

Food products

Soaring prices

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By Prosper Mondé

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Inadequate production levels, oil price hikes and a new fad for biofuels are making food costs soar. The trend spells disaster for the poorest consumers, but offers opportunities for farmers in the South.

Cars pelted with stones, tyres burned, petrol stations looted: Bobo Dioulasso, a major town in western Burkina Faso, had never seen such displays of violence and vandalism. On 20 February 2008, a demonstration against the high cost of living – the price of some products having risen by 65% in January – got out of hand. Food riots are becoming more and more frequent in Cameroon, Guinea and Senegal, as well as in other countries, such as Morocco and Yemen.

In the North as in the South, shopping for food is becoming more expensive with each day that passes, especially in places where most food products have to be imported, such as the Caribbean islands. The poorest people are finding it increasingly difficult to feed themselves. In Haiti, 6 out of every 10 people do not have enough to eat and some calm their hunger pangs with biscuits made of clay. The rising cost of food aid, now forcing some donors to restrict the volume, is compounding the problem.

The FAO Food Price Index has increased by almost 36%. "The cost of living is rising all the time: for example, the price of a kilo of salt has risen from RWF150 to 300 (€0.2 to 0.4), a litre of oil from RWF700 to 1,200 (€0.85 to 1.4)," complains a Rwandan farmer.

Bewildered citizens are calling on their governments to bring prices down to a level that is acceptable to all. "The government should do something. If it doesn't there will soon be nothing left that consumers can afford," said the spokesman for Burundi's consumer association at the end of 2007.

For the time being, there is little that authorities in either the South or the North can do, for the general price rises are linked to a range of factors currently affecting world markets, exacerbated in some African countries by mediocre or poor harvests.

Inadequate supply

Demand for food products is climbing rapidly. The population growth – more than 28 million new mouths to feed each year – is not the only reason. Improvements in living standards are driving consumer demand and changes in eating habits in emerging countries, contributing to the overheating of the food-based economy. Annual per capita meat consumption in China has jumped from 20 to 50 kg in less than 30 years. Almost half the global output of cereals is used to feed livestock.

Unfortunately, supply is failing to match this growth in demand. Global wheat production, for example, is inadequate. Drought in Australia, a major producer, coupled with a fall in the quantity of land given over to wheat production in Europe have led to a sharp drop in stockpiles and massive price hikes – wheat prices rose by 83% between January 2007 and the beginning of 2008. The price of bread soon followed. In Swaziland, half the population lives on less than one dollar a day, not even enough to buy a loaf of bread at today's prices.

Supplies of rice, imported in large quantities by many ACP countries, are dwindling on the world market due to growing consumer demand. India has opted to keep its rice for the domestic market, Pakistan is having trouble exporting its crop due to political insta-

year. In the EU, the amount of wheat turned into biofuel is expected to increase twelvefold between now and 2016.

This downturn in supply has a knock-on effect for the majority of the world's most commonly traded food products. Livestock has been particularly hard hit by price rises for cereals and fodder, especially maize, and the cost of its products strongly reflects these hikes. The price of milk has risen by 80 to 200%. Poultry prices have climbed by 10% globally.

The expansion of land areas sown with maize has resulted in a 6% drop in those used to grow soya, the world's major oil-producing crop. Contributing to the relentless growth in price is the strong demand for vegetable oils to make biodiesel. According to FAO, the price of oils and fats has risen by 70% in just a year. "So, for example, palm oil in Africa, which is used for biofuel, is now being priced at the fuel price which people cannot afford," said Josette Sheeran, Executive Director of the World Food Programme. Oil prices have also spiked to over US\$100 a barrel – more than twice the figure of a year ago. As a result, the cost of sea freight has virtually doubled, which has led to an increase in the cost of imports, while road transport places a heavy burden on the economies of land-locked countries. Local products are also affected by rising fuel costs. Oil prices have an impact on the manufacture of fertiliser and other chemical products needed for crop cultivation.

A combination of these factors caused the cost of food imports in developing countries to soar by 25% in 2007 and those of cereals to climb by 35%, according to FAO, which forecasts similar increases in 2008.

An opportunity for farmers

In spite of the evident anger of their people, governments have few options available to cushion the price hikes in the short term. They can lower import duties, as Senegal has done. In September 2007, it abolished the 10% tax on rice imports. At the beginning of March 2008, Burkina Faso removed import duties on rice, milk and salt.

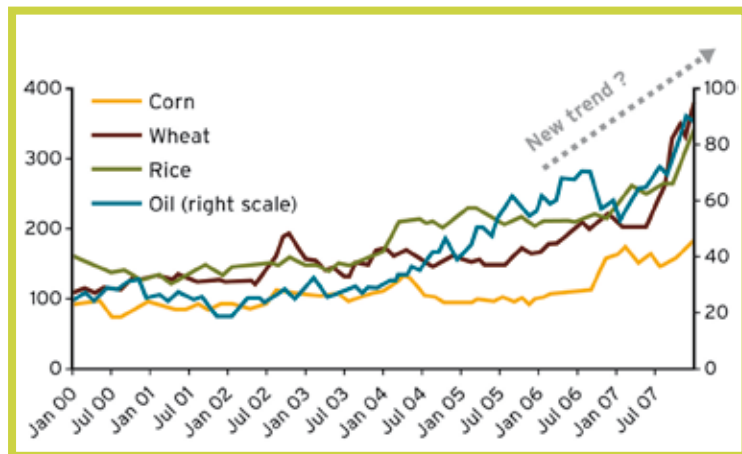
Other possibilities include banning exports and subsidising the purchase of certain staple food products. Since January 2008, Jamaica has been doing this for five major commodities. At the beginning of March, CARICOM also proposed removing import taxes on a range of products in a bid to slow down the rise in food prices, which has reached 40% in the poorest islands.

However, these difficulties can also offer opportunities for farmers as local production becomes more competitive in order to feed people living in towns. Increasing outputs of food crops, especially cereals, as well as productivity is now imperative for many countries faced with food deficits – shortfalls that have been exacerbated in recent years by the vagaries of climate change. That means proactive policies to support farmers, help them buy inputs and materials and keep prices buoyant. Since 2005, Malawi has managed to increase maize output by 73% thanks to a vigorous policy of subsidies for seeds and fertilisers.

One strategy to cut consumption of imported products is to make more use of local cereals, especially in bread manufacturing. Nigeria has been doing this since 2005, making it obligatory for bakers to incorporate 10% of cassava flour in bread. The same thing is happening in Jamaica, where cassava-based bammy bread is proving increasingly popular. In St. Lucia, local poultry production is enjoying a revival as the search is stepped up for substitutes to imported maize as feed. Food security is more in the spotlight than ever. ■

Surge in cereal and oil prices

Commodity prices (US\$/ton)



Joachim von Braun, IFPRI, February 2008
Source: data from FAO 2007 and IMF 2007

bility and Vietnam has little available for sale. So it is hardly surprising that the price of rice delivered to Dakar rose from US\$400 to 500/t between January and February 2008. Such price hikes have an impact on the cost of local products, especially in cases where production is limited. The price of South African maize exported to a number of southern African countries has risen by 31% in a year, gravely compromising the food security of communities in Katanga, southern Democratic Republic of Congo, amongst others.

Biofuel and oil prices

Shortfalls in food products are also linked to the rapid advance of biofuel crops. The case of maize offers a dramatic illustration. USA used 54 million t of maize for ethanol production in 2006/7. Maize prices rocketed at the beginning of 2007, before increased output helped stabilise the figure at 30% higher than the previous



Photo: © Terre Nouricière



DIY fish farming

At Badara, one of Kinshasa's new districts, not far from the N'djili international airport, young would-be fish farmers have devised a simple and cost-free culture system based on 'fish wells'. They dig 5 x 5 m and 1 m deep holes along the river Ntsangu and link these wells to the river by a small 3 m x 30 cm channel. After a week – the time needed to catch fish – they close off the channels with a dam made of twigs.

For 3 months, the youngsters raise these fish, together with others taken from various rivers in the capital. They feed them three



Photo: © Syfia International

times a week with any plant and animal waste that comes to hand – cassava leaves, maize bran, poultry and fish waste and even pig dung. The wells are then drained and the fish harvested (up to 100 kg per well). The sale of fish has enabled some young people

to start small businesses or to go into small-scale fish farming. This simple method requires no start-up costs, but it does need copious supplies of willingness and hard work. Other young people in various neighbourhoods are starting to follow suit.

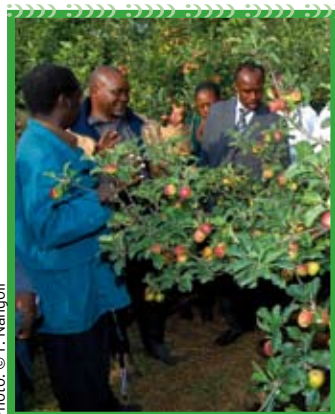


Photo: © F. Nangoli

Apples from Uganda

When agricultural researchers started trials for apple growing in the highlands of western Uganda in 2003 (see *Spore* 112), many local farmers refused to take them

seriously. The farmers believed that apples could only thrive in countries with cold climates. Today, researchers at the Kachwekano Agricultural Research and Development Centre in Kabale have proved beyond doubt that apple trees can do well in Uganda. The climate in these highlands, which are close to the snow-capped Rwenzori Mountains and stand at 2,100 m above sea level, has also proved suitable for growing plums and pears.

