



## 30th Annual Ralph Melville Memorial Lecture

# Shaping the future together: transforming agricultural research *for* development



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## Introduction

The Global Forum on Agricultural Research (GFAR) was established to provide an open and inclusive space among all those involved in agricultural research for development (AR4D), to enable free dialogue around key issues for agricultural research and innovation processes, and to enable their transformation to create more effective systems, engaged directly with the needs of those they serve. To do this requires re-thinking our systems of agricultural innovation so that, rather than seeing research as a pipeline delivering new products to farmers who may or may not wish to adopt them, we consider the multiple interactions in complex innovation pathways to impact and focus on the particular needs of smallholder farmers.

It is essential that we strengthen and transform our currently fragmented systems of agricultural innovation and knowledge use if agricultural research is to deliver effectively towards the current and future challenges such as changing climates, diminishing natural resources, changing consumption, etc, particularly if smallholder farmers are to have a viable future and not become the disaffected urban slum dwellers of tomorrow.

Agricultural research has delivered great change in feeding a growing population, but the challenges remain, particularly in sub-Saharan Africa (SSA) and South Asia, which together account for the majority of the world's 870 million hungry people. This is no longer a question of production alone, but of poverty alleviation and access to adequate nutrition.

## The challenges

The global trend shows that SSA, the Caribbean and the Pacific lag behind in total factor productivity growth. South Asia has performed better as a result of the green revolution, but this is offset by population growth and there are concerns now that yield increases of some crops such as wheat are reaching a plateau (Figure 1).

A number of major challenges remain if agricultural research for development systems are to achieve what is required of them. We must address the reasons why apparently effective technologies have not been adopted by the poor and yield gaps remain so large. We also need to explore how knowledge and

innovation can more directly target the poor, and improve the linkage between international public goods, meeting national demands and strengthening national capabilities. To achieve real change, we need to better value and embed agricultural innovation within wider rural development processes that too often ignore its importance or treat it as a separate function, and we must build more collective actions towards large-scale development impacts. Put together, these indicate a very strong need to move towards innovation systems aimed at achieving agreed and desired development outcomes in poverty reduction, eliminating hunger, sustaining the environment, etc.

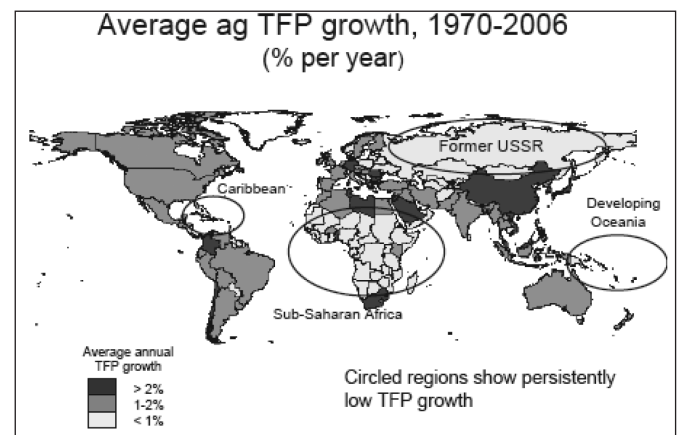


Figure 1. Long-term average agricultural total factor productivity (TFP) growth 1971-2008 (% per year). Source: Keith Fuglie, 2010.

There are a number of clear areas in which the need for a major rethink of agricultural research for development can already be seen.

- Nearly half of all smallholder farmers are now women - yet often they are not even recognized as farmers.
- Hundreds of millions of smallholder farmers themselves form a very large proportion of the world's poor.
- Rural youth see little future in farming – leading to massive urban drift and resultant social problems.
- Research has traditionally focused on yield gain potential without recognizing that poor farmers are the last to benefit from most interventions. Our ability to measure yields also skews thinking and focus compared to the challenges of measuring environmental and social change.



