CGIAR | INITIATIVE ON Seed Equal

CGIAR Initiative on Seed Equal

ANNUAL TECHNICAL REPORT 2022

CGIAR Technical Reporting 2022

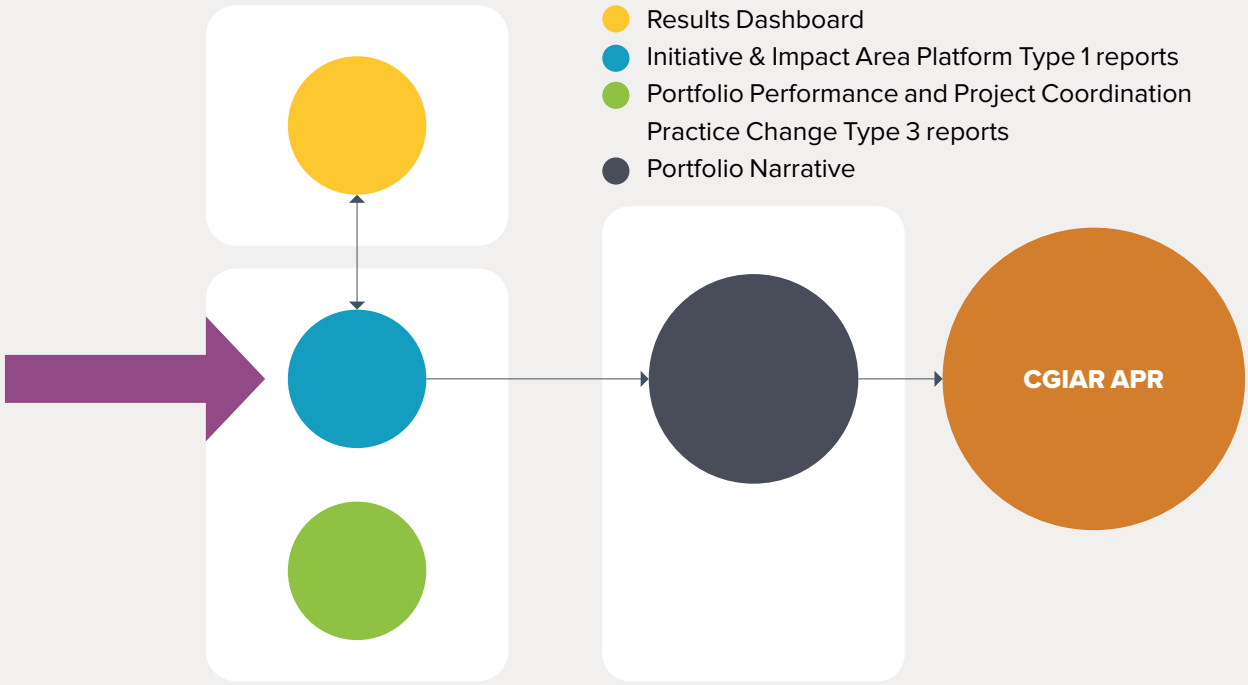
CGIAR Technical Reporting has been developed in alignment with the CGIAR Technical Reporting Arrangement.

This Initiative report is a Type 1 report and constitutes part of the broader CGIAR Technical Report. Each CGIAR Initiative submits an annual Type 1 report, which provides assurance on Initiative-level progress towards End of Initiative outcomes.

The CGIAR Technical Report comprises:

- Type 1 Initiative and Impact Area Platform reports, with quality assured results reported by Initiatives and Platforms available on the CGIAR Results Dashboard.
- The Type 3 Portfolio Performance and Project Coordination Practice Change report, which focuses on internal practice change.
- The Portfolio Narrative, which draws on the Type 1 and Type 3 reports, and the CGIAR Results Dashboard, to provide a broader view on portfolio coherence, including results, partnerships, country and regional engagement, and synergies among the portfolio's constituent parts.

The CGIAR Technical Report constitutes a key component of the CGIAR Annual Performance Report (APR).



US$	2022	2023	2024
Proposal Budget from initial submission	US$22,733,196	US$23,887,855	US$25,378,951
Approved 2022 Budget	US$10,143,170		

2022 disbursement target based on Approved FinPlan

Section 1 Fact sheet

Initiative name	Seed Equal
Initiative short name	Seed Equal
Action Area	Genetic Innovation
Geographic scope	**Regions targeted in the proposal:** Central and West Asia and North Africa; East and Southern Africa; Latin America and the Caribbean; South Asia; Southeast Asia and the Pacific; West and Central Africa **Countries targeted in the proposal:** Argentina; Bangladesh; Bolivia; Brazil; Burkina Faso; Colombia; Costa Rica; Ecuador; El Salvador; Ethiopia; Ghana; Guyana; Honduras; India; Indonesia; Kenya; Lao People's Democratic Republic; Malawi; Mali; Mexico; Mozambique; Myanmar; Nepal; Nicaragua; Nigeria; Pakistan; Panama; Paraguay; Peru; Rwanda; South Africa; The Socialist Republic of Viet Nam; Uganda; United Republic of Tanzania; Uruguay; Venezuela; Zambia; Zimbabwe
Start date	Jan. 1, 2022
End date	Dec. 31, 2024
Initiative Lead	Ian Barker – i.barker@cgiar.org
Measurable three-year End of Initiative outcomes (EOI-Os)	**EOI-O 1:** The capacities of seed system actors, such as seed companies and other seed multipliers (including men and women and community-based organizations) are strengthened to produce and deliver increased quantities of quality seed of improved varieties for representative crops and geographies.
	EOI-O 2: Seed system actors promote uptake of quality seed of new improved varieties derived from breeding programs by women and men farmers in selected countries.
	EOI-O 3: Increased number of public and private early generation seed enterprises are playing their roles more effectively by adopting models that reduce their cost and increase their output.
	EOI-O 4: Government partners in public policy design and implementation actively promote policy solutions to accelerate varietal turnover, adoption, and quality seed use by women and men..
	EOI-O 5: Funders, policymakers, researchers, and extension staff use tools such as Varscout, Seed Tracker, and other new tools to be developed, to monitor varietal turnover and quality seed use.

