such as leafy green vegetables in Kenya, is another strategy highlighted in this summary of how diversity in farms and landscapes can strengthen both adaptation and mitigation efforts in the face of climate change.

What Can Agricultural Biodiversity Do in the Fight Against Climate Change?

By Biodiversity International, 2015; 2 pp.

Downloadable as a pdf file from:
<http://tinyurl.com/osahz6n>

Limited impact



Open Data and Smallholder Food and Nutritional Security

By C Addison, A Jellema & W Meijninger,
CTA, 2015; 46 pp.
CTA Working Paper series
CTA no. 1842

Downloadable as PDF file from:
<http://tinyurl.com/nc2f64x>

 The increasing availability of 'open data', for example from governments, meteorological and satellite-based agencies, science organisations, NGOs and businesses, is transforming the amount of information in the public sphere, potentially enabling a far deeper and more timely analysis of current trends in many sectors. But to what extent is this data actually having an impact on the food and nutritional security of smallholder farmers in the developing world? This research paper examines that impact, and highlights some areas where potential opportunities are not being realised.

Broadly speaking, the direct impact of open data is less than perhaps it should be. The most influential data for smallholder farmers is connected to weather forecasting, but even here, applicability to the scale of smallholder farms is weak, and many farmers struggle to access the information. The greatest potential appears to lie with information gathering by mobile phone companies, which could support better production advice and stronger value chains, services and governance.

Nutrition

Efforts to introduce and promote vitamin A-rich orange fleshed sweet potato in Tanzania, as a means of boosting household nutrition in poor farming families, have failed to produce widespread uptake of the crop. This report draws lessons from that experience, making a number of recommendations for future work with biofortified crops, including the need to build a viable value chain so that farmers can sell as well as consume the crop, and the need for rigorous research on consumer preferences and willingness-to-pay.

Promoting Biofortified Crops for Nutrition: Lessons from Orange-fleshed Sweet Potato (OFSP) in Tanzania

By B Waized *et al.*
IDS, 2015; 25 pp.
IDS AG Level 2 Output ID: 11

Downloadable as a pdf file
from: <http://tinyurl.com/nbbbb2p>

Regional survey



Agricultural Open Data in the Caribbean: Institutional Perceptions, Key Issues and Opportunities

By M McNaughton & D Soutar
CTA, 2015; 28 pp.
CTA Working Paper series
CTA no. 1843

Downloadable as a pdf file from:
<http://tinyurl.com/pqzjg5h>

 This working paper investigates the attitudes and perceptions of a number of key stakeholders in the Caribbean agricultural sector regarding the value of open data in helping to address development challenges. Secondly, it suggests how CTA and other allied organisations can support greater adoption of agricultural open data policies and practices across the region.

In online and in depth surveys, over 90% of respondents believed open data was either very important or important to the agricultural sector in their country, with application of data particularly valued in the context of measuring the impact of climate change on crop yields, managing farm and asset registration, and the development of market information systems. However, most respondents' awareness of open data resources and publishers was limited, this being a key constraint to greater data usage. The tendency for most information to be shared by manual means rather than electronic proved to be another significant impediment to access, sharing and usage of data in the region.

Labour and finance

While agricultural productivity is growing in sub-Saharan Africa at a faster rate (3.4% per year) than in the past, it still lags behind other developing world regions. This discussion paper considers the importance of inputs, such as human labour or financial capital, in understanding productivity growth. It emphasises the need for technologies to match the 'input mix' of a particular country; mechanisation, in the form of tractor usage, for example, will not always be the right approach to increasing productivity.