- Seventeen countries are now in protracted crises in SSA, resulting in agricultural research, extension and education systems that are weak or collapsed.
- Only 4 out of 24 African Poverty Reduction Strategy Plans mention agricultural research.
- The emergence of the BRICs and other fast growing economies is rapidly changing the old pathways that assumed that countries of the North were the prime source of agricultural innovations.
- The main benefits of the green revolution have already been achieved. Now innovation pathways require us to build the jigsaws of associated actions that are needed to deliver change in an increasingly complex world.

So, in putting the smallholder farmer at the centre of innovation, 'business as usual' is clearly not an option. We need to thoroughly re-examine how we can:

- increase food and nutrition security and farmer incomes while
- ensuring that the needs of resource-poor smallholders and householders are met, and
- sustainably manage natural resources and the environment.

And we also need to understand what kind of innovation systems and policies we need to meet these challenges.

To reach desired development outcomes, it is no longer good enough to think of a technology pipeline where it is 'someone else's job' to turn innovations into field impacts that can often only be taken up by those with the best advantages. We must consider how the complex actions and interactions that enable innovations to be generated, accessed and used can be brought together with the enabling environments, inputs required (credit, crop inputs etc) and with policies that promote agricultural development for smallholders.

A fundamental need is to break down the institutional divides, the walls that prevent effective collaboration and partnership towards shared goals. Doing so will require:

- development-centred thinking with the needs of poor farmers and consumers at the centre of the process;
- innovative knowledge access and transformation systems;
- stakeholders learning and innovating together, managing benefits and risks;
- institutional reorientation and changed attitudes/values;
- convergence of R&D, education, business policies and resources.

The need for these changes is also recognized in the reform of the CGIAR. The international agricultural research system has made a tremendous contribution over the years, most notably in the green revolution. However, decades of global complacency about agriculture, stagnant funding and perceived problems in the system's fragmented operation and reporting, together with the emergence of new providers, notably in the private sector and BRIC countries, have brought into question the continuing value of the CGIAR mechanism. The resultant reform process over recent years aims to bring coherent work towards achieving identified large-scale outcomes.

## The Global Conference on Agricultural Research for Development (GCARD)

This process, organized jointly by the Global Forum on Agricultural Research and the CGIAR, sets out to combine the processes of GFAR in catalyzing programmes and partnerships for action, and the reform of the CGIAR towards an outcome-focused basis that requires partnership, consultation and shared accountability for outcomes. The GCARD establishes an outcome-focused process and milestone conferences for transforming and strengthening agricultural research for development around the world.

The GCARD conference events provide a regular means of public awareness and accountability for establishing how the changes are working in practice. Cycles of learning, reported publicly through the GCARD conferences, allow stakeholders from all sectors to mobilize and bring together their own commitments to progressive change.

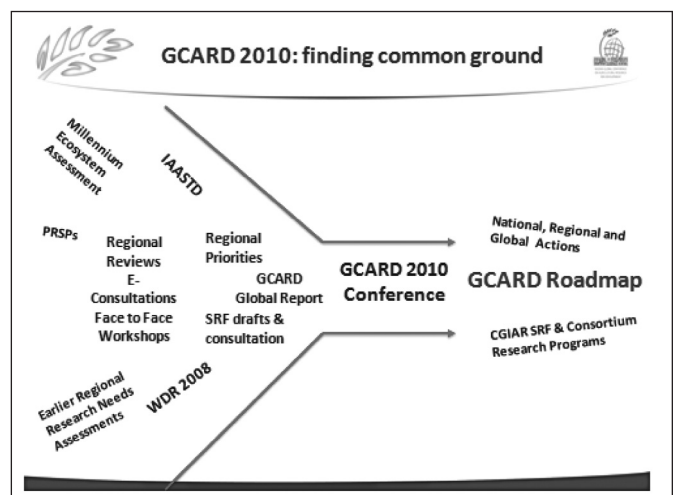


Figure 2. The GCARD process

The GCARD process (Figure 2) began with extensive regional consultations on what the stakeholders in each region regard as priorities in agricultural research for development systems. These analyses, together with those of other key reports, including the WDR (World Development Report), IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development - a directly commissioned review of the global state of agricultural research for development systems) and the strategy and results framework (SRF) of the CGIAR, identified key needs in transforming and strengthening these systems to help them achieve their required impact in development terms on poverty, food and nutrition security, environmental sustainability and system resilience.

