

Knowledge for Development

Observatory on Science, Technology and Innovation for ACP Agriculture and Rural Development



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CTA and S&T

S&T Networking

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Editorial

ICTs and nano and biotechnology can transform ACP agricultural science and innovation

by Advisory Committee on S&T for ACP Agricultural and Rural Development

The Advisory Committee on S&T for ACP Agricultural and Rural Development (AC) is a think tank of leading ACP experts who meet regularly to deliberate on critical issues concerning ACP agriculture. In 2009, the AC had at the top of its agenda the issue of ICTs transforming agricultural science and innovation: implications for ACP agriculture. The AC further explored the key scientific disciplines that would be needed for transforming ACP agriculture, the opportunities new technologies such as ICTs and nano- and biotechnology offer for improving agricultural research and innovation and the investments needed in research infrastructure to allow ACP scientists to actually use and benefit from these technologies.

The AC concluded that, the major technological challenges would revolve around: (i) coping with adverse effects of climate change; (ii) developing and using nano- and biotechnology; (iii) establishing information and communication systems for agricultural research; (iv) developing green agricultural innovations; (v) resolving issues of competing land use and; (vi) trading in regional and global markets.

These interrelated megatrends will undoubtedly dominate the agenda of ACP agricultural science in the years to come. As such, priority should be given to enhancing ACP scientific capacity in climate related studies and nano and biotechnology and genetic engineering and incorporating indigenous knowledge and skills in the search for new and green technologies for conserving natural resources; soil, water, and biodiversity.

Current low priority of agricultural development on ACP policy agendas may be cause for worry. But, the growing international consensus and, renewed



support for agricultural research and the rapid spread of ICTs and nano- and biotechnology should certainly be considered as positive developments. In fact, in the future, these new technologies will unquestionably determine the agricultural science and innovation agenda in ACP countries.

ICTs represent a wide range of technology applications, from fibre optic cables and communications satellites to mobile phones and the internet, and the many applications that make integral use of these communication networks. The AC reckons that ICT applications for communication and collaborative networking will shape agricultural science and innovation policies in ACP countries, followed by online databases for storing and retrieving research information and faster internet connections. Similarly, the establishment – in Africa, Caribbean and the Pacific regions – of modern laboratories with state-of-the-art equipment that allow the use of nano- and biotechnology in agricultural research and the capacity to use them, will be indispensable for transforming ACP agriculture.

Driven by ICTs, nano- and biotechnology and biosciences, collaborative agricultural research and training could make an enormous contribution to improving the ACP agricultural science and innovation agenda for the next 5-10 years for enhanced sustainable agricultural productivity. ACP countries have missed out on the industrial revolution but these new technologies and the rapidly evolving technological context in which agricultural research takes place suggest that they should not be left behind again. If ACP countries wish to transform their agriculture, this time they cannot miss out on embracing opportunities to advance the science and innovation agenda.



Innovation systems

About the website

CTA's website **Knowledge for Development** supports the policy dialogue on S&T for agricultural and rural development in African, Caribbean and Pacific (ACP) countries. It enables the ACP scientific community – primarily agricultural research and development scientists and technologists, policymakers, farmers and other stakeholders – to share and review results of national and regional efforts and collaborate in harnessing S&T for the development of agriculture in their countries. The website offers access to information:

- to promote dialogue and facilitate exchange among ACP stakeholders, and between the ACP and EU communities, on S&T issues in order to enhance the processes of policy formulation and implementation;
- to raise awareness of relevant S&T developments and their implications for ACP agriculture, to enable policy makers to set priorities, prepare and execute demand-led research agendas; and
- to support ACP countries in their efforts to develop indigenous knowledge systems, enhance research capacity and transform technological innovation systems for attaining sustainable and competitive agricultural production.

Visitors to the website can:

- find extensive information on S&T issues, programmes and institutions;
- network with others;
- subscribe to the email newsletter.

