

Research and innovation

The Global Forum on Agricultural Research (GFAR) brings together all those working to strengthen and transform agricultural research for development around the world. As part of this role, GFAR is working with New Agriculturist to showcase and raise awareness of important initiatives and their outcomes, to update and inspire others.



Capacity building

Capacity development remains a major requirement for achieving sustainable impacts in the agriculture sector. But what new skills and capabilities are needed, how can knowledge be most effectively shared, and how can young people, particularly young women, be attracted and retained in agricultural careers?

At GCARD2, participants focused on the new capabilities and collective actions required across the Agricultural Research for Development continuum in order to achieve impact at scale. In this edition, GFAR highlights four examples of how capacities to generate, share and use agricultural knowledge for development are being enhanced.

Young professionals in agriculture: the social reporters of GCARD2

To promote effective communication from GCARD2 in Uruguay, a team of young agri-professionals from around the world was trained and supported to provide social media coverage of the event. This groundbreaking move enabled the active engagement and on-line participation of people from all around the world.

Empowering Africa's women agricultural scientists

AWARD, which recently received funding for a second five-year phase, builds the scientific and leadership skills of African women agricultural scientists, helping to inspire change and ensure that agricultural research is meeting the needs of smallholders, most of whom are women.

Building capacity to innovate

In developing countries, so many of the challenges facing agriculture and natural resources management can be addressed through innovation. The Tropical Agriculture Platform has been developed to facilitate more effective capacity development interventions in innovation systems in tropical agriculture.

Appropriate knowledge and tools for smallholder farmers

The development of ICTs is helping extension become more efficient and farmer-friendly, with real-time advice. But the challenge is how to scale up pilot projects to reach millions of smallholders. With this issue in mind, GCARD2 highlighted examples of knowledge access as a way to unlock the potential of smallholder agriculture.

Empowering Africa's women agricultural scientists



Filomena dos Anjos was sponsored to conduct poultry feed research
©Carlos Litulo

The recent Second Global Conference on Agricultural Research for Development (GCARD2) put the needs of women in agriculture at the forefront of the agricultural reform agenda. Women comprise nearly half the world's farmers yet are often not even categorised as farmers; their needs receive scant attention, whether from agricultural research and advisory institutions, enabling policies or access to inputs and land. GCARD2 has highlighted the need for major change in the way institutions think about farmers, their knowledge and innovation needs and the gender-based differences and challenges in meeting these. The conference carried a strong and persistent message of change, with issues of youth, women, nutrition and sustainability at the heart of the processes discussed.

At the conference, Vicki Wilde, director of African Women in Agricultural Research and Development (AWARD), chaired a session on the learning and empowerment of women and youth. She shared insights gained from AWARD, a two-year, career-development fellowship programme that builds the scientific and leadership skills of African women agricultural scientists. Each AWARD fellow is paired with a mentor, a senior scientist who guides her career, and is also provided with opportunities to build her scientific skills. This includes 'soft skills', such as people management, communication and negotiation, an important complement to academic and technical skills in supporting career progression. Since the programme began in 2008, 320 female scientists from 11 sub-Saharan African countries have been selected as AWARD fellows, on the basis of intellectual merit, leadership capacity and potential for their work to improve the lives of smallholder farmers.

Strengthening skills and institutions

Msekiwa Matsimbe, a 27-year-old MSc student and AWARD fellow from Malawi, participated in GCARD2. "I want to increase women's participation in aquaculture and fisheries to improve livelihoods in Malawi," she says. Her MSc research has involved investigating how land use and environmental changes are impacting on fish diversity in the rivers that feed into Lake Malawi. Results from her work will be used to inform a government management strategy to increase fish yields and prevent over-fishing. She credits her AWARD fellowship with strengthening both her capacity and her passion regarding agricultural research; she has won first and third prizes in poster competitions at international meetings, and is now planning to pursue a PhD focussing on improving food security in Malawi.

AWARD fellows are not the only ones to benefit from the programme; their enhanced skills and expertise are also improving the capacity of their scientific institutes. Professor Sheila Okoth of the University of Nairobi undertook a three-month advanced scientific training at Stellenbosch University, funded by AWARD, to further her research on aflatoxin contamination. On returning to Nairobi, she established the university's first post-graduate mycology research laboratory.