GCARD participants identified six key measures required for transforming agricultural research for development systems around the world. These were expressed in the GCARD Roadmap and then agreed among all sectors involved, and are as follows:

- Inclusively define priorities and actions, driven by development needs.
- Develop equitable partnerships among all stakeholders.
- Achieve increased investments to meet development needs.



- Develop required human and institutional capacities.
- Embed innovation in development programmes and policies.
- Involve stakeholders, in particular smallholder farmers, in the accountability and value systems used.

The theory of change established in the Road Map laid the path for collective actions to deliver these changes into practice. Actions to-date were recently (2012) summarized and discussed at the GCARD2 in Punta del Este, Uruguay, a meeting attracting strong participation both in Uruguay and, through the internet, around the world.

Some Road Map implementation elements are already now moving rapidly ahead, including that of *foresight*, where diverse models, forecasts and scenario projections are bringing a range of lenses to bear on some of the key questions facing the future of agriculture and of smallholder farming.

## The Global Foresight Hub

This collective foresight approach already includes over 40 different approaches and has now been endorsed by the G20 Agriculture Ministers. It recognizes that different assumptions underlie different projections and scenarios, and asks some key questions of how to achieve sustainable production via sustainable consumption, and the implications of land use changes for small farmers recognizing that smallholders must have a say in envisioning their own futures. The diversity of the rationales considered brings new thinking that seeks to envision the agricultural futures we wish to see, and the implications of alternatives, so that research works towards delivering our desired aims and informs policy choices at any level.

Partnership has now become a key mantra of the changes underway in agricultural research for development systems. The international research system's new focus on how its work contributes to development outcomes requires effective partnership and complementary actions from partners of all kinds if research outputs are to be transformed into innovation products and impacts, in particular for resource-poor smallholders. The new CGIAR Research Programmes (CRPs) are large-scale partnership initiatives covering the span of areas in which CGIAR Centres are active (Figure 3). They seek to bring new forms of integrated action between the Centres and, in turn, with their partners, geared around achieving not just research outputs but establishing these in effective innovation pathways towards development outcomes.

The underlying assumption is that the CGIAR is responsible for international research outputs but has a shared responsibility with national partners for ensuring that these are translated into products that can impact in development terms. This means in practice a flow of actions from planning with partners, to research with partners, to the actions of multiple actors beyond the immediate role of the CGIAR, working to deliver the development impacts sought. An example is that of climate change, where international research is partnering with other centres of expertise across a range of contexts in Africa and Asia. Here GFAR is working to foster wider connection and regional coordination with national, regional and international partners.

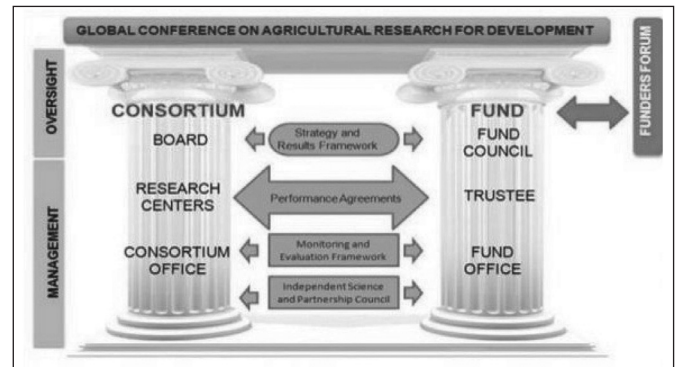


Figure 3. The new CGIAR structure

Another example is that of agrobiodiversity, where GFAR has catalyzed and brought together a wide range of practical actions around the issues of sustainable use of plant genetic resources and associated issues of reconciling farmers' rights and plant variety rights. This has involved cross linkages with the International Treaty on Plant Genetic Resources in Food and Agriculture, the CGIAR, Regional Fora and many other bodies from civil society, public and private institutions involved in these issues.

