

Multi-Funder Initiative to achieve SDG2

Purpose

This document sets out, for System Council discussion, the background, rationale and proposed way forward for a multi-Funder initiative on Climate-, Pest-, and Disease-Resilient Nutritious Crops to End Hunger by 2030. This document was prepared following a meeting on 12-13 October 2017 in London among Australia, the Gates Foundation, Germany, UK and USA.

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CGIAR Initiative on Climate-, Pest-, and Disease-Resilient
Nutritious Crops to End Hunger by 2030
Oct 25, 2017¹

Background

Transformational solutions are required for the complex challenges facing the global food supply and to achieve SDG 2. To accelerate progress toward the SDGs, high quality, relevant research conducted in ways that reduces the lag between innovation and application is needed.

Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

2.3 by 2030 double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment

CGIAR is uniquely positioned to ensure that smallholder farmers can benefit from productive, resilient crops that withstand stress and meet market demands, drawing on the global crop genetic resources it holds in trust and its ability to conduct large scale, regional and globally relevant plant breeding programs. Its capacity to deliver the key public goods technologies depends on its ability to attract and retain key scientific staff, however, its institutional capacity and competency has been eroded in critical areas. Without a refocused and reinvigorated shared science agenda, with emphasis on the core capacities of CGIAR, there are risks of further atrophy and CGIAR being left behind.

While an **agricultural innovation system with the capacity to envision and implement transformational options is needed – that will not be possible without first ensuring foundational elements are in place.** These foundational elements are the research infrastructure – scientists/knowledge, physical assets/germplasm, optimized systems and processes - that develop the building blocks of production and food systems that equitably provide nutritious and safe foods while enhancing the environmental sustainability of agricultural production and broader food systems. We need transformational research to deliver the radical step changes that allow economies to leapfrog existing technologies and systems towards more efficient and sustainable options for food systems while reducing extreme poverty, hunger and undernutrition.

As a cornerstone of this vision to deliver on SDG2, we propose an initiative to **upgrade breeding programs in key crops** that reflect evidence-based analysis and willingness to invest **based on collectively agreed criteria for crop selection.** In addition, we recognize the need for consensus on **supporting seed systems development across these crops**– including commercial and community pathways for seed dissemination at scale - to ensure farmers benefit from the outputs of research. While this component of an impact pathway would not be led or implemented by CGIAR, we seek a vision that connects the outputs of CGIAR programs with the desired impacts through a functioning seed system.

¹ This paper is the result of a meeting on Oct. 12-13, 2017 in London among Australia, the Gates Foundation, Germany, UK and USA.

The Bottom Line

We envision an initiative to **strengthen CGIAR's crop improvement** capacity to **benefit low-income smallholder farmers** in the near to medium term, **deliver compelling products** and real change for both producers and consumers. The initiative seeks to integrate the speed and efficiency of best 21st century crop improvement practices into CGIAR, as a foundational investment that is squarely **within the Centers' comparative advantage**, for which there are few, if any, other sources of supply. Within the current CRP framework, we seek to construct a **concrete, measurable, straightforward multi-donor commitment to advance common goals** that underpin the CGIAR system. If successful, it will create a platform for greater investment – delivering new technologies that support the full range of CGIAR engagements, increasing the relevance of CGIAR as a uniquely capable set of partners, and helping strengthen critical CGIAR capacities in a system fit for purpose in the 21st century, and equipped to deliver on SDG 2.3.

Why this?

When coupled with investments in dissemination and delivery, substantial analysis² has identified the **catalytic potential of crop improvement investments to improve smallholder farmer productivity and profitability** (SDG 2 goals). Breeding programs must develop products that respond not only to farmer demands for key production traits, but also to **emerging market demand for quality traits and consumer preferences**. To deliver these products, greater, more focused investment in CGIAR crop improvement programs will be critical. Our initiative proposes to **bring key CGIAR crop improvement programs to global standards of performance found across the private sector and high-performing public-sector breeding programs**. Like the implementation of the genebank standards that has driven up quality and efficiency, this effort will strengthen the capacity and functioning of CGIAR breeding programs for the 21st century.

Why now?

Advances in crop improvement linked to genomics, bio-informatics and a range of improved applications (e.g., data management) offer new opportunities for more rapid gains, especially among crops that have yet to benefit from significant investment. However, the CGIAR is currently not positioned to effectively integrate these opportunities – as capacities among crops and across the system vary greatly. We propose to focus on building up foundational investments to **position the CGIAR system to be a major force in achieving SDG2** – which is only possible if the CGIAR makes progress across a range of crops that underpin food security in the poorest and most food insecure regions. Clearly, these gains will not come from CGIAR CRPs or centers alone. They will also be dependent on upstream and downstream partnerships, who are essential for leveraging these partnerships in ways that hasten the delivery of better crops with and by NARS (and for some crops through small and medium enterprises), through seed systems, to farmers.