Agricultural researcher Gard Turyamureeba says Ugandan apple growers have an advantage over fruit farmers in Europe or South Africa: their proximity to the equator means they can produce two crops per year instead of one. "The apples have proved the tastiest fruits around. They are also juicier compared to the ones we import," he said.

Uganda's apples command higher prices than tropical fruits such as pineapples and passion fruit. To date, more than 1,000 farmers have started growing apples to supply the domestic



Photo: © F. Nangoli

market as well as the neighbouring countries of Burundi, DR Congo, Rwanda and Tanzania.

Charles Rutaro, chairman of the Kabale District Farmers' Association, says the number of new farmers taking up apple growing is overwhelming. Presently, apple seedlings are imported from Germany and South Africa. But a number of challenges threaten this flourishing new sector. Birds and thieves are giving many farmers sleepless nights.

Energetic coffee

Lafarge's Hima cement works in Uganda has cut fuel consumption by about 10% and reduced its energy bill by using clean, dry coffee husks as fuel. Coffee accounts for more than 50% of Ugandan exports and, after harvesting, the husks are used as landfill or as fertiliser by farmers. At present, fuel for the factory has to be brought in by road tanker from Mombasa, Kenya, 1,500 km away – a solution that is both expensive and costly in terms of CO₂ emissions.

It's a small world

Papua New Guinea's multi-million dollar coffee industry has suffered a series of delays in exports due to recent flooding in Bangladesh and Pakistan. A lack of jute sacks, generally sourced from these two countries, has forced some producers to stop harvesting their coffee beans, others have had to store tonnes of beans in warehouses.

Home studying

The Massachusetts Institute of Technology (MIT), one of USA's best known private universities, has made all 1,800 courses in its curriculum (environmental sciences, computer studies, physics...) available free on-line, using an open source system called *OpenCourseWare (OCW)*. Each month, some 1.5 million surfers, most of them based outside the USA, follow the lessons and lectures in PDF, audio and video formats, some are also translated into French and Portuguese. MIT is working with other universities to help them set up their own OCW.

<http://ocw.mit.edu/OcwWeb/web/home/home/index.htm>

For further information

Biocarburants canalblog

<http://biocarburants.canalblog.com>
(in French)

IFPRI

International Food Policy Research Institute

• **Food Policy Report No. 18**
The World Food Situation
New Driving Forces
and Required Actions

By J von Braun

Illustrated with good tables
www.ifpri.cgiar.org/pubs/fpr/pr18.asp#sendfb

• **IFPRI's Africa Strategy**
Toward Food and Nutrition
Security in Africa

January 2007

www.ifpri.org/pubs/books/gi20.asp

FIVIMS

Towards an Improved Understanding of Food Insecurity and Vulnerability
www.fivims.net/index.jsp?lang=en

GIEWS

Global Information and Early Warning System
Indicators, alert bulletins, reports, maps: comprehensive website on food and agriculture issues, especially in Africa
www.fao.org/giews/english/index.htm

Poverty mapping

Promoting the use of poverty maps in policy making and targeting assistance, particularly in the areas of food security
www.povertymap.net

Successful rice



Photo: © G. Atser

▣ Farmers in Nigeria are cashing in on a boom for a local variety of rice. Consumption of *Ofada* rice is on the increase, with fast-food restaurants and supermarkets selling it. Although *Ofada* is an indigenous variety, poor processing techniques meant that until recently most Nigerians preferred imported rice. But the situation is changing, thanks to PrOpCom, a programme funded by the UK Department for International Development. It has installed rice milling machines in Koba, Ogun State, and parboiling machines in Kano State.

"We are seeing growing demand for *Ofada*, because it is without stones and nutritious," said Bode Adenekan who heads the State chapter

of the Rice Farmers' Association of Nigeria. "Major supermarkets are placing orders for it. It is also exported to the United Kingdom." In 2006, before *Ofada* became popular, Nigeria's rice import bill was US\$1 billion (£695 million).

According to John Lichte, Commodity Advisor to PrOpCom, the programme has resulted in increased incomes for farmers, women and unemployed youths. "For instance, marketers are now doubling the fee paid to women parboilers from N150 (€0.80) per bag to N300 (€1.60) per bag," he said.

In Niger, two new varieties of rice have been introduced: *Kongoni 91-1* or *gambiaka* from Mali, and *Chiannung Sen yu 30*, of Chinese origin. These varieties are the fruit of a joint initiative between the

rice support programme PAFRIZ and Niger's agricultural research institute INRAN. Chiannung rice is grown in the rainy season, producing a yield that is 11% greater than that of local rice. The *gambiaka* variety is cultivated in the dry season, producing a yield that is 9% greater than that of local rice. Their average yield is around 7 t/ha. Asked about the new varieties, small-scale farmers say they like "their yield, the size of the rice grains, their tendency to put out new side shoots, the height of the plants and their resistance to disease". Their rapid growth means that they also smother weeds.

Encouraged by the success of field trials, Niger's Ministry of Agricultural Development has begun distributing both varieties for planting on irrigated farmland.

Promotion for Cape Verde

▣ In January 2008, Cape Verde graduated from the Least Developed Countries (LDC) group, as Botswana did in 1994. In order to be promoted to the status of a developing country, Cape Verde, considered exemplary as far as good governance and political stability are concerned, had to fulfil two of three criteria: its annual per capita income rose from about US\$300 in 1974 to today's figure of more than US\$3,000 and its human assets index, now 0.721, outstrips the global average of 0.695.

WTO food safety database

The World Trade Organisation (WTO) has launched a searchable database of food safety requirements in member countries. The SPS Information Management System (SPS IMS), which documents food, animal and plant safety measures, is designed to help producers meet export criteria for markets. It offers information on new and existing safety requirements, specific trade concerns raised by governments, documents from the WTO's sanitary and phytosanitary measures committee, member governments' national enquiry contacts, and those of authorities who handle notifications.

<http://spsims.wto.org>

The third criterion, relating to economic vulnerability and measured by an index, remains a significant challenge. Cape Verde is a small island state with no major natural resources. It has to wage a constant battle against environmental and social difficulties as a result of its weak productive capacity and an economy that is highly dependent on foreign capital flows.

Removal of LDC status is not without drawbacks. Cape Verde will no longer receive the aid accorded to these countries. Most notably, it will no longer benefit from the European 'Everything But Arms' initiative, which removes EU taxes and quotas on products imported from the poorest countries. "Graduation should be seen as a challenge for all: the government, political parties, civil society, the general

public, Cape Verde's expatriate community and the international community", said a government

spokesman. The move therefore marks a critical transition phase for Cape Verde.



Photo: IRD © P. Cayré

Samoan women sell oil to UK

Samoan NGO Women in Business Development has signed a deal to supply coconut oil to the major UK-based cosmetic company The Body Shop. A first shipment of 300 kg of organic coconut oil left Samoa for the UK in late 2007. Body Shop spokeswoman Nicky Tracey said it is the first such partnership with the region. "The Body Shop made the decision that they wanted to find an organic coconut oil source and if possible to source it from the Asia Pacific region," she said. The oil will be used for a new product range to be launched later this year.

The wasp and the coconut palm

Researchers at CIRAD and INRAPE, the agricultural research institute of the Comoros, have identified a parasitic wasp on the island of Réunion that is a natural enemy to the coconut pest *Aleurotrachelus atratus*. Since 2000, this whitefly has halved coconut production on the three islands of the Comoros. In the space of 8 months, the predator, a new *Eretmocerus* species whose larvae eat those of the whitefly, has reduced this pest's larval density by between 12 and 73%, depending on the island.

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www.prpv.org/index.php/en/le_prpv

Cows and forage grasses

Dairy production remains weak in Angola even though the country has the same agro-environmental conditions as certain tropical regions of Brazil, where cattle rearing is booming. A development partnership between the Brazilian Agricultural Research Corporation (EMBRAPA) and Angolan agronomic and veterinary institutes aims to transfer knowledge in the field of milk production and cattle rearing. In turn, Angola will provide expertise on tropical forage grasses growing in Brazil, most of which originated in West Africa. Angola has a number of ecotypes which will be crucial for the genetic improvement of the varieties used in Brazil.

Opening up to markets

□ The residents of Maniema province, in the eastern region of the Democratic Republic of Congo, have become labourers. With guidance from local leaders, they are rebuilding roads and bridges so that their region's farmers can at last get their harvests to market.

Located in the heart of the equatorial forest, the province of Maniema suffers from severe communication problems. Streams and rivers interrupt roads, making it difficult and sometimes impossible to pass. "The only way to open up our towns and villages was to restore the roads that link us to Kindu, the capital of the province", explains a trader who frequently makes the journey from Kindu to Kibombo. "In many places, the only way to pass was to wade through the water carrying your goods on your head or your back."



Photo: © Syfia International

The repairs to the roads and bridges have been welcomed by everyone in the area. Before, products such as rice and groundnuts rotted in the fields and in houses. Producers had to travel long

distances, often on foot or by bike, to sell them in small quantities at the major markets of Kindu or Kalima, a mining town. "Today, we are managing to move up to 80% of our output", said one rice farmer proudly.