OECD DAC Climate marker adaptation score*	**Score 2:** Principal: The activity is principally about meeting any of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, and would not have been undertaken without this objective.
OECD DAC Climate marker mitigation score*	**Score 1:** Significant: The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives – namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.
OECD DAC Gender equity marker score*	**Score 1A:** Gender responsive: On the top of the minimum requirements for 1A, the Initiative/project includes at least one explicit gender equality outcome and the Initiative/project team has resident gender expertise or capacity. The Initiative/project includes gender equality indicators and monitors the participation of and differential benefits for diverse men and women.
Website link	https://www.cgiar.org/initiative/06-seedqual-delivering-genetic-gains-in-farmers-fields/

*The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) markers refer to the OECD DAC Rio Markers for Climate and the gender equality policy marker. For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal.
The CGIAR GENDER Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.
These scores are derived from Initiative proposals, and refer to the score given to the Initiative overall based on their proposal.

Chumki Mondol (27) is a female farmer from Rajbari District, Bangaldesh. She used seeder fertilizer drills to plant wheat on her fields. Previously this was done manually. SFD has resulted to a better harvest for Chumki. Photo credit: Ranak Martin

Section 2 Initiative progress on science and towards End of Initiative outcomes

An attendant displays KDV1 drought-tolerant seed at the Dryland Seed Company shop in Machakos, Kenya. Photo credit: Florence Sipalla/CIMMYT

Overall summary of progress against the theory of change

The overall outcomes planned to be tackled by Seed Equal as per the theory of change were mostly addressed in 2022.

More than **100 cereal products** have been scaled through cereal seed value chains, and access to quality seed ensured through functional formal or farmer-based seed systems (outcome 1). This includes **maize**, where **57 elite products** were licensed through 47 partners in 35 countries (in Africa, South Asia (SA), East and Southern Africa (ESA), and Latin America and the Caribbean (LAC)) and **8 provitamin-A- and zinc-enriched maize**

hybrids from CIMMYT (Mexico) and International Institute of Tropical Agriculture (IITA) (Nigeria) were identified for potential scaling in Nepal and SA. More than **30 improved rice varieties** (climate-resilient, bio-fortified, low-input responsive, high yielding) were released in SA, ESA or exchanged through transnational seed protocols between Bangladesh, India, and Nepal.

Thousands of farmers have benefited through better access to quality seed of improved varieties (outcome 2). For cereals, on-farm trials (OFTs) were laid out across 10 major **rice market** segments (1,000 OFTs), with 50 new products in SA and 36 new products in ESA introduced. In **maize**, OFT networks were established in SA (Nepal and Bangladesh) and demonstration plots laid out in Mexico with new CIMMYT (International Maize and Wheat Improvement Center) **maize hybrids** through prospective scaling partners. Improved **spring durum** and **bread wheat** lines have been selected for further **distribution** to target environments in Africa, via 34 collaborators. **For legumes**, 1,465 farmer seed producers (670 women) were identified and profiled in Ghana, Kenya, Mozambique, Nigeria, Rwanda, Zambia, and Zimbabwe, where they collaborated in the production of 22 tons of breeder seed, 137 tons of foundation seed, and 2,104 tons of certified seed. Legume seed multiplier partners carried out **2,190 demonstrations** to promote 56 new varieties (<10 years old) in Kenya, Zambia, Zimbabwe, Rwanda, Burundi, Democratic Republic of the Congo (DRC), Ghana, and Nigeria. A gender and social inclusivity analysis aimed at understanding integration and mainstreaming of gender was conducted for common bean seed production, involving 42%, 50%, and 46% women representation in multi-stakeholder platforms (MSPs), promotional events, and capacity-building respectively. For inclusive seed sector growth, improved policies, investments and regulation for variety registration and release have been setup in **Kenya**, supporting national stakeholder consultations for the development of seed quality assurance regulations for vegetatively propagated materials (VPMs) and integrating farmer-managed seed systems for the first time. In Uganda, recent work highlighted gains achieved from policy innovations, regulatory reforms, and market experiments in the seed sector, while emphasizing the political economy factors limiting growth. In **Rwanda**, Seed Equal continued to support the government's efforts to accelerate commercialization of the seed sector with new data and evidence.

Outcome 3 has been successfully addressed with critical public as well as private partnerships established in different countries, regions and for different crops. For vegetatively propagated crops (VPCs), **consultative meetings** involving international partners, national research, and seed regulatory agencies were held in Nigeria, Tanzania, and Uganda. A tool for gender and social inclusion requirements for estimating seed demand (Tanzania), **a user-friendly tool** to estimate demand for early generation seed for VPCs (Uganda), **a needs assessment** to quantify demand for seed in "geo-targeted" regions of Nigeria, and **a geospatial analysis** approach for quantifying linkages between VPC seed demand and supply were implemented. For **wheat**, a determination of the feasibility of wheat flour blending, as a short- and medium-term solution to the current wheat and food price crisis, was undertaken by Jomo Kenyatta University of Agriculture and Technology (JKUAT), who conducted lab analyses on cereal properties for consumer preference with a view to stimulating the uptake of, and hence seed demand for, locally adapted varieties. In **rice**, five public–private partnerships in SA and four in ESA have been established for early generation seed production. The **maize** team reported partnerships with 10 Latin American National Agricultural Research and Extension Systems (NARES), and small and medium-sized enterprise (SME) partners who were supported with direct one-on-one technical backstopping for product selection, varietal registration, line maintenance, seed production, and post-harvest. In legume seed systems,

16 country-based **MSPs** were established, bringing together 10 National Agricultural Research Systems (NARS), 42 seed companies, 23 NGOs, extension agents, agro-dealers, 45 grain off-takers, and farmers — all critical actors in creating demand within the legume seed and grain value chain (outcome 3). The updating of guidelines for the registration and release of varieties of all the major VPC crops emerged from stakeholder consultations with national partners in Nigeria.

Altogether, Seed Equal results contributing to outcomes 1 to 3 also addressed Action Area (AA) outcome statements 4 and 5, promoting the integration of public and private seed systems for increasing the quantity of seed of improved varieties available to farmers (AA outcome 4) and the respective adoption of new varieties (AA outcome 5), for the priority crops and geographies listed above.