In recent years, funding in collective investment vehicles (Windows 1 and 2) for a shared science agenda for CGIAR has sharply declined. Yet the principles of the system's reforms,

² Pray, C., Masters, W. and Ayoub, S. 2017. Impacts of Agriculture Research on Poverty, Malnutrition and Resilience. Report prepared for USAID.

and the mechanisms developed to implement a shared vision are implemented and available to facilitate this proposal. Creation of a consensus, around clear objectives and focused programs, will reinvigorate donor investment in the shared science agenda. Genetic resource conservation and crop improvement are critical opportunities, but there are likely others in livestock, yield gap reduction and other areas, all of which can contribute to achieving SDG 2.3. Demonstrating that the system can work effectively first in the genebanks, and now in crop improvement, will pave the way for additional opportunities in other areas where the CGIAR plays a critical role and where funders are ready to engage to advance a purpose-driven research agenda.

How?

This focused direction can be achieved by aligning with the relevant flagships of the existing CRPs – to reduce burden, disruption and effort. Where necessary, flagships may need to be revised to deliver on these objectives. We have already seen how the system, working at the level of independent, center-led genebanks, has been able to achieve a whole that is greater than the sum of the parts. Through focused donor investment at the flagship level, CGIAR can position itself around **a prioritized set of crop improvement objectives and a set of commodities that merit this focused investment**, harmonizing donor funding and reporting over a multi-year period. This is essential given that increasingly in some areas there are other sources of supply for breeding efforts either from individual NARS, regional centers of excellence, or the growing private sector across the developing world.

These deepened investments can be accomplished in ways that fulfill and reinforce aspects of the vision that led to the governance changes put in place in recent years. The platforms, including the Excellence in Breeding platform, provide important capacities for strengthening the system. **This vision does not seek one monolithic crop improvement program, but rather a set of prioritized, adequately funded crop improvement programs** that are synergistic and help power the achievement of SDG 2. Climate-, disease- and pest-resilient nutritious crops will not be the only CGIAR contribution to SDG 2, but they are an essential one. The unique global position of CGIAR and its existing architecture on which to strengthen robust crop improvement programs provide a compelling opportunity to implement a shared vision of a deepened multi-donor effort to deliver on SDG 2. Funders will come together and coordinate under this initiative to have a clear understanding of how their investments are amplified through investments from each other, leading to program achievements that could not be expected by working separately.

The Process

Building on existing activity among donors, we propose to initiate an analytic process to inform this investment. We would share current understanding and information on CGIAR breeding programs and commission external analysis to support a decision-making process on where to focus investments. A working group of donor technical staff would be mobilized to contribute to the analytic process and to guide the development of the program of work. The group is loosely organized and currently composed of Australia, The Gates Foundation, Germany, UK, and USA but is open to donors interested in funding the initiative. This group would be positioned to engage necessary external expertise including CGIAR staff (center, CRP, SMO) to identify key opportunities, investment needs and targeted outcomes.

Given the need to focus investment to ensure appropriate levels of funding for the selected breeding programs, the subset of breeding programs that will receive this deepened investment will be identified based on a set of criteria identified through a consultative process reflecting investment objectives (e.g., poverty reduction, nutrition gains, resilience, etc.). Once the criteria are collectively agreed upon, commissioned and in-house analysis can be generated to support decision-making.

Criteria to select crops for investment could include:

- relative importance of the crop for smallholder producers,
- role of CGIAR breeding programs relative to other sources of supply within a given crop,
- likelihood/opportunity for crop improvement to contribute to productivity enhancements for smallholders in broad target geographies
- poverty-weighted value of production of a crop in developing countries
- nutrition priorities/considerations (e.g. “smart foods”, micronutrient density, quality protein)
- importance for women farmers
- contribution to resilient production systems
- levels of private sector investment

Once the criteria are defined, analysis, both in-house and commissioned, via consultations among donors (including technical staff or their representatives) to examine key elements and define the relative weights for the analytic process. While the analysis will be an important input to prioritization, the objective is to provide flexibility and rationales for donors to apply their own considerations in the final decision process on fund allocation. The analysis is intended to provide a common set of ranked priorities that serve as a basis for discussion and consideration that will lead to the final selection and allocation of resources.

Once crops are selected for investment, further analysis would be undertaken to determine the level and scope of investment needed to staff and support high performing crop improvement programs. This will require further engagement with the wider system--the SMO and centers and advisory bodies. During the analytic process, we will work to define budgets that clarify the full cost of the effort – including fully funding staff salaries to ensure dedicated staff. Further, during the development of program workplans, we will include detailed budgets to illuminate the costs of these investments.