Selling ginger again

□ A revival of Sierra Leone's ginger industry is offering hope to farmers hit by years of civil war. A once-flourishing export business, the country's ginger trade dried up in the 1990s. Post-conflict attempts to breathe new life into the sector were largely unsuccessful until the International Trade Centre (ITC) launched an initiative to develop ginger exports. It has provided work and income for more than 9,000 subsistence farmers, especially women.

A new feature has been a move into exporting processed ginger to Europe. Peeling, drying and processing

ginger increases its value by 90%. ITC has provided advice on post-harvest treatment and market promotion, helping farmers to grow and market a Chinese variety and local ginger. With its strong aroma and flavour, local ginger is valued for its reputed benefits in reducing blood pressure and is now being exported

to the Indian essential oils market. In 2006, Sierra Leone exported a total of 4 t to 11 countries – its first ginger export since 1984. In 2007, the country exported 80 t of dried ginger. Tests financed by ITC indicate that the ginger is of good quality, free of aflatoxins, and meets the

European Spice Association standards.



Photo: © International Trade Centre

□ Farmers first

The Farmer First approach, launched in 1987, proved a defining moment in the development of farmer participation in agricultural research. The Farmer First Revisited website, launched to coincide with the event's 20th anniversary, maps milestones from two decades of farmer participation on a wiki-timeline. Here you can watch video interviews with participants, listen to speeches and read or contribute to a blog exploring the challenges of farmer participation in agricultural research and extension in the 21st century.

www.farmer-first.org

□ Young surfers

The Internet was feted recently in Gabon and Mali. In Libreville, almost 800 young people took advantage of open days organised by the authorities, which allowed visitors to surf for free. Normally, connections cost F CFA500/h (€0.76), a major obstacle for many users. In Bamako, the 4th e-festival saw more than 1,000 youngsters gather to gain experience in basic informatics tools. In spite of the country's national ICT policy, computer access remains difficult in rural areas.

www.mali-ntic.com

□ Thumbs up for taro wine

Palau has started making wine from taro with the help of an extraction machine from Japan. Known as taro wine or sochu, the new drink is technically a spirit. It is made by fermenting rice and yeast for 7 days, then adding cooked and mashed taro before distilling the fermented mulch. Previously, sochu was only made from cassava and sweet potato. Japanese tasters have given the taro sochu their approval, noting its unique taste and aroma. Plans are now in hand to tap the export market.

Heading off the armyworm

□ An initiative launched in Malawi, Tanzania and Zimbabwe is helping farmers predict the arrival of one of their most dreaded enemies – the voracious black caterpillar known as the armyworm (*Spodoptera exempta*). Invasions of this pest, which devours crops such as maize, sorghum, millet, and rice with frightening speed, appear suddenly, often catching farmers unprepared. Though national and regional forecasting systems have been providing general warnings for several decades, problems with pinpointing precise locations and communicating with isolated rural areas have meant they are of little use to most communities. Now a CABI project is helping villagers to predict when armyworm outbreaks will occur.

Government extension workers are training local farmers to use simple insect traps and rain gauges – low-cost indicators of when an attack is imminent. If the clues point to a high risk, an alert is issued to the community, which is then able to mount a defence by spraying crops. The information is also relayed to national networks. Trials in Tanzania showed that the strategy is highly effective, with 82% of farmers able to control a recent armyworm outbreak. Local districts have expressed support for scaling up the approach and several NGOs are interested in applying the techniques in other areas of the armyworms' territory in eastern and southern Africa.

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□ Biotech plan for West Africa

Ministers of food and agriculture from the Economic Community of West African States (ECOWAS) have adopted a 5-year action plan for the development of biotechnology and biosafety in the region. The plan focuses on three key areas: the development of biotechnology to improve agricultural productivity, competitiveness and the sustainable management of genetic resources, and the development of a regional approach to biosafety.

Milk galore

Why import powdered milk when local cows can produce good fresh milk? Firmly sold on this concept,

not a single processing unit was left in the country. Ever since, Haiti has had to spend an annual US\$40 million (about €26 million) on importing 85,000 t of milk and dairy products from Europe and USA. The potential for local production is calculated at 145,000 t, with annual local

Dairies that form part of the *Lèt Agogo* network use simple technologies in a system based on an alliance between farmers, small savers and rural development technical staff. By the end of 2007, 600 farming families had joined the network and 400 producers had been trained in improved dairy production and pasture management techniques. The network's total output of 540,000 l in 2007 was turned into yoghurt or high-quality sterilised milk that can keep for 6 to 9 months without refrigeration. Thanks to a partnership with the government, these products are made available to 13,000 schoolchildren.

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Photos: © Syfia International

VETERIMED, an NGO created in 1994 by a group of Haitian professionals, launched *Lèt Agogo* in 2006. Today, the network has 13 small-scale dairies on the island.

The dairy sector went into decline 20 years ago, and by 2002

demand estimated at about 130,000 t. The country has 500,000 dairy cows out of more than a million head of cattle, but they only produce 45,000 t/year. With no outlets, few owners bother milking their animals.

Cowpeas take the lead

The people of Niger now eat more cowpeas than rice or millet. The craze for this leguminous crop follows a rapid increase in local production, which has almost tripled over the past 6 years – from 250,000 t in 2000 to 700,000 t in 2006. Since 2002, the government has distributed 363 t of cowpea seed to farmers in areas suffering from delayed rainfall. As a result, cowpea cultivation has taken hold in all regions of Niger, except for

the desert area of Agadez, and the amount of land given over to it (4 million ha to date) continues to grow.

Resistant to drought, cowpeas have a short growth cycle (70 days for early varieties). Other advantages include the plant's economic use of water and its ability to enrich soils by fixing nitrogen from the atmosphere. There is a good market for its seeds and offcuts from the crop can be used as animal feed.

In a country where meat and fish have become unaffordable for most consumers, people are flocking to buy this 'poor man's meat', which is cheaper than rice or millet and highly nutritious (it contains protein, vitamin B, starch, iron, zinc, calcium).

Niger exports 300,000 t of cowpeas each year to Ghana and Nigeria. One important issue to address is better post-harvest conservation. Traditionally the crop is stored in granaries and much of the harvest is damaged by weevils.

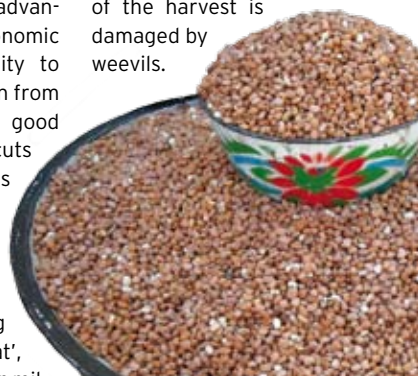


Photo: © Syfia International

'Light' cassava

Scientists from the International Center for Tropical Agriculture (CIAT) have found a new variety of cassava that could increase its competitiveness as an ingredient in the starch industry. During trials to introduce inbreeding in cassava, researchers discovered a mutation containing lower levels of amylose. High levels of amylose in cassava makes it less suitable for the manufacturing sector and also makes it difficult for humans to digest. Compared to traditional varieties with 17 to 25% amylose content, the mutant contains an average of only 3.4%. Industrial uses aside, the scientists say the new variety will also be suitable for children.

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Vitamin-rich maize

Researchers in USA have developed a non-GMO variety of maize enriched with vitamin A. They used genetic screening to select a variety rich in provitamin A, the precursor that is converted to vitamin A upon consumption. They then transferred these genetic variants to other varieties using traditional cross-breeding techniques. Large-scale cultivation of this maize could help prevent xerophthalmia, a condition caused by vitamin A deficiency that leads to progressive blindness and affects one in every four children under five in sub-Saharan Africa.

Source: *Le Monde*

Community media

Free software packages are available to help community radios, newspapers and websites set up production and manage their business. The open source software packages are downloadable free from the Internet or can be sent as a CD-ROM for organisations with connectivity problems. The software is provided by the Media Development Loan Fund's Campware Initiative, and is already being used in several African countries including Liberia, Senegal and Sierra Leone. The Media Development Loan Fund (MDLF) is an international NGO specialising in improving media and publishing capacities in developing countries.

Contact: Douglas Arellanes
contact@campware.org
www.campware.org
www.mdlf.org

Pedal powered irrigation

A low-cost irrigation pump introduced in South Africa's Capricorn region has changed the lives of many smallholder farmers in this drought-prone area. Livestock breeders are using the pump to irrigate pastures which grow fodder for their animals. Drawing water from a depth of about 6m and pumping the water to tanks, the farmers are able to irrigate nearly half a hectare of land in a short period of time.

The MoneyMaker pump, designed by Kenya-based NGO KickStart and already helping farmers in Kenya, Mali and Tanzania, is powered by the farmers themselves, who use their legs to turn the paddles as if riding a bicycle. At a cost of under R2000 (€200), the pump represents good value as an alternative to costly fuel-powered irrigation technology.

Elise Rossow of KickStart in South Africa said the pump was especially useful for farmers in areas that have no electricity supply.

Martha Maboja, a member of the La Koti Agricultural Cooperative in Limpopo, said the pump is proving a boon to local producers. "Besides being affordable, the pump offers us an opportunity to exercise as we power it with our legs," she said. "Above all the pump is environmentally friendly as it does not emit any gases that may affect our climate."

