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September 2012 newsletter

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## New dossier and lead articles

### ENHANCING COMPETITIVENESS IN THE ACP POULTRY VALUE CHAIN

The poultry value chain in Africa, Caribbean and the Pacific (ACP) countries involves both large-scale integrated enterprises and small-scale production systems. The former have benefited from capital investments, access to information and scientific research, whereas the latter remain isolated despite their significance. Family poultry comprises approximately 80% of the world's total poultry stock and plays a key role in many households in ACP countries for food and nutrition security, livelihoods and conservation of indigenous breeds. An analysis of the family poultry value chain, including its poor productivity and low financial and technical inputs, shows that it contrasts markedly with conditions in large-scale commercial poultry enterprises. Governments and researchers would be well advised to thoroughly review the family poultry value chains to identify priorities for science and innovation that can contribute to improved efficiency for the provision of eggs, live birds, fresh-chilled, frozen and other value-added poultry products.



#### Science and Innovation in Family Poultry Value Chain Development: Lessons for African Countries

*By Robyn Alders, International Rural Poultry Centre, Kyeema Foundation, Brisbane, Australia and Maputo, Mozambique*



Scientific innovations and appropriate regulation in the family poultry value chain, even in their simplest form, would bring significant benefit to the producers and their flock. Essential to raising the output of family poultry production systems is the recognition of who owns and takes care of the birds. It is also important to understand flock size as a balance between local feed resources, household subsistence needs and disease prevalence.

To achieve a positive outcome and secure production, science and policy must thus facilitate the regional production of appropriate poultry feed from locally available resources, the identification of helpful traits in indigenous breeds (for disease resistance in particular) and, the valorisation of ecosystems services that birds provide at the village scale.

Successful scientific and regulatory innovations in biosecurity practices, preservation of fresh eggs, cold storage of meat, vaccination campaigns and participatory epidemiology are making their way to small producers but are still not widespread. Radio, mobile phone and branding of indigenous poultry products are marketing tools that will help the family poultry value chain. Still, structural hurdles remain considerable, at the traders' level; namely ethnic affinities and networks, transport routes, cage sanitation or within the country's legal and institutional framework e.g. extension and advisory services and livestock census forms. These issues must be tackled by scientists and policy-makers.

[Click to read the article.](#)

#### Sustainable small-scale poultry production: Are local feeds a viable option for the Pacific region?

*By P.C. Glatz, South Australian Research and Development Institute, University of Adelaide, Australia*



The lack of regional small-scale feed manufacturing plants, high cost of imported feed and cheap imports are holding back the development of the smallholder poultry sector in Pacific countries. As there are adequate supplies in some regions of locally produced feed ingredients (cassava, sweet potato, coconut, maize), the prospect for alternative feedstuffs is in the semi-commercial or family poultry units. For these sectors, profitability rather than maximum production is the objective, and alternative feedstuffs can make a useful contribution in poultry feeding.

In his article, Glatz examines four feeding strategies to produce effective poultry rations that are in line with the regional

availability of feed resources. With a complete ration formulation using local ingredients, egg production was significantly lower in birds fed the local mix ration compared to the commercial ration. Testing free-choice feeding, the birds showed the capacity to regulate their intake according to their physiological requirements, provided that the three food groups were readily available. Using a mix of concentrate with local ingredients, birds fed a 50/50 sweet potato / low-energy concentrate or a 50/50 cassava / high-energy concentrate diets were able to reach market weight in due time. A 70/30 sweet potato / low-energy concentrate diet was effective only in the more suitable environment of the Western Province of PNG. Diluting commercial broiler finisher with 20-40% copra meal resulted in similar growth as the 100% broiler finisher control diet (inclusion of 60% copra meal resulted in somewhat less acceptable growth).

Poultry farming in the Pacific using local feeds can be competitive and achieve 30% feed cost savings when mini-mill equipment is readily available and small-scale regional feed manufacturing centres (producing 5-10 tonnes/week) are built where local feed supply is plentiful.

[Click to read the article.](#)

Visit the homepage of the new dossier on K4D: [Enhancing competitiveness in the ACP poultry value chain](#)

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## Selected resources: Enhancing competitiveness in the ACP poultry value chain

### Agribusiness and Innovation Systems in Africa

This book examines how agricultural innovation arises in four African countries – Ghana, Kenya, Tanzania, and Uganda – through the lens of agribusiness, public policies, and specific value chains for food staples, high-value products, and livestock. Determinants of innovation are not viewed individually but within the context of a complex agricultural innovation system involving many actors and interactions. The volume is based on qualitative interviews with agribusiness representatives that were designed to shed light on their experiences on public policies that either enhances or impedes innovation in Africa's agriculture sector. The chapter on Ghana specifically covers the poultry value chain.

(Larsen *et al.*, World Bank, 2009, [PDF](#))

### Value chain analysis of the Kenyan poultry industry: The case of Kiambu, Kilifi, Vihiga, and Nakuru Districts

The Kenyan poultry industry is characterized by two main production systems namely (i) the commercial hybrid poultry production system and (ii) the indigenous poultry production system. This study examines the poultry industry in Kenya with the aim of identifying the actors, assessing poultry and poultry product flows, and highlighting some of the policies and regulations relevant to potential outbreaks of highly pathogenic avian influenza (HPAI).

The analysis, using a value chain approach, indicates significant heterogeneity both by chain and by region. Layer and egg value chains tend to be significantly longer and more diffuse than the value chain for broilers and indigenous chickens. For broilers, shorter chains reflect greater integration among actors through contractual (formal and informal) arrangements, while for indigenous poultry most non-subsistence trade involves direct sales between farmers and buyers (who include other farmers and retailers). There is also more 'structure' in the form of relational forms of transactions as products move into urban areas. In rural areas, by contrast, trade patterns are much more diffuse.