Inputs, Productivity and Agricultural Growth in Africa South of the Sahara

By A Nin-Pratt
IFPRI, 2015; 52 pp.
IFPRI Discussion Paper 01432

Downloadable as a pdf file
<http://tinyurl.com/o8n27bm>

Restoring lives



Natural Resources and Post-Conflict Peacebuilding

Edited by H Young & L Goldman, Routledge, 2015; 518 pp. ISBN 978-18-497-1233-0 £49.99 . €69
Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4 RN, UK
www.routledge.com

Restoring and maintaining local livelihoods following conflict is one of the most critical elements in the recovery process. Without it, ex-combatants can all too easily turn to banditry, perpetuating an insecurity that undermines the rebuilding of productive lives, whether of individuals, households or the state. But recovery efforts may face significant challenges from the degradation of natural resources during war, and the weakening of people's access to what resources remain.

Drawing on examples from Africa, Asia, Europe and Latin America, this collection of case studies and analyses includes the challenge of peace-building in the Karimojong Cluster of Uganda and Kenya, in the context of pastoralism and scarce resources. A section on innovative livelihood approaches includes a chapter on the development of mountain gorilla tourism in DRC, Rwanda and Uganda, while the retraining of former soldiers to act as park rangers and wildlife managers in Mozambique's Gorongosa National Park is another encouraging example of finding positive ways forward after war.

▼ Conceptual questioning

The term 'sustainable intensification' is frequently touted as the way to feed our expanding population. But, say the authors, there is a danger that it encourages too narrow a focus on crop production, and is being used to justify intensive, high-input models of production. They argue it should be considered as one element within a wider perspective on food systems, encompassing issues such as farmers' property rights and reduction of food waste, with sustainability understood to include social justice, economic viability and environmental soundness.

Sustainable Intensification Revisited

By S Cook, L Silici, B Adolph & S Walker
IIED, 2015; 32 pp.
ISBN: 978-1-78431-185-8

Downloadable as a pdf file
from: <http://tinyurl.com/q7xbom4>

Energy from waste



Small-Acale Rural Biogas Programmes

By D Fulford
Practical Action publishing, 2015; 248 pp.
ISBN 978-1-85339-850-6
£19.95 . €28
Practical Action Publishing
The Schumacher Centre
Bourton on Dunsmore
Rugby
CV23 9QZ, UK
www.developmentbookshop.com

Rural biogas programmes have achieved considerable success in a number of Asian countries – notably China, India and Nepal – enabling farming families to generate their own cooking gas from household and farm wastes, while also reducing deforestation and producing a rich and relatively odour-free slurry for soil enrichment. In terms of ACP countries, the history of biogas has been less positive, however, marked by numerous projects that have proved unsustainable once support is withdrawn.

Despite this, the advantages of biogas remain well proven, with the current drive towards renewable, green energies strengthening their case further. This extremely comprehensive guide to biogas extension programmes, and to the technology itself, is essential reading for anyone with an interest in setting up or supporting a biogas initiative in a developing country. Chapters range from the history and chemistry of biogas production to the economic and organisational challenges of implementing a programme; technical details are provided for those working at field level.

▼ Empowerment

Women's ownership or control of assets is important, linked with positive development outcomes for both individual women and their households. So how can agricultural development programmes incorporate a focus on assets and gender into their design? Drawing on examples from seven countries in Africa and South Asia, this report highlights how assets are frequently neglected in the development process and suggests ways of improving this in future projects.

Gender, Assets and Agricultural Development: Lessons from Eight Projects

By N L Johnson, C Kovarik, R Meinzen-Dick, J Njuki & A Quisumbing
IFPRI, 2015; 36 pp.
IFPRI Discussion Paper 01436

Downloadable as a pdf file
from: <http://tinyurl.com/oqekfeg>

Working with uncertainty



Valuing Variability: New Perspectives on Climate Resilient Drylands Development

By S Kratli
IIED, 2015; 9 pp.
ISBN 978-1-78431-157-5
Downloadable as a pdf from:
<http://tinyurl.com/plcqcka>

Most agricultural development strategies operating in the drylands, says Kratli, attempt to control the uncertainties associated with rainfall, for example by introducing irrigation and high yielding crop varieties. But in areas where variability is a part of the environmental fabric, such attempts to control it are normally very costly, can undermine local economies and livelihoods and risk creating inequality, degradation and conflict. A more successful approach to dryland development is to work with climate variability, and take advantage of it.