More than 5,000 innovative smallholder farmers, including women and youth, were engaged in and trained on improved on-farm validation systems, seed marketing tools, awareness, and technical know-how (outcome 4). In **rice**, master trainers/farmers (2000 in SA, 165 in ESA) were trained in quality seed production — targeting quality assurance in farmer-managed seed systems, 70% of whom were women. **Community driven demonstrations** were reported for 10 validated promising rice products in SA and 13 in ESA, and 41 field days organized in ESA targeted diverse stakeholders (farmers, dealers, seed producing officers, seed firms, etc.) to take part in participatory product selection. In **maize**, training courses on seed production were implemented for 25 staff from the Guatemalan NARES institution and international training on **maize hybrid** seed production and seed business management for SA were conducted with 26 institutions from India, Bangladesh, Nepal, and Pakistan. Early generation seed production models were promoted for **cassava** in South-East Asia through the socialization of new rapid tunnel multiplication techniques with 20 seed system stakeholder organizations from Cambodia, Lao PDR, Thailand, and Vietnam. NARES staff were trained in 6 different countries in Southeast Asia and Africa on late-stage product advancement using the Seeds2B seed toolkit; follow-up monitoring is needed to estimate the level of use of these tools. Capacity-building activities were implemented for rice seed production in India, Bangladesh, Tanzania, and Kenya, with the focus on fostering seed systems innovations and ensuring best practices in seed production. A new tool for variety adoption monitoring (**VarScout**) was piloted in two countries with local extension and NGO staff inputting data from the field. This capacity will be extended to further crops and countries in 2023–2024. A first draft towards a **One CGIAR germplasm licensing strategy** was produced, based on best practice across participating CGIAR crop centers. Activities relating to the design and roll-out of a One CGIAR variety/product catalogue will start in 2023. Investment in capacity development to strengthen **policy analysis** and introduce a predictable policy environment were pursued through continued support to communities of practice and learning, including the Integrated Seed Sector Development (ISSD) Africa initiative — a critical platform for sector stakeholders across the region. Seed Equal also began work on advancing new methods, tools, data, and systems to monitor and evaluate policy change processes in seed system and market development. New features were added to the **SeedTracker ICT** platform in 2022 for use in the potato (Georgia) and sweet potato (Tanzania) seed value chains, enabling registered users to upload additional required information.

Finally, CGIAR partners have developed and scaled seed innovations, policies, validation systems, marketing tools, and technical know-how, that contribute to the empowerment of women, youth and other social groups in food, land, and water systems, addressing AA outcome statement 6.

A deficit of this report is that we still lack the ability to report across crops and geographies in

Seed of teosinte, a wild relative of modern maize. Photo credit: CIMMYT.

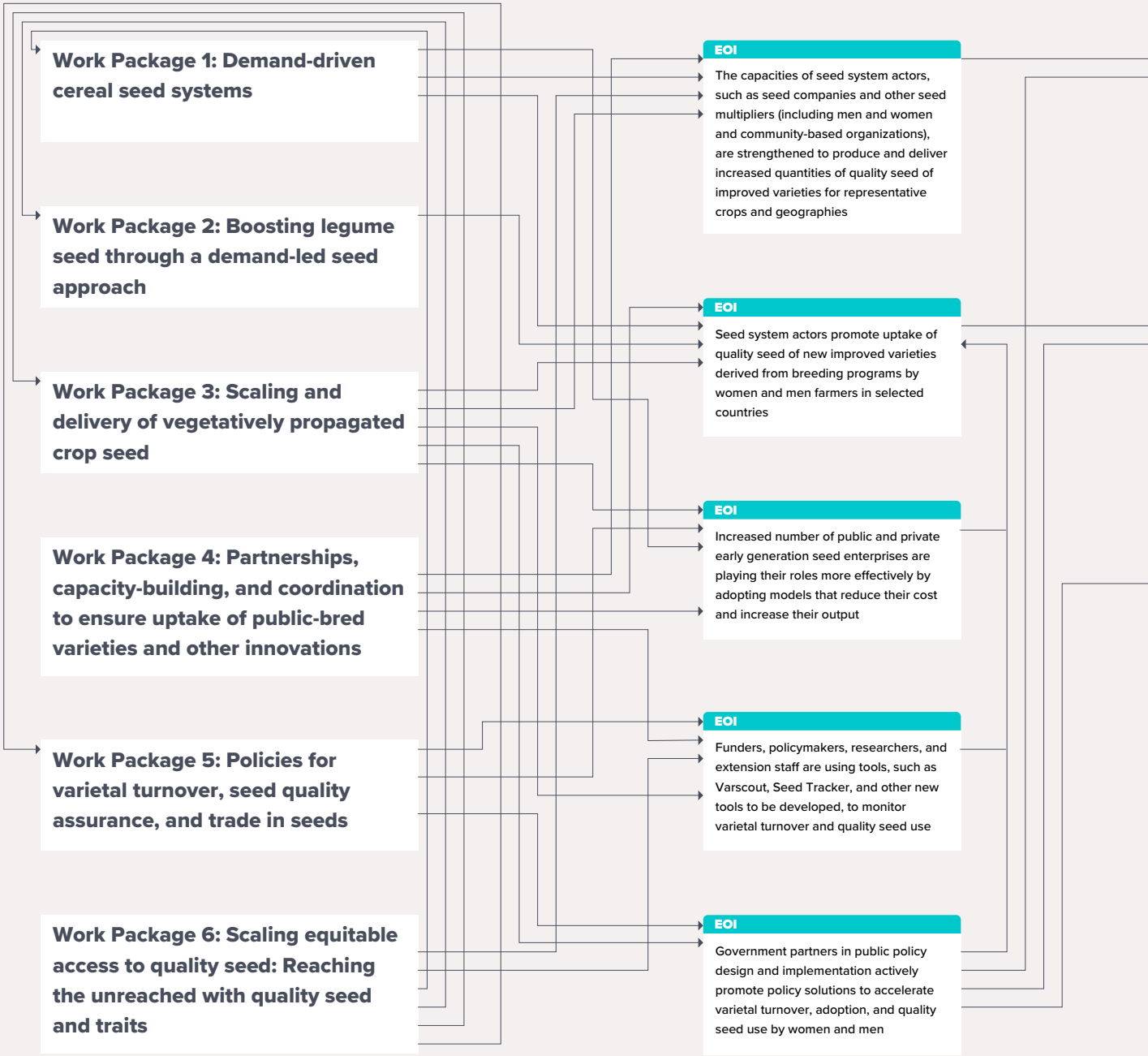
overall improvements in the functioning of seed systems and delivery from our own from and partners' breeding pipelines (in terms of both variety adoption and seed availability) in aggregated and simple "headline" or dashboard style. The required indicators, associated targets, and methods for data collection, along with agreed definitions of allowable attribution, are complex in nature and are being finalized. They will be available in 2023 along with available baselines. Reporting for 2023, along with estimates of progress in 2022 against baselines, will be included in the following report. In a number of cases the initiative is actively working to develop new metrics, particularly around inclusive access to seed, for use both within the Genetic Innovation (GI) Action Area but also to be available for global seed development sector. These new indicators are likely to be available and to have been piloted within the current business cycle.

