



IDA

Driving Innovation in Africa



THE WORLD BANK

Introduction

IDA: Driving Innovation in Africa

The International Development Association, IDA, is the World Bank's fund for the poorest countries. It is recognized as a global leader in financing access to health, education, and agriculture programs, as well as to build transport, energy, water and sanitation, and information and communications technology (ICT) infrastructure. IDA also supports business climate improvements and institutional reforms.

It is common knowledge that Africa receives about 50 percent of total IDA commitments each year. What is less known is that IDA-financed programs are driving innovations that undergird the significant economic growth and development Sub-Saharan countries have experienced in the last decade.

The stories presented here illustrate how IDA-financed programs are driving innovation across Africa. Activities covered show the increasing use of mobile phone technology to provide services: weather forecasts (Uganda); participatory budgeting in a fragile and post-conflict country (Democratic Republic of Congo); price data compilation and dissemination (Rwanda); and facilitating the combat against a major crop disease (Uganda). Other projects include enabling farmers to add value to their produce as well as increasing access to national and foreign markets (Sierra Leone); improving school supervision and learning by providing solar-



powered houses for head teachers (Malawi); raising cashew nut farmers' living standards by better marketing their produce (Tanzania); insuring crop output against weather risks (Malawi); the first ever report dealing with the issue of piracy and its effect on the world economy (Somalia); and a regional project that began in three West African countries (Ghana, Mali, Senegal) and has now spread to 13 of the 15 countries in the sub-region, with plans for replication in East and Central Africa.

Two qualities that characterize these projects are how effectively they are meeting the needs of beneficiaries in the communities where they live, and how other countries are learning to replicate the successes. Many of the issues developing countries face do not respect borders. By helping to address these problems, IDA addresses security, environmental and health concerns, and helps prevent these threats from becoming global issues.

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U-report: Leveraging Existing Innovation to Save Banana Crops in Uganda

Banana is a major staple in Uganda consumed by over 14 million people—the highest annual consumption of bananas in the world at about 0.7kg per person per day.

Banana Bacterial Wilt (BBW) is the single most important threat to the banana sub-sector. The disease spreads very fast; with some farms reporting yield losses of 90%. If not controlled, the disease can cause total yield loss within one year, and the potential national loss is estimated at \$360 million per annum. After the World Bank-financed Agricultural Technology and Agribusiness Advisory Services project (ATAAS) launched a Rapid Response Initiative on the disease the project it leveraged U-report (www.ureport.ug)—developed by UNICEF—to combat this threat to food security.

In collaboration with government agencies and UNICEF, the Bank deployed U-report's network of nearly 200,000 volunteers using mobile technology to:

- raise awareness among farmers and enable officials to better map and understand the epidemic; disseminate description of symptoms; and provide information on treatment options. Over five days, more than 52,000 U-reporters either provided information, and requested information or both via SMS—only costing three US cents per person.

U-report made possible not only information dissemination or data gathering, but a nationwide conversation focused on a critical issue for Ugandans. The success of the initiative has generated discussion about tapping U-report's capabilities to tackle issues in other areas such as education and urban development.





Green Bananas: Uganda's staple food



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E-Soko: Mobile-based Quality Data Pricing for Farmers in Rwanda