Filomena dos Anjos, a senior lecturer at Eduardo Mondlane University in Mozambique, was sponsored by AWARD corporate partner, Novus International, to conduct poultry feed research in its Missouri-based laboratories. Her investigations into the potential to substitute soybeans with cowpeas or pigeonpeas could, she believes, open a significant new market for farmers. But the benefits of her experience will, she believes, be felt at many levels. "It is crucial that I transfer the technology and skills learned at Novus to Eduardo Mondlane University," she says. "It will help to create an environment for conducting quality research and teaching. This will in turn have direct impact on the poultry industry and the general well-being of the Mozambican people." Over 130 agricultural technologies and products have been, or are being developed by the first 180 AWARD alumnae in their respective institutes.



Msekiwa Matsimbe credits her AWARD fellowship with strengthening both her capacity and her passion regarding agricultural research
©AWARD/Karen Homer

Further evidence of the success of the programme includes: around half the fellows increased their average annual publication rate in peer-reviewed journals, with a similar proportion being promoted since taking up their fellowship. Fifty-seven per cent refocused their research to be more gender responsive or more relevant to the needs of women farmers. Demand for fellowships has also been growing, with over 1,000 women competing for 70 places in the latest application round. The programme's goal is to strengthen the top ten per cent of women agricultural scientists in 11 sub-Saharan countries.

Five year funding



Professor Sheila Okoth established the University of Nairobi's first post-graduate mycology research laboratory
©AWARD

Achieving that goal has been supported by funding from the Bill & Melinda Gates Foundation (US\$14 million) and USAID (up to US\$5 million) for the programme's second phase. Under this, AWARD aims to build a strategic alliance of African agricultural research for development leaders who will promote the contributions and prioritise the needs of women throughout the agricultural value chain.

Participants in the GCARD2 session recommended that the innovative approaches demonstrated by AWARD and other capacity-building programmes now be multiplied to create much wider, high-quality opportunities for women and youth in Agricultural Research for Development (AR4D) to gain practical experience and to develop their careers, such as internships, fellowships, mentoring and secondments. They also called for processes to capture data on the gender

composition of AR4D groups and institutions, and for action to compile and learn from efforts to reform agricultural education curricula so that future AR4D systems will fully include women and attract youth. Participation in the newly formed Gender in Agriculture Partnership was also strongly recommended, as a means of collective advocacy and action across institutions and sectors.

Links

- AWARD (<http://www.awardfellowships.org>)

Appropriate knowledge and tools for smallholder farmers

Public funded agricultural extension is often inadequate in terms of infrastructure and human resources to meet the needs of smallholder farmers. For a more food secure world, it is imperative that millions of resource-poor small farms in developing countries significantly raise their agricultural productivity, are more resilient to shocks and seize opportunities to increase their incomes. To do so, farmers need access to, and be able to effectively use, appropriate information and knowledge in a timely manner according to their own situations.



Farmers need access to appropriate information and knowledge
©ICRISAT

The development of ICTs is helping extension become more efficient and farmer-friendly, with real-time advice. But the challenge is how to scale up pilot projects to reach millions of smallholders. With this issue in mind, the Second Global Conference on Agricultural Research for Development (GCARD2) highlighted examples of knowledge access as a way to unlock the potential of smallholder agriculture.

ICT innovations for agriculture

To meet the challenge of providing smallholders in India and sub-Saharan Africa with the right information at the right time, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has opened a Centre of Excellence (COE) in ICT innovations for agriculture. The COE has developed many information systems, linking research, extension and markets. In south India, for example, ICRISAT provides internet-equipped village knowledge centres with up-to-date information on best farming practices, including methods of climate adaptation, crop rotation, diversification and pest management for crops such as millet or sorghum. These platforms have helped around 46,000 farmers in 21 villages in one of the poorest regions of south central India, including women, become more food secure and resilient to drought.

Together with the Indian Institute of Technology (IITK), ICRISAT has also set up a knowledge-sharing platform enabling mediated voice communication, via mobile phones, between agriculture experts and farmers. The project is currently serving nearly 20,000 farmers in south India, who are regularly receiving timely crop advisories from farmer knowledge centres (*Krishi Vignan Kendras*). "Earlier we used to take advice from the shop dealer on mixing of pesticides," explains Satyanarayana Reddy, a farmer from Jaanampeta. "Now, with ICRISAT's information advisory service, we are able to figure out the accurate dosage. It saves money." Plans are currently underway to replicate and expand this voice message model across Asia and Africa.