For more information, or to comment on the website, please send an email to **S&T Strategies, CTA, Wageningen, the Netherlands: knowledge@cta.int**

Colophon

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Innovation systems, food security and economic development

By Judith Ann Francis, Senior Programme Coordinator S&T Strategies, CTA

Innovation and technological change are associated with productivity gains and economic development but have yet to yield these results in the ACP region. Achieving sustainability goals in 21st century agriculture requires supportive policies and institutions, a long-term commitment from decision makers and greater public and private investments in agricultural knowledge, science and technology (AKST). The fact that the ACP agricultural sector continues to serve as an economic foundation suggests that priority should be given to building endogenous ACP capacity for understanding innovation processes and analyzing and strengthening agricultural, science, technology and innovation (ASTI) systems. Innovation is an interactive, evolutionary, cumulative process embedded in an economic, organizational and institutional context. Innovation systems are not static. System dynamism is contingent on interactions among the many actors and a continuous flow of new ideas, knowledge and other resources. Key functions of innovation systems include creating new knowledge and markets, supplying resources, facilitating market access and knowledge flows and enhancing networking.

In 2003-2004, CTA began mobilizing the ACP scientific community to engage more with society and participate in policy processes to provide decision makers with information for increasing ST&I investments in the agricultural sector. Consensus for achieving a shared vision was needed. A collaborative and integrated approach was adopted to: (i) raise awareness of scientists and decision makers to gain buy-in; (ii) design and conduct tailor-made training programmes; and (iii) develop and pilot standardized methodologies for analyzing and strengthening ASTI systems using a case study approach. It was assumed that ASTI systems exist in ACP countries and that these could be studied.

Trained ACP experts led case studies on the ASTI systems. They chose to focus on agricultural commodities that were important for food security or export diversification, or that were under threat from the loss of traditional preferential



Judith Ann Francis, CTA/ University of Zambia, ASTI Training Workshop, Zambia

markets. In all case studies, the overall agricultural contribution to GDP decreased or remained almost constant for more than five years. Most countries had relevant support policies in place, but IPR policies were either nonexistent or still under consideration. Moreover, a lack of financing and incentives, insufficient human resources and an inadequate physical infrastructure caused severe limitations. Structural adjustment and trade liberalization programmes resulted in under-investment in research and an erosion of extension services.

The case studies confirm that little innovation is taking place in the agricultural sector. ACP countries are unable to respond effectively to the multiple complex challenges facing the sector. Small farmers and agro-processors are innovating within their existing knowledge base; however they are constrained to adopt new technologies because of lack of markets and limited financial and technical support. The knowledge infrastructure is inadequate and governments are not investing in ST&I in support of agricultural development. The limited research being carried out by the scientific community is not directly linked to the challenges faced by the farmers and the agro-entrepreneurs. Existing resources are not being optimized due to the inadequate linkages among key actors.

The scientific community is disconnected from other key actors including policymakers. ACP agriculture is underperforming and ASTI systems are weak. Innovation is needed to enhance ACP agricultural performance for food security, competitiveness and economic development but there is no clear consensus on the way forward.



Building Africa-wide capacity in Biosciences

by Professor Aggrey Ambali, NEPAD S&T, South Africa

Biosciences provide powerful new ways of improving crop and livestock productivity while minimizing threats to environmental and human health. Problems that so far proved intractable to conventional agricultural research might well be solved in the future by two interrelated fields in the biosciences. These are genomics, which determines DNA sequences that make up the genetic blueprint of organisms, and bioinformatics, computer-based analyses of the vast amount of genetic information produced by genomics.

Africa faces the challenge of introducing the biosciences into research programmes focused on enhancing development and reducing rural poverty. The Biosciences eastern and central African (BecA) programme addresses this challenge, enabling African scientists and institutions to become significant technological innovators. BecA currently supports a network of research facilities with state-of-the-art laboratories in both the eastern and central African regions. These facilities form a shared research platform (BecANet) that enables African scientists to conduct cutting-edge bioscience research. BecA complements and supports this research platform by providing training and access to biosciences services, such as the management of intellectual property, biosafety and other regulatory issues in Africa and improved access to bioinformatics databases.

BecA's long-term and short-term training programme aims to build African scientific capacity in the biosciences. At present, BecA is facilitating the training of 13 PhD and 25 MSc students in collaborating universities. Apart from BecANet, three parallel networks of centres of excellence in the biosciences have been established. These are NABNet (North Africa), WABNet (West Africa) and SANBio (Southern Africa). NABNet is facilitating the training of 24 PhD and 12 MSc students who do their field research in various projects in North Africa. This network also facilitated a seminar organized by the diabetes project of the Pasteur Institute of Tunis for the training of 11 young scientists from six countries in North Africa.