GCARD2 also brought together food security and nutritional needs – including the diverse approaches to supplement feeding, biofortification and diet diversity, each of which has advocates, but for the first time GCARD2 brought together those aims towards developing a common research agenda with room for *all* dimensions involved.

The GCARD process has had marked impact in shaping the direction of the international research system and its links with national systems. Some 80% of participants recognized that they would change the design or implementation of their work as a result of the GCARD processes. This leads towards a coherent alignment of international research priorities with national and regional priorities and investment plans.

## Investment

Strengthening agricultural research and development requires increased investment – the International Food Policy Research Institute (IFPRI) estimate a tripling of investment is required by 2025. Over the last decade, some countries such as China and India have increased their national investments considerably. However, the poorest countries, such as those in SSA, have failed to match this growth and in some cases have reduced their investments, resulting in them falling further behind in the development and use of agricultural innovations (Figure 4). It is important to increase advocacy in this regard. GCARD 2 showed that investments in Uruguayan research have given a return on investment of \$17-20 per dollar invested.

The reform of the CGIAR has progressively increased donor confidence and investment in the system and funding has doubled over the last six years. However, despite a move towards central collective funding through the CGIAR Fund, much of this increase is still down to increased investment in specific projects and programmes, rather than through the collective Trust Fund basis, which will require longer term confidence to become established before funders are likely to transfer to a truly collective basis.

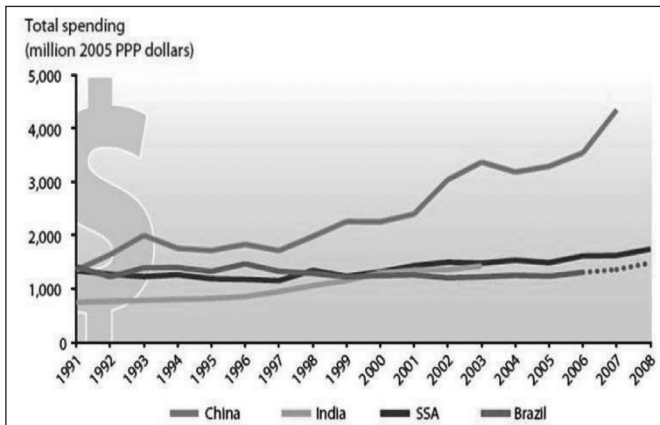


Figure 4. Public Agricultural R & D spending

It is also essential to link research priorities with the wider development commitments of governments, so that research is embedded within a wider enabling environment of policies, credit access, advisory support etc. This is particularly seen in Africa, where a series of steps, catalysed through the GCARD discussions, have now led to the CGIAR aligning its work with the Comprehensive African Agricultural Development Plan (CAADP) and the country compacts developed through CAADP, the research elements of which are mobilized through FARA (the Forum for Agricultural Research in Africa).

## Capacity needs

It is not enough just to strengthen and create new forms of partnerships; the scale of the challenges we face also requires the development of capacities throughout the AR4D system, from farmers to researchers, recognizing that we are combining two forms of knowledge and innovation – that from science which is reductionist, trusted and validated by its method, and that of farmers' own innovations and take-up of new ideas, which are holistic and trusted and validated by experience. To succeed in reaching the poor, we need to value both approaches; linking and reconciling these knowledge and trust bases.