(Okello *et al.*, IFPRI, ILRI, RVC, 2010, [PDF](#))

### Linking utilisation and conservation of indigenous chicken genetic resources to value chains

Indigenous chicken (IC) is the most common type of chicken raised in most rural parts of Africa. The objective of this paper was to link utilisation and conservation of IC genetic resources to value chains. The study was carried out in three regions of Kenya. Using the structure-conduct-performance model, this study was able to describe the whole indigenous chicken value chain. The Bivariate Tobit model was used to determine the linkages between utilization and conservation of genetic resources to market participation.

Diseases and parasites, predators, price fluctuations and lack of market for products were the major constraints hindering productivity of indigenous chicken. This hampered the performance of the value chain. Results also indicate that all the target variables influencing the farmer's market participation were significant. These are age, education, and occupation of the household head. In addition, the total numbers of indigenous chicken owned and reared at the farm, distance to the main road, market price for the indigenous chicken products, production systems, access to market information, extension, preference for the indigenous chicken genotypes by farmers, and the preference for specific type of chicken and traits by the traders were significant. In order to link farmers to high value markets, policy makers, stakeholders and Government need to improve the whole IC value chain through proper management in production, conservation and sustainable utilisation, promotion of infrastructural developments and strengthening poultry producers' organisations to improve marketing.

(Bett *et al.*, *Journal of Animal Production Advances*, 2012, [PDF](#))

### A value chain approach to animal diseases risk management – Technical foundations and practical framework for field application

Classical risk assessment approaches for animal diseases are influenced by the probability of release, exposure and consequences of a hazard affecting a livestock population. Once a pathogen enters into domestic livestock, potential risks of exposure and infection both to animals and people extend through a chain of economic activities related to producing, buying and selling of animals and products. Therefore, in order to understand economic drivers of animal diseases in different ecosystems and to come up with effective and efficient measures to manage disease risks from a country or region, the entire

value chain and related markets for animal and product needs to be analysed to come out with practical and cost effective risk management options agreed by actors and players on those value chains. Value chain analysis enriches disease risk assessment providing a framework for interdisciplinary collaboration, which seems to be in increasing demand for problems concerning infectious livestock diseases. The best way to achieve this is to ensure that veterinary epidemiologists and social scientists work together throughout the process at all levels.

([Taylor et al.](#), FAO, 2011)

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## CTA S&T Programme Updates

### **CTA/WUR GCARDII Side Event: Partnerships for Research, Capacity building, Innovation and Foresighting: Managing Water for Agriculture and Food in ACP countries**

**Read the concept note and the programme:** [knowledge.cta.int/en/content/view/full/17034](http://knowledge.cta.int/en/content/view/full/17034)

CTA in collaboration with WUR will organize a side event on *Partnerships for Research, Capacity building, Innovation and Foresighting: Managing Water for Agriculture and Food in ACP countries* on 28 October 2012 at the GCARD II in Punta del Este. Safeguarding land, water and biodiversity resources for ensuring the future of agriculture and food especially in face of climate change and conflicting demands, remain a global priority for researchers, policymakers and civil society. The increasing demands of agricultural water users for this dwindling resource require not only concerted global, regional and national policy responses but the pursuit of a radically new or improved agenda for research and innovation which integrates perspectives of foresight, innovation, capacity building and partnerships.

During the pre-conference meeting examples of ongoing initiatives, namely, EAU4Food, CAMI/CARIWIN and USP climate change, System for Rice Intensification (SRI) and CARDI/FAO rain harvesting and irrigation projects as well as gender and youth related aspects governing access to resources will be presented by; Jochen Froebrich (WUR), Adrian Trotman (CIMH), Norman Thomas Uphoff (Cornell University), Leslie Simpson (CARDI), Villiami Iiese (USP) and Olivia Liwewe (SOTMACS). These will provide an overview of the key priority areas in research and capacity building, which are being addressed to determine to what extent national research organizations and universities, farmers, policymakers, and other key stakeholders are engaged in addressing integrated water and land management related issues. An attempt will be made to identify knowledge gaps and future policy, research and capacity building priorities as well as mechanisms for strengthening the engagement of multiple actors and ensuring that their perspectives are further mainstreamed for influencing ongoing and future innovation agendas and processes.

The focus will also be on improving existing or building new partnerships for greater impact and for determining what paradigm changes and conceptual frameworks need to be enhanced for achieving sustainable development using the lens of green growth.

### **CTA launches case studies on ACP Postharvest Knowledge System**

**Read the terms of reference:** [knowledge.cta.int/en/content/view/full/17037](http://knowledge.cta.int/en/content/view/full/17037)

In September 2012, CTA commissioned four case studies on postharvest knowledge systems in Ghana, Sénégal and Trinidad and Tobago. The case studies are being led by lecturers/researchers attached to national universities and research organizations. Given the need to better understand the strengths and weaknesses of the ACP postharvest knowledge system, to better identify, plan and implement interventions for improving policy and practice, the selected country case studies will provide in-depth knowledge of the system. A priority commodity will be tracked from field to market to learn lessons. Some of the guiding questions which will inform the conduct of the case study are provided.

For example, 'Using the particular commodity as a reference, what is the status of postharvest research, teaching and innovation? Does the capacity exist to generate, disseminate and use knowledge to reduce postharvest losses? What is the status of postharvest handling and processing facilities, engineering and equipment design and development capability, as well as packaging facilities and capability? Where are the centres of knowledge/excellence in teaching and research located and what are their major areas of focus, strengths and weaknesses? What is the extent of the problem? How is it quantified? Are the underlying causes well understood? Is available information being disseminated and used for informing policy and practice? What mechanisms need to be put in place to improve the information/evidence base? What additional data are needed to guide policy and strategic interventions to adequately address this important issue?'