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Friendly snares

Snares once used for trapping animals in Zambia are being transformed into necklaces and bracelets as part of an initiative to combat poaching. Former poachers have joined the Community Markets for Conservation (COMACO) cooperative. It allows them to exchange snares for training in organic farming, beekeeping, gardening and carpentry. The snares are turned into what has been dubbed snarewear, and sold. The programme has collected more than 40,000 snares since 2002 and grossed more than US\$350,000 (€240,000) in 2006. The proceeds are shared by the former poachers and COMACO.

Powering ICTs

□ Poor energy access poses a major problem for many rural dwellers seeking to hook up to ICTs, but a combination of low-cost technology and ingenuity can help overcome these hurdles. From his home in a remote village in western Kenya, which has no electricity or landline telephone, Patrick Bunyali Kamoyani runs a small business producing KiSwahili translations of development publications for a website.

To power his laptop computer, printer and mobile phone, he uses a 12 volt car battery with an inverter, which increases the power supply from 12 to 240 volts. He uses Bluetooth wireless technology to hook up to the Internet from his mobile phone, which he finds cheaper than using Internet cafes.

He has to get his car battery recharged at a nearby shop every 4 to 5 days, but he is saving up for a solar panel so he can charge it at home.

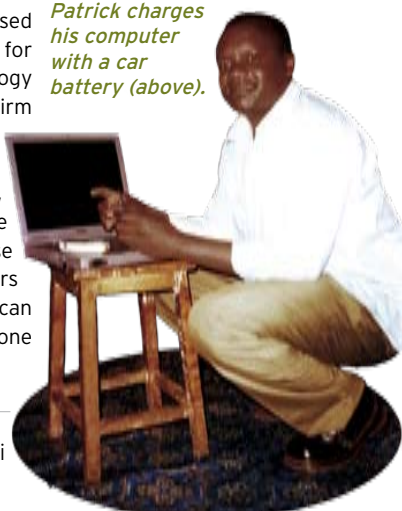
Meanwhile, in rural Namibia, wind and solar energy are being used to power a rural base station for mobile phones. With technology developed by Motorola, mobile firm MTC Namibia has installed four solar panels and a wind turbine in the village of Dordabis, 40 km east of Windhoek. The natural energy powers the base station, meaning that villagers and farmers up to 30 km away can now get a reliable mobile phone signal.

Source: Tearfund
Contact: Patrick Bunyali Kamoyani
pbkamoyani@excite.com



Photos: © P. Bunyali Kamoyani

Patrick charges his computer with a car battery (above).



The livestock guru

□ A touch-sensitive computer screen is helping Kenyan livestock owners to improve animal welfare and productivity. Dubbed the Livestock Guru, it is designed to be used by illiterate, as well as literate farmers. Using images and information delivered by voice, the multimedia programme offers guidance on how to prevent, diagnose and treat specific animal diseases.

Researchers at the University of Reading's Livestock Development Group developed the software package after a survey of more than 4,000 farmers on three continents identified lack of advice on livestock production, management and health as the biggest constraint to their livelihoods.

The technology was launched in Bolivia and India and is now available to interested organisations in Kenya. In each country, customised versions have been tailored according to visual and linguistic requirements. The Livestock Guru is distributed through local community-based organisations, dairy and farmer associations to overcome problems of computer and power access.

Other related technologies include a mobile phone diagnostic system which enables farmers to take a photo of their sick animal and upload it to the computer to help obtain an accurate diagnosis. The programme is succeeding in reaching some of the poorest farmers, including women, who are often marginalised from traditional extension delivery. Plans are in hand to launch a version of the service in South Africa.

www.livestockdevelopment.org



Photo: © J. Hedges

Shelter from the storm

□ More and more farmers in the Caribbean are turning to greenhouses as a way of boosting productivity and protecting crops from pests, bad weather and thieves. According to Dr Barbara Graham, FAO sub-regional repre-

sentative, greenhouse technology has been widely adopted in the region in the wake of successive hurricanes. "One of the major threats to vegetable production is disasters. When properly managed, greenhouse production can help us to maintain productivity levels and retain our markets," she said. Dominica, which now has almost 200 greenhouses, is a case in point. Almost all the country's vegetable crops were devastated by Hurricane Dean in 2007, but only 25% of those grown in greenhouses were lost. "Trials in Barbados have shown that greenhouse cultivation yields between 4 and 10 times more produce than conventional methods and leads to a substantial drop in pest damage."

□ High-earning cotton

Cotton growers in Mozambique earned MZN386.9 million (€11.5 million) in 2007 by selling top quality cotton, according to the Mozambique Cotton Institute (IAM). This premier grade now accounts for 80% of the country's output. The minimum price paid to farmers was 0.16 €/kg, but producers belonging to associations negotiated a price 7 to 13% higher with manufacturing companies. In 2007, cotton exports earned the country about €19.3 million.

□ Interactive observers

A new interactive platform launched by CMA/AOC, the Conference of agriculture ministers of West and Central Africa, offers information on agricultural markets for the fruit and vegetable, roots and tubers, onion and meat and livestock sectors. The website, developed with support from CTA, allows you to submit articles and make comments on others posted there, as well as to share experiences on a blog and a forum.

www.cmaoc.org

In Jamaica, the Christiana Potato Growers Association has set up five greenhouses. Crops include cucumber, tomato, sweet pepper, strawberries and sweet potato. Senior supervisor Leon Roberts said the greenhouses were specially designed to withstand strong hurricane winds and heavy rain. The Jamaica greenhouses are made from a frame of steel or pine and are covered by ultraviolet plastic sheeting. They are also fitted with automated irrigation and fertiliser systems and thermostats to regulate temperature. Other Caribbean greenhouses feature hydroponic systems for soil-less cultivation.

Contact:
Weston Moses
westonmoses@gmail.com

□ Fireless cookers

A group of women in Naro Moru and Ngong in Kenya are using cotton to make fireless cookers. The device consists of a basket stuffed tightly with cotton lint, which acts as insulation. The cooking pot is placed in a hole in the centre. Cotton is also used to cover the cooker. The fireless cooker works by exploiting residual energy in food, after it has been heated on any type of stove. When the pot is transferred to the fireless cooker, the food inside continues to cook. The device saves up to 50% of energy costs and serves as a source of income to women making the cookers.

□ Transparent money

A website launched by the French Development Agency (FDA) allows visitors to compare the costs and methods used by various banks to send money to the Comoros, Mali, Morocco, Senegal and Tunisia. Aimed mainly at immigrants living in France who want to send money home (see *Spore* 132), this site seeks to ensure greater transparency by offering full and clear information. The service is due to be extended soon to other countries including Algeria, Benin and Congo.

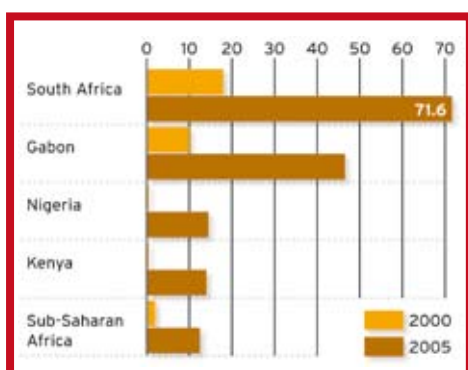
www.envoirdargent.fr

Upwardly mobile

Mobile phones have caught on in the developing world to an even greater extent than computers. They are small and easy to share. You don't even have to be able to read or write to use them. They are useful for producers who want to increase revenues and handle banking transactions. But more work is needed to lower costs and adapt services to local needs.

The figures are a marketing strategist's dream. Half the world's 6.5 billion people now use a mobile telephone, compared with 2 billion just 2 years ago. By far the biggest boom in mobile telephony has been in the South. There are now more than twice

Mobile phone subscribers per 100 inhabitants



Source: International Telecommunication Union

as many mobile owners in industrialised countries. Subscriber growth rates in poorer countries are 25% per year, and double that in Africa. Figures are lower in the Caribbean and Pacific, but deregulation has led to a rapid increase in cellphone use there too (see Box).

Fuelling the surge is a growing awareness that mobile phones boost entrepreneurship and economic activity, widen farmers' access to markets

and allow swift and safe transfers of money. A London Business School study shows that in developing countries an increase of 10 mobile phones per 100 people boosts the national economy's growth rate by 0.6%. Throughout the ACP regions, rural dwellers are finding out first-hand what the studies document on paper.

Many producers are turning to cellphones to increase revenues, using them to find out about prices for agricultural produce, receive orders and carry out financial transactions.

Connecting farmers

Cellphones have rapidly evolved into far more than devices for making simple phone calls. Handsets now double as cameras, credit

cards and mini-computers amongst other functions. Providers and users in developing countries have been quick to customise phones so that they offer a whole range of ingenious services designed to meet specific needs. In parts of the world where computer access remains scarce, mobile phones enable small-scale entrepreneurs to access valuable knowledge via the Internet.

TradeNet, a software company based in Accra, Ghana, has launched a virtual marketplace for agricultural products in West Africa. The service allows buyers and sellers to indicate their needs. This information is then relayed to subscribers as an SMS in one of four languages. Trade at Hand, a project funded by the International Trade Centre, provides daily price information for fruit and vegetable exports via text messages in Burkina Faso and Mali. Other systems offer farmers an SMS alert service, providing weather reports and warnings of disease outbreaks, while women's groups are using cell-phones to receive orders and collaborate to maximize sales. In Senegal and Tanzania, fishermen are using their mobiles to check which markets want their catch and to keep in touch with family while away. Mobiles also improve safety, offering a way of summoning help in emergencies.