WABNet, meanwhile, has six students working on a project to inventorize and characterize West African sorghum genetic resources. This project should enable them to complete the field research required for obtaining their PhD or MSc degrees. SANBio is currently sponsoring seven postgraduate students from five different countries who study at North-West University in South Africa. In collaboration with the universities of Mauritius and Pretoria, this network has organized a regional workshop on bioinformatics that attracted 16 participants from different countries in Southern Africa.

Since 2005, BecA and its associated bioscience networks in North, West and Southern Africa, have made impressive progress in building bioscience laboratory facilities and developing a pool of trained African bioscientists. Linking these facilities and researchers to an effective Africa-wide research for the development of an innovation system could help BecA achieve its medium-term objective of producing innovative, locally tailored solutions for agricultural problems that until now seemed intractable.

The future of agricultural research for development

by Dr Jean-Luc Khafaoui, CIRAD, France

Over the past few years the context of agricultural research for development and, more generally, of international agricultural research has rapidly been evolving:

- The role of agriculture in development processes in southern countries has acquired new recognition, evident in the World Development Report 2008, for example;
- Global problems, such as climate change, food safety and new diseases have moved to the top of the international policy agenda;
- Research topics tend to transcend the traditional North-South divide due to new models of research cooperation and research questions that concern both southern and northern countries. This has resulted in a convergence of agricultural research for developing and developed countries, in particular in Europe.

Consequently, there is renewed appreciation for the way agricultural research enhances economic development in southern countries and responds to global challenges. This recognition has been reinforced by the handling of the consequences of the global crisis on food prices in 2008, which gave birth to a French initiative, now in the hands of the FAO, called the 'Global Partnership for Agriculture and Food Security' (GPAFS).

As a result, the challenges of sustainable development and agricultural research (in its broadest sense) have re-appeared on the agendas of international decision makers, such as G8 and EU leaders. The last demonstration of this political commitment has been the Declaration of the G8 in L'Aquila (Italy, July 2009), which explicitly stated support for international agricultural research as one of the G8's policy priorities. This development coincides with growing multilateral support for international agricultural research.

In this context, the international agricultural research community is facing a direct challenge. This community is now being forced to consider new global and regional research agendas that bring together research carried out by the international agronomic research centres of the Consultative Group of International Agricultural Research (CGIAR) and research institutes in both northern and southern countries. The results of their deliberations will be presented in March 2010 at the Global Conference on Agricultural Research for Development (GCARD) Montpellier, which will be attended by researchers and representatives of civil society and the private sector alike.





S&T policy making

What is FP7?

FPs (Framework programmes) are the principal funding mechanism through which the EU supports research and development projects covering almost all scientific disciplines. The current FP7 runs until the end of 2013. **FP7 is managed by DG Research.**

The high level research themes of FP7's international cooperation programme (Cooperation) are

1. Health
2. **Food, Agriculture and fisheries, Biotechnology (FAB)**
3. ICTs
4. Nanosciences, nanotechnologies, materials & new production technologies
5. Energy
6. Environment (including climate change)
7. Transport (including aeronautics)
8. Socio-economic sciences and the humanities
9. Space
10. Security

What is FSTP?

The Food Security Thematic Programme (FSTP) is an EC funding programme that aims to improve food security, in particular in developing countries. **FSTP is managed by DG Dev.**

Out of six broad priority areas, FSTP's most important thematic programme for ACP-EU collaborative research is 'support to research, innovation and information distribution in matters relating to food security, with a special focus on supporting the enhancement of capacities and scientific and technological cooperation'.

PAEPARD

PAEPARD (Platform for African-European Partnerships for Agricultural Research and Development) is a partnership of FARA, EFARD, AGRINATURA and the EC and seeks to strengthen African ARD stakeholders' capacity to participate in European-led development initiatives for Africa.

