

2.2 Partnerships

2.2.1. Highlights of External Partnerships

External partnerships are fundamental for accomplishing scale-out and scale-up of CRP-GLDC outcomes, besides addressing operational arrangements with non-CGIAR partnerships. Key partnerships involved:

- Household aspirations with Cynefin Centre using the Sensemaker method adjusted for agricultural settings.
- The gender and youth team with Makerere University (Uganda), Haramaya University (Ethiopia), Sokoine University of Agriculture (Tanzania) and the University of Nairobi (Kenya).
- A synthesis of impact studies and scaling approaches with University of Wisconsin, USA.
- Cowpea adoption and impact study by IITA and AR, Nigeria to develop and disseminate improved varieties and agronomic practices.
- Testing of soybean to identify high-yielding drought and disease-tolerant varieties for agro-ecologies across Africa including Mozambique with the Soybean Innovation Lab and Syngenta Foundation.
- Partnerships with the National Smallholders Farmers Association of Malawi (NASFAM) and the Ekwendeni Hospital Soils and Health Project to improve farmers' knowledge and skills in improved crop production practices in Malawi.
- Research and student training at the Institute for Rural Development at Université Nazi Boni (UNB).
- Sustainable intensification framework and sustainability assessment research between ICRISAT, ICARDA, WUR and SLU.
- Training workshop on Systems modelling and capacity building with CSIRO, Australia.
- Contextualizing research, capacity building, linking with farmers and NARS in Burkina Faso (INERA), Mali (IER), Niger (INRAN), Senegal (ISRA), India (ICAR), Tunisia, Syria and Sudan.

- Testing and delivery of CRP-GLDC crops with CNGs, ADVANTA, Seed Co. and Syngenta Foundation.
- Understand gender dynamics in African seed systems with National Agricultural Research Organisation-National Semi-Arid Resources Research Institute (NARO-NaSSARI), Makerere University, and Center for Behavior Change Communication, Kenya.
- Phenotyping for heat with PAU, India and ARC, Sudan, and disease and low nutrients in lentil with BCKVV, India.
- HPRC-ICRISAT being strengthened and extended to SSA.
- Access to knowledge and cutting-edge technologies for crop improvement from Corteva Agriscience.
- In pearl millet, heat screening with Pioneer Hi-bred Pvt. Ltd., Bayer BioScience Pvt. Ltd. and Metahelix, India and drought screening with CCSHAU, India.

2.2.2. Cross-CGIAR Partnerships

A partnership with CRP-PIM (Policies, Institutions and Markets) has enabled updating of the GLDC database of the International Model for the Policy Analysis of Agricultural Commodities and Trade (IMPACT) for foresight modelling and ex-ante analysis for priority setting. Gender researchers attended the scientific conference and capacity development workshops of the CGIAR Collaborative Platform for Gender Research. A new partnership between ICRAF, ICRISAT and Cynefin Center is providing insights on how multiple income streams interact and the role they play in determining household aspirations. Cynefin Center's distributed ethnography tools and ICRAF and ICRISAT's deeper understanding of the farming system in developing countries together allow the team to conduct ethnography at scale. Interactions have been initiated with CRP-RTB, CRP-Maize and CRP-Wheat to identify criteria and indicators to assess sustainability across farming systems/regions.

Engagement with the Excellence in Breeding (EiB) platform to drive innovation in designing product profiles, adopting stage-gate system, phenotyping, genotyping and knowledge sharing is ongoing. The High Throughput Genotyping Platform (HTGP) of EiB was deployed in crop breeding pipelines, particularly for early generation testing. Arrangements are on with the CGIAR Genebank Platform to tap novel diversity of GLDC crops and evaluate finger millet accessions for fodder and nutritional quality traits in breeding programs. With the Platform for Big Data in Agriculture, Digital Seed Road Maps were rolled out to support seed systems in Africa. For effective and timely delivery, expertise of EiB modules were leveraged for the development of product profiles, stages and gateways, genotyping/sequencing related services, phenotyping and data management. A new partnership is under development between Corteva-ICRISAT-EiB for pearl millet improvement.