In many ACP regions, mobile phones offer a new twist to traditional extension services, providing a quick and affordable channel for relaying agricultural advice. In Cameroon, farmers can access CTA-supported Question-and-Answer Services (QAS) by 'beeping' a special number, which alerts an expert to call them back and offer advice. The service will soon be extended to farmers in Benin, Botswana, Côte d'Ivoire, Guinea, Lesotho, Malawi, Namibia, South Africa, Togo

Mobile money

In Swahili, M-PESA literally means 'mobile money', and never was a service more aptly named. Since its launch in 2007, this Kenyan payment solution has attracted a strong following among customers who complete simple financial transactions using their mobile phones. Originally piloted in 2003 with joint funding from Vodafone and the UK Department for International Development, M-PESA was launched as a commercial service in April 2007. M-PESA customers can transfer money to anyone in the network. Some entrepreneurial customers are operating 'human ATMs', providing cash for a small fee. With a view to tapping into the North-South remittances market, plans are under way to test M-PESA on the international stage. However, issues such as currency exchange and money-laundering rules must first be addressed.



Photo: © International Trade Centre



Photo: © International Trade Centre

Community phones

"Running our Village Phone, I've saved enough money to buy a cow and support my family," says Ugandan small-scale farmer Josephine Namala. Through the Village Phone programme, established by the Grameen Foundation in Bangladesh and now running in Cameroon, Rwanda and Uganda, people in poor rural communities take out loans to purchase mobile phones that help

them set up income-generating activities. These Village Phone operators then rent the use of the phone on a per-call basis, providing affordable telecommunications access while earning enough to repay their loan. As a result, the entire community benefits. "Local farmers can now call the markets to ensure they get the best prices for their crops," said Josephine. Meanwhile, in Jamaica, some women who already sell goods such as chickens from their homes have also started selling pre-paid phone cards. This funds their own phone use and extra expenses such as school fees.

and Zimbabwe. In Sierra Leone, a project provides mobile phones to agronomists and extension workers trying to resurrect the country's flagging ginger trade (see *In Brief*). The phones have made data collection, dissemination and project monitoring and evaluation much easier, particularly in the rainy season when travelling is difficult.

Cellphones are also used to offer advice to producers who cannot read or write. A handset's photo and video recording functions can be useful for explaining a technique and sharing information about best practices. In Kenya, a new system that can read out text in any language via mobile phone is helping banana producers. This Banana Information Line, a special boon to illiterate farmers, is available in Kiswahili and English, and guides users in troubleshooting problems encountered during banana cultivation.

M-banking

Improving access to financial services is vital to reducing poverty, and mobile phones are revolutionising the formal banking sector, especially in remote rural regions. Dubbed M-banking, this rapidly developing sector offers new low-cost ways of delivering a host of traditional services, with huge benefits for users, especially the previously unbanked.

In South Africa, where 48% of adults do not have bank accounts, the mobile banking provider WIZZIT is enabling thousands of people to make retail purchases without cash, transfer funds, buy airtime, and pay bills. A WIZZIT account costs about one-third of a normal one and subscription is done by punching information into a telephone keypad.

In Kenya, M-PESA (see Box) allows customers to complete simple financial transactions using their mobile phone. In Uganda, SIMBA Telecom and the USAID-funded Rural Savings Promotion & Enhancement of Enterprise Development (Rural SPEED) project have launched a money transfer service that uses cellphones to offer financial services to rural areas. In Zambia, telecommunications firm Cellpay has developed a prepaid SIM-based mobile phone payment system for purchases.

The fields of health and education also offer interesting scope for mobile technology. Indian company ZMQ Software Systems has designed mobile phone games to educate the public about HIV/AIDS. The project is now expanding to Africa, using local languages, in Kenya, Malawi, Mozambique, Namibia, Tanzania and Uganda. In South Africa, Cell-Life has developed open-source software solutions that enable medical staff to monitor

patients receiving treatment for HIV/AIDS. Through Mobile for Good, a social franchise, users in Kenya can subscribe to receive job listings and health information. The service will soon be extended to Cameroon, Nigeria and Uganda.

By sending an SMS, teachers in Tanzania can access state-of-the-art learning materials. The system, developed by Bridgell, triggers a satellite to deliver digital content to a classroom television set. Meanwhile, as part of its Digital Arts programme, the Pearson Foundation is training young people in Africa to use camera and video-equipped phones to document pressing social and environmental issues.

A new digital divide?

But even the most sophisticated technology has its limits. Experts say it is important to match designs to local realities and remember that cellphones can only assist in improving livelihoods, not replace the basic raw materials of good products and practices. The digital divide is not restricted to computers, and some say that more needs to be done to ensure fairer access to mobile technology and hardware. One of the main obstacles to wider adoption of mobile telephony is the price of handsets, which typically cost a far higher percentage of income in developing countries than they do in the North. Industry observers believe cheaper handsets could expand the market by as many as 150 million new subscribers a year. User costs can be a limiting factor, especially for more sophisticated operations such as connecting to the Internet, as can access to electricity for recharging the handset (see Box next page).

Often, local legislation holds back expansion. Mobile specific taxes are levied in Ghana, Kenya, Tanzania, Uganda and Zambia, adding significant costs for

Island networks

Foreign investment has led to a surge in cellphone use in the Caribbean and Pacific islands. Irish mobile-phone operator Digicel has invested heavily in Haiti, signing up 1.7 million customers in 15 months. Since the company's launch in Jamaica in 2001, it has established a presence in 22 regional markets with 5.7 million customers. Now moving into the Pacific, the company has launched services in Samoa, extending coverage and slashing call prices by 50%. The next step is Papua New Guinea, where the company is building a US\$500 million (€341.5 million) mobile network. By the end of 2008, 200 new sites will bring coverage to 90% of the island's population. For many of the islanders, the mobile link will be their first taste of access to a telecommunications service.



Photo: © Sylla International

Talking on solar power

Inadequate power supplies can be an obstacle for mobile phone use, especially in remote rural villages where energy sources are erratic. Telecommunications giant Ericsson is partnering with The Earth Institute at USA's Columbia University to provide connectivity to the Millennium Villages project for some 400,000 people in 10 African countries. As part of the initiative, technicians have developed a solar village charger

for mobile phones. The device can recharge at least 30 mobile phone batteries per day and eight phones simultaneously for each village. Meanwhile, Chinese firm High-Tech Wealth has unveiled what it claims is the first solar-charged cellphone. Leaving the handset in sunlight for 1 h gives users 40 min of talk time. Exposure for 12 h provides a full charge, while access to poorer light, including candlelight, will still crank up enough power for a few minutes' airtime. The device comes with a hefty US\$500 (€341) price tag, but with other telecommunications companies working on similar models, the cost is expected to come down sharply in the future.

users. And while the technology exists to make M-banking more widely available, progress is hampered by banking regulations that have been tightened in many countries. Mobile network coverage can be a problem in some areas, but on that front at least, there is light on the horizon. At the November 2007 Connect Africa summit held in Kigali, Rwanda, the GSM Association announced that the mobile industry plans to invest heavily in sub-Saharan Africa over the next 5 years to provide more than 90% of the population with mobile reception. ■

For further information

• Mobile Phones and Development: the future in new hands?

Id21 Insights 69, Sept. 2007
www.id21.org/insights/insights69/insights69.pdf

Bridging the Digital Divide

www.gsmworld.com/digitaldivide/index.shtml

GSMA

Global trade association for mobile operators
www.gsmworld.com/index.shtml

International

Telecommunication Union

UN agency for ICTs
www.itu.int

Kabissa

NGO promoting ICTs in Africa
www.kabissa.org

MobileActive.org

A global network focused on the use of mobile phones in civil society
http://mobileactive.org

Mobiles and Development Dgroup

www.dgroups.org/groups/mDevelopment

Mobile for Good (M4G)

A social franchise project using mobile phone technology to alleviate poverty
www.mobile4good.com

M-PESA

www.safaricom.co.ke/m-pesa

ShareIdeas.org

A wiki for using mobile communications for social benefit
www.shareideas.org

SpeechNet Technologies

Text-to-speech specialists hosting the Banana Information Line
www.speechnet.net

Tradenet

www.tradenet.biz

WIZZIT

www.wizzit.co.za

[FIELD REPORT]

SMS alerts boost sugarcane output

South Africa



Themba Mthembu (above) and Thandi Simelani listen to advice from My Canesim.

Small-scale sugarcane farmers in South Africa are using cellphone-based technology to decide when to irrigate their crops. A pilot scheme launched by the South African Sugar Association at Pongola in Mpumalanga Province and Makhathini in KwaZulu Natal has shown the high-tech system can help boost production and save water, a precious commodity in these dry regions. Indications are that the mobile-based initiative can reduce farmers' irrigation costs by €200/ha.

The system, called *My Canesim*, uses automatic weather stations, the Internet and cellular technology to produce up-to-date information about when to irrigate crops. Extrapolating information from field and real-time weather data, *My Canesim* estimates the recent, current and future water balance, as well as the crop status and projected yield of a given plot. It then automatically generates and distributes simple irrigation advice by SMS to farmers' mobile phones.