Unlocking knowledge



Women filming algae as fertiliser application
©ICRISAT

Providing free web-based access to research is another priority for international research and development centres. Housing more than 5,700 research documents, including journal articles, conference papers, theses, and monographs, an Open Access Repository launched by ICRISAT provides an easy interface for researchers, practitioners, or web-connected farmers to use, build on and share research conducted at ICRISAT. Since its creation in May 2011 more than 144,000 documents have been downloaded by people from more than 70 countries, with around 6,000 unique users visiting the Repository every month.

A virtual knowledge series platform, known as KSI (Knowledge Sharing and Innovation) Connect, enables ICRISAT to highlight their most interesting projects to a global audience. This platform also allows experts across the globe to share their project experiences. KSI Connect provides agricultural stakeholders with direct access to technical experts and the latest scientific innovations in agriculture, without having to participate in face-to-face training sessions. Since its launch in July 2012, more than 100 videos have been uploaded and more than 3,000 users visit the site each month.

ICRISAT is also a partner in the Coherence in Information for Agricultural Research for Development (CIARD) initiative, which aims to put all agricultural information in the public domain, making it more openly and easily available. From across its partner organisations, CIARD has collated more than 6 million documents that can be accessed by information managers for value-added information services, such as those used by ICRISAT, targeted to a group of farmers engaged in producing a particular crop or following a common farming system.

Developing a new rural knowledge economy

ICRISAT also believes that the next generation of ICT innovations should go beyond providing agro-advisory information to providing quality inputs (seeds, fertilisers, pesticides, credit and insurance) and other services such as access to markets and information on farmer and agribusiness entrepreneur support systems. Providing these knowledge services could be financially viable for info-entrepreneurs through fees for providing the service, or for the private sector looking to develop their supply chain. An expert from ICRISAT's advisory service stated that ICT-enabled information services would be useful in creating a para-extension worker out of a rural youth, with only marginal investment.



Women listening to livestock farming advice
©Alina Paul-Bossuet/ICRISAT

For example, with a complete suite of applications - touch screen and apps, self guided instructions, enabling virtual transactions, integrated GPRS, camera for capturing pictures and videos - tablets and smartphones have the potential to transform the way agricultural information is shared and created. The COE - following on from discussions held at GCARD2 - is currently exploring tablet-mediated agro-advisory enterprise models to improve the quality and convenience of affordable agricultural advice services. Research is also focusing on how to create a sustainable communication network that would allow multidisciplinary institutions to converge science, technology and value chain approaches. The COE aims to incubate such platforms in the poorest and drought-prone regions of south central Asia and sub-Saharan Africa to enable increasing numbers of smallholders to be more food-secure and prosperous.

Written by: Dileepkumar Guntuku, Global Leader for ICRISAT's Knowledge Sharing and Innovation program and South-South Initiative Coordinator

Links

- Coherence in Information for Agricultural Research for Development (<http://www.ciard.net/>)
- ICRISAT: Open Access Repository (<http://oar.icrisat.org/>)
- ICRISAT: KSICConnect (<http://www.ksiconnect.icrisat.org/>)</u>

Building capacity to innovate

In developing countries, so many of the challenges facing agriculture and natural resources management can be addressed through innovation. But many developing countries don't have the resources or capacities to develop their innovation systems effectively. The 'capacity gap' is worse in the tropics, where poverty is pervasive and initiatives to develop agricultural innovation capacities of tropical countries are generally small-scale with high transaction costs, have limited impact and are not well coordinated or in synergy with each other. Additionally, they often do not match the needs of the country, inadequately consider needs of other sectors and may overlook the specific demands of national agricultural markets.



Initiatives to develop agricultural innovation capacities of tropical countries are generally small-scale
©FAO/Riccardo Gangale

Meeting a demand

To respond to this capacity gap, the G20 Agriculture Ministers meeting in June 2011 requested FAO to take the lead in developing a Tropical Agriculture Platform (TAP) to facilitate more effective and streamlined capacity development interventions in innovation systems in tropical agriculture. In September 2011, a concept note was discussed at the G20 Conference on Agricultural Research for Development, in Montpellier, and further developed to a project proposal through an informal stakeholder consultation in Rome in December 2011. The proposal was endorsed by the G20 Agriculture and Development Working Groups in early 2012 and by the G20 Leaders' Summit in Mexico, in June 2012. The G8 members also endorsed the development of TAP at their Summit held in the US in May 2012.