For dryland livestock herders, for example, scattered rainfall is an advantage, since different areas of grazing are reaching their nutritional peak at different times, allowing herders to find good fodder over a much longer period. In addition, the most nutritious fodder is produced when rainfall is only enough to allow limited growth. By drawing on examples such as these, this fascinating, clearly written and well-presented book provides much food for thought on ways forward for dryland development.

▼ Growth strategies

Examining patterns of agricultural intensification in 40 African countries, this study pays particular attention to the role played by fertiliser in supporting increased farm production. The findings show that in half the countries under study – those with relatively low population density – agricultural production has been largely increased through cultivation of new areas of land, combined with a reduction in fallow periods and increased double cropping.

Agricultural Intensification in Africa: A Regional Analysis

By A Nin-Pratt
IFPRI, 2015; 44 pp.
IFPRI Discussion Paper 01433

Downloadable as a pdf file from:
<http://tinyurl.com/oaep38d>

Food history



The Nature of Crops: How We Came to Eat the Plants We Do

By J Warren
CABI, 2015; 184 pp.
ISBN 978-1-78064-509-4
£19.95 . €28
CABI, Nosworthy Way
Wallingford, Oxfordshire
OX10 8DE, UK
www.cabi.org

■ There are an estimated 400,000 species of plant on Earth, of which over half are edible to humans. Yet even when considering diets from varying climates and cultures across the globe, our species routinely eats only around 200 plant species, and over half of our plant-derived calories come from just three: maize, wheat and rice. So are their good biological reasons for our conservative tastes, or is mankind just unadventurous and predictable? In attempting to answer that question, this book offers fascinating and highly entertaining reading.

The process of domesticating crops from wild relatives without being poisoned is at the heart of the matter. Over millennia, human beings have adopted several strategies to do this, for example by selecting plants with lower levels of toxic chemicals and inventing processing methods that make them safer to eat. At the same time, our own biology has adapted to be better able to digest them. Using a series of crop biographies as case studies, *The Nature of Crops* combines science, history and humour in a way that will have wide appeal.

▼ Bridging the divide

How might digital technologies contribute to or damage development efforts over the next 15 years, and how should development practitioners and policymakers respond? In answering these questions, the authors argue that strategies to deliver universal access and inclusive knowledge will be needed if digital divides between the rich and poor are to be closed. Involving poor people in developing knowledge infrastructure, and encouraging research institutions and governments to pursue open knowledge, are other core principles to be followed.

The Future of Knowledge Sharing in a Digital Age: Exploring Impacts and Policy Implications for Development

By J M Brownlee, R Playforth & N Bimbe
IDS, 2015; 76 pp.
IDS Evidence Report 125
Downloadable as a pdf file
from: <http://tinyurl.com/nb7g4hg>

Protecting local resources



Community Seed Banks: Origins, evolution and Prospects

R Vernoy, P Shrestha & B Sthapit
Routledge, 2015; 294 pp.
ISBN 978-0-415-70806-7
£29.99 . €42
For Routledge's address, see p. 23

■ Designed to conserve, restore, revitalise, strengthen and improve local seed systems, with an emphasis on local seed varieties, community seed banks have been around for some 30 years. Recent years have seen a rapid growth in their number, organisational diversity and geographical spread, but despite this, there has been relatively little recognition of their contribution to smallholder farming livelihoods or biodiversity conservation.

This book offers a detailed analysis of various key aspects of the operation of community seed banks, including their origins and evolution, the wide variety of functions that different models support, the policy and legal environment they operate in, and the vital matter of sustainability. This analysis is complemented by 35 case studies from around the world, highlighting individual seed banks, and the organisations and policies that support them. ACP examples include initiatives in Burundi, Mali, Rwanda, South Africa, Trinidad and Tobago, and Zimbabwe. There are also many further valuable examples from Asia and Latin America.