### **CTA / UNESCO / USP / PNG / PACENet Pacific Islands Regional Universities Network and Science Policy Dialogue: Networking universities and defining a regional science policy framework**

**Read the concept note and the programme:** [knowledge.cta.int/en/content/view/full/17040](http://knowledge.cta.int/en/content/view/full/17040)

Dates: 5 – 7 November 2012

Venue: Fiji

CTA, UNESCO, USP, UNPG and PACENet will host a three day workshop from 5-7 November entitled 'Pacific Islands Regional Universities Network and Science Policy Dialogue: Networking universities and defining a regional science policy framework'. In February 2012, the decision was taken by the partners to combine the CTA support for establishing a Pacific universities network with a UNESCO-led initiative on the elaboration of the Pacific science, technology and innovation policy, while building on and linking with existing initiatives including PACENet.

Using the Pacific Plan as the overarching guiding document to help identify and respond to national and regional needs in research, science and technology as well as arts, culture and traditional knowledge, the November workshop will seek to: (i) develop the governance structure, mechanisms and work plan (including indicative operational budget) and articulate recommendations on the objectives, structure and modus-operandi for a Pacific Islands universities network to support intra- and inter-regional knowledge creation and sharing in science, technology and innovation (ST&I); (ii) prepare succinct recommendations for consideration by appropriate regional forums on the objectives, structure and content of a Pacific-owned and Pacific-driven ST&I policy framework – including its contribution towards the Pacific Plan and engagement with other relevant development frameworks and initiatives.

## Selected developments and publications | [RSS](#)

### **From Science to Business: Preparing Female Scientists and Engineers for Successful Transitions into Entrepreneurship**

[knowledge.cta.int/en/content/view/full/16989](http://knowledge.cta.int/en/content/view/full/16989)

This book authored by the Committee on Women in Science, Engineering, and Medicine (CWSEM), of the US National Research Council) is the summary of an August 2009 workshop that assesses the current status of women undertaking entrepreneurial activity in technical fields, to better understand the nature of the barriers they encounter, and to identify what it takes for women scientists and engineers to succeed as entrepreneurs. This report focuses on women's career transitions from academic science and engineering to entrepreneurship, with a goal of identifying knowledge gaps in women's skills as well as experiences crucial to future success in business and critical for achieving leadership positions in entrepreneurial organisations. From Science to Business makes the case that in addition to educating women scientists and engineers in rigorous problem solving, it is equally important to provide exposure and training to impart the skills that will enable more women to move from the role of expert to that of leader in dynamic new business enterprises. This book will be of interest to professionals in both academia and industry, graduate and post-graduate students, and organisations that advocate for a stronger economy.

([NAP](#), 2012)

### **Intellectual Property, Agriculture and Global Food Security : The Privatisation of Crop Biodiversity**

[knowledge.cta.int/en/content/view/full/16991](http://knowledge.cta.int/en/content/view/full/16991)

[This book](#) by Claudio Chiarolla, a research fellow at the Institut du développement durable et des relations internationales (Iddri, France) focuses on international governance of crop diversity and agricultural innovation. It highlights the implications that the future control of food, including access to agricultural resources and technologies, might have for global food security. The author analyses developmental implications of global regulatory reforms that impact on access to agricultural knowledge, science and technology for sustainable development. The book proposes ways to achieve international equity in the way agricultural research is conducted, how its results are disseminated and the benefits shared. This definitive study will be appreciated by anyone interested in intellectual property, agricultural innovation, environmental policy, and biotechnology and associated regulatory challenges. It will be a valuable resource for policymakers and practitioners, legislators, academic professionals, civil society activists and scholars in legal, environment and development studies. ([Iddri](#), 6/2011)

### **Open Innovation for Sustainability**

[knowledge.cta.int/en/content/view/full/16992](http://knowledge.cta.int/en/content/view/full/16992)

Open innovation has received relatively little attention in policy discussions about the role of innovation in building a more sustainable future, an issue which was of particular relevance to the Rio+20 summit in Brazil. A web-based marketplace for intellectual property (IP), the GX was founded on the belief that open innovation can play a key role in promoting sustainability in business practices. [This policy brief](#) represents the first in-depth effort to analyze the main features of the GX and to explore lessons that can be drawn from its experience thus far in terms of the broader thinking on innovation, intellectual property, and sustainability. The brief focuses particularly on how the GX exemplifies both the usefulness and limitations of open innovation for sustainability. It also suggests a number of ways to improve similar efforts through: a) further education and awareness raising about IP exchanges; b) an increase in resources dedicated to these exchanges; and c) a move away from simply focusing on the legal exchange of patents and towards increased collaboration between innovators.

### **G-20 agricultural scientists agree to share research information**

[knowledge.cta.int/en/content/view/full/16993](http://knowledge.cta.int/en/content/view/full/16993)

The agricultural chief scientists from the majority of G20 countries met in Mexico late September 2012. The scientists reached an agreement to share information, with an overall goal of increasing the pace of agricultural research and production. They recognized that in order to feed a burgeoning world population all nations would need to make a long-term commitment to agricultural research, while also noting the risk of duplication. Catherine Woteki, the Agriculture Undersecretary for Research, Education and Economics, as well as the chief scientist at the USDA, said, 'Recent international research collaborations have been critical to meet challenges such as combating wheat rust and increasing wheat productivity, fighting aflatoxin contamination in food, and sequencing genomes of important crops. However, the group recognized that as such partnerships continue to increase, there is a risk that some partnerships may have duplicative goals or that countries and collaborative partnerships may be investing in research that is already further along at another institution which is not a member of their partnership, and both would benefit from increased efficiency and sharing of data, germplasm and results more openly.' Woteki noted that while there has been a 'revitalization' of agricultural development research since the food price spikes of 2008, most developed countries' research budgets have stagnated. China has increased its agricultural research budget, she said. The scientists agreed that they would meet annually. What about inviting scientists from the non-G20 ACP countries (editor's note)? ([Story](#) summarised by [Meridian Institute](#), 9/2012)

### **New web-based model for sharing research datasets could have great benefits**

[knowledge.cta.int/en/content/view/full/16994](http://knowledge.cta.int/en/content/view/full/16994)