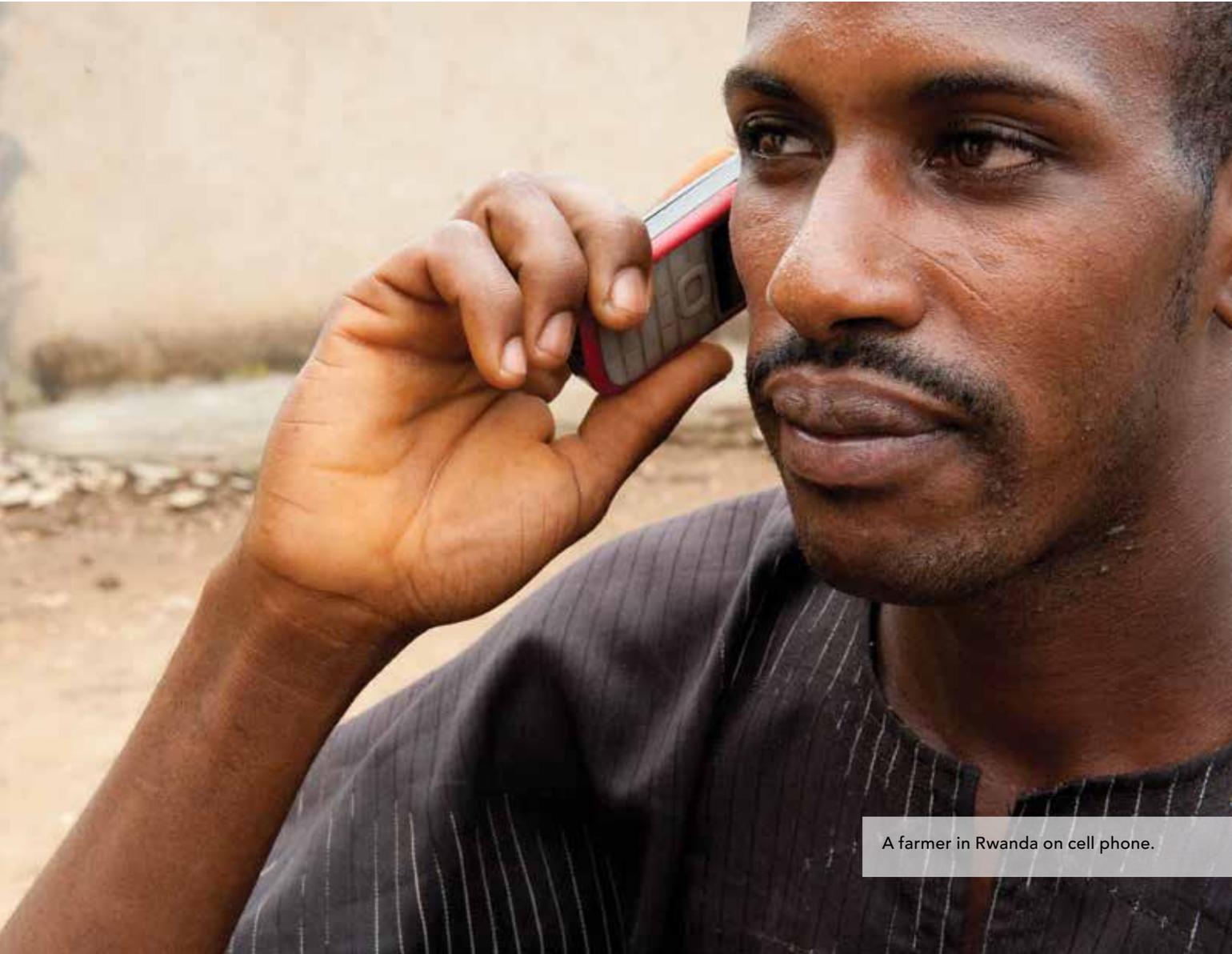
More than 75 percent of Rwanda's population earn a living directly or indirectly from agriculture. Information on marketing commodities is imperative for farmers, consumers, and traders for informed decision making and for minimizing travel costs, fuel, time, and product waste. In 2010, under the eRwanda Project, a World Bank funded ICT for Development program, the Rwanda Development Board helped to develop e-Soko, an electronic platform to provide users with up-to-date market prices for essential commodities on their mobile phones. People can subscribe to the service by sending an SMS code to know the price of a particular product at a fee of Rwf10 (equivalent to less than one cent in US currency).

This system reduces transaction costs. Produce sellers get to know when to increase or decrease prices in order to meet demand, creating greater efficiencies in marketing their produce. More than half of e-Soko users are women farmers who can now optimize the sales of their crops by access to accurate information on markets and products. The project helps them to know real-time market prices and determine what quantity to take to the market, eliminating the middlemen who dictated prices. Traders note that they cannot be duped by farmers and buyers since they are aware of the market prices countrywide. And on any day, consumers know where they can get value produce for their money.

E-Soko currently surveys the 62 largest markets in the country and lists over 78 commodity prices. E-Soko's potential was recognized in 2011 with an award as a model innovative project in Africa during the third Technology in Government in Africa (TIGA) Awards held in Addis Ababa, Ethiopia. In 2013, e-Soko won the International Arch of

Europe Award for its outstanding quality data prices that has helped farmers and buyers to access daily commodity prices in the market. Plans are underway

to connect all mobile telecommunication companies operating in Rwanda to the e-Soko application.



A farmer in Rwanda on cell phone.