▼ Soil fertility

Lack of knowledge on crop nutrition and poor access to appropriate, high quality fertilisers are just two factors that undermine smallholder productivity, according to Kari Niedfeldt Thomas of the Mosaic Company Foundation. In this online video talk, she explains how properly-informed fertiliser usage can move farmers from a downward spiral of poverty and declining soil fertility to an upward, positive spiral of growing productivity and wealth. One in a series of IFAD AgTalks that aim to spur new thinking on how to feed the world.

Essential Elements, IFAD AgTalk

By K N Thomas
IFAD, 2015; 19 mins

Viewable at:
<http://tinyurl.com/pfwsd2b>

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ICTs – a vital means for agricultural and rural development

Information and communication technologies (ICTs) could transform agricultural activities in many parts of the world. In some countries, ICTs are helping farmers to increase their yields and income, but much more remains to be done.

Benjamin Addom, CTA programme coordinator, ICT for development, tells us more about the importance of ICTs for improving rural livelihoods by enhancing access to information.



1 What does ICT4Ag involve at CTA?

ICT4Ag at CTA is based on the principle that ICTs are useful tools and should be exploited, based on their function, within any given sector. CTA uses ICTs to achieve its mission to advance food and nutritional security in ACP countries. ICTs are used to champion practical, cost-effective and scalable solutions that impact lives. We keep our stakeholders up-to-date on emerging innovations in ICTs; support them to identify viable ICT4Ag solutions; strengthen their capacities in using these solutions; and provide platforms for deliberations with policymakers. CTA's ICT4Ag strategy is holistic and forward-looking, including all stakeholder groups both in its design and use. CTA is aware that the use of ICTs in agriculture is not new but we are convinced that its recent rise in popularity is here to stay; ICTs have high potential to transform agriculture.

2 To what extent do ICT4Ag capacity building activities play a crucial role in enhancing access to agricultural and rural development information in ACP countries?

The question is, ICT capacity building for what? We emphasise capacity building in ICTs for agricultural and rural development: ICTs are the “means” rather than the “end”. We also believe that capacity building goes beyond training to the provision of relevant resources. ICT4Ag capacity building has three levels of stakeholder: institutional, grassroots, and the individual. Institutionally, emphasis is placed on how partners use ICTs to improve collaborative production and sharing of content, for example Web 2.0 and social media training opportunities. At a grassroots level, we aim to empower communities through demand-driven, user-friendly and integrated applications, such as the Participatory Geographic Information System. At an individual level, we aim to build capacity of the individual user to adopt and use these applications for agriculture, for example Apps4Ag learning opportunities.

3 What would be your three main recommendations to decision-makers in order to create an enabling environment for adoption of ICT4Ag?

i) *Need for political buy-in:* We need more high-level politicians in ACP countries to be actively involved. By this I mean digital champions and ambassadors who are passionate about those at the grassroots being able to take advantage of this revolution in ICTs for agriculture. Without political buy-in, we risk losing the current momentum.

ii) *Support sound e-agricultural strategy development and promotion:* At the moment the field of ICT4Ag at a national level is at

the mercy of the value-added services and mobile network operators. There is a lack of systematic dissemination of information using ICTs. We need our policymakers to step in and support sector strategies for better service provision.

iii) *Ensure a conducive atmosphere for private sector investment in ICTs:* Hundreds of thousands of fibre optic cables have been installed. It is time for national governments to put in place appropriate policies and strategies for the strategic distribution of cables. Without this, cables will run along one profitable route, detrimental to agricultural stakeholders in rural areas.