A priority for 2023 will be the increasing alignment of Seed Equal activities with the newly launched **Market Intelligence** Initiative Seed Product Market Segment Database (SPMS) to prioritize seed value chains with the highest potential impact and for which breeding pipelines and candidate varieties are available. Priorities to identify further capacity-building in order to strengthen national program seed production capability will be further aligned with the breeding capacity development needs assessments and implementation undertaken by the **Accelerated Breeding** Initiative (ABI) TRANSFORM Work Package. Identification of future needs for seed policy analysis and development in an African context will be increasingly driven by gaps identified by the SeedSAT program implemented by the Alliance for a Green Revolution in Africa (AGRA). Continuing dialogue with AGRA on seeking opportunities for where Seed Equal can support the emerging AGRA Center of Excellence in Seed Systems in Africa (CESSA) will continue in 2023 and as that initiative becomes operational.

Findings from recent research, including the role of traders and aggregators in seed value chains, and partner demand (e.g., The United States Agency for International Development's (USAID's) Bureau for Humanitarian Assistance in the context of emergency seed procurement) suggests a need for stronger partnerships with non-traditional seed system actors. Lastly, Seed Equal will host a re-formed version of the Seed System Center of Excellence, alongside Netherlands-based partners, to provide a platform for a more holistic dialogue on inclusive seed systems going forward and to provide actionable solutions for emerging issues.

Initiative-level theory of change diagram

This is a simple, linear, and static representation of a complex, non-linear, and dynamic reality. Feedback loops and connections between this Initiative and other Initiatives' theories of change are excluded for clarity.



EOI — End of Initiative outcome

AA — Action Area

IA — Impact Area

SDG — Sustainable Development Goal

- Nutrition, Health, and Food Security
- Poverty Reduction, Livelihoods, and Jobs
- Gender Equality, Youth, and Social Inclusion
- Climate Adaptation and Mitigation
- Environmental Health and Biodiversity

Teams from CGIAR's three Action Areas — System Transformation, Resilient Agrifood Systems and Genetic Innovation — worked to develop an improved set of Action Area outcomes in October 2022. Since this was near the end of the reporting cycle for 2022, it was decided not to update the theories of change based on these new Action Area outcomes.
The exception to this is Genetic Innovation — for this Action Area, as the new outcomes had already been widely discussed among the relevant Initiatives, and with its advisory group of funders and other stakeholders, the decision was made to update their outcomes in time for the 2022 reporting cycle.