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Pirates of Somalia: Ending the Threat and Rebuilding the Nation

IDA's operational work is complemented by analytical studies that support the design of policies to reduce poverty. "Pirates of Somalia: Ending the Threat and Rebuilding the Nation"—an IDA funded study—the first ever report dealing with the issue of piracy and its effect on the world economy, shows that it is in the international community's common interest to find a resolution to Somali piracy, and more generally to help the government of Somalia to rebuild the country. It assessed the global human and economic costs and security risks of piracy, thereby quantifying the global benefits of a piracy-free Somalia. Its findings reinforce the case for action.

More than 3,740 crew members from 125 countries fell prey to Somali pirates, and 97 died between 2005 and 2012, according to the report. Ransom extracted during that period reached an estimated total of US\$315–US\$385 million. Piracy is costing the world economy \$18 billion a year. Since 2006, countries in East Africa have suffered from higher shipping costs, and declines in trade, tourism, fish catches and other outputs from East Africa's coastal locations forced to alter trading routes and pay more for fuel and insurance premiums. The costs imposed by Somali pirates on the global economy are so high that international mobilization to eradicate piracy off the Horn of Africa not only has global security benefits, it also makes ample economic sense. The report therefore recommends that the international community should go after the system and not just the pirates.

This report affirms that the international community can and should assist Somalia with generating knowledge—knowledge of how local power dynamics shape the rules for resource-sharing, how they drive clan and sub-clan relationships, and ultimately how they determine national political stability—to find solutions to the piracy problem. The report exemplifies the value of using rigorous analytical tools to address some of the pressing problems of Africa.



Similar ships have been hijacked by Somali pirates in the Indian Ocean.



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The West Africa Agricultural Productivity Program: Promoting Innovation in Agriculture and Food Security in West Africa

The West Africa Agricultural Productivity Program (WAAPP) launched with IDA financing in 2007 to cover Ghana, Mali, and Senegal has been recognized as a best practice model for supporting a country-owned process to adopt innovative solutions to tackle top priorities in the commercialization of agriculture—higher yield, lower cost, superior quality.

Since its inception, WAAPP has developed over 100 innovations to enable higher production and processing of cereals, fruits, vegetables, milk, and root and tuber food products for the growing middle income class and the urban population.

Senegal annually imports around 325,000 tons of wheat flour costing about US\$170 million. To reduce this dependence, WAAPP created a technology package that involved creating high-yielding drought-resistant varieties of sorghum as well as two varieties of millet showing yield increases of 40–100 percent over what then existed. Additionally, the program facilitated contracts to connect agricultural cooperatives, agro-processors, and bakeries.

Ghana has seen introduction of four new high-yielding cassava species with an average potential yield of 40–60 tons per hectare, compared to the national average of 16 tons/ha. The new cassava species have had a positive spillover effect into industrial uses—starch, flour for bread-making, and ethanol. In Mali, five varieties of irrigated rice have been developed with the average potential yield of each of these varieties ranging between 60–70 percent higher than what farmers previously used.

IDA places a premium on development impact. Following the results described, the program has expanded to cover 13 of the 15 West African countries. This success

motivated the replication of the program in East and South Africa, with plans to also cover Central Africa. It has been estimated that unlocking the potential for innovations and agribusiness could more than triple the value of the African food market by 2030.

As a regional project, WAAPP has helped to foster greater collaboration among research institutes in the region through mutual support and sharing of knowledge and expertise for technology generation and dissemination of innovations across countries.



Higher yields for groundnuts (peanuts) and cassava are resulting from innovations in agriculture.

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Insuring Crop Output in Malawi Against Weather Risks

Weather risk is pervasive in Malawi and is a major constraint limiting farmers from access to credit necessary to expand and improve their productivity. Annually, Only 50,000 small-scale farmers in Malawi received agricultural credit for purchasing seed, fertilizer or related agricultural inputs each year with over 90 percent of credit provided by the Malawi Rural Finance Company (MRFC). Larger commercial banks are unable to provide agricultural credit due to high transaction costs and perceived high risks of defaults, especially in the event of drought, resulting in limited credit and high interest rates.