TAP will provide a mechanism for actors to communicate and learn from each other about capacity development policies and practices
©FAO/Riccardo Gangale

Launched at the first G20-led Meeting of Agriculture Chief Scientists in September 2012 in Mexico, TAP will contribute to greater coherence of capacity development interventions through support of less developed countries by actors in more advanced agricultural innovation systems. The Platform will provide a mechanism for actors to communicate, exchange ideas, knowledge, experiences and practices, and work in a more coordinated way, learning from each other about capacity development policies and practices that work. These partnerships must acknowledge national leadership and ownership and be aligned with national plans and demands. By fostering partnerships and developing shared visions, the aim is to steer capacity development for agricultural innovation along a more coherent path and to arrive at development solutions at scale that have lower transaction costs and greater impact, contributing to food security and environmental sustainability.

The role of GCARD

In 2012, more than 30 organisations - including national, regional and international agricultural research, education and extension institutions, the private sector, civil society and farmers' organisations - have joined TAP as partners. The Second Global Conference on Agricultural Research for Development (GCARD2) has focused particular attention on this new international initiative working to bring about large scale action in capacity development responding to the critical needs identified in the GCARD Roadmap. The first TAP meeting took place in Punta del Este during a pre-conference event at GCARD2 where partners met and discussed progress achieved so far, the operational framework for TAP, and memberships of the TAP General Assembly and Steering Committee. A dialogue with a wide range of GFAR stakeholders was also initiated in the GCARD2 session on institutional knowledge and learning. The principal recommendation emerging from the session was that emerging and established global and regional platforms for capacity development, notably TAP, together with TEAM-Africa and INNOVAGRO, must foster partnerships between all actors to enable more coherent approaches to improve institutional capacity development and knowledge sharing and continue to support institutional learning and change at all levels.

Both events helped to establish the TAP partnership and to begin its programme of work. In the first half of 2013 TAP partners will focus on assessing current priorities, capacities and needs in agricultural innovation systems, leading to the formulation of a strategic action plan for the Platform. A conference in June 2013 will be hosted by China where partners will establish a framework for coordinated actions and develop three services to help boost innovation: the 'Policy-dialogue Space' allowing for greater dialogue and interaction, and in turn, better formulated and more transparent national policies in support of capacity development for agricultural innovation; the 'Marketplace', brokering existing demands and offers of capacity development for agricultural innovation; and 'TAPipedia' offering a global information system for the outputs of innovation, success stories, lessons learned and analyses of impacts.



The future success of TAP depends on the active participation of partners that represent agricultural research, including education and extension institutions in the G20 and less developed countries, the private sector, civil society and farmers' organisations, key international agencies and national fora, development banks and funding agencies. The TAP Secretariat hosted by FAO welcomes active contributions by these organisations and other interested stakeholders.

Links

- The Tropical Agriculture Platform (<http://www.tropagplatform.org/>)

Written by Karin Nichterlein, FAO

Young professionals in agriculture: the social reporters of GCARD2



Building the capacity of young agri-professionals to showcase their work and reach new audiences was a key pillar of the communication plan for GCARD ©GFAR

Ask a young person what they wish for their future, and very few will mention agriculture. Whether as a farmer, researcher or extension officer, the production of food tends to be a last resort, not the positive choice of an ambitious young man or woman. This of course raises a fundamental question: who will grow the crops to feed the world? Ultimately, there can only be one answer: young people. So in a very real way, our survival depends on making agriculture attractive, and finding a way for agricultural science to engage with youths. For an example of how this could be done, the use of social media by a team of young agriculture professionals - including myself - at the Second Global Conference on Agricultural Research for Development (GCARD2) is a great place to start.