Progress by End of Initiative outcome

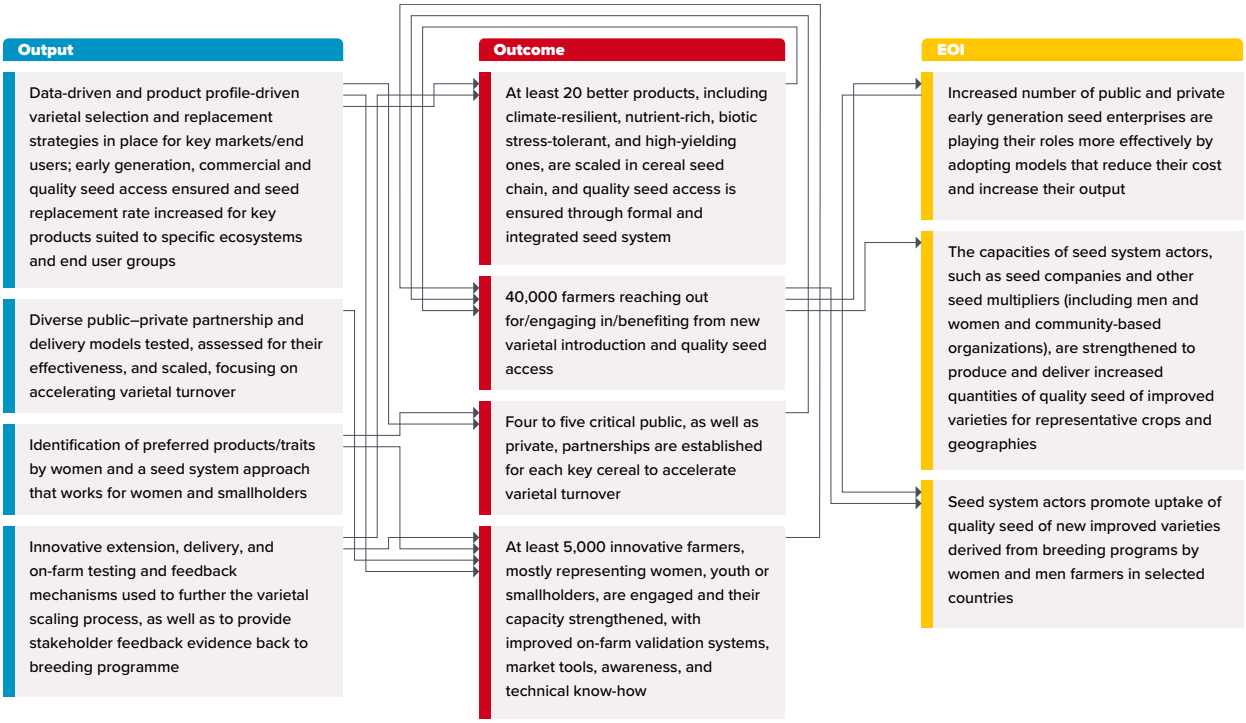
EOI-O 1 **The capacities of seed system actors, such as seed companies and other seed multipliers (including men and women and community-based organizations) are strengthened to produce and deliver increased quantities of quality seed of improved varieties for representative crops and geographies.**	WP1 introduced more than 100 new **cereal** varieties and hybrids to seed system/seed chain actors in targeted countries after systematic validation and feedback on product performance. This deployment was facilitated through strategic sourcing of early generation seed (e.g., breeder seed, foundation seed, basic seed) and diversified and decentralized positioning amongst diverse institutions and actors. WP2 reported a total of 1,465 farmer seed producers (670 women) re-tooled in various aspects of **common bean**, **cowpea**, and **soybean** seed production and marketing in Ghana, Kenya, Mozambique, Nigeria, Rwanda, Zambia, and Zimbabwe. These partners produced 22,137 and 2,104 tons of breeder, foundation and certified/quality declared seed, respectively. For VPCs, WP3 developed, working through NARES's checklists and tools for the preparation of gender-responsive profiles of women and men farmers' varietal preferences and seasonal demand, optimal delivery channels for VPC seed in Nigeria, Tanzania, and Uganda. A geospatial analysis approach for quantifying these linkages is under implementation. New technologies that increase the efficiency of early-generation seed production were tested in Nigeria and Ghana (e.g., cassava pencil stems; yam leaf-bud cuttings; yam nucleus stock and breeder-seed public and private production systems; seed potato rooted apical cuttings (RAC) with the private sector). The recombinase polymerase amplification (RPA)-based isothermal amplification method (40°C) was developed for the rapid detection of seed-borne yam mosaic virus (YMV) and banana bunchy top virus (BBTV). In India (Odisha, Telangana, Andhra Pradesh, Bihar, and Uttar Pradesh), an assessment of community seed banks and seed villages to understand their ability to promote inclusive and gender-responsive access to seed has been initiated by WP6 and will be completed in Q2 of 2023.
EOI-O 2 **Seed system actors promote uptake of quality seed of new improved varieties derived from breeding programs by women and men farmers in selected countries.**	WP1 worked with actors involved in seed maintenance and/or direct multiplication of cereal products for mass scaling, commercialization, dissemination, and targeted adoption. A diverse range of multiplying and scaling institutions, including private companies (targeting hybrids or high-value products), SMEs, public seed firms (large volume products and inbred focus), registered NGOs and community institutions, farmer producer companies (FPCs), were involved, targeting smallholder, women and "last-mile" delivery to develop and implement a decentralized and inclusive approach. Many products introduced through transnational seed movement resulted in a positioning of those products in these new countries through a more localized ownership and delivery system. WP2 undertook collaborative promotional activities with 42 seed companies, 23 NGOs, extension agents, and agro-dealers, resulting in 2,190 demonstrations of 56 modern varieties of common bean, cowpea, and soybean in Kenya, Zambia, Zimbabwe, Rwanda, Burundi, DRC, Ghana, and Nigeria. The "hand-over point" between breeding outputs and seed systems is a bottleneck in the VPC seed-value chain and WP3 is developing a tool for NARES to use a systematic approach to plan seed delivery and provide feedback to breeders.

EOI-O 3 **Increased number of public and private early generation seed enterprises are playing their roles more effectively by adopting models that reduce their cost and increase their output.**	WP2 developed cost–benefit analysis tools to help seed producers to reduce production risks and costs of seed production; 10 public seed enterprises and 42 further seed enterprises are partly outsourcing seed multiplication to contracted spatially dispersed seed growers. WP3 developed case studies of profitable inclusive VPC businesses in smallholder systems, such as seed potato production planning, and using a business decision tool which shows the profitability of the planned production schemes. Action research with women's collectives and other farmer producer organizations has been initiated by WP6 in Odisha, Telangana, and Andhra Pradesh in collaboration with the International Rice Research Institute (IRRI), ALF, Center for Sustainable Agriculture (CSA) and Pragati and will contribute to EOI-O 3. In India, WP6 also trained farmers from FPCs in Telangana and Andhra Pradesh, from which 53 women have registered to produce seed. Using a Farmer Field and Business School (FFBS) model, independent women paddy seed producers and women from the (all) Women Farmer's Producer Company in Loisingha (Odisha) were engaged for the first time in paddy seed production.
EOI-O 4 **Government partners in public policy design and implementation actively promote policy solutions to accelerate varietal turnover, adoption, and quality seed use**	In 2022, WP5 made considerable progress towards this End of Initiative outcome, working in close collaboration with other Seed Equal work packages as well as with government partners, policy think tanks and national policy research centers. The main progress focused on promoting inclusive policy solutions to improve regulatory frameworks guiding the introduction of new plant variety protection laws (Nigeria), the production and distribution of quality planting material for VPCs (Kenya), the acceleration of private sector engagement in the seed sector (Rwanda), and market-led innovations in seed distribution and quality assurance (Uganda). These efforts were augmented by continued efforts to put evidence-based policy analysis at the center of cross-country communities of practice and learning, and to promote rigor in both the legal and economic analysis being undertaken by WP5's national partners at all levels. For VPC (WP3), the National Agricultural Seed Council of Nigeria (NASC) piloted potato seed inspection and certification guidelines, and inspectors completed training on sampling, handling, and diagnostics of pests and pathogens of concern. Similar training in Ralstonia and PCN diagnostics using rapid and reliable diagnostic tools was offered to the regulatory bodies of Cameroon, Rwanda, Uganda, Tanzania, Burundi, South Sudan, Kenya, and Nigeria. Diagnostics manuals were developed for Ralstonia, potato cyst nematode and other economic pests and diseases of potato.