- FARA : Forum for Agricultural Research in Africa
www.fara-africa.org
- EFARD: European Forum for Agricultural Research for Development
www.efard2005.org
- AGRINATURA: European Alliance on Agricultural Knowledge for Development
www.natura-net.eu
- EC- DG Research
<http://ec.europa.eu/research>
- EC - DG Dev
<http://ec.europa.eu/development>

PAEPARD consultation on agricultural research programming for FP7-FAB and FSTP

By EC, EFARD, AGRINATURA and CTA

Cooperation is a principal driver of research and innovation. Global trends such as climate change and its expected negative impact on agricultural productivity in many developing countries have highlighted the need for global research cooperation.

The EC has made international research cooperation a priority in its 7th Research Framework Programme (FP7) and a major share of FP7's budget has therefore been assigned to research projects in which transnational cooperation is an integral component. This Cooperation programme covers ten high level research themes corresponding to major fields in the progress of knowledge and technology, ranging from health to security. In particular, the programme for research in the fields of 'food, agriculture and fisheries, and biotechnology' (FAB) provides substantial funding opportunities for long-term collaborative ACP – European partnerships in agricultural research for development (ARD). Another, smaller EC funding programme that encourages collaborative ACP-EU research, is the Food Security Thematic Programme (FSTP).

In the spring of 2008, the EC facilitated a consultation between African and European experts that resulted in concrete advice for prioritizing the funding earmarked under FP7-FAB and FSTP for ACP-EU agricultural research cooperation. Organized by PAEPARD with the support of CTA, this consultation turned into a very effective ARD policy dialogue between its 40 participants, half of whom came from African countries and half from EU member states.

The results of this ACP-EU policy dialogue have been impressive. For each of the FP7-FAB's ten broad ARD priority areas and for FSTP, the experts formulated targeted priority research topics and proposed specific joint research activities together with their expected impact, for both 2009 and 2010 and beyond. In addition, they ensured coherence, complementarity and synergy among the two programmes. Their advice has been used in assessing the collaborative ACP-EU research proposals that FP7-FAB received

in response to its 2009 call for proposals, and will be used by both programmes for reviewing future collaborative research proposals.

F7-FAB's broad ARD priority areas

1. Climate change: Adaptation and mitigation for small farmers in sub-Saharan Africa
2. Globalization and trade impact on developing countries
3. Bio-energy
4. Animal diseases and pandemics
5. Agricultural Innovation Systems
6. Environmental degradation and natural resource management
7. Development policies
8. High-value crops
9. Demography
10. Traditional knowledge

Africa-Europe Cooperation in S&T Stakeholders' workshop: November 2009, Mombasa, Kenya

Major recommendations of the workshop:

1. Advance S&T policy strategies through a balanced partnership between policy stakeholders, the science community, the private sector and civil society.
2. Integrate the private sector and other relevant non-governmental stakeholders in research planning and implementation and advance (joint) funding schemes.
3. Add value to existing Africa-Europe dialogue formats by establishing a new high-level policy dialogue platform between EU and AU stakeholders.
4. Enhance S&T capacity by the development of ICT and S&T infrastructures, career programmes for young scientists and women and the use of the scientific diaspora.
5. Establish a network of African National Information and Contact Points, continue with dedicated annual 'Calls for Cooperation with Africa' within FP7 that address African research priorities
6. Widen bilateral cooperation schemes and create a conducive legal framework and establish joint funding instruments.
7. Raise awareness in both scientific and political communities of the essential synergy between investments in scientific research and sustainable economic growth and social welfare.

Demanding innovation



Horticulture for food

by Dr Lusike A. Wasilwa, Kenya Agricultural Research Institute, Kenya

Agricultural productivity in most sub-Saharan countries is 2-3 times lower than the world average, and the production gap between developing and developed countries is widening. This situation is reflected in the production of most horticultural commodities in which per capita productivity has declined. Today's farmers produce less per hectare than their grandparents. When an increase in production is reported, a notable increase in land under production is the cause and not increased productivity per unit area. Major factors contributing to this decline are poor soils, decreasing land resources, minimal access to irrigation (only 4% of the land used for agricultural production is under irrigation) and drought which affects 33% of crops produced for food slightly and another 25% severely. In her article, Dr Wasilwa discussed the mix of knowledge and technologies required to expand production and increase productivity of horticulture commodities in Africa that can contribute to improving rural livelihoods.