In 2005, the World Bank's Commodity Risk Management Group (CRMG) started working with the Insurance Association of Malawi, the Malawi Rural Finance Corporation and other partners to pilot index-based weather insurance as a means to manage the weather-related risks by providing direct insurance pegged to credit for farmers. The insurance was a simple crop model relating rainfall to crop growth: if too little rainfall was received during any seasonal phase of growth, a payment was automatically issued to the farmer. Partial drought received a partial insurance payment and a severe drought would receive a full payment of insurance claim. If a farmer received a payment from the insurance, the payment would go directly to the bank to pay down the farmer's loan liabilities. The first insurance pilot crop was groundnut, based on the crop's sensitivity to drought.

This model allowed farmers to access credit and access agricultural inputs such as seed and fertilizer to increase the quality of their crops, yields, and income. The program increased the number of farmers receiving credit from 892 in 2005/2006 to 1,710 by the 2006/2007 farming season. Banks were enabled to provide more secured lending, and they expanded their portfolios by lending to new potential product lines, new crops, and clients. CRMG and the World Bank committed to supporting the growth of the weather



insurance market in Malawi through training, capacity building and technical assistance in 2008/2009 and over the next three years. Looking ahead, the World Bank will focus on integrating index-based insurance

with more formalized supply chains and relationships in order to minimize marketing and input supply problems for farmers.



Crop insurance against weather risks protects farmers when there is drought.

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IDA-funded Pilot use of Mobile Phones for Weather Forecast Inspires Uganda Farmers.

“Prophet sent by God” is how a farmer in Uganda’s Kateta sub-county described the phone technology based on the accuracy of weather forecasts that were received through the phone.

In Uganda’s Serere District, 15 Agricultural Advisory Service providers (AASPs) were equipped and trained on the use of smart mobile phone technology, uploaded with agricultural content and enabled with geo-tagged advisory service forms to effectively monitor field operations and AASP performance. AASPs subsequently registered farmers and disseminated agricultural information to them. AASPs also filled and submitted electronic forms to record their scheduled monthly visits and training provided to farmers. The technology thus facilitates the collection of detailed, up-to-date information that would be otherwise unavailable or too costly to collect on a regular basis. Also very little time is lost between when the data is collected and when it arrives in designated offices.

This has enhanced the confidence of AASPs and their capacity to disseminate timely and relevant information to farmers. The use of the “support tab” on the smart phones enabled AASPs to receive quick responses from technical experts and superior officers on any issues that they enquired about. Farmers reported that they prepared their land in anticipation of the rain before planting crops, as guided by information they received via phone messages. They can also avoid planting seeds or applying fertilizer just before a storm hits and floods wash everything away.





Accurate weather forecasts enable timely planting and harvesting.

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Solar-Powered Houses for Teachers in Rural Malawi

Malawi is faced with significant housing shortages for teachers, particularly in rural areas. According to Malawi's Education Management Information System Report for 2012, teachers in rural Malawi experience a housing gap of over 27,000 houses. Only about 10,911 of the 38,000 teachers in rural Malawi have permanent houses. This situation negatively affects the quality of education in rural Malawi as many teachers, especially new graduates, refuse to take up teaching positions in rural areas. It results in high pupil to qualified teacher ratio, worsens the gap in education outcomes between urban and rural areas. Generally, it exacerbates youth unemployment and the rural-urban divide.

IDA provided funding to build 1,072 solar-fitted teachers' houses to ease the teacher housing shortage in rural Malawi. About 81 percent of these houses are occupied by head teachers. Their proximity to school enables them to supervise teachers more effectively. The head teachers themselves are able to teach more and overall this has enhanced staff performance. Teachers work for longer hours, teaching and classroom learning start on time, and all school activities are well coordinated.

In areas that have benefited from the program, teaching and learning generally start on time, resulting in enhanced staff performance and improved student learning. Other school activities such as sports are also better coordinated. The most frequent benefits mentioned include that there are now more teachers at school (49.1%), teachers are more present at school (44.2%), pupils can learn more (36.1%) and that the solar power is helping communities to charge their mobile phones (34.4%). In many schools, some head teachers are letting pupils use the living rooms of their houses as study rooms during exam times to take advantage of solar power between 6 and 8 pm, hence the houses are likely to contribute to improved educational outcomes at school level.





