

Opportunities and challenges for CGIAR in a changing world: Reflections from horizon scanning sessions of the ISPC-17 meeting

Purpose

This document outlines the results of a recent horizon scanning exercise conducted by ISPC at its 17th meeting.

Action requested

The System Council is asked to consider this material as background to the presentation that the ISPC Chair will give during the 6th System Council meeting.

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OPPORTUNITIES AND CHALLENGES FOR CGIAR IN A CHANGING WORLD: REFLECTIONS FROM HORIZON SCANNING SESSIONS OF THE ISPC-17 MEETING

The ISPC 17 meeting was held on 19th–20th April 2018 at FAO headquarters in Rome. One of the objectives of the ISPC meetings is to provide a “safe space” (a setting where problems can be raised and discussed candidly without personal or institutional attribution) in which to engage with members of the CGIAR System, and agricultural research and development communities, on aspects of our remit; e.g. foresight, impact assessment and the interface between research and decision-makers. One regular attendee commented that the ISPC meetings helps the CRPs “*put their research in context*”.

The meetings attract an average of around 50 participants, including donor representatives, Center Director Generals, Center Board members, CRP leaders, representatives from NARS and Development Agencies. The SMB Chair joined us at this meeting.

The main focus of this meeting was to explore the perspectives of these different groups on global changes in the context of agricultural research for development – in effect, horizon scanning. We discussed major shifts in the general context within which CGIAR operates and 2 specific topics that are relevant to a number of CRPs - climate change (relevant to all) and livestock (relevant to quite a number of CRPs). These topics were chosen in light of the business plan cycle being developed by the SMO, which enables cyclical update of the System to enhance flexibility of the portfolio at the same time as strengthening stability.

The next section gives a summary of the key points which ISPC took from the discussion, followed by three sections summarising the perspectives presented at the meeting for these main areas.

ISPC advice on key points from this horizon scanning for SC reflection

CGIAR has recognized the changing context and is doing things differently at CRP and Center level. For example, we heard that researchers from individual Centers are collaborating more (since the advent of CRPs) with those from other Centers working on related questions and new partnerships have been forged to take advantage of new technologies. There could be potential efficiency benefits of ***more formal sharing of what works and what does not (e.g. new types of partnership), both between Centers and CRPs, and also with the SC.***

Future changes are likely to be more transformative and in a challenging funding environment hence ***choices will need to be made on where CGIAR should continue to focus on technology generation*** (e.g. plant breeding) and ***where it should play a more facilitative/brokerage role*** (NRM was suggested as one example). ***These choices need to be strategic, taking into account CGIAR's comparative advantage, the capacity of alternative research suppliers (e.g. universities) and the priorities of emerging donors (e.g. national and regional developing country investors) and not solely ODA donors.***

An important ***future*** strategy to help alleviate hunger and poverty must be ***ensuring the supply of healthy, affordable choices for consumers, complementing the traditional focus on increasing productivity.***

On climate change the Koronivia agreement, and recent funding commitments of France and BMGF, present opportunities for ***CGIAR to work with developing country scientists and policy-makers to identify priority research questions for helping their countries to meet their commitments made at***

COP 21. This will also require revisiting Theories of Change to ensure that the research questions at project level are aligned with country needs and policies.

The discussion on the place of livestock in the CGIAR research agenda highlighted how livestock-related issues (e.g. the value of crop by-products for livestock feed) are spread across the portfolio beyond simply the Livestock CRP but are now better co-ordinated than in phase 1 of the CRPs. ***What is needed (as elsewhere in the portfolio) though is clear criteria for making choices as to where to focus on upstream technology generation vs the more complex facilitator role of aligning component research outputs with needs that vary by species, geography and changing environments.***

1. Horizon scanning of shifts in the external context for AR4D

Shift #1: Profound changes in political, financial and technical capabilities in developing vs. developed countries

- There has been growth in political power and capacity in developing countries in the agricultural development area. There are many new actors in the historical CGIAR space.
- With the SDGs, developing countries have moved from being a problem to be solved to being partners in a coordinated effort to meet global challenges.
- The role of ODA and donors in terms of dominating investments and agendas in developing country agriculture is decreasing.
- Food and agriculture concerns no longer apply just to the realm of the food and agriculture policy sector – they have much broader implications.

Implications for the CGIAR System:

- Need for a holistic framing of food and agriculture research and its interconnectedness with other sectors. CGIAR is acting in this space but that is not sufficiently visible.
- Technology and policy solutions need to meet multiple objectives, which implies the need for a shift in how research agendas are set.
- Need to reconsider CGIAR's role and skills as well as new principles and methodologies to monitor new impact pathways (this could be integrated into business cycle planning)
- Need to work more with universities in developing countries (e.g. not just NARS)

Shift #2: From Food Security to Nutrition Security

- Evidence shows that poor diets are now at least as detrimental to health outcomes as air pollution, alcohol, drug and tobacco use.
- While 'hunger' continues to resonate as a cause deserving of funding support, the old style 'staples fundamentalism' (see #3 below) that focused mainly on supply of calories is no longer appropriate in a world of rapidly changing dietary preferences. The main focus of global agricultural challenges has to move from 'feeding the planet' to appropriately nourishing all consumers.
- There is a shift in awareness of the importance of considering food systems and consumer demands in agricultural planning; i.e., moving towards a demand-driven approach.
- "Good" food for nutrition can be less commercially attractive than some of the less nutritious food types.