Blending traditional and new media

Sharing experiences and success stories, and coming up with action plans for large-scale development impact were core activities at GCARD2. But the communication team didn't just want to advocate for agriculture; they also wanted to blend the use of traditional and new media, and put young people at the centre of the process. Assembling a team to carry out the social media reporting was a first step; 136 young agriculture professionals from 44 countries were gathered to form an online group, the GCARD Social Media Team (SMT). Led by Peter Casier of the CGIAR - known affectionately by us as 'grandpa' - the team got familiar with the conference themes and objectives, and got to know each other as we prepared a social media outreach strategy. We also began the process of engagement with the wider public, through introductory blogs, articles and use of Facebook and Twitter.

Thirty five members of the team were chosen as onsite reporters. Building the capacity of young agri-professionals to showcase their work and reach new audiences was a key pillar of the communication plan for GCARD, and this group received two days' intensive, onsite training in use of social media tools. Eight major outlets were targeted, for different purposes: Twitter, the GCARD blog, YouTube for video interviews, Facebook, audio podcasts for interview sharing, Flickr and Slideshare for pictures and presentations, and LinkedIn for professional interaction. During the conference, coordination meetings were held at the beginning and end of each day, and each plenary and parallel session was monitored and reported on via these outlets. Through this work, many more people joined the conference virtually than were able to be there physically. The onsite team was complemented by the remaining 101 SMT members, who worked offsite as support staff.



The SMT received two days' intensive training in use of social media tools ©GFAR

In terms of reporting output, the SMT excelled in its task, publishing 63 mainstream articles (including for VOA, *Financial Times* and *BBC*), 152 blogposts (attracting over 16,000 visits from 149 countries), more than 1,500 live Twitter updates per day (reaching over 350,000 people), and more than 300 updates on Facebook (attracting over 20,000 hits). Each day, a digest of the previous day's social media updates was also distributed by email to all participants, with a daily digest also published online.

Advocating for agriculture



The SMT published 152 blogposts ©GFAR

But the group also became the voice of agri-youth for the entire conference, both through blog posts and by voicing opinions at the plenary sessions. Conscious that the voices of youth and also women are not being heard in the discourse of Agricultural Research for Development, we shared our passions, experiences and outlook, and our desire for additional opportunities for employment and development. Through our interaction we discovered that, although we had all entered the field of agriculture in a variety of ways, including by chance, we all had one thing in common: an immense passion for the field and its importance. Hence our urge to seek careers and long term involvement in the sector.

Together we have formed a diverse network of dedicated youth in agri-related fields covering almost every region of the world. Members of the GCARD SMT originate from Burkina Faso, France, Malawi, Nepal, Peru, Romania, Spain, Syria, Trinidad and Tobago, Uruguay, Zimbabwe and many other countries. As well as receiving certificates of participation from the Uruguay Minister of Agriculture, the onsite

team was also honoured by the President of Uruguay, who having heard of our activities, requested a separate meeting with us as social reporters from around the world.

A life changing event

The GCARD SMT truly was a life changing event for many of the young professionals that participated. Mai Touma from Syria comments: "GCARD2 has enabled me to learn more, share, and now perform as a social media reporter: I have now my own blog to write about agricultural development and research at ICARDA, the centre where I work. I'm Tweeting, Facebooking, knowledge sharing, and setting up a big social media campaign to spread ICARDA worldwide." Swathi Sridharan, who participated in the conference remotely, from Zimbabwe, writes: "I was able to follow instantly what was taking place and, unlike the traditional media stories, really appreciated the informal, chatty, thought provoking opinions of those who were there. It felt more like being part of a large circle of friends at a party, talking and milling around together, sharing ideas, than the usual way we follow a conference's outputs and outcomes."



Keron Bascombe receiving a certificate for social media training from the Uruguayan Minister of Agriculture
©GFAR

For myself, GCARD2 made me decide to upgrade The GCARD Blog (<http://technology4agri.wordpress.com/> my blog) about technologies, techniques and methods which can be applied to agriculture. GCARD2 has led the way towards a career in agricultural journalism and communications. I see success in my future and a positive impact upon the agri-sectors. And a concluding word from Nawsheen Hosenally, a team member from Mauritius: "I am applying what I have learnt from GCARD2 in my work, focusing on youth in agriculture and rural development. If we want to make a change in Agricultural Research for Development, we cannot ignore the youth and social media!"

Links

- <http://gcardblog.wordpress.com/>
- GCARD2 Social Reporting (<http://www.egfar.org/gcard2-social-reporting>)

Written by Keron Bascombe