A group of US researchers have proposed creating a new web-based open data network to help researchers and policymakers worldwide turn existing knowledge into real-world applications and technologies and improve science and innovation policy. In the [Science article](#) (12 October 2012), the authors say that one key to making this proposed project work is to have a unified set of standards between databases and platforms – for example, using a unique identifier for researchers to avoid confusion when text-searching for one's name. ([EurekAlert](#), 11/10/2012)



## **Halving food losses would feed an additional billion people**

[knowledge.cta.int/en/content/view/full/16995](http://knowledge.cta.int/en/content/view/full/16995)

More efficient use of the food production chain and a decrease in the amount of food losses will dramatically help maintaining the planet's natural resources and improve people's lives. Researchers in Aalto University, Finland, have proved a valid estimation, for the first time, for how many people more could be nourished with made available from reduced food losses. The world's population is an estimated seven billion people. An additional one billion can be fed from our current resources, if the food losses could be halved. This can be achieved if the lowest loss percentage achieved in any region could be reached globally. ([EurekAlert](#), 10/10/2012)

## **African Postharvest Losses Information System (APHLIS)**

[knowledge.cta.int/en/content/view/full/16996](http://knowledge.cta.int/en/content/view/full/16996)

Estimates of postharvest losses (PHLs) are important data for policy makers, for food security staff making cereal supply estimates and for agricultural practitioners proposing, or actually managing, interventions to reduce postharvest losses. Before the introduction of APHLIS ([www.aphlis.net](http://www.aphlis.net)), the origin and justification of PHLs figures were not well founded. APHLIS was established to generate figures for the PHLs of cereal crops in a fully transparent manner and in a way that can enable the updating of PHL estimates as new data become available. It was created within the framework of the project 'Post harvest Losses Database for Food Balance Sheet Operations'. The APHLIS website offers cumulative % weight losses from production – for the cereal crops of Sub-Saharan Africa, for individual countries and for their provinces. The PHLs calculator that makes these estimates can also be downloaded by users as an Excel spreadsheet and default values changed to a user's preferences. A Users' Guide to the system can also be downloaded. The data on which this system is based was submitted by local experts who together form the APHLIS Network.

## **Farming with fewer pesticides: EU pesticide review and resulting challenges for UK agriculture**

[knowledge.cta.int/en/content/view/full/16997](http://knowledge.cta.int/en/content/view/full/16997)

EU policy is directed towards significant reductions in pesticide use in the short to medium term. Current European Commission (EC) Directives on pesticide registration and usage, has resulted in the loss from the UK market of some important crop protection products. The continuing review process could result in the removal from sale of many more pesticides commonly used in UK farming.

As new legislation is introduced and the basis on which pesticides would be removed from use is still undecided, it is difficult for the farming industry to have a clear perspective on which pesticides are at risk and what strategy they need to adopt to comply with current legislation and to design their future pest management plans. Britain and other EU States are faced with having to produce more food profitably and sustainably, using fewer pesticides, while trying to avoid steep price increases. The British Government has adopted a largely voluntary approach to pesticide reduction and implementation of IPM. The future for British agriculture will be a challenging one, relying on fewer active ingredients, with the consequent greater risk of pesticide resistance in the target pests. Farmers will require deeper understanding of IPM and access to information and technical support, if food production is to be sustained at current levels. This review summarises the EU Pesticide legislation, describes its potential impact on pest management and, how UK farming industry is responding to the challenge of farming with fewer pesticides. More [here](#).

## **UN report provides update on sustainable agricultural policies and practices**

[knowledge.cta.int/en/content/view/full/16998](http://knowledge.cta.int/en/content/view/full/16998)

The UN General Assembly has released a [report](#) of the UN Secretary-General on agriculture development and food security, which examines the challenges of achieving food and nutrition security, as well as progress in implementation of sustainable agriculture policies and practices based on the [Five Rome Principles for Sustainable Global Food Security](#). The paper describes the current state of food and nutrition insecurity, structural causes of hunger and malnutrition and environmental impacts such as climate change. It points to low productivity and low investment in smallholder agriculture, land degradation and water scarcity. (Excerpt from [IISD Reporting Services](#), 10/8/2012)

## **New EU strategy for international cooperation in research and innovation**

[knowledge.cta.int/en/content/view/full/16973](http://knowledge.cta.int/en/content/view/full/16973)

On 14 September 2012, the Commission adopted a Communication entitled '[Enhancing and focusing EU international cooperation in research and innovation: a strategic approach](#)'. The Communication sets out a new strategy for international cooperation in research and innovation, in particular with a view to implementing Horizon 2020. The Communication is accompanied by a Staff Working Document providing further background information and analysis.

## **New report on food security and climate change**

[knowledge.cta.int/en/content/view/full/17000](http://knowledge.cta.int/en/content/view/full/17000)

[This report](#) by the High Level Panel of Experts on Food Security and Nutrition (HLPE), a panel of the Committee on World Food Security (CFS) focuses on food security and climate change. It notes that food security vulnerability begins with the biophysical impacts of climate change, and that effects range beyond temperature impacts on plants, to relationships with pests, and diseases. It advocates for a social vulnerability lens to food insecurity and climate change. The report stresses that low-carbon or climate smart agricultural practices should be pursued. As recommendations, it calls among others, for: policies and programmes to integrate food security and climate change concerns; increasing resilience through activities including basing adaptation measures on assessments of risks and vulnerabilities, exchange of practices, weather forecasting tools, and increasing farmer access to financial services.

### **The role for scientists in tackling food insecurity and climate change**

[knowledge.cta.int/en/content/view/full/17001](http://knowledge.cta.int/en/content/view/full/17001)

The scientific community has an essential role to play in informing concurrent, strategic investments to establish climate-resilient agricultural production systems, minimize greenhouse gas emissions, make efficient use of resources, develop low-waste supply chains, ensure adequate nutrition, encourage healthy eating choices and develop a global knowledge system for sustainability. This paper outlines scientific contributions that will be essential to the seven policy recommendations for achieving food security in the context of climate change put forward by the Commission on Sustainable Agriculture and Climate Change. These include improved understanding of agriculture's vulnerability to climate change, food price dynamics, food waste and consumption patterns and monitoring technologies as well as multidisciplinary investigation of regionally appropriate responses to climate change and food security challenges.