Badwa school teacher's house in Lilongwe powered by solar electricity

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Tanzania's Cashew Nuts: From Little-Known to Most Sought After

Today, Tanzania's cashew nuts are the most sought after in the world; no one thought so as recently as 2007, when the Warehouse Receipt System (WRS) became operational for the produce. Before then, farmers were exploited in the sokoholela (unregulated) situation by middlemen, and often forced to accept low prices for their crop. In 2006, the price per kilo ranged between Sh200 and Sh300. Under the WRS, farmers can bulk their produce in cooperatives, and then deposited at designated warehouses run by apex societies. Together with the Cashew Board of Tanzania, the apex societies have the responsibility of finding a market for the cashew nut. Since 2011, selling has been by auction. Indicative prices are set annually with input from farmers, local government authorities, buyers, processors, and others along the value chain including warehouse operators, packaging manufacturers and transporters.

In just over five years, the new system has chalked significant achievements. The price per kilo rose from Sh800 in 2007 to peak at Sh2,000 in 2010. Cashew nut production has therefore increased, and farmers are more empowered compared to the situation under sokoholela, which was essentially a buyer's market. Farmers now enjoy higher standards of living—they can now build better houses, pay for their children's education requirements and better use social services.

Quality and quantity certification within the cashew collection system has led to great improvement in the quality of the crop. Challenges such as storage remain, but primary and apex societies are now venturing into investment in storage infrastructure. Plans are also underway to develop a cashew nut processing industry.



Cashew farming is improving livelihoods in Tanzania.



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Empowering citizens to participate in the budgetary process in South Kivu, Democratic Republic of the Congo.

In 2011, fragile and post-conflict province South Kivu province in Eastern DRC carried out the first participatory budgeting exercise using mobile phone technology in Africa. The process empowered citizens in eight sub-provincial decentralized entities for the first time to determine how public funds should be spent. They voted on their priorities, and received information to enable them to follow up on voted projects.

Employing this technology involved developing a mobile-based feedback system that could be used on the simple, cheap mobile phones that are most accessible to the population. This allowed the inclusion of those usually excluded from decision-making: rural women, youth, and ethnic minorities such as the pygmy population. Preparatory activities prior to implementation included awareness-raising, capacity building workshops, and a series of coaching sessions for implementation in the targeted localities for local elected officials, public servants, civil society organizations and information technology service providers.

The success of the initiative has built trust between government and citizens as demonstrated by the mobilization of additional resources: tax collection increased up to sixteen fold in participating communities as citizens saw that projects they voted for were being implemented. As a result of the operation's activities, for the first time in the country's history, the province of South-Kivu has started transferring funds from the provincial to the local level. The provincial parliament passed a law in 2012 to institutionalize the practice of participatory budgeting in the province.

Currently the technology is being integrated in six participatory budgeting initiatives in the region. The fact that such gains were possible in South Kivu, an area affected by conflict augurs well for

other more stable parts of the country. This positive, locally-owned consensus building process could undergird a broader strategy of governance reform across the country.



Mobile phone technology allows marginalized groups including women to participate in the budgetary process.

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Linking Sierra Leonean Farmers to National and Foreign Markets

A decade after a 10-year civil war which ended in 2002, Sierra Leone has made progress towards reconciliation, but poverty and unemployment are still major challenges. Its economy, now one of the of the world's ten fastest growing economies, is projected to grow at seven percent over the coming years, partly because of the recent expansion in mining. But the agricultural sector, the mainstay of the economy, is one area where people would feel more immediate impact on their lives and livelihood, because about two-thirds of the population are engaged in agriculture, much of it subsistence.