Implications for the CGIAR System:

- Need to focus on balanced diets, not one food or protein, which in turn implies a need to re-examine priorities in CGIAR portfolio and how specific research areas are designed.

- Need to better understand and integrate into research impact pathways the drivers of food system dynamics: specifically, modernization of food value chains, and food consumption/dietary change associated with economic growth in developing countries.
- Much of the response needed is in the policy space and CGIAR has made good contributions here already – but could do more.
- There is considerable variation regionally and thus important to clarify these differences, needs and trends and use it to design research portfolio and programs.

Shift #3: Staple Crop Yields Alone Will Not Solve Poverty

- An exclusive focus on improving staple crop yields in developing countries is increasingly questioned as an effective pathway out of poverty for smallholder producers.
- Eradicating poverty – and agriculture's potential role therein – requires increasing labor productivity, and as such depends on forces much beyond agriculture and food sector.
- Although there is still a major focus on increasing food supply in developing country policies, there is also increasing interest in supporting a more diverse and nutritious set of agricultural products (including livestock and fish).
- Smallholder producers in developing country agriculture have different characteristics and options than when the CGIAR was created. For many, agriculture is a form of safety net.

Implications for the CGIAR System:

- Build capacity to integrate a broader range of objectives into research program design. That could include risk reduction, gender issues, resilience to climate change and nutrition.
- A focus on productivity is still relevant, and provides a compelling impetus for investment to some donors, but needs to be considered within this new context.
- Shift the breeding programs focus and researchers' incentives to incorporate labour productivity increases for poor people in agriculture.
- CGIAR needs to better respond to changing national priorities in R&D and make clear how multiple objectives are being addressed such as achieving more focus on diversified food systems.

Shift #4: Potential of disruptive innovations to accelerate CGIAR objectives

- Advances in gene-editing (CRISP/CAS9) and synthetic biology allow for faster and more focussed breeding programs for crops that feed the world.
- Genomic prediction to estimate breeding values (GEBV) for selection decreases time, increases intensity, and enhances efficiency for improving (low) heritability traits in livestock (particularly in dairy cattle, pigs and poultry) and crops.
- Data and information are key assets in creating new value: Further development of distributed ledger technologies (e.g. bitcoins) offer potential for greater equity and transparency in food chains.
- Regulatory environments around new breeding technologies based on genetic engineering are often unclear – particularly in terms of ensuring public sector benefits.

Implications for the CGIAR System:

- Networking is an essential management strategy for both learning and sharing facility use for plant research and breeding, including gene editing and should be expanded.
- CGIAR should consider replacement of large fixed cost research capacities that continue the path dependency of legacy research and look into new sharing/partnering agreements that can help manage costs of new technologies.
- CRP breeding capacity should be strengthened through learning GEBV for selection to mastering genomic prediction modelling and its use in breeding through upstream research partnerships and when feasible with the MNC private seed sector.
- There is a need for work on regulation regarding new breeding technologies to ensure access/benefits to poor/public sector which CGIAR could consider addressing.

2. Climate change and agriculture: what do recent policy developments mean for the CGIAR research agenda?

Context

In 2017 the Conference of Parties (COP) of the UN Framework Convention on Climate Change (UNFCCC) adopted a decision that calls upon its Subsidiary Body for Scientific and Technological Advice (SBSTA) and its Subsidiary Body for Implementation (SBI) to develop a joint work program on agriculture (e.g. the Koronivia work program) to be submitted to COP 26 of the UNFCCC in 2020 for approval. This program will be developed using the views that are currently being submitted by parties and observers to UNFCCC, as well as the results of five workshops on agricultural and climate change organized under SBSTA since 2011.

Developing countries have expressed substantial demand for research and development work in the area of agriculture and climate change in their “Nationally Declared Contributions” (NDCs), which are a national policy statement of country plans for contributing to the reduction of greenhouse gas emissions and adapting to climate change. At the One Planet Summit in 2016, France committed USD 300 million to meet climate change challenges in agriculture through research. BMGF made a matching commitment. The fund will have a strong focus on research to generate innovations in agriculture that contribute to adaptation and mitigation. These research efforts should not be supply driven however, but rather arising from demand in the Global South.

How well is the CGIAR positioned?