(*Agriculture & Food Security*. 07/2012. Vol. 1, No. 10)

### **Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL)**

[knowledge.cta.int/en/content/view/full/17002](http://knowledge.cta.int/en/content/view/full/17002)

The SASSKAL ([www.sasskal.org](http://www.sasskal.org)) is a joint initiative of Angola, Botswana, Namibia, South Africa, Zambia, and Germany, responding to the challenges of global change. Its mission is to conduct problem-oriented research in the area of adaptation to climate change and sustainable land management and provide evidence-based advice for all decision-makers and stakeholders to improve the livelihoods of people in the region and to contribute to the creation of an African knowledge-based society. Three main objectives were set to meet the demands of target groups such as policy-makers and governmental administration, farmers, practitioners and other regional and local stakeholders affected by climate change. These include: (i) Trans-disciplinary, applied oriented research for people, (ii) Services and advice for policy, decision makers and stakeholders, and (iii) Capacity development. In parallel to this initiative in southern Africa, in West Africa a West African Science Service Centre on Climate change and Adapted Land Use (WASCAL, [www.wascal.org](http://www.wascal.org)) is presently being developed.

### **Spatial data infrastructure (SDI) in African countries: an implementation guide**

[knowledge.cta.int/en/content/view/full/17003](http://knowledge.cta.int/en/content/view/full/17003)

This [open-access handbook](#) has been compiled as a cooperative effort of the UN's Economic Commission for Africa (UN-ECA), the Global Spatial Data Infrastructure Association (GSDI) and EIS-Africa, with the collaboration of the Faculty of Geo-Information Science and Earth Observation (ITC, Univ. of Twente). The handbook is meant to assist African countries in their efforts to improve the management of their geo-spatial data resources in a way that effectively supports decision-making by governments and ensures the participation of the entire society in the process.

### **UN, other experts warn of 'water bankruptcy' for many regions after reviewing 200 major global projects**

[knowledge.cta.int/en/content/view/full/17004](http://knowledge.cta.int/en/content/view/full/17004)

A study of almost 200 major international water-related projects over the past 20 years has identified a suite of existing and emerging challenges and how science can offer remedies. The Global Environment Facility (GEF), the largest public funder of projects to improve the global environment and promote sustainable development, partnered with the United Nations University and the United Nations Environment Programme (UNEP) to extract lessons from a portfolio of major transboundary water projects involving investments of more than US\$7 billion. Insufficient and disjointed management of human demands on water and aquatic systems has led to situations where both social and ecological systems are in jeopardy and have even collapsed, [says the report](#). ([EurekAlert](#), 23/9/2012)

### **The CuveWaters project: integrated water resources management in Namibia**

[knowledge.cta.int/en/content/view/full/17005](http://knowledge.cta.int/en/content/view/full/17005)

The [CuveWaters project](#) establishes an Integrated Water Resources Management (IWRM) system in the Cuvelai-Etoshia basin in Northern Namibia. Together with practice partners and prospective users, researchers are developing and implementing technologies for rain- and floodwater harvesting and storage, desalination and sanitation and water re-use. CuveWaters uses a trans-disciplinary approach in which science and technology are tied in with the everyday practical knowledge of the local people. CuveWaters is an international joint research project [led by ISOE](#) – Institute for Social-Ecological Research in cooperation with the Technical University Darmstadt in Germany and the Desert Research Foundation of Namibia (DRFN) as well as the Ministry of Agriculture, Water and Forestry (MAWF) in Namibia. The project is being funded by the German Federal Ministry of Education and Research (BMBF). The project is currently running from 2006 to 2013. A third phase is planned.

### **CropWat software calculates crop water and irrigation requirements based on soil, climate and crop data**

[knowledge.cta.int/en/content/view/full/17006](http://knowledge.cta.int/en/content/view/full/17006)

CROPWAT 8.0 for Windows is a computer program developed for the FAO for the calculation of crop water requirements and irrigation requirements based on soil, climate and crop data. In addition, the program allows the development of irrigation schedules for different management conditions and the calculation of scheme water supply for varying crop patterns. [CROPWAT 8.0](#) can also be used to evaluate farmers' irrigation practices and to estimate crop performance under both rainfed and irrigated conditions.

### **Development Research Uptake in Sub-Saharan Africa (DRUSSA)**

[knowledge.cta.int/en/content/view/full/17007](http://knowledge.cta.int/en/content/view/full/17007)

Development Research Uptake in Sub-Saharan Africa (DRUSSA) provides direct support to universities at individual, institutional and systems levels to improve participation in and impact on policy and practice. The programme has been designed to consolidate and strengthen existing capacity that can be sustained in the long term by the universities themselves. DRUSSA works with 24 Sub-Saharan universities as they improve capacity to manage the uptake of research by key stakeholders.

In support of this, it provides a digital platform, DRUSSA Online, to engage with all segments of its audiences, principally located in Sub-Saharan Africa, but also internationally. The five-year programme was established in October 2011 following a two-year design and development phase. The DRUSSA partnership consists of three entities: UK-based Association of Commonwealth Universities (ACU); the Centre for Research into Evaluation, Science and Technology (CREST) at the University of Stellenbosch, South Africa; and the Organisation Systems Design (OSD), a South African-based consultancy. This programme is funded by the United Kingdom Department for International Development (DFID). Central to this programme is the promotion Research Uptake Management (RUM), an emerging university management field with a practical, cost-effective and sustainable approach to getting research into use. According to DRUSSA, RUM requires specialist individual capacity, aligned organisational structures and strategic management processes to optimise conditions for the dissemination, uptake and application of scientific evidence.

Visit [www.drussa.net](http://www.drussa.net).