According to Dr Abraham Singles, principal agronomist at the South African Sugar Research Institute, farmers who have taken part in the project have seen savings of up to 33% in irrigation water, a 64% reduction in deep drainage of water from the root zone and a 48% increase in efficiency of irrigation water. Themba Mthembu, one of 407 farmers using *My Canesim* in Pongola, said he and fellow sugarcane producers receive text messages every Wednesday, advising them whether they should irrigate that week, based on accurate weather information from the area.

"SMSs are sent to us whenever an action is required. The content comprises a suggestion to start, stop or continue irrigation for our fields, with an estimate of current and final cane yield," said Mthembu, who farms a 15 ha plot. "We receive these SMSs in our mother language, making it is easy for us to use. We also receive weekly summaries on our cellphones. These advisories contain information such as current and future cane yield, sucrose content and soil water deficit, which can be downloaded from the website onto your phone."

Designers of the system used a participatory approach, enlisting farmers, extension staff and mill cane supply management officials who tested the web interface, advice and reports, to make sure they were relevant and easy to use. Farmer Thandi Simelani said the scheme had helped improve output by showing her that over-irrigating her sugarcane could be almost as damaging as under-watering it. "If this system is introduced to all sugarcane farmers in the country's 14 sugarcane growing areas, then our production levels will increase and we will also save a lot of water," she said.

South Africa's sugarcane growing areas cover 412,000 ha, most of it farmed by small-scale black producers, who lack access to modern equipment and technology. The farmers also receive regular text messages on the latest crop prices and market reports, which enable them to negotiate the best price for their produce.

Fidelis Zvomuya

Photos: © F. Zvomuya

Mushrooms

A delicacy worth cultivating

Wild or cultivated, tropical mushrooms have a commercial potential that is only now starting to receive the attention it deserves. Quick and inexpensive to produce, mushrooms can provide a significant source of extra income for rural dwellers, especially women and young people.

Wild edible mushrooms are part of the culinary tradition of many rural communities, who know how to recognise them and appreciate their flavour. Many Haitians living abroad would do anything for a plate of black rice with *djondjon* (*Psathyrella*), a mushroom that only grows in that country.

Wild mushrooms are non-timber forest products (NTFP) and have rich nutritional properties as well as considerable commercial potential. Neither vegetable nor animal, these strange organisms belong to the fungus family and are small protein powerhouses. They also contain mineral salts and vitamins and, due to their low lipid content, they are recommended for people with high cholesterol levels. Mushrooms provide a seasonal contribution to the food security of rural communities, especially in East Africa. But they are also much sought after for their unmistakable taste, which can transform the flavour of a dish or a sauce, a factor that sometimes elevates them to the status of luxury products.

In many central and southern African countries, the harvesting and sale of wild mushrooms at market is a significant source of revenue for rural communities, especially in areas where forestry conservation rules ban or restrict the use of timber. Harvesting is generally carried out by women and children, who sell the product at roadside stalls.

Adding value to local species

In the past decade, a number of projects have been launched to promote wild mushrooms, especially in Benin, Malawi and Tanzania. The first task is to clearly identify local species, which are often only known by their vernacular names, and to study how they are consumed and the local, regional and international markets for them. Opportunities exist, including export openings. Zimbabwe, where *boletus* (*Boletus edulis*) are neither highly prized nor widely consumed, exports these mushrooms to Italy via companies based in South Africa. A 2002 study carried out in Haiti put the export value of dried *djondjon* at US\$6 million (€3.8 million). In the Pacific region, wild species appear to be fewer or poorly documented. An inventory published in 2006 makes only passing reference to Fiji and Papua New Guinea.

Of the 2,327 useful species of mushroom catalogued worldwide, barely a hundred can be cultivated, but little research has been



Photos: © Syfia International



conducted in developing countries on strictly local species. In Benin, CECODI, an NGO that promotes forest products as a source of food and income, organises field studies for rural communities with the goal of identifying all edible species and cultivating some of them.

In Africa, a growing number of initiatives have been launched to encourage the small-scale cultivation of certain species. The best known are button, wood ear, oyster, shiitake and paddy straw mushrooms, most of them cultivated for thousands of years in Asia. In Mauritius, for example, the Agricultural and Research Extension Unit (AREU) supports production by distributing bags of spawned substrate to people wanting to try their hand at mushroom cultivation, having first given them a 3-day training session.

Commercial success

South Africa has ventured into commercial production on a major scale, exporting to neighbouring countries.

Peter Nyathis, who started from scratch and was subsequently helped by USAID under a black empowerment initiative, launched Tropical Mushroom in 2000. Six years later, he had a staff of 60 and was producing up to 5 t of mushrooms per week, selling them to supermarkets and restaurants.

The popular expression 'growing like mushrooms' illustrates the rapid growth of fungi. That is an important attribute when it comes to cultivating them, as is their need for little space and their ability to grow on dead organic matter. All sorts of agricultural waste can be used as substrate: cereal stalks, sawdust, woodchips, palm stalks, coffee or brewer's residue and even water hyacinth. The Zero Emissions Research & Initiatives (ZERI), operating in a number of countries including Namibia, has succeeded in exploiting this invasive aquatic plant. Dried and composted, it makes a good substrate for cultivating oyster mushrooms.

In spite of the apparent simplicity of mushroom cultivation, you need to bear in mind certain key points before starting. The first question concerns outlets. Is there a nearby market where you can sell your product? Mushrooms are fragile and highly perishable, especially in tropical climates.

Another important consideration is the availability of spawn for the chosen variety. Unless you have access to this you will have to prepare it yourself, but this is a delicate technical operation which requires rigorous hygiene and temperature controls.

Tanzania is one country that is actively exploring another interesting avenue – medicinal mushrooms such as *Ganoderma* spp., which is highly prized as a dietary supplement. Mushrooms have yet to reveal all their secrets. ■



Small-scale Mushroom Cultivation - Volume 1 : Oyster, shiitake and wood ear mushrooms

Agromisa/CTA, 2005, 86 pp.
ISBN 92-9081-303-2
CTA number 1291

5 credit points

www.anancy.net/uploads/file_en/40-e-2005-mushrom_screen.pdf

Volume 2 : Button and Rice Straw Mushrooms

Agromisa/CTA, 2007, 86 pp.
ISBN 978-92-9081-365-1
CTA number 1422

5 credit points



Photo: © Syfia International

Creative farmers



For centuries, farmers have developed technological innovations, to produce improved crops, livestock, tools and machinery and manage their resources in a sustainable manner. Yet in many countries, this kind of intuitive experimentation remains untapped, and farmers receive scant credit for their contributions. Building on a move in some development circles to nurture farmer innovation, this handbook is a training tool developed and refined



as a result of programmes run in a wide range of ACP countries.

Written and presented in a practical, hands-on style, the manual aims to show how stimulating

and supporting farmer innovation can enrich agricultural support systems. It can be used either to set up a project for farmer innovation, or to support an on-going participatory research and extension programme. In both cases, the goal is, in the author's words, "to show how farmers' innovative creativity, powers of observation and their communication skills can be integrated into research and extension."

Working with Farmer Innovators: a practical guide

By W Critchley
CTA, 2007. 72 pp.
ISBN 978-92-9081-362-0
CTA number 1426
10 credit points

Growing mushrooms on compost



Some species of mushroom, such as the paddy straw mushroom (*Volvariella volvacea*) and the button mushroom (*Agaricus bisporus*) can only be cultivated on fermented substrate or compost. This second Agrodok manual on small-scale mushroom cultivation offers a complete guide

to composting agricultural waste in order to grow these species, as well as practical information on cultivation itself. A separate chapter looks at how to obtain good quality propagation material. There are also detailed sections on harvesting and post-harvest handling, processing and marketing for local and regional outlets. At all stages of the production cycle, the advice offered is geared towards the smallholder producer, with the emphasis on simple, low-cost technology.



Small-Scale Mushroom Cultivation - 2

By B van Nieuwenhuijzen
Agrodok n°41
Agromisa/CTA, 2007. 86 pp.
ISBN 978-90-8573-083-5 (Agromisa)
978-92-9081-365-1 (CTA)
CTA number 1422
5 credit points

Better seed potatoes



Access to affordable, disease-free planting material is one of the main constraints to farmers growing potatoes (see *Spore* 133 p. 11). This well illustrated training manual provides technical information and teaching hints to help producers increase potato yields by improving the quality of farm-saved seed potatoes. The handbook is presented as eight training modules, and includes a demonstration experiment comparing current farmer practice with positive seed potato selection.

Positive Selection to Improve Farm Saved Seed Potatoes: Trainers Manual

CIP, 2007. 108 pp.
ISBN 978-92-906-030-23
US\$8 • €5.50
Earthprint Ltd.
PO Box 119
Stevenage Hertfordshire
SG1 4TP
UK
Fax: +44 1438 748 844
customerservices@earthprint.com
www.earthprint.com

Who is in control?

A wide-ranging book looking at some of the forces and rules shaping today's food system, and who has control over it. In particular, it looks at rules on intellectual property (IP) – patents, plant breeders' rights, trademarks and copyright – and how they relate to biodiversity, a fundamental prerequisite to food security. Agreements on IP, and the use of genetic resources, will have a massive bearing on how the food system develops over the next few decades and on who has access to the system. International rules on this issue are still being

negotiated, but often people whose future depends on them know little about them.