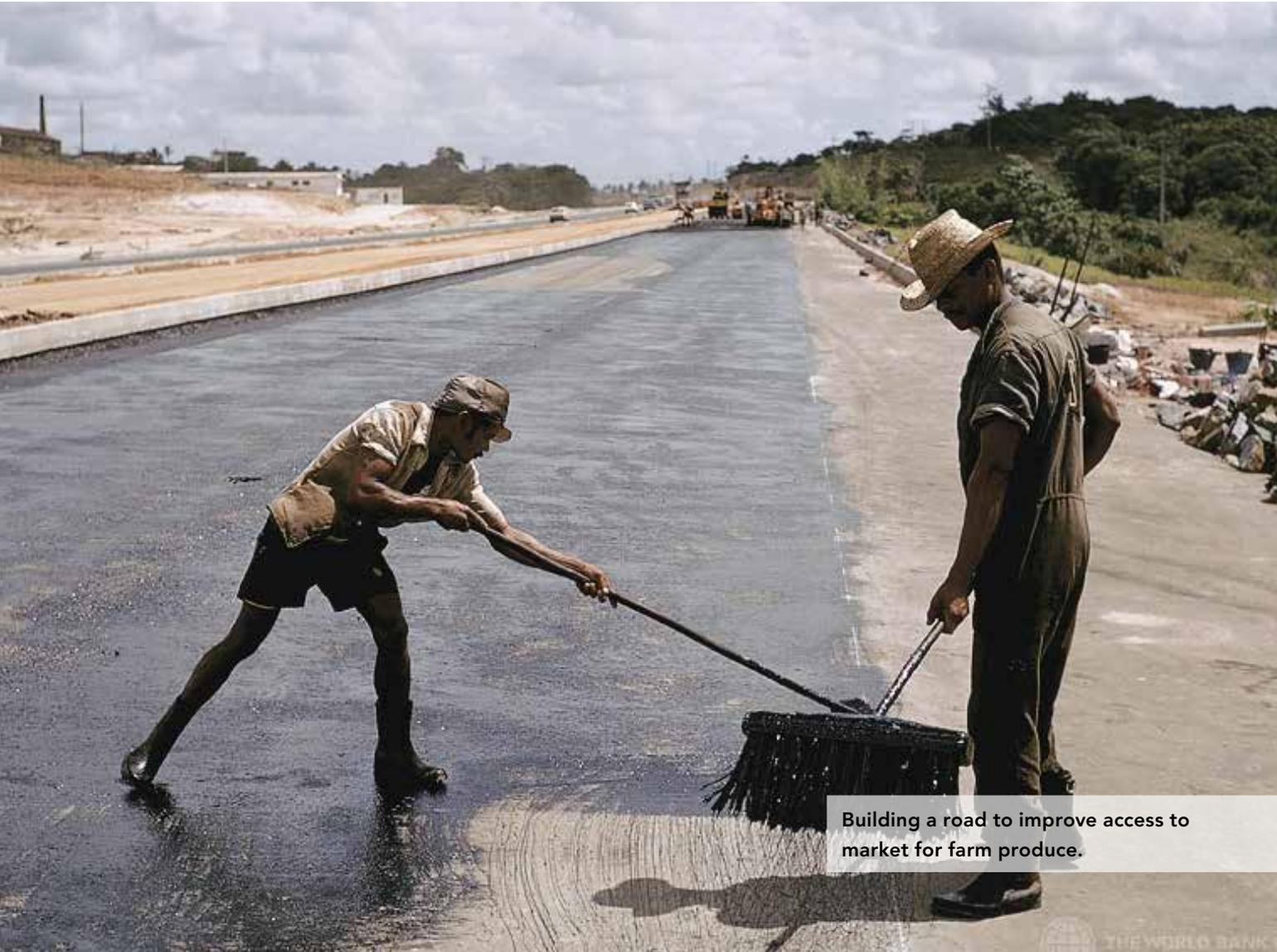
An integrated rural and private sector project began in 2008 to improve access to markets through rehabilitation and maintenance of feeder roads within rural areas; increase cocoa production and exports and income of cocoa farmers; and strengthen farmer-based organizations to provide better services to their members. The project financed the rehabilitation of 468km of feeder roads within a one-year period, employing over 4,000 youths using labor-based methods. The roads created access to some of the productive areas and also increased the supply of medical and educational services to rural areas. A total of 84 farmer cooperatives were supported with buildings and drying floors for rice, and received rice processing equipment, enabling them to add value to produce before sale and to reduce post-harvest losses.

With the entrance of the cocoa cooperatives into the marketing of the commodity, traditional private cocoa exporting companies now have competition. The better prices—70 percent of world price—paid by the cooperatives has prompted other buyers to increase their prices giving cocoa farmers a much better income. Since the formation of the cooperatives, the companies have more than doubled their price offers and incentives to cocoa farmers. For the 2012/13 season, the cooperatives exported more



than 700 metric tons of cocoa, up from 140 metric tons when they first started. This has attracted foreign businesses in Japan, which are interested in investing in cocoa production.

Recovering from a long civil conflict is not easy, but Sierra Leone has shown that it is on track, and now aims to become a middle income country in about 20 years.



Building a road to improve access to market for farm produce.