### **Higher education needs to engage in outreach-based research**

[knowledge.cta.int/en/content/view/full/17008](http://knowledge.cta.int/en/content/view/full/17008)

Thierry Claudien Uhawenimana, the Public Relations and Communications Officer at the Kigali Health Institute in Rwanda, wrote a very interesting commentary on the importance of and need for community outreach-based education and research in the natural sciences curricula of universities and colleges. Uhawenimana cites efforts by the Kigali Health Institute, the National University of Rwanda and universities in Uganda to build effective outreach activities for students in the public health sector. The success, challenges and recent innovations in the field can serve as precious examples for other universities programmes, like in the agricultural sciences, looking to develop or improve community outreach activities. ([DRUSSA](#) via [University World News](#), 16/8/2012)

### **Field Sampling for Environmental Science and Management**

[knowledge.cta.int/en/content/view/full/17009](http://knowledge.cta.int/en/content/view/full/17009)

Scientists and consultants need to estimate and map properties of the terrestrial environment. These include plant nutrients and parasites in soil, gaseous emissions from soil, pollutant metals and xenobiotics in waste and contaminated land, salt in groundwater and species abundances above ground. The scale varies from small experimental plots to catchments, and the land may be enclosed in fields or be open grassland, forest or desert. Those who sample the variables to obtain the necessary data need guidance on the design and analysis of sampling methods for their conclusions and recommendations to be valid.

[This book](#) provides that guidance, backed by sound rationale and statistical theory. It concentrates on design-based sampling for estimates of mean values of environmental properties, emphasizing replication and randomization. It starts with simple random sampling and then progresses to more efficient designs, such as spatially stratified random sampling, stratification by classes and cluster sampling. It includes a section on purposive sampling in classical soil survey, which is relevant to other environmental properties such as vegetation. It also describes the effects of bulking on errors and the use of ancillary information and regression to improve estimates. The authors draw the important distinction between design-based sampling for estimating means and model-based methods (geostatistics) for local spatial prediction and mapping, and focus on the latter. They describe designs suitable for computing variograms and prediction by kriging, as well as a staged approach, so that sampling is neither inadequate nor excessive, and designs adapt as knowledge is accumulated. Including numerous worked case studies of sampling in agriculture, ecology and environmental science, the book will be of immediate practical value. ([Routledge](#), 2012)

### **Pesticide use rises as herbicide-resistant weeds undermine performance of major GE crops**

[knowledge.cta.int/en/content/view/full/17010](http://knowledge.cta.int/en/content/view/full/17010)

A new study conducted by Charles Benbrook, a research professor at Washington State University, found that the use of herbicides in the production of three genetically modified (GM) herbicide-tolerant crops – cotton, soybean and corn – has actually increased. The findings are based on an analysis of publicly available data from the U.S. Department of Agriculture's National Agriculture Statistics Service. It is the first analysis of the impacts of genetically engineered (GE) herbicide-resistant crops on pesticide use that is peer-reviewed and published. Benbrook said the emergence and spread of glyphosate-resistant weeds is strongly correlated with an increase in herbicide use. In the U.S., approximately 95 percent of soybean and cotton acres, and over 85 percent of corn, are varieties genetically modified to be resistant to herbicides. 'Resistant weeds have become a major problem for many farmers reliant on GE crops, and are now driving up the volume of herbicide needed each year by about 25 percent', he said. Benbrook's analysis showed that while herbicide-tolerant crops work well initially, over-reliance may have led to shifts in weed communities and the spread of resistant weeds that have forced farmers to increase herbicide application rates, spray more often, and add new herbicides. The study was published in the journal *Environmental Sciences Europe*. ([Article](#) summarised by [Meridian Institute](#), 9/2012)

### **Genetic engineering not solving agriculture's drought problem**

[knowledge.cta.int/en/content/view/full/17011](http://knowledge.cta.int/en/content/view/full/17011)

[This publication](#) by the Union of Concerned Scientists (UCS) is the third in a series of reports highlighting genetic engineering's limitations and demonstrating the importance of increasing public investment in more effective – but often neglected – agricultural technologies. Agriculture accounts for the lion's share of all water extracted from rivers and wells – about 70% – setting up conflicts between food production and other uses. And beyond competition for water among various

human needs are the requirements of aquatic organisms, such as game fish prized by sportspeople, who bring dollars to local economies. Finding ways to protect food production and farmers' livelihoods from devastation by drought – and also to reduce agriculture's need for water – is therefore vital.

The UCS analyzed the prospects for improving crops in ways that can reduce water use overall, and losses during dry periods. It focused on crop genetic engineering. UCS found little evidence of progress in making crops more water efficient. It also found that the overall prospects for genetic engineering to significantly address agriculture's drought and water-use challenges are modest at best.

### **European Food Safety Authority publishes initial review on GM maize and herbicide study**

[knowledge.cta.int/en/content/view/full/17012](http://knowledge.cta.int/en/content/view/full/17012)

The European Food Safety Authority (EFSA) has concluded that a recent paper conducted by Séralini *et al.* concerning the potential toxicity of genetically modified (GM) maize NK603 and a herbicide containing glyphosate is of insufficient scientific quality. Séralini and his team at France's University of Caen had found that rats developed tumors when fed the corn, or when exposed to weedkillers containing glyphosate. The EFSA set up a multi-disciplinary task force in response to an urgent request from the European Commission to evaluate the paper and assess whether the findings could lead the Authority to reconsider its previous opinion on the maize NK603. The initial review found the design, reporting and analysis of the study to be inadequate. The EFSA has invited the authors to share key additional information in order to enable the fullest understanding of the study, but, at this time, is unable to regard the authors' conclusions as scientifically sound. A second analysis of the study will be delivered by the end of October 2012, and will take into account any additional information from the study authors. EFSA's current position is that it does not see a need to re-examine its previous safety evaluation of maize NK603, nor consider these findings in the ongoing assessment of glyphosate. (EFSA, 4/10/2012)