EOI-O 5 **Funders, policymakers, researchers, and extension staff use tools such as Varscout, Seed Tracker, and other new tools to be developed, to monitor varietal turnover and quality seed use.**	WP2 researchers have collected data from 153 farmer-based seed actors and seed companies and entered and monitored in the Seed Tracker (ST) tool. As part of the RTB Tools4SeedSystems Toolbox, the ST tool is being further refined by WP3 to improve its marketing functionalities to support the dissemination of VPC improved varieties and expand its use to potato seed systems in Georgia and sweetpotato seed quality assurance in Tanzania, as well as cassava, maize and rice in DRC. A review of existing indicators and metrics used for tracking inclusive access to seed was completed by WP6 and will be finalized after a stakeholder consultation workshop in Q1 of 2023; this will be followed by piloting these metrics in at least 4 countries. The VarScout app for tracking varietal adoption has been piloted in Kenya with County extension staff and in Peru with NGO staff.

Section 3 Work Package-specific progress

Work Package 1:
Demand-driven cereal seed systems



Work Package 1 progress against the theory of change

WP1 has exceeded targets set for **outcome 1** (At least 20 better products are scaled in the cereal seed chains and quality seed access ensured through formal and integrated seed systems) with **100 better cereal products** scaled in 2022. Starting with **maize, 57 elite products** were licensed through 47 partners in 35 countries (Africa, SA, SEA, and LAC) and **88 pro-vitamin-A- and zinc-enriched maize hybrids** from CIMMYT (Mexico) and International Institute of Tropical Agriculture (IITA) (Nigeria) were identified for potential scaling in Nepal and SA. An **online maize catalogue** updated with 17 newly announced products, plus **113 previously** announced products, high-performing OPVs, and biofortified hybrids, should contribute to scaling. In **rice, 12 new products** with value-added traits (climate-resilient, bio-fortified, low-input responsive, high yielding, etc.) were positioned in the seed chain in SA and 13 new varieties released in ESA. In addition, under the Seeds Without Border Policy (targeting facilitated transnational seed exchange) **three products from Bangladesh** were released in India, **one Indian** product in Nepal and **two Indian products** are being released in Bangladesh. For rice, regarding promising products or variety replacement, 100 new revised target product profiles were developed in SA and 20 are under development in ESA.

For **outcome 2** (40,000 farmers engaged/reached out to/benefiting through new varietal introduction and quality seed access), in **rice**, 1,000 OFTs were laid out across 10 major rice market segments, with 50 newest products in SA and 36 products in ESA introduced through 294 OFTs; trials were hosted by mostly smallholder farmers, 40% of whom were women. In **maize**, OFT networks in SA, especially in Nepal and Bangladesh, have allowed the distribution of 123 seed kits in India, 15 in Nepal, and 20 in Bangladesh. Demonstration plots were

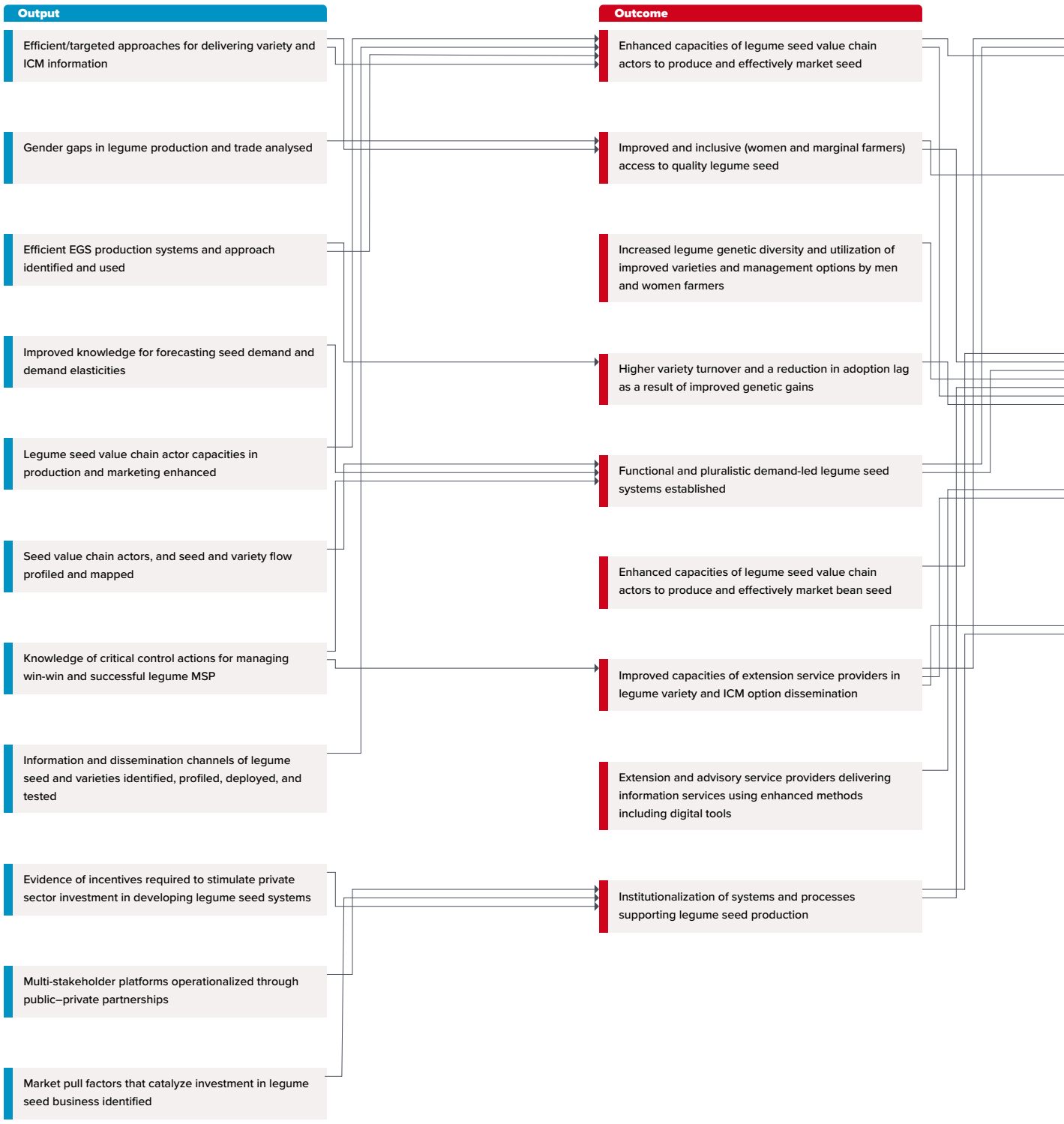
established in Mexico and four partner field days carried out to demonstrate new CIMMYT **maize hybrids** to prospective scaling partners. Improved **spring durum** and **bread wheat** lines (climate-resilient, market preferred, and nutritious) have been selected for further **distribution** of target environments in Africa, via 34 collaborators. Two strategic analyses were published in wheat, the first one to understand the Ukraine-Russia war implication on **wheat** markets (Nature, Bentley et al.) and the second, on gender dimensions in wheat cultivation and seed systems (Voss et al., under review).