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Fadama III: Encouraging Financial Inclusion of Rural Farmers in Nigeria

In Nigeria, the term “fadama” is a Hausa word for irrigable land—usually low-lying plains underlaid by shallow aquifers found along major river systems. In addition to providing a source of water for livestock during dry seasons, fadamas also support large and diverse resident or transient wildlife including herbivores, carnivores and migratory birds.

Nigeria is Africa’s biggest oil producer. It also holds the largest population, more than 170 million, the majority of whom engage in agriculture. Despite a strong economic track record, poverty in Nigeria is significant, and reducing it will require stronger non-oil growth and a greater focus on human development. Launched in 2008, the IDA-supported Third Fadama Rural Agriculture Project (Fadama III) aims to sustainably increase the incomes of fadama land and water resource users to reduce rural poverty, increase food security as well as contribute to the achievement of the Millennium Development Goals (MDGs).

The project has taken steps to ensure inclusive and equitable community participation at the Fadama User Groups (FUG) and Fadama Community Associations (FCAs) levels in 35 States of the Nigerian Federation and the Federal Capital territory (FCT). Local community members, under the umbrella of FCAs and FUGs, oversee the design and implementation of the project, and are empowered through skills and capacity-building to improve their livelihoods by increasing income generating activities. Women are involved in decision-making at different levels of governance. Their participation in the project has reached 44 percent. More than 55,000 Local Government Authority (LGA) staff and members of FCAs and FUGs have received training in project planning, cost benefit analysis, marketing strategy, financial management, and monitoring and evaluation.



As the number of Fadama farmers with access to agricultural inputs and advice—improved seeds, artificial insemination, biogas production and utilization—has grown, so have their incomes, by 20 percent overall. Incomes of women have increased on average by 48 percent; the poorest farmers' by 36 percent. LGAs collaborate on sub-project supervision, maintenance, and mobilization of beneficiaries' contributions. The FCAs federations are being linked to markets and financial institutions.

Further, to extend formal financial services to farmers, ten states are currently at an advanced stage of floating their own micro finance bank, having saved up to 20 million naira each, the minimum requirement.

No longer will rural farmers have to keep their money at home. Now they will also be able to access funds to purchase equipment to add value to their produce before sale to reduce post-harvest losses.



The future looks brighter for women who have access to financial services.

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eBenin: Improving Access, Quality, and Affordability to Enhance Governance and Business Development

In 2008, the Government of Benin envisioned making the country the “digital capital of Africa” and using Information and Communications Technology (ICT) to facilitate Benin’s development into an emerging economy. However, constraints facing adoption of e-applications for government activities included: a lack of technical skills in government; weak IT infrastructure, including limited penetration of computers; and limited public resources to finance e-government. Benin also lacked a local ICT industry capable of creating electronic content and solutions for e-applications to flourish.