### **Collab4Safety: A global food safety research partnership**

[knowledge.cta.int/en/content/view/full/17013](http://knowledge.cta.int/en/content/view/full/17013)

The increasing complexity and globalisation of the food supply has an impact on the safety of our food. This can have consequences for the health of the consumer, food production systems and trade relations. Collab4Safety, a research project started by the Institute of Food Safety (RIKILT, The Netherlands) and Wageningen UR, will begin sort and index information about research, research methods, knowledge and innovation, training activities and legislation in the field of food safety in the participating countries (the Netherlands, the United Kingdom, France, Portugal, Russia, Poland, China and Brazil). Similarities and differences will then be highlighted and recommendations will be made about possible collaboration, prevention and control measures in the food chains. (Wageningen UR, 9/2012)

### **New fisheries advisory group at the Standing Committee on Agricultural Research (SCAR – Fish)**

[knowledge.cta.int/en/content/view/full/17014](http://knowledge.cta.int/en/content/view/full/17014)

The Standing Committee on Agricultural Research (SCAR) in 2012 agreed on the establishment of a policy-driven strategic group with the objectives to advise the Commission and Member States on research policies and research themes in order to better coordinate and direct these activities in support of the revised Common Fisheries Policy. The first meeting of SCAR-Fish took place 14 June 2012. [Click to download](#) the report in pdf from the first SCAR-Fish meeting.

### **iMarine: An innovative approach to data and knowledge sharing for sustainable fisheries management and conservation policies**

[knowledge.cta.int/en/content/view/full/17015](http://knowledge.cta.int/en/content/view/full/17015)

iMarine ([www.i-marine.eu](http://www.i-marine.eu)) provides a cutting-edge e-infrastructure, facilitating marine and biodiversity scientists, fisheries managers, statisticians and conservationists, as well as key organisations like the Food and Agriculture Organisation (FAO), the WorldFisher Center and CGIAR. These diverse specialist communities require highly demanding computing, multidisciplinary data, complex prediction and validation models but typically lack access to such resources. Funded under the European Commission's 7th Framework Programme, iMarine is helping to unlock knowledge on the oceans, allowing managing, protecting and sustainably benefiting from their vast resources.

(CORDIS, 7/8/2012)

### **Landsat satellites find the 'sweet spot' for crops**

[knowledge.cta.int/en/content/view/full/17016](http://knowledge.cta.int/en/content/view/full/17016)

Farmers are using maps created with free data from NASA and the U.S. Geological Survey's Landsat satellites that show locations that are good and not good for growing crops. Providing the longest, continuous record of observations of Earth from space, Landsat images are critical to anyone – scientist or farmer – who relies on month-to-month and year-to-year data sets of Earth's changing surface. This story article describes how farmers in the US are using the Landsat image archive to assess the productivity of their fields and help them plan appropriate crops according to soil characteristic and crop reflectance.

(NASA, 27/9/2012)

### **Hope for African sorghum farmers as striga resistant varieties are released**

[knowledge.cta.int/en/content/view/full/17017](http://knowledge.cta.int/en/content/view/full/17017)

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) [shares news](#) of the approval and release of four new striga resistant sorghum varieties. Developed by ASARECA, the Agricultural Research Corporation of Sudan (ARC) and ICRISAT, the varieties are heading to the fields, royalty free. In June 2012, the varieties were declared ready for public use after intense scrutiny by the release committee of the Agricultural Research Corporation of Sudan (ARC). (ASARECA, 7/8/2012)



## Researchers launch new 'Rust-Tracker' to monitor deadly wheat fungus in 27 nations

[knowledge.cta.int/en/content/view/full/17018](http://knowledge.cta.int/en/content/view/full/17018)

The world's top wheat experts at the start of a symposium organised in Beijing by the Borlaug Global Rust Initiative (BGRI) early September, reported a breakthrough in their ability to track Ug99 and related strains of a deadly and rapidly mutating wheat pathogen called stem rust that threatens wheat fields from East Africa to South Asia. With data submitted by farmers and scientists from fields and laboratories, the creators of the 'Rust-Tracker' say they now can monitor an unprecedented 42 million hectares of wheat in 27 developing countries in the path of a windborne disease so virulent it could quickly turn a healthy field of wheat into a black mass of twisted stems and dried-up grains. [Eurekalert has the full report](#) (31/8/2012).

## Underground solution to starving rice plants

[knowledge.cta.int/en/content/view/full/17019](http://knowledge.cta.int/en/content/view/full/17019)

A rice gene that could significantly raise the rate of phosphorus uptake in rice varieties has been discovered by a team of international researchers, who claim that it could increase rice yields by up to 20%. The gene is called PSTOL1, which stands for Phosphorus Starvation Tolerance. It enhances the root growth of rice plants, enabling them to acquire more phosphorous and other nutrients locked in soils. Sigrid Heuer, a senior scientist at the International Rice Research Institute (IRRI) in the Philippines, and leader of the team that published the study in Nature (August 2012), said low phosphorus availability in soils affects about half of the world's farmlands. Affected soils require additional applications of phosphorous fertiliser to make them productive. (Excerpt from [Scidev](#), 30/8/2012, [Sciencedaily](#), [ISAAA](#)).

## The Pacific Climate Change Portal

[knowledge.cta.int/en/content/view/full/17020](http://knowledge.cta.int/en/content/view/full/17020)

The Secretariat of the Pacific Regional Environment Programme (SPREP), in collaboration with its partners, is developing the Pacific Climate Change Portal (PCCP): [www.pacificclimatechange.net](http://www.pacificclimatechange.net). Regional and national institutions in the Pacific Island region hold a substantial amount of climate change-related information and tools. The portal aims to ensure this information is readily accessible in a coordinated and user-friendly manner. It will provide a platform for institutions and governments in the Pacific region to share information that can be readily accessed by linking to information repositories such as the [Pacific Islands Global Ocean Observing System](#). One planned future development will be the Geographical Information System (GIS) training module to be made available on the portal.