>> read further <http://knowledge.cta.int>

Horticulture for wealth

by Dr Olaf van Kooten, Wageningen University & Research Centre, the Netherlands

Horticulture worldwide has been dominated by a product-oriented approach, i.e. producers do their best to create attractive and maybe delicious products and then try to sell them. In a local context, this approach has worked well for the last 20 millennia. In the present-day situation, where most retail corporations source their products globally, this traditional practice will not suffice. Due to the development of the worldwide food

web, supply now often exceeds demand. In his article, Dr van Kooten explains why ACP producers must know what customers in faraway countries expect and appreciate in order to compete in the global markets of horticultural products.

>> read further <http://knowledge.cta.int>

Innovation systems in agriculture

by Dr Tesfaye Beshah, International Livestock Research Institute, Ethiopia

Much has been written on innovation systems (IS), especially in industrialized economies, and recently in developing countries contexts. However, with few exceptions literature on IS does not adequately explain how systems thinking enhances innovation or how IS can be initiated and facilitated. In his article, Dr Beshah discusses these grey areas alongside the fact that 'innovation' itself is normally promoted rather than its embeddedness within a system that in turn operates within certain institutional and policy contexts.

>> read further <http://knowledge.cta.int>

Promoting an agricultural innovation systems approach

by Dr Riikka Rajalahti, World Bank, United States of America

Investments in knowledge systems have featured consistently in most strategies to promote sustainable agricultural development at the national level. The World Bank alone has invested more than 2.5 billion USD into agricultural R&D and advisory services over the past 20 years. Many of these investments have resulted in very high returns and enhancements of the livelihoods of smallholders. In her article, Dr Rajalahti explains that farmers' productivity is still often constrained by a lack of appropriate technology or access to technology, inputs, services and credit, and by farmers' inability to bear risks. In addition, farmers' information and skills gap constrains the adoption of available technologies and management practices or reduces their technical efficiency when adopted. To address these challenges, Dr Rajalahti argues that we have to shift from strengthening research systems and knowledge transfer towards building innovation capacity, enhancing the use of knowledge and creating economic change.

>> read further <http://knowledge.cta.int>



About this dossier

Researchers in ACP countries are required to respond effectively to the demands of policy makers, private sector investors, donor agencies, farmers and other stakeholders in the agri-food chain. They are being asked to deliver research outputs that will improve agricultural productivity and food safety in order to help their countries be more competitive in global markets, as well as contribute to food security, poverty alleviation and sustainable development goals. At the same time, researchers must be socially and ethically responsible and contribute to the advancement of science and technology. As the demands for accountability increase and the levels of funding diminish, researchers need to prioritize and strategize their responses. This dossier provides information on the challenges researchers face in responding to these increasing demands as the levels of funding diminish.

Folders in this dossier

- Commodities – bananas, coffee, sugar
on improving competitiveness
- Demanding innovation
on responding to a growing range of challenges
- Differentiated strategies
on the need to apply a differentiated approach for using science to enhance agriculture.
- Financing ARD
on organizations and programmes that finance agricultural research
- Food safety
on meeting international food safety requirements
- Food security
on what S&T can do to assist ACP countries to achieve food security
- Horticulture
on enhancing horticultural productivity
- Indigenous knowledge
on integrating farmers' knowledge into wider knowledge systems
- Innovation systems
on innovation and technical change as drivers of economic development
- Livestock and fisheries
on contributing to meet food and nutrition needs.
- Participatory approaches
on applying participatory agricultural research
- Soil health
on preventing tropical soils to degrade rapidly
- Tertiary education
on reshaping tertiary education to meet future needs of ACP agriculture
- Water resources
on dealing with the challenge to sustainably manage water resources



Demanding innovation

New: Horticulture

Can ACP smallholders reap the fruit and share in rewards through enhanced horticultural productivity? Will increased investments in horticultural research and development contribute to poverty alleviation? What is the role for advanced technologies? These and other questions are explored in this folder on horticulture for food and wealth.