There are many barriers constraining information from becoming transformed into innovation. It is clear that research itself is highly fragmented, with very little cross referencing in practice between agricultural researchers and social science. There is now a wealth of information available, yet farmers are starved of knowledge. There are many new forms of advisory services yet the sector is grossly under-resourced. However, the use of information and communications technology (ICT) is opening up entirely new ways of sharing knowledge to reach farmers in usable forms. This requires new ways of making data inter-operable between different forms and accessible at farm level, and it requires much greater attention to the role of those who broker agricultural knowledge and technologies into development realities. Among other initiatives, GFAR has played a key role in creating the Global Forum on Rural Advisory Services, to help re-think and rebuild capabilities that advisory services require in today's contexts, through collective actions, cross-learning, greater cross-linkage with other providers and the use of an array of new communication tools.

One major need is to rethink the central premise of agricultural research in terms of the farmers of today. Smallholder farmers

now include a high proportion of women farmers, in some countries they are the majority. Yet despite this, research is still focused on needs articulated by men, such as input provision and productivity, rather than those voiced by women, such as labour-saving measures, post-harvest value addition or child nutrition.

The Global Conference on Women in Agriculture, organized by ICAR (Indian Council for Agricultural Research) and APAARI (Asia-Pacific Association of Agricultural Research Institutions) with GFAR, brought together a major collective voice for women and leveraged further commitments from a number of governments, including that of India. This has led to a major collective action fostered through GFAR, the Gender in Agriculture Partnership (GAP). The GAP now brings together all the major agencies involved in agricultural development, working together to foster gender equity in agriculture. In research terms, the GAP is reframing agricultural research and innovation needs to address issues that women farmers care most about – often a very different view from that of men even from the same households.

Gender is a social construct and we have to think right down to the gender dynamics in households. A study in 2000 of developing countries by IFPRI<sup>1</sup> found that as much as 55 percent of the reduction in hunger from 1970 to 1995 could be attributed to improvements in women's status in society. Progress in women's education alone (which explained 43 percent of gains in food security) was nearly as significant as increased food availability (26 percent) and health advances (19 percent) put together.

A further key dimension in improving the livelihoods of smallholder producers is their ability to access markets and grow their incomes. GFAR has been actively working through programmes led by farmer organizations to mobilize actions around a range of farmer-driven models – cooperatives, producer companies etc. – that can open up market chains and enable more equitable access. This also requires attention to career opportunities related to value chains and the need to draw young people back into agricultural activities and professions, so that attention is being strongly focused now on curriculum reform and creating attractive opportunities for young people in agriculture.

It is also very important to consider agricultural knowledge and innovation in the realities of development. There are now 22 states in protracted crises, of which 17 are in Africa. Agriculture provides an invaluable means of resilience for such communities and for enabling growth out of crises. To this end GFAR in 2012 fostered the Kigali Movement, joint actions setting out lessons learned from previous crises, towards a more collective ability to avoid earlier mistakes and support farmers in need.

<sup>1</sup> <http://www.ifpri.org/publication/overcoming-child-malnutrition-developing-countries>

## Conclusions

Over the last few years, GFAR has catalysed many actions shaping and then delivering to the GCARD Roadmap principles. The



CGIAR reform has provided a change-enabling environment for collaboration and wider reform. One key recognition in these processes is that ***research is essential, but not itself sufficient to deliver impact***. Achieving impacts requires our continued efforts together and commitment to practical actions. This means fostering greater coordination among and within sectors – farmer organizations, Civil Society Organizations (CSOs), small enterprises, cooperatives etc. The GCARD process has set out and agreed commitments from all

concerned: the time for action is NOW.

## References

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Fuglie K, 2010. Productivity growth in the global agricultural economy. [http://www.farmfoundation.org/news/articlefiles/1725\\_Fuglie\\_Global%20Ag%20Productivity.pdf](http://www.farmfoundation.org/news/articlefiles/1725_Fuglie_Global%20Ag%20Productivity.pdf).