The SRF made it clear that each CRP should address the implications of climate change, in addition to the Climate Change and Food Security CRP (CCAFS). As an integrating CRP, CCAFS is expected to “integrate” relevant work in other CRPs into its policy work at global level, as well as implement its own research program. CCAFS is working in six different work areas which encompass institutional and policy work, capacity building, development of tools for prioritizing and analysis of mitigation and adaptation impacts from changes in agricultural practices. However, CCAFS is limited in the number of countries it can conduct in-depth work in, missing some hotspots in areas such as the Andes, Southern

Africa and Middle-East. The CRP is also limited in the capacity to synthesize evidence and experiences across various countries. While there is often a collaborative spirit in the research work, there is competition over resources to fund it – and that creates problems in terms of coordination and collaboration. CIFOR and ICRAF are also engaged in climate change work in the context of the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) process which involves some analysis of land use changes.

Where are the key opportunities?

As a System, CGIAR could do much more to engage with climate change. There is a tendency to re-brand much of the business-as-usual work of CGIAR as “climate smart” without really integrating the effects of climate change into the Theories of Change and impact pathways at CRP level. This does not mean rewriting the CRPs but paying more attention to integrating the challenges of climate change into research design and delivery mechanisms at the project level. Climate-smart crop breeding is an area where CGIAR could do much more. The Koronivia work program opens the space to bring up land and land use change issues in a more concrete manner and this is an area where CGIAR has considerable comparative advantage.

Adhering to the spirit of the SRF, however, the CGIAR should position itself not to address climate change without also considering the associated synergies and trade-offs. There is a big issue around sustainable production and consumption.

There are huge opportunities for collaboration with new partners in the policy arena – including climate change policy focal points in countries as well as global partners such as the UNFCCC and FAO.

3. Taking a close look at livestock in the CGIAR research agenda

Context

Projected increases in animal protein demand and consumption are likely to maintain livestock's position as one of the fastest growing sub-sectors in agriculture for the foreseeable future, particularly in low-income and emerging economies. Much of this demand growth has so far been met by rapidly expanding modern forms of intensive livestock production, but more traditional and diversified systems continue to exist in parallel.

Unlike climate change, livestock issues are not relevant for every CRP, but the sector contributes directly to 8 of the SDGs and is relevant to 15 of the goals. Livestock systems are well-known for their negative impacts such as direct (ruminants) and indirect (land use change) impacts on GHG emissions, together with land degradation, biodiversity loss, the transfer of zoonotic diseases to humans and in developed countries the contribution of high intakes of some types of meat on human health. Yet in developing countries there are many positives such as the nutritional quality of livestock products, the provision of manure as fertilizer, their resilience in arid areas and with milk and eggs, the potential for regular income generation.

The vast diversity in livestock systems worldwide, the different demands and expectations placed on the sector, and the ineffective participation in policy debates, have contributed to the difficulties by public policy in comprehensively addressing the sector.

How well is the CGIAR positioned?

The current CGIAR livestock agenda focuses mainly on smallholder and smaller-scale production systems but these cover a wide range of situations: landless urban to family farms to pastoral; intensive to extensive; informal to formal marketing channels. Four Centers have significant livestock research; i.e., ILRI, ICARDA, IFPRI and CIAT. All four of the integrating CRPs (A4NH, CCAFS, PIM and WLE) include work on livestock and many of the AFS CRPs include consideration of crop by-products as animal feed.

CGIAR's particular focus on generating research that enables existing smallholder and smaller-scale production and market systems to sustainably intensify and professionalize and transform into agribusiness opportunities will 'shape' the ongoing supply response to rapidly increasing demand for animal source foods towards a path that is more optimal to achieving the SDGs. The current Livestock CRP aims to consolidate a formerly scattered, disconnected CGIAR livestock agenda, with other CRPs adding value in associated strategic areas.

The CGIAR livestock agenda has been evolving as the development challenges have become more complex and market-based, and as the landscape of alternative suppliers has evolved the CGIAR's focus on technology generation has been increasingly balanced with a stewardship role.

Where are the key opportunities?

The CGIAR livestock agenda has evolved significantly from its early restricted, species, problem, and geographical focus, but the dynamic changes in the livestock sector globally will require further change.

New genetic tools have enabled the ILRI breeding program to leave more technology generation to upstream partners, enabling CGIAR to focus more on externalities and stewardship. This balance between a tighter focus of technology generation (upstream) approaches and the wider CGIAR facilitatory/brokerage role (downstream approaches) of knowledge exchange with potential users needs further consideration across the CGIAR portfolio. In the livestock sector it is also important that the resource use and GHG implications of the production of different livestock species (mono-gastric – ruminants) and production systems are quantified more specifically rather than the current focus at the global and sectorial levels.

The session also touched on the difficulties of measuring the impact of research in the livestock sector. This drew on earlier presentations from SPIA (in relation to adoption of NRM technologies) that recognised the complexity of assessing and attributing the impact of adoption of packages of technologies, where the package constituents need to be "tailored" to local situations. Successful uptake requires not just relevant research outputs but access to the knowledge required to match the package with the specific needs. The question of the role and responsibility of the CGIAR in this respect was beyond the scope of our meeting.