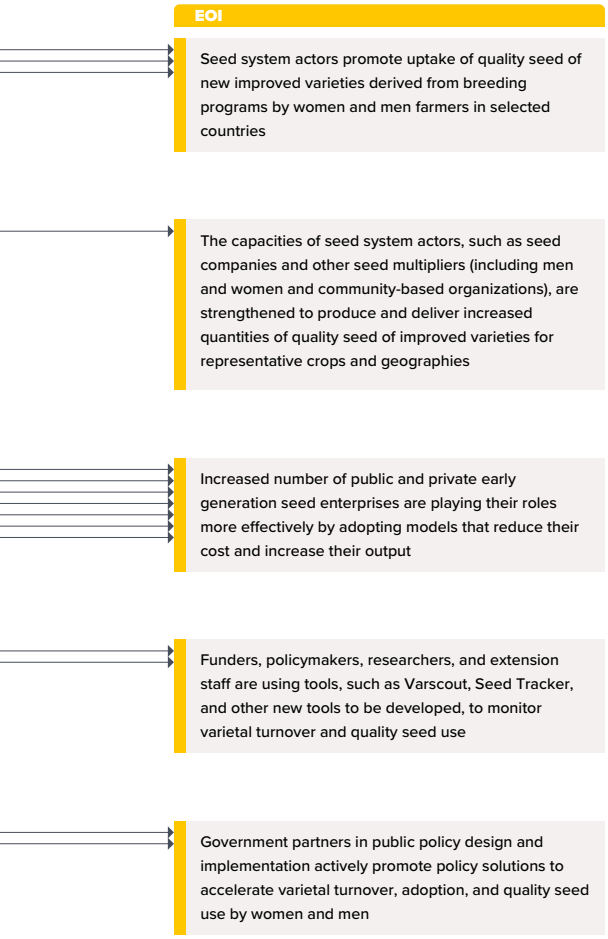
For WP1 **outcome 3** (Four to five critical public as well as private partnerships established for each key cereal for accelerated varietal turnover), in **wheat**, a determination of the feasibility of wheat flour blending, as a short- and medium-term solution to the current wheat and food price crisis, was undertaken by JKUAT to conduct lab analysis on cereal properties for consumer preference to stimulate the uptake of local varieties. In **rice**, five public-private partnerships in SA and four in ESA have been established for early-generation seed production. The **maize** team reported partnerships with 10 Latin American NARES and SME partners who were supported with direct one-on-one technical backstopping for product selection, varietal registration, line maintenance, seed production, and post-harvest.

For **outcome 4** (At least 5,000 innovative farmers, mostly representing women and youth or smallholders, are engaged and capacitated with improved on-farm validation systems, marketing tools, awareness, and technical know-how), in **rice**, a training of master trainers/farmers (2,000 in SA, 165 in ESA) was achieved around quality seed production targeting quality assurance in farmer-managed seed systems, 70% of whom were women. **Community-driven demonstrations** were reported for 10 validated promising products in SA and 13 in ESA; 10 varietal "cafeterias" were hosted in South Asia and 41 field days organized in ESA targeting diverse stakeholders (farmers, dealers, seed-producing officers, seed firms, etc.) for participatory product selection. In maize, a training course on seed production was implemented for 25 staff from the Guatemalan NARES institution, and international training on maize hybrid seed production and seed business management for SA was conducted with 26 institutions from India, Bangladesh, Nepal, and Pakistan. In **wheat**, a paper describing the link between seed delivery timing to farmers, wheat production and food security in Afghanistan (Poole et al., 2022) was published and a novel partnership of local and international partners established to develop a national seed roadmap for the rehabilitation of the wheat seed system.

Stewards Globe Acting Chief Executive Officer Stephanie Angomwile displays bags of Afriseeds bean seed at the company's warehouse in Lusaka, Zambia.
Photo credit: Florence Sipalla/CIMMYT