Table 8: Key external partnerships			
Col.1	Column 2	Column 3	Column 4
Lead FP			Main area of partnership (may choose multiple), dropdown: Research/Delivery/Policy/ Capacity Development/Other, please specify __
	Brief description of partnership aims (30 words)	List of key partners in partnership. Do not use acronyms.	
1.4	Household aspirations	Cynefin Center	Research
1.4	Synthesis of impact studies and scaling approaches in GLDC projects	University of Wisconsin, IAR	Scaling up strategies
1.4	Cowpea adoption and impact assessment	Nigeria's Institute of Agricultural Research	Research
1.4	Gender and youth	Makerere University in Uganda, Haramaya University in Ethiopia, Sokoine University of Agriculture in Tanzania and University of Nairobi in Kenya	Research
3.1	Contextualizing research, capacity building, linking with farmer communities	National agricultural research institutes (NARS) in Burkina Faso [Institut de l'Environnement et Recherches Agricoles (INERA)], Mali [Institut d'Economie Rurale (IER)], Niger [Institut National de la Recherche Agronomique du Niger (INRAN)], Senegal [Institut Sénégalais de Recherches Agricoles (ISRA)], India [Indian	Innovation Platform
		Council of Agricultural Research (ICAR)], Tunisia [Institut National de la Recherche Agronomique de Tunisie (INART)], Syria [General Commission for Scientific Agricultural Research(GCSAR)]and Sudan [Agricultural Research Corporation (ARC)]	
3.1	Systems modelling and capacity building through workshops	Commonwealth Scientific and Industrial Research Organization (CSIRO)	Capacity development
3.1	Collaborative work on SI framework and sustainability assessment	Wageningen University, Swedish University of Agricultural Sciences	Research

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Col.1	Column 2	Column 3	Column 4
3.1	Testing soybean varieties to identify high-yielding drought and disease-tolerant varieties adapted to various agroecologies across several African countries, including Mozambique	Soybean Innovation Lab and Syngenta Foundation	Research and capacity building
3.1	Partnership to improve farmers' knowledge and skills in improved crop production practices in Malawi	National Smallholder Farmers' Association of Malawi (NASFAM)	Capacity building
3.1	Partnerships on research and graduate student training at the Institute for Rural Development at Université Nazi Boni (UNB)	Institute for Rural Development at Université Nazi Boni, Burkina Faso	Research and capacity building
3.2	Research conducted in partnership	The national agricultural research institutes in West Africa [Institut de l'Environnement et Recherches Agricoles (INERA) for Burkina Faso and Institut Sénégalais de Recherches Agricoles (ISRA) for Senegal]	Research and Capacity development (PhD)
4.2	Donors for heat tolerance and research article on basic knowledge about heat tolerance in lentil	Panjab Agricultural University (PAU), India and Agricultural Research Cooperation (ARC), Sudan	Research
4.2	Improving nitrogen and phosphate use efficiency of lentil in rice fallows	Bidhan Chandra Krishi Vishwavidyalaya, India	Research
4.4	To scale out Triadic Comparisons of Technologies (TRICOT)	Integrated Seed Sector Development Program (ISSDP)	Delivery
4.4	To develop tools that will influence behavior change	Centre for Behavior Change and Communication (CBC)	Delivery
4.4	Collect and analyze household data	Makerere University, Uganda	Research
5.1	Partnership on research around access to cutting edge technologies, knowledge from industry for translating to crop improvement efforts in sorghum and pearl millet, the major food security crops in Asia and Africa	Corteva Agriscience	Research
5.1	Pearl millet heat screening trials conducted in collaboration with the private sector	Pioneer Hi-bred Pvt. Ltd., Bayer BioScience Pvt. Ltd., Metahelix and Chaudhary Charan Singh Haryana Agricultural University (CCSHAU)	Research