New: Innovation systems

Scientific and technological advances, for example ICTs and bio- and nanotechnology, have their impact on ACP agriculture and rural environments. Farmers, policymakers and scientists in ACP countries have to respond adequately to these new opportunities while preserving the natural resource base for future agricultural production.

New: Soil health

This folder provides advice to ACP policy makers who, in consultation with soil and other scientists, must provide measured responses to agricultural stakeholders who are faced with competing and contradictory recommendations on soil fertility management and emerging issues such as biochar for improved soil productivity and carbon trading schemes.

New: Water resources

This folders provide directions to ACP policy makers who, in consultation with soil and other scientists, must provide measured responses to agricultural stakeholders who are faced with competing and contradictory recommendations on soil fertility management and emerging issues such as biochar for improved soil productivity and carbon trading schemes.

Forthcoming folders

The following folders are forthcoming in 2010:

- Agroforestry
- Post-harvest technology
- ICT transforming agricultural science

Soil fertility: Paradigm shift through collective action

by Dr André Bationo, West Africa programme, Alliance for a Green Revolution in Africa, Ghana

Countries in sub-Saharan Africa (SSA) are among those with the highest rates of nutrient depletion. The International Centre for Soil Fertility and Agricultural Development (IFDC) estimated that Africa loses 8 million metric tons of soil nutrients per year and over 95 million ha of land have been degraded to the point of greatly reduced productivity. Against this backdrop, Dr Bationo advocates the need for new paradigms that would encourage smallholder farmers to adopt sound land management practices. He argues that it is critically important to empower them in basic principles of crop nutrition and management since simple techniques such as correct planning distance and precise fertilizer placement can double crop yields.

>> read further <http://knowledge.cta.int>

Tropical soils with focus on West Indian soils

by Dr Nazeer Ahmad, University of the West Indies, Trinidad & Tobago

In most tropical areas, rapid weathering or rock disintegration leave a highly resistant residue in plant nutrients, from which infertile soil develops. Professor Ahmad explains that in the Caribbean the land area is relatively small, the geology, rocks and soils are highly variable and almost every important grouping of soils is represented. Geologically the area is not very old so weathering, leaching and soil formation are not very advanced and the resulting soils are not as fragile and prone to rapid degradation as elsewhere in the tropics. He argues that sustainable management of Caribbean soils could lead to significant carbon sequestration thanks to permanent and semi-permanent cropping and the consequent soil protection and accumulation of organic matter in the soil. While several of the smaller territories are densely populated, the larger countries of Guyana, Suriname and Belize are sparsely populated with most of the land areas under original tropical rainforest vegetation. These countries, and to a lesser extent some of the island states, have much to gain from the carbon credits which they will contribute once an international

system of compensation is instituted.

>> read further <http://knowledge.cta.int>

Mitigating economic water scarcity to boost agriculture

by Maimbo Malesu and Alex Oduor, International Centre for Agroforestry, Kenya

The bias in planning towards blue water at the expense of green water, has led to the impression of Africa as a physically water-scarce continent, with projections for 2025 painting a gloomy picture for most countries. Malesu and Oduor argue that the continent's climate base maps reveal that Africa actually has more water resources per capita than Europe. However, lack of capital investments to adequately conserve and utilize rainwater creates an economic rather than physical water scarcity. Rainwater harvesting (RWH) could contribute to the attainment of wider aspirations, including the Millennium Development Goals (MDGs) as they relate to poverty alleviation, hunger elimination, environmental sustainability, and gender equality.

>> read further <http://knowledge.cta.int>

Water: the need for appropriate resources management

by Dr Gerd Förch, University of Siegen, Germany

In 2008, the World Water Council identified the following priority areas for water professionals: (1) water as an essential ingredient for life, hygiene, and public health; (2) water as an increasingly limiting resource for meeting the food requirements of a growing world population; and (3) water as an important renewable energy resource (hydropower), especially with rising energy requirements and prices. Dr Förch argues in his article that the concept of integrated water resources management (IWRM) provides the only solution for balancing the growing demand for a limited resource. Most modern water laws favour integrated solutions at basin level, which allow comprehensive solutions acceptable to all stakeholders and flexible targets for managing the process with regard to institutional capacities and human capabilities. He explains that in East Africa, the IWRM concept has been applied successfully at watershed level following the comprehensive water sector reform.