Defining Breeding Program Upgrades

Significant investment, analysis and learning from the Bill & Melinda Gates Foundation (BMGF) serves as a starting point from which to embark on this effort. Through a systematic analysis of opportunity and need across the agricultural research landscape for smallholder agriculture, crop improvement was identified as a catalytic investment area to drive increases in smallholder productivity and profitability. This led to intensive study of the sources of supply of crop improvement, analysis of public and private sector breeding programs, and finally the aggregation of best practices to achieve greater genetic gains (for all traits of interest – be it genetic gains in yield or consumer demanded traits).

As part of this process, BMGF commissioned the development of the Breeding Program Assessment Tool (BPAT) to facilitate the evaluation of strengths and weaknesses of breeding

programs. This tool has been used to assess some breeding programs in CGIAR Centers, in addition to select national programs. This analysis has identified, relative to the norms and practices of high performing public and private breeding programs, the elements that are required to improve CGIAR programs to bring them up to global standards. This analytical approach will help identify the priorities for investment and process improvement required for enhanced functioning and performance of CGIAR breeding programs. This approach is similar to the assessment and program of improvement that was implemented for the genebanks across the system.

For those programs that have received a BPAT evaluation, donors could engage the centers to determine a responsive investment approach. For those programs that have been identified by the analytic process as priorities but for which a breeding program assessment has not been undertaken, the approach could be used to lay out the most strategic opportunities for improving the functioning of crop improvement. The results of these analyses would be the foundation of the initiative's workplan development for strengthening the programs.

Architecture of the initiative

This proposal seeks to use the existing programmatic structures and funding mechanisms. It seeks to build on the intentions of the governance reforms and platforms established by CGIAR in 2016, helping the system “step up” to deliver based on its clear comparative advantages. The precise architecture of this effort is open to discussion to identify a form that follows the intended function of the investment – strengthened breeding programs based on genetic resources collections that are congruous with existing programmatic structures.

The initiative will readily lend itself to description in terms of CGIAR engagement at the global level, around a set of agreed objectives, to deliver on SDG 2.3. It will underpin the collective effort across breeding programs, linked to the Excellence in Breeding platform, and represents an integration of programs and investment strategies across a range of donors. A key objective is to set out a clear and compelling description with associated detail, targets, and milestones that drives donor investment.

Among proposed organizing principles is the Excellence in Breeding Platform (EIB) at the center of the effort with each breeding flagship from select programs illustrated as spokes of a wheel. Hence it could be a virtual program that connects pieces (flagships) from many existing CRPs that are elevated and where investment is deepened – even if the management structures and other program functions remain housed within the original lead centers/CRP.

Several funding approaches were identified and discussed. The consensus of the group was one through Window 2 that would allow for targeted funding via CRP flagship funding, such that the larger system-level investment could be coordinated as an initiative. Donors would invest through W2 via flagships, complemented by EIB (supported by W1, or a combination of W1 and W2, providing critical upgrades and coordination components). Where crops are not currently covered within a CRP, if such crops are identified as priorities, an agreed strategy would be developed to facilitate investment through a shared mechanism. To ensure that the whole effort is funded efficiently and optimally, donors could stay informed and communicate with each other around the EIB and associated crop improvement investments, ensuring that all investments are allocated optimally. Reporting and management would come through existing structures. The flagships would need some sort of revision to meet the

objectives of the initiative as would the EIB.

Delivery of improved varieties to farmers fields

We recognize the need for **supporting seed systems development across select crops**—including commercial as well as community-based pathways for seed dissemination at scale - to ensure farmers benefit from the outputs of research. Seed system strengthening efforts are already being implemented through collaboration with national governments and regional bodies and close partnership with the private seed sector, including through partnerships with such organizations as the African Seed Trade Association, and small and medium seed enterprises across South Asia and sub-Saharan Africa, and philanthropic organizations active in seed systems to serve the poor. A consensus position across donors and partner governments may not yet fully exist, although progress is being made towards best practices and clear approaches to ensure robust seed systems are in place. Further, the bottlenecks in seed systems are quite variable across countries and may require more geographically tailored approaches. However, there is recognition that this crop improvement effort cannot have impacts in farmers' fields without functional seed systems.

The group committed to continuing dialogue on this issue among donors and partner governments, but noted that this component of an impact pathway does not need be led nor implemented by CGIAR. A vision is required for how to include information about those pathways into CGIAR's germplasm-based innovations process to deliver impacts to farmers. Thus, while not a deliverable in the near term in the context of CGIAR-implemented CRPs, an agreed upon approach around impact pathways on the part of major investors and partners could lead to an eventual parallel investment mechanism focused on seed-system approaches. In the nearer term, CGIAR crop improvement programs must be ready to generate critical advances across food security crops that will enable a demand-led seed system providing farmers with relevant, high performing crop varieties.