## Resources to track botanical literature on the Web

[knowledge.cta.int/en/content/view/full/16977](http://knowledge.cta.int/en/content/view/full/16977)

The [Agricultural Biodiversity Weblog](#) posted a useful reminder to anyone looking online for scientific resources on ethnobotany and germplasm collection. The post has a link to a [webpage](#) maintained by the University of Kent listing a comprehensive compilation of online databases, search engines, checklists, image galleries, etc., meant for students in ethnobotany. This page is an overview of where to find complete plant names, conservation status and uses, citations and references managers. For the germplasm collector, Agro.biodiver.se also points to the Crop Genebank Knowledge Base and its page on ['Published sources of information on wild plant species'](#) which is synthesis of new knowledge, procedures, best practices and references for collecting plant diversity. It explains how and where to check taxonomy/species name, digitized botanical literature and flora guides. (Agro.biodiver.se, 9/10/2012)

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## Events | [RSS](#)

### 2012 Africa-EU Cooperation Forum on ICT

[knowledge.cta.int/en/content/view/full/17022](http://knowledge.cta.int/en/content/view/full/17022)

Dates: 26-30 November 2012

Venue: Lisbon, Portugal

The '2012 Africa-EU Cooperation Forum on ICT' is the fifth of a series of very successful conferences organised by the EuroAfrica-ICT Initiative under the aegis of the European Commission (EC) and the African Union Commission (AUC). Organised in the framework of the 'Africa-EU Strategic Partnership' (JAES) and hosted by the Government of Portugal through the Ministry of Education and Science (MEC), the '2012 Africa-EU Cooperation Forum on ICT' aims at strengthening and supporting the development of cooperation on ICT research and ICT4D between Africa and Europe. [More information](#).

### World Conference on Climate Change Impacts: 'Impacts World 2013'

[knowledge.cta.int/en/content/view/full/17023](http://knowledge.cta.int/en/content/view/full/17023)

Dates: 27-30 May 2013

Venue: Potsdam, Germany

The IMPACTS WORLD 2013 conference in Potsdam will for the first time bring together the wealth of climate change research and researchers from around the world, with the goal of setting a state-of-the-art agenda for climate impact research. IMPACTS WORLD 2013 will lay the foundation for regular, community-driven syntheses of climate change impact analyses. Learn more about the conference and sign up for the update service under: [www.climate-impacts-2013.org](http://www.climate-impacts-2013.org).

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## Grants, Competitions and Calls | [RSS](#)

### Partnerships for Enhanced Engagement in Research (PEER) Science

[knowledge.cta.int/en/content/view/full/17024](http://knowledge.cta.int/en/content/view/full/17024)

Deadline: 4 December 2012

The United States Agency for International Development (USAID) and the National Sciences Foundation (NSF) are working together to support the second cycle of Partnerships for Enhanced Engagement in Research (PEER) Science. PEER Science is a competitive grants programme that invites scientists in developing countries to apply for funds to support research and capacity-building activities on topics of importance to USAID and conducted in partnership with their NSF-funded collaborators. Areas in which both NSF and USAID have strong mutual interests include, but are not limited to, the following:

- Food security topics such as agricultural development, fisheries, and plant genomics;
- Climate change impacts such as water sustainability, hydrology, ocean acidification, climate process and modeling, and environmental engineering;
- Other development topics including disaster mitigation, biodiversity, water, and renewable energy.

Find all the necessary information [here](#).

### **Call for candidates: 'Stage méthodologique d'appui à l'innovation en agriculture familiale', 6th edition**

[knowledge.cta.int/en/content/view/full/17025](http://knowledge.cta.int/en/content/view/full/17025)

Deadline: 18 January 2013

The course is open to 20 participants. 14 scholarships are available from CUD and 6 additional places are available to candidates with an alternative source of funding for scholarship (CTB bursary, financing sought by your own care).

Nominations must be sent according to the selected option (with or without CUD scholarship) directly to the CUD or ADG.

You can find the necessary information and forms [here](#). The terms and scholarship application form for the CUD (Coopération universitaire au développement, Belgium) are also available [on their website](#).

### **Call for Proposals of the ACP Science and Technology Programme launched**

[knowledge.cta.int/en/content/view/full/16976](http://knowledge.cta.int/en/content/view/full/16976)

Deadline for the submission of applications: 7 February 2013.

The ACP S&T Programme is glad to announce the launch of the new open Call for Proposals of the Programme (08/10/2012).

This second Call builds upon the lessons learnt from the first Call for Proposals launched in 2008. [More information](#).

### **Australian Masters-level Scholarship Awards**

[knowledge.cta.int/en/content/view/full/17027](http://knowledge.cta.int/en/content/view/full/17027)

Deadline: 31 March 2013

As part of its development cooperation agenda in Africa, the Australian government is providing up to 380 Masters scholarships for eligible candidates from 28 African countries. These scholarships, commencing in 2014, are aimed at increasing the capacity of Africans to promote development in their home country and are focused on priority development areas including Agriculture and Food Security; Health; Natural Resource Management including Mining Governance; Water and Sanitation; and Public Policy. The call for applications is now open. For more information about the scholarships, visit the [Australian Awards website](#).

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## **Jobs | RSS**

### **Executive Secretary, Global Horticulture Initiative**

[knowledge.cta.int/en/content/view/full/17028](http://knowledge.cta.int/en/content/view/full/17028)

The Global Horticulture Initiative (GlobalHort) is [seeking candidates](#) for the position of Executive Secretary which will become vacant in late February 2013.

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Publisher: CTA

Coordinating editors: Judith Francis, CTA and Rutger Engelhard, Contactivity bv.

Research: Cédric Jeanneret-Grosjean, Contactivity bv.



CTA is an institution of the ACP Group of States (Africa, Caribbean and Pacific) and the EU (European Union), in the framework of the Cotonou Agreement and is financed by the EU.