Table 9: Internal cross-CGIAR collaborations

Brief description of the collaboration	Name(s) of collaborating CRP(s), Platform(s) or Center(s)	Optional: Value added, in a few words e.g. scientific or efficiency benefits
<p>FP1: A partnership with CRP-PIM has enabled researchers in FP1 to update the CRP-GLDC database of the International Model for the Policy Analysis of Agricultural Commodities and Trade (IMPACT) for foresight modelling and ex-ante analysis for priority setting. Researchers in FP1 work closely with the CGIAR Collaborative Platform for Gender Research. A number of gender researchers from CGIAR (plus an equal number from outside the system) attended the platform’s scientific conference and capacity development workshops. In 2018, gender researchers in FP1 attended the Annual Scientific Conference and Capacity Development Workshop on 25-28 September in Addis Ababa, Ethiopia. A new partnership between World Agroforestry Centre (ICRAF), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the Cynfin Center is shedding light on how multiple income streams interact and the role they play in determining household aspirations. The combination of Cynfin Center’s distributed ethnography tools and ICRAF and ICRISAT’s deeper understanding of the farming system in developing countries now allows the team to conduct ethnography at scale.</p>	<p>GLDC, PIM, ICRAF, ICRISAT,</p>	<p>Research</p>
<p>FP1: CRP-GLDC provided updated values on production and consumption of GLDC crops in Sub-Saharan Africa and South Asia. In return, International Livestock Research Institute (ILRI) provided updated values on the production of livestock feed from GLDC crops.</p>	<p>GLDC, ILRI</p>	<p>Research</p>
<p>FP3: Interactions were also initiated with CRP-Roots, Tubers and Bananas (RTB), CRP-Maize and CRP-Wheat to identify criteria and indicators and assessing sustainability across farming systems/regions.</p>	<p>GLDC, RTB, MAIZE, WHEAT</p>	<p>Research</p>
<p>FP3: Collaboration on Sustainable Intensification options and cropping systems, including identifying appropriate legumes to diversify cereal-based systems.</p>	<p>GLDC, MAIZE</p>	<p>Outreach</p>
<p>FP3: Target to combine farm-level models with agent-based models to assess trade-offs and synergies across scales from farm performance and household livelihoods to landscape or community-level benefits. Identify criteria and indicators and assess sustainability across farming systems/ regions.</p>	<p>GLDC, RTB, MAIZE, WHEAT</p>	<p>Research</p>

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<p>FP4:</p> <ol style="list-style-type: none"> 1. With the CGIAR Excellence in Breeding (EiB) platform, to drive innovation in designing product profiles, adopting stage-gate system, phenotyping and genotyping and as source of knowledge. The High Throughput Genotyping Platform (HTGP) of EIB was deployed in crop breeding pipelines, particularly for early generation testing. 2. With the CGIAR Genebank Platform, to tap novel diversity of GLDC crops and evaluate finger millet accessions for fodder quality traits to identify lines for use as parents in breeding programs. 3. With ILRI, to test fodder samples of three crop commodities from West and Central Africa, Eastern and Southern Africa and South Asia. 4. With the CGIAR Platform for Big Data in Agriculture, rolled out the Digital Seed Road Maps to support seed systems in Africa. 	<p>GLDC, EIB, ILRI, Big Data</p>	<p>Research</p>
<p>FP5:</p> <ol style="list-style-type: none"> 1. Worked closely with EIB platform, and scientists attended several meetings with teams of various EIB modules to leverage expertise and activities such as the development of product profiles, stages and gateways, genotyping/sequencing related services, phenotyping and data management. 2. Partnership under development between Corteva Agriscience-ICRISAT-EIB for the pearl millet improvement program. 	<p>GLDC, EIB, ICRISAT</p>	<p>Research</p>