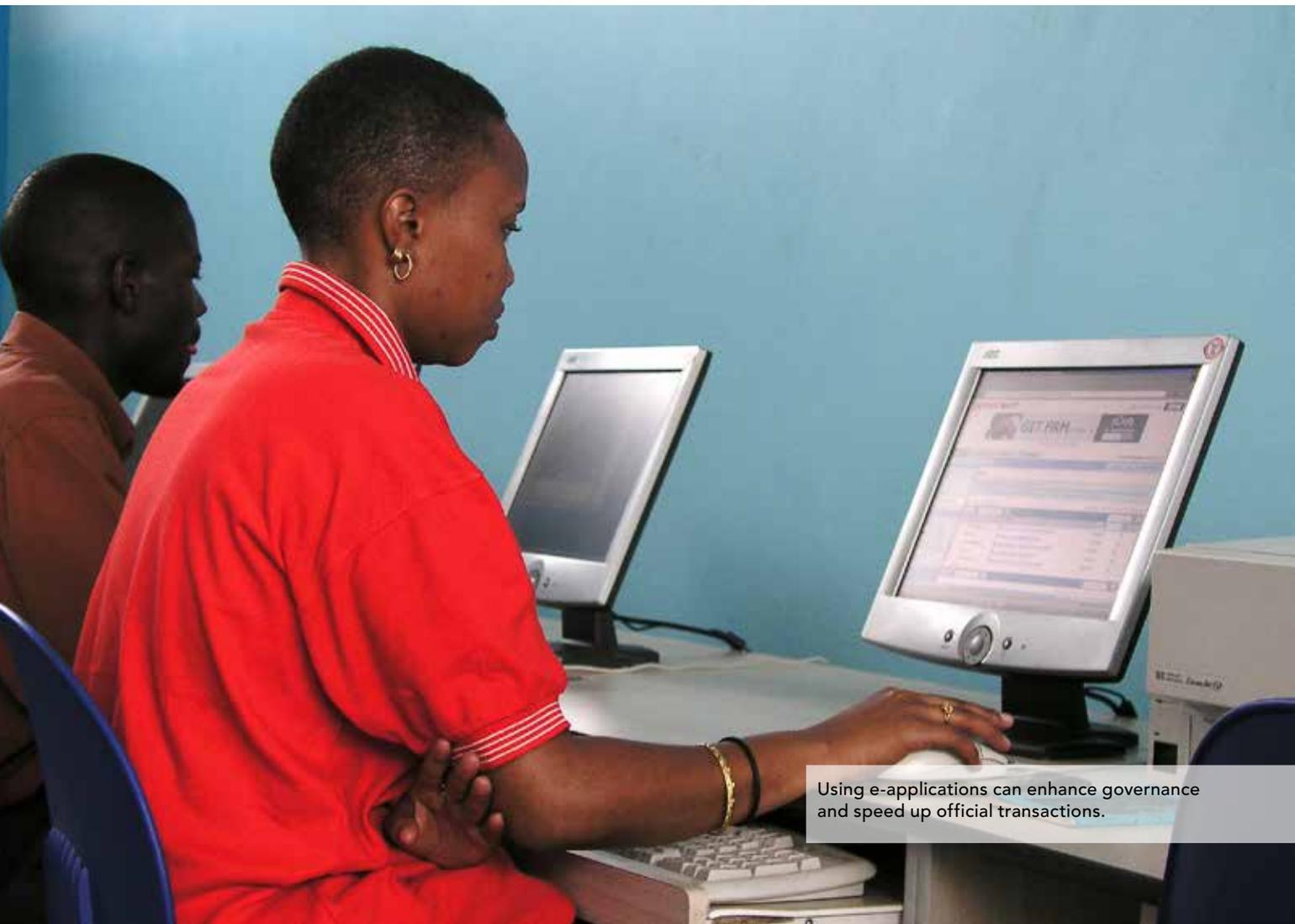
With support from an IDA grant, the government began implementing the eBenin Project in 2010. This takes an integrated approach involving three closely-linked dimensions that facilitate ICT-led development: improving access to lower cost and better quality ICT services, enabling the development of e-applications, and supporting the ICT industry. Given that Benin is in the very early stages of ICT reform, the project has focused on creating an enabling legal, regulatory, and institutional framework that improves access to affordable broadband connectivity and fosters quality of service. This has involved empowering the regulator and the line ministry. Secondly, the project is promoting use of e-government applications for improved governance and facilitating the development of e-business.

Initial results signal an encouraging trend. Two years before the end of the project, access to internet services (number of subscribers per 100 people) has improved from 1.42 to 4.90; access to telephone services (fixed mainlines plus cellular phones per 100 people) is now up to 91.90, up from 82.11. In addition, 209 people, 15 percent of whom are women, have received ICT training. Thirteen firms were pre-selected to compete for innovation grants. The retail price of internet services charged by Benin Telecom (BTSA)



halved from \$325 to \$160. This can be partly attributed to vocal consumer criticism about unaffordable prices by BTSA during the 2012 “Week of the Internet.” Consequently, BTSA doubled the bandwidth it offered at no additional cost to the customers.

The next phase of this project will enable the development of e-applications for government and the private sector. Benin still has quite a way to go, but it is taking the right steps toward achieving the government’s vision of making it Africa’s digital capital.



Using e-applications can enhance governance and speed up official transactions.

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ABOUT IDA

The World Bank's International Development Association (IDA), established in 1960, helps the world's poorest countries by providing zero-interest loans and grants for projects and programs that boost economic growth, reduce poverty, and improve poor people's lives. IDA is one of the largest sources of assistance for the world's 82 poorest countries, 40 of which are in Africa. Resources from IDA bring positive change for 2.5 billion people living on less than \$2 a day. Since 1960, IDA has supported development work in 108 countries. Annual commitments have increased steadily and averaged about \$16 billion over the last three years, with about 50 percent of commitments going to Africa.



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