4 Are smallholder farmers and fisherfolk in ACP countries really benefiting from the digital revolution?

This is a challenging question. My answer is yes and no. Yes, because we have evidence of ICTs' impact on users. No, because we can literally count those success stories. The majority of target users are yet to join the revolution. We see and read anecdotal cases of impact here and there but we are also aware that uptake by millions of smallholders remains very low. Our experience tells us that the issue is about more than just access to technology, but the innovative use of these technologies. ICTs are more than single mobile applications; they involve the convergence of various channels. CTA has recently initiated *Building Viable Delivery Models for ICT4Ag*, within which, 'proof of concept' projects serving to demonstrate how ICTs can empower smallholder farmers economically through viable models, are being explored. We believe that, through collaboration and partnership, millions of smallholder farmers across the developing world can benefit from the potential of new ICTs for agricultural development.

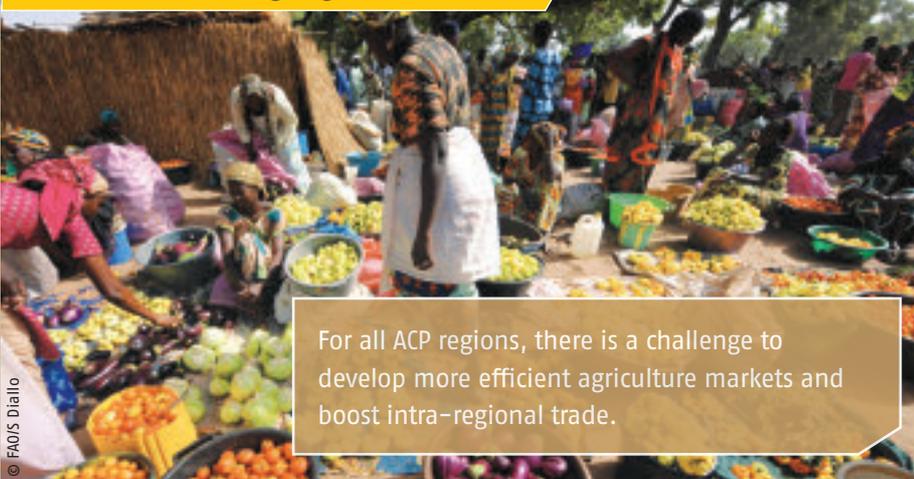
TRENDS | Agricultural protectionism



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Should ACP countries do more to protect their agriculture on behalf of their food sovereignty and domestic markets?

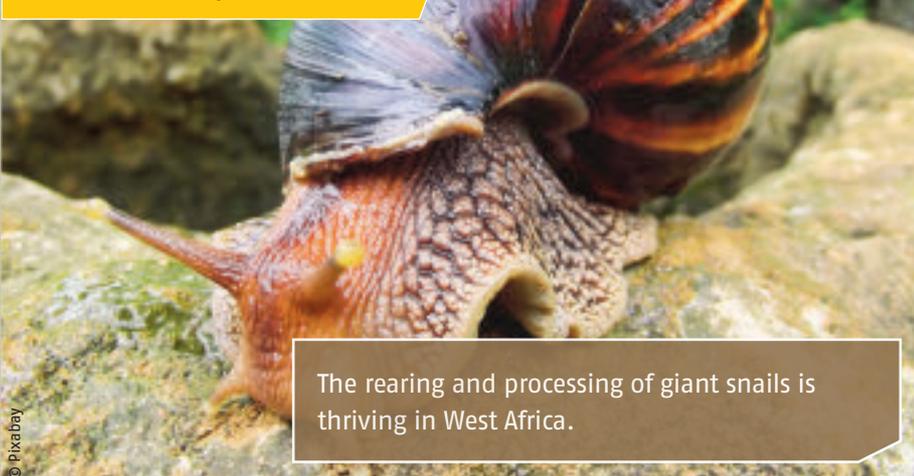
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For all ACP regions, there is a challenge to develop more efficient agriculture markets and boost intra-regional trade.

VALUE CHAINS | Giant Snails



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