This guide seeks to inform a wider audience of the rules, current talks and the stakes involved, in the hope that they can take a more active part in the complex negotiations leading to agreements and help secure global rules that promote a more just and sustainable food system.

The Future Control of Food: A Guide to International Negotiations and Rules on Intellectual Property, Biodiversity and Food Security

Edited by T Rajotte & G Tansey
Earthscan, 2008. 224 pp.
ISBN 978-1-8440-74-297
GBP19.99 • €27

For Earthscan's address see page 13

Water journal

Waterlines has been re-launched to include longer, in-depth, peer-reviewed papers. Dedicated to finding sustainable solutions for communities in the South, this journal explores all aspects of the water supply, sanitation and waste sector from the practical to the political.

Waterlines

International Journal of Appropriate Technologies for Water Supply and Sanitation
Practical Action Publishing
ISSN: 0262-8104
Annual subscription (4 issues)
GBP50 • €67.50

Practical Action Publishing
The Schumacher Centre for Technology & Development
Bourton on Dunsmore
Rugby
Warwickshire CV23 9QZ
UK
Fax: +44 (0)1926 634502
publishinginfo@practicalaction.org.uk
www.developmentbookshop.com

Spotlight on agriculture

The World Bank's *World Development Report 2008* seeks to assess where, when, and how agriculture can be an effective instrument for economic development. It looks at how agriculture has changed in developing countries in the past twenty years, examines new challenges and opportunities for agriculture and analyses how agricultural growth can be made more effective for poverty reduction.

World Development Report 2008: Agriculture for Development

World Bank, 2007. 384 pp.
ISBN 0-8213-6807-9
US\$26 • €18

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USA
Fax: +1 703-6611501
books@worldbank.org
http://publications.worldbank.org

African research

Research Africa offers coverage of news about science, technology and innovation policies, and the use of research to provide solutions to Africa's development needs. It also provides information about sponsors of African science and development research funding programmes, and calls for applications for funding. It publishes in two formats: the *Research Africa* newspaper and *Research Africa* news online. Both services are available by subscription.

www.research-africa.net

□ An unexpected source

Sand rivers are often overlooked as a source of water. Yet despite their dry appearance, useable quantities of water often reside in aquifers beneath the surface and can provide a sustainable and safe supply for rural communities in dryland areas. This manual explains how to assess the potential for abstracting water from beneath a dry river bed and provides practical guidelines for doing so.

Water from Sand Rivers: Guidelines for abstraction

By S W Hussey
Dabane Trust/ WETT/ WEDC, 2007.
212 pp.
ISBN 978-1-84380-126-9
GBP24.95 • €34

The Water, Engineering and Development Centre (WEDC)
The John Pickford Building
Loughborough University
Leicestershire LE11 3TU
UK
wedc-publications@lboro.ac.uk
<http://wedc.lboro.ac.uk/publications>

□ Measuring success

This guide offers a step-by-step approach to building monitoring and evaluation procedures for energy projects. Easy to follow, it should help project leaders demonstrate that their initiatives are helping to improve the economic, social and environmental conditions of the communities they serve.

Monitoring and Evaluation in Energy for Development (M&EED)

By S Adams et al.
Downloadable as PDF file from:
www.gvepinternational.org/_file/136/M%26EED%20Guide%20final%20version%20english.pdf

□ Assessing the impact

Devising accurate monitoring and evaluation systems is crucial if lessons are to be learned and donors found for future projects. This book, based on experience in locations throughout the world, offers advice on setting up a cost-effective system to assess the impact of soil conservation and watershed initiatives.

Monitoring and Evaluation of Soil Conservation and Watershed Development Projects

Edited by J Cameron, J de Graaff, C Pieri, S Sombatpanit & J Woodhill
Science Publishers, 2007. 500 pp.
€56.60
ISBN 978-1-57808-349
Science Publishers
PO Box 699, 234 May Street
Enfield, New Hampshire 03748
USA
Fax: +603 632 5611
sales@scipub.net
www.scipub.net

Learning from a distance



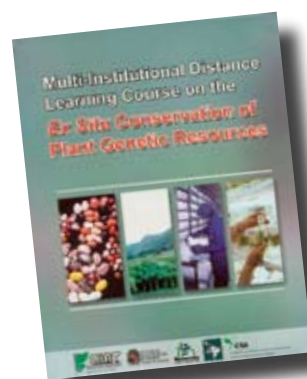
The efficacy of germplasm banks in many developing countries is compromised by lack of financial resources and properly trained staff. To address the latter issue, three expert institutions have produced training courses

for professionals and technicians working in germplasm banks. The joint initiative, launched by the International Centre for Tropical Agriculture (CIAT), Bioversity International (formerly IPGRI) and the National University of Colombia, was vastly over-subscribed.

The content of the courses is now accessible to a wider audience as a distance learning course, available in print form or as a CD-ROM. The material is arranged in six modules covering germplasm acquisition, introduction, conservation, characterisation, documentation and germplasm bank management. Each module contains three lessons, ending with an evaluation section setting out tasks for the student.

Multi-institutional distance learning course on ex situ conservation of plant genetic resources (manual)

By D Debouck, R Hidalgo, M Majia & B Pineda



IPGRI/CIAT/REDCAPA University of Colombia/CTA, 2007. 284 pp.
ISBN 978-958-694-094-8
CTA number 1402

40 credit points

CD-ROM

CTA number 1403

10 credit points

Downloadable as PDF file from:
www.ciat.cgiar.org/ccc/pdf/Course_Ex_Situ/contents.pdf

Biodiversity's price



This handbook is a comprehensive guide to conservation banking, explaining what it is and how it works. In essence, it involves governments setting a limit on the harm that may come to species, and allowing the market to offset the cost of any impacts over and above the limit. The book covers the origins of conservation banking, the pros and cons of this approach and the legal, practical and financial aspects of setting up and running a conservation bank. It is still too early to say if this is a viable approach to one of the Earth's most pressing challenges. But few could argue that people tend to take greater care of the things that they have paid for.

□ Humans and wildlife have always competed for food and land, but in recent times the balance has spiralled out of control. The problem of the world's rapidly shrinking biodiversity has been well documented. A new approach to addressing it lies in putting a price on what has always been considered priceless – Nature itself. This concept goes by a variety of names – conservation banking, species banking, habitat banking, biodiversity banking, biodiversity offsets. Whatever the terminology, the notion is based on the conviction that placing a financial value on biodiversity is likely to prove more effective than appealing to people's environmental consciences.

Conservation and Biodiversity Banking:

A Guide to Setting Up and Running Biodiversity Credit

Edited by N Carroll, R Bayon & J Fox
Earthscan, 2007. 304 pp.
ISBN 978-1-84407-471-6
GBP49.95 • €67.50

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Getting Started: Running a Junior Farm Field and Life School

By P Colbert, C Hill & E Wiegiers
FAO/WFP, 2007. 146 pp.
ISBN 978-92-5-105724-7

Downloadable as PDF file from:
[ftp://ftp.fao.org/docrep/fao/010/a1111e/a1111e01.pdf](http://ftp.fao.org/docrep/fao/010/a1111e/a1111e01.pdf)

Agricultural advice



Partnerships between private lenders and small-scale producers offer one of the best ways of supporting development, provided the latter are not simply treated as beneficiaries, but also as clients who know what services they need.

Against this background, the Neuchâtel Initiative, an informal grouping of representatives from agencies specialising in agricultural development in the South, has produced three booklets. The first looks at agricultural advisory services and the people they aim to serve, the second examines agricultural extension and the

third seeks to promote debate and negotiations on innovative financing mechanisms for the agriculture sector.

Demand Driven Agricultural Advisory Services (36 pp.)
CTA number 1407

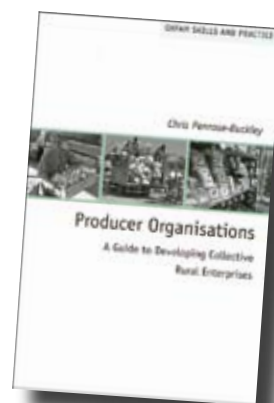
Common Framework on Agricultural Extension (24 pp.)
CTA number 1408

Common Framework on Financing Agricultural and Rural Extension (36 pp.)
CTA number 1409
Neuchâtel/CTA, 2007
5 credit points

Collective action

In today's liberalised market-place, increasing output is not enough. Small-scale producers need to adopt a market-oriented approach if they want to improve livelihoods and sell to local, regional and global markets. One strategy for surviving the increasingly competitive environment is to join with other farmers as part of a producer organisation (PO). POs come in many different guises, including cooperatives, farmers' associations and informal groups of producers. But they all have the common goal of helping members to find outlets for their products, steer a path through the minefield of quality and safety standards and lower costs of inputs by virtue of economies of scale.

Drawing on Oxfam GB's experience, this book offers guidance to



NGOs involved in launching or supporting POs. It outlines the structure, governance and management of a well-run collective organisation and examines some of the services they can provide. Using case studies, including examples from Malawi and Mozambique, the guide highlights important lessons and key factors affecting producer organisations' success.