>> read further <http://knowledge.cta.int>

S&T in perspective



The why, how, what and when of foresighting

by Dr Neill Allan, Ability Europe Limited, United Kingdom

The idea behind foresight is that better investment decisions will be made if the longer-term future is taken into account. To do this, a receptive and competent culture, resources and a reliable process and methodology are needed to drive forward the policy towards tangible benefits. In his article, Dr Allan reflects on why it is important 'to make better use of investment' then focuses on the 'when', arguing that 'it is never too early'. He argues that as decisions are being constantly made, the better informed those decisions are, the better the results of investments will be in the long term. But what needs to be addressed and how should it be done are often difficult questions to answer. After providing some candid insights into several foresighting cases in various ACP countries, he concludes that keys for gaining benefit from foresighting are a willingness to look to the future and 'backcast' to identify policies and programmes that will connect the future to the present, an entrepreneurial, innovative and representative group working closely together and good process facilitation by experts in the field.

>> read further <http://knowledge.cta.int>

Foresighting

by Dr Marie de Lattre-Gasquet, CIRAD, France

There is no generally accepted definition of what distinguishes foresight from other future-oriented activities and it is interesting to note that none of the definitions of such activities explicitly recognizes the notion

that the future is genuinely uncertain, with the implication that foresighting has to prepare not for one but a variety of futures. In her article, Dr de Lattre-Gasquet makes the case that this notion of uncertainty has consequences for the kind of shared strategic visions that can be formulated. She argues that this also explains why few governments have been able to prepare their countries to deal with the current crises, and why even fewer have listened to those who pinpointed signs of coming difficulties and breakthroughs. She concludes that foresighting not only can help to prepare for the future, but it can actually hamper these preparations. She explains this by pointing to the fact that decision-making in governments is often not well organized and that there are conflicts of sovereignty between various institutional levels within countries.

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Seven steps to save biodiversity

1. Bring at least 10% of all ecosystem types under protection
2. Improve farmland diversity, reduce usage of chemicals
3. Move towards sustainable use of fish stocks
4. Make 'nature' an integral part of all development plans
5. Fight climate change; help species to migrate or adapt
6. Avoid alien invasive species that destroy local flora and fauna
7. Integrate biodiversity concerns in all areas of policy-making

(source: www.countdown2010.net/biodiversity/seven-steps-to-save-biodiversity)

About this dossier

Investment in science, technology and innovation is essential for economic development. The rapid changes that are taking place due to advances in biotechnology as well as information and communication technologies (ICTs) support this view. Although new scientific discoveries and technologies could provide ACP countries with a competitive advantage and address some major problems, such as improved varieties of plants resistant to pests and diseases, their adoption is frequently controversial because perceptions of the risks involved differ. This dossier offers a wide range of information relating to biotechnology/biosafety and IP and various applications of ICTs in areas such as remote sensing and climate change.

Folders in this dossier

- Biodiversity
on issues pertaining to the protection of biodiversity that are of special interest to ACP countries
- Biofuels
on the pros and cons for the future of biofuels in ACP countries
- Biosafety
on differing viewpoints and perceptions of the potential risks of GMOs
- Climate change
on the consequences of climate change in ACP countries and strategies to mitigate them
- Foresighting
on the opportunities of foresight processes for ACP countries
- ICM strategies
on information and knowledge sharing and the tools to develop capacity to harness knowledge for ACP agriculture
- Intellectual property
on IP issues in agriculture ACP policy makers ought to know
- MIS
on the need to acquire, analyze and archive information from a variety of sources
- Nanotechnology
on the development trends and potential of STI-NANO and their implications for ACP countries
- Remote sensing
On the potential of space observations technology for ACP agriculture
- Ethics
On the broad range of ethical complexities in science and the interest of society



CTA and S&T

Mobilizing women and young professionals in science for development

The 2008/2009 CTA/ATPS/AGRA/FARA/NEPAD/RUFORUM Africa-wide science competitions sought to identify, recognize and reward the hard work and excellence of African young professionals and women in science who are engaged in innovative and pioneering research as well as communicating the outputs (knowledge, technologies and approaches) to improve agricultural productivity and the livelihoods of rural people on the continent. The top 41 finalists competed for the winning awards and prizes which were presented at the 4th African Union Conference of Ministers of Agriculture, Lands and Livestock from 23-24 April, 2009 in Addis Ababa, Ethiopia.