Producer Organisations: A Guide to Developing Collective Rural Enterprises

By C Penrose-Buckley
Oxfam Publishing, 2007. 150 pp.
ISBN 978-085598-575-2
GBP8.50 • €11.50

Oxfam Publishing
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Fax: +44 1202 712930
Oxfam@bebc.co.uk
www.oxfam.org.uk/publications

A year in focus

The 2007 edition of the GEO Year Book offers global and regional overviews of significant developments in fisheries, forestry, freshwater management and climate. It highlights linkages among ecosystem health, human well-being and economic development, and this year, examines nanotechnology, the environmental benefits it heralds and the need to adopt appropriate legislative processes.

GEO
(Global Environment Outlook)
Year Book 2007
UNEP, 2007. 88 pp.
ISBN 978-92-807-2786-9
US\$20 • €14

Distributed by Earthprint
For address, see page 12

Responses to bird flu

This CD-ROM contains a medley of information about the highly pathogenic avian influenza (HPAI) viruses and responses to the disease. Here you will find recommendations and conclusions from a workshop led by FAO, in 2007, to examine technical issues relating to disease prevention and control in poultry and preparedness for a human influenza pandemic. It also contains a range of other key documents relating to the avian flu threat.

Avian and Pandemic Influenza: the FAO response. A selection of material.
FAO, 2007. CD-ROM
ISBN 978-92-5-105891-6
US\$30 • €20.50

FAO distributes its publications through Earthprint.
For address, see page 12

A black market

Charcoal has a massive domestic market in Malawi. If the product were exported, the annual foreign exchange income would fall somewhere between that of tea and sugar. Yet charcoal production is treated as either non-existent or illegal. This study explores the sector and examines ways of developing it to bring it into the mainstream and ensure more sustainable production methods.

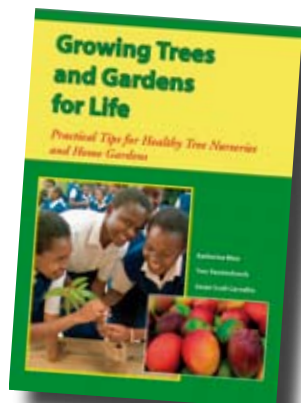
Charcoal - the reality: A study of charcoal consumption, trade and production in Malawi
IIED, 2007. 60 pp.
ISBN 978-1-84369-678-0
US\$20 • €14

Distributed by Earthprint
For address, see page 12

Trees for life

The refreshing tone and style of this manual from the World Agroforestry Centre (ICRAF) is in keeping with the young people it seeks to address. The guide, which aims to encourage youngsters to plant and maintain trees, is written in simple language and is full of clear illustrations. But anyone with an interest in growing trees in small-scale nurseries or home gardens will enjoy this well-presented book.

The chapters take readers through the process of planning a nursery, obtaining seeds or cuttings and controlling pests, diseases and weeds. There are sections on starting a timber plantation, fertiliser trees and instructions on how to make and use compost, mulch and liquid manure. Appendices likely to come in handy include advice on spacing trees and a list of links and addresses.



Although the book is especially geared towards tree growing in East Africa, much of its content will prove valuable to anyone thinking of growing trees for fruit, fertiliser or timber in ACP regions.

Growing Trees and Gardens for Life: Practical tips for healthy tree nurseries and home gardens

Edited by H van Houten
ICRAF/WOB/SII, 2007. 88 pp.
ISBN 9966-956-54-9

Downloadable as PDF file from:
www.worldagroforestrycentre.org/
downloads/publications/PDFs/B15299.
PDF

New-look Annual Report

Readers familiar with the CTA Annual Report will notice a few changes in the 2007 edition. The most notable difference is the way it is presented. To reflect the integration of the many facets of the Centre's work, the report is no longer arranged by department, but is instead presented by themes. There are six of these, all with important implications for small-scale producers in ACP countries: agricultural production and value-added activities, environmental protection, agricultural trade and market access, ICTs, organisational capacity development and cross-cutting topics such as HIV/AIDS and gender.

In his foreword, CTA Director Dr Hansjörg Neun outlines some of the Centre's contributions to

the climate change debate during 2007, including participation in the second European Development Days event, held in November in Lisbon, Portugal on the topic of climate change and development. Dr Neun talks about budget increases and CTA's 2007–2010 Strategic Plan. He also records the launch of the Brussels Development Briefings and what he describes as one of the highlights for CTA in 2007 – the Web2forDev



conference, held in Rome, Italy, in September.

This year's new-look report combines the English and French language versions in one volume. As last year, it is printed on recycled paper and comes with a CD-ROM. But you can also read it on-line on CTA's website.



CTA Annual Report 2007

+ CD-ROM
CTA, 2008. 92 pp.
ISBN 978-92-9081-387-3
CTA number 1430
0 credit points

www.cta.int/about/annual_report_eng/annual_report.htm

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Digitised libraries for Africa

African research needs to be able to make its voice heard and contribute to the international scientific community (see *Spore* 126). In the age of Internet, digitising documents and placing them on-line is a crucial step towards giving a higher profile to scientific publications produced in Africa.

CTA, CIRAD and other organisations set up a training workshop on the digitisation, creation, management and diffusion of electronic documents. Thirty-four participants from 13 countries of Africa and the Indian Ocean attended the sessions, which were held from 15 to 26 October 2007 in

Antananarivo (Madagascar). Those taking part included heads of scientific and technical information from universities and research institutes, as well as leaders of national or regional projects to digitise documents. The workshop aimed to give all participants the knowledge and means to devise and manage their own digitisation action plan.

The free and open access SIST platform will help promote these digitised libraries. SIST is a development project launched by the French Ministry of Foreign Affairs in an effort to make African research more accessible.

www.sist-sciencesdev.net

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Traditional knowledge



Prosper Mondé trained as an agro-economist. He has worked in various parts of Benin where he has conveyed his passion for trees to a wide audience. Currently in charge of monitoring and evaluation for the National Bureau for Food Security (ONASA), he also heads the Question-and-Answer Service supported by CTA.

Hidden Treasures

Prosper Mondé, an agro-economist from Benin, believes that countries of the South will never be able to develop unless they make better use of the knowledge of the rural communities who account for the greater part of their population. Identifying this indigenous knowledge and harnessing it for development should be a priority and a mission for countries seeking to lift themselves out of poverty.

Many countries that are labelled as poor harbour extraordinary treasures of which they themselves are barely aware. When I say 'treasures' you may perhaps think I mean oil or other mined resources. No! I am talking about indigenous knowledge and the fact that farmers are living librarians of it.

Let me give you an example: the rural communities of southern Benin traditionally plant citrus fruit trees and keep vegetable gardens around private plots of land and Vodun centres. Aside from its ecological importance, this cultural practice also contributes to food security by guaranteeing a close supply of food. I have drawn on aspects of this tradition to develop my 'Nourishing Home' concept, something that I have been practising for decades. The idea is simple – contrary to what most people think, a house is not just bricks and mortar. It should also provide the people who live in it with vegetables and a few basic food products.

Environmental education begins at home

Take my house, for example: I have planted a hundred or so vegetable crops, including fruit plants (banana and avocado trees, pineapple, etc.) as well as vegetable and medicinal plants that you can no longer find easily at market. This sparks ideas in everyone who visits me. Education about the environment and the fight for food security must start at home. In the neighbourhood, when I am out in the field, wherever I go, I plant trees. I buy seeds and distribute them freely. Call me and I will be there!

Identifying and modernising traditional knowledge is crucial

Here is another example: the people of Benin love *aklui*, porridge made from fermented maize paste and served with sugar or honey for breakfast. Developed by rural communities, it can take hours or even days to prepare. To make it easier to produce and consume this dish, about 12 years ago researchers from Benin managed to convert *mawê*, the fermented maize paste, into dry granules, which are packaged and easy to keep.

Small to medium-sized enterprises (SMEs) have also drawn on this improved technology and are selling small sachets of *mawê* granules at FCFA300 to 500 each (€0.45 to 0.75). All you have to do is pour the contents into boiling water and in 5 min, the *aklui* is ready! This product is now being marketed in several West African countries and even further afield. Think how many more SMEs and new jobs could be created, and the vast market that could open up, if we recorded each example of traditional culinary knowledge and put them to use!

Fighting collective ignorance

For some 20 years now, I have travelled throughout Benin as an official of the Ministry for Agriculture, and I have noticed that producers have developed and conserved a great many recipes and agrifood processing techniques. The same is true of other sectors such as traditional medicine and livestock keeping. Identifying and modernising this knowledge is crucial for cultural as well as socio-economic reasons. It is a way of conserving our biodiversity, encouraging local production and guaranteeing our food security.

Identifying this traditional knowledge and putting it to good use is more important than ever, given that our economies remain geared towards outside markets and that people, especially those living in towns, do not have any viable way of feeding themselves. You only have to look at the quantities of frozen meat from the West and rice from Asia being imported by a number of West African countries, products that are widely acknowledged as less nutritious than their local counterparts. Sorghum and millet are disappearing in some parts of southern Benin, though these crops play an important role during lean periods.

How can we reverse this trend? By fighting collective ignorance. In this respect, governments, national and international civil society organisations, researchers and journalists all have a major role to play. That is what I am trying to do, in a modest way, by spreading the word about my 'Nourishing Home' concept, developing and distributing leaflets on the nutritional role of cereals such as sorghum, and, since 1997, organising meetings from time to time between producers and processors to facilitate direct purchases of seeds, agricultural and other products. Everyone needs to contribute to this process; that is the price of development.

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

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