Top prizes in the women's' competition went to: (i) Professor Abukutsa Mary O. Onyango, Kenya; (ii) Dr Andrea Rother, South Africa; (iii) Dr Brigitte Nyambo, Kenya; (iv) Dr Jolly Kabirizi, Uganda and; (v) Dr Abay Fetien, Ethiopia. There were two special awards; one for Ground Breaking Science which went to Dr. Aster Gebrekirsos, Ethiopia and the other to Prof. Ameenah Gurib-Fakim, Mauritius for her outstanding contribution to science and for being a role model for women scientists.

Winners of the top awards for young professionals were: (i) Joel Nwakaire, Nigeria; (ii) Edmore Gasura, Zimbabwe; (iii) Frank Mwenechanya, Malawi (iv) Joseph Macharia, Kenya; and (v) Emilienne Lionel NGO-Samnack. Special awards for originality and communication went to Namuene Ngando, Cameroon and Charles Lagu, Uganda.

The organizers concluded that they needed to create more opportunities for scientists to communicate their research results that have a positive impact on agricultural and rural development. Towards the end of 2009, a consortium of partner organizations, CTA/FARA/ANAFE/RUFORUM/NEPAD launched the second Africa-wide awards and science competitions for women and young professionals. The finals will be held during the 5th FARA GA and Africa Science Week in Burkina Faso in July, 2010. Publications from the 2008/2009 competitions are available from partners; ATPS, CTA and FARA and on partners' main websites.



Winners of the science competition 2009 for African women and young professionals.

Evaluating the Knowledge for Development website (<http://knowledge.cta.int>)

In 2009, CTA carried out a survey among its regular users of the Knowledge for Development website and e-newsletter subscribers. The aim of this evaluation was to determine the website performance and provide pointers for developing strategies to improve the outreach and use of the website's resources and services.

Webstats

Over the period July 2008 – July 2009, the Knowledge for Development website has recorded an increase in visitor traffic, which was up 55% when compared with the corresponding period. This upward trend continued in the second part of 2009 when the website received between 650 and 750 visits per day of which 31.3% originated in ACP countries, with Kenya, Nigeria and South Africa among the top-ten countries. Knowledge subscribers represent a broad age group. The gender distribution of the respondents who participated in the online survey was 65% male and 35% female. Their educational level was high, with 31% holding PhDs and 47% MSc and MPhil degrees. Moreover, 46% of the respondents were researchers, 24% practitioners and 9% policy makers and planners.

Website

Generally, the respondents gave the website a very positive assessment. Although connectivity remains a problem, especially in African countries, 69% of the respondents were able to find information easily. Only 2.2% of them indicated that they experienced problems finding information on the site. The respondents rated the 'Developments' (news) the highest in terms of usefulness, followed by 'Publications', and 'Fellowship and grants'. RSS feeds, Facebook and Twitter were fairly new features on the website at the time of the survey. Senior scientists attached more value to the downloadable publications, the policy briefs, developments and the dossiers, while younger respondents expressed particular interest in the Facebook page, the Twitter channel and the jobs-section.

E-newsletter

The vast majority of the respondents (96%) expressed their satisfaction with the current format and content of the monthly e-mail newsletter. 36% stated that they opened all available links, while the remainder only opened those that were of special interest. The 'Developments', 'Fellowship and grants' and 'Publications' sections scored highest. 50% of respondents shared the newsletters with 1-5 colleagues, both within and outside their own organizations and the other 50% with 6-20 and more colleagues.

Conclusion

The survey results indicate that the website and e-mail newsletter are on the right track in meeting the information needs of their intended audience. Respondents were complimentary and gave Knowledge for Development a 'thumbs up' for the quality of this information service, and provided suggestions for improving the website's content, information services and user-friendliness. In the foreseeable future, plans are for the Knowledge for Development website to become the online platform for the exchange of research outcomes and dialogue. Join the knowledge community.