Work Package 2:
Boosting legume seed through a demand-led seed approach

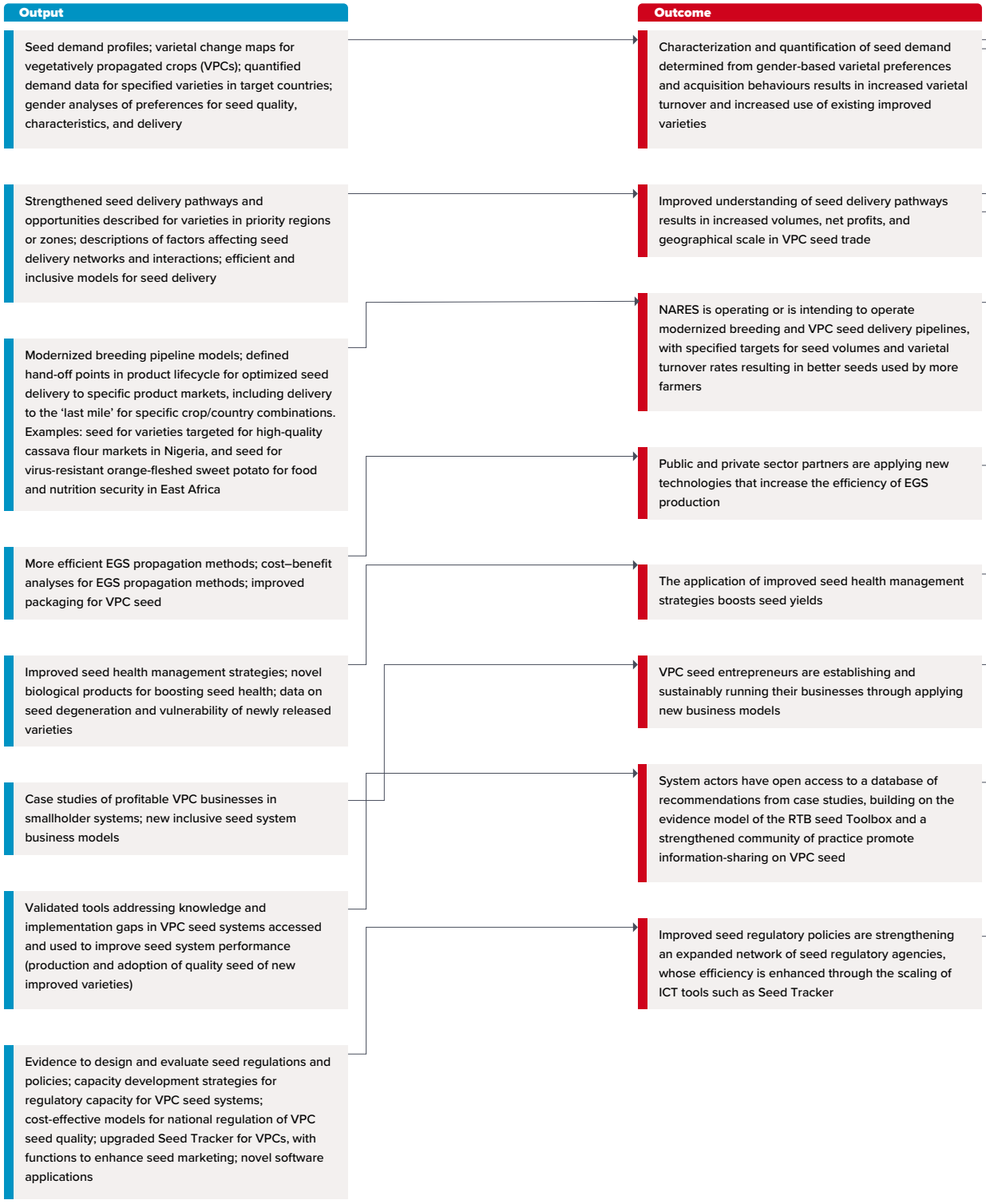


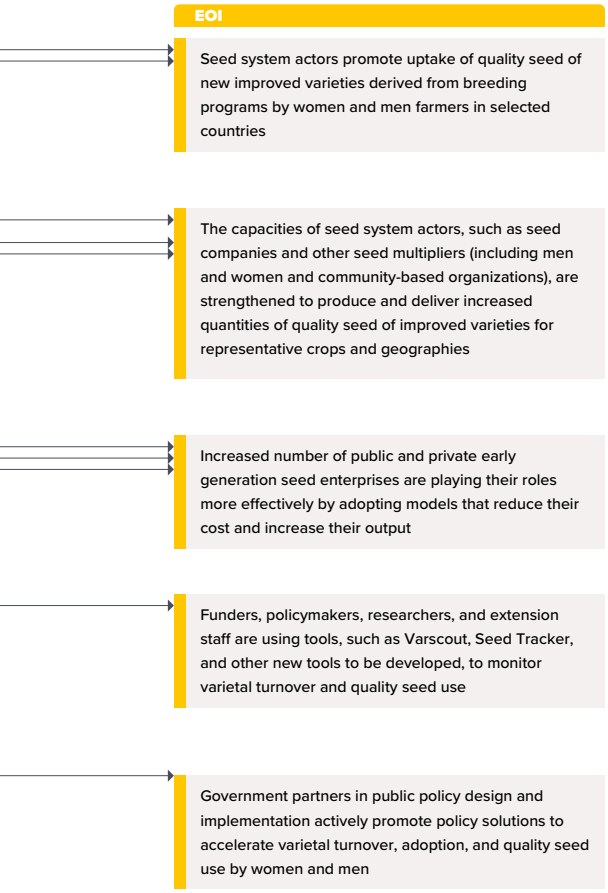


Work Package 2 progress against the theory of change

The five planned theory of change outcomes were all addressed in 2022. **Actors were identified, profiled, and collaborations initiated**, which resulted in the training of 1,465 seed producer partners (670 women) and the production of 22 tons of breeder seed, 137 tons of foundation seed, and 2,104 tons of certified/QDS seed in Ghana, Kenya, Mozambique, Nigeria, Rwanda, Zambia, and Zimbabwe (outcome 1). **A gender and social inclusivity analysis** for integrating and mainstreaming gender, conducted for common bean, resulted in about 42%, 50%, and 46% female representation in MSPs, promotional events, and capacity-building (outcome 2). Sixteen country-based **MSPs** have been established, bringing together 10 NARS, 42 seed companies, 23 NGOs, extension agents, agro-dealers, 45-grain off-takers, and farmers — all critical actors in creating demand in the legume seed and grain value chain (outcome 3). **Partners established 2,190 demonstrations** to promote 56 new varieties (<10 years) in Kenya, Zambia, Zimbabwe, Rwanda, Burundi, DRC, Ghana, and Nigeria. Similarly, **institutional changes** catalyzed by WP2 led to the promotion and uptake of new bean varieties in Kenya and Rwanda and cowpea varieties in Ghana and Nigeria. Forty-one **collaborative capacity-building** sessions were organized with extension agents on good agricultural practices and improved variety use (outcomes 4 and 5).

Work Package 3:
Scaling and delivery of vegetatively propagated crop seed





Work Package 3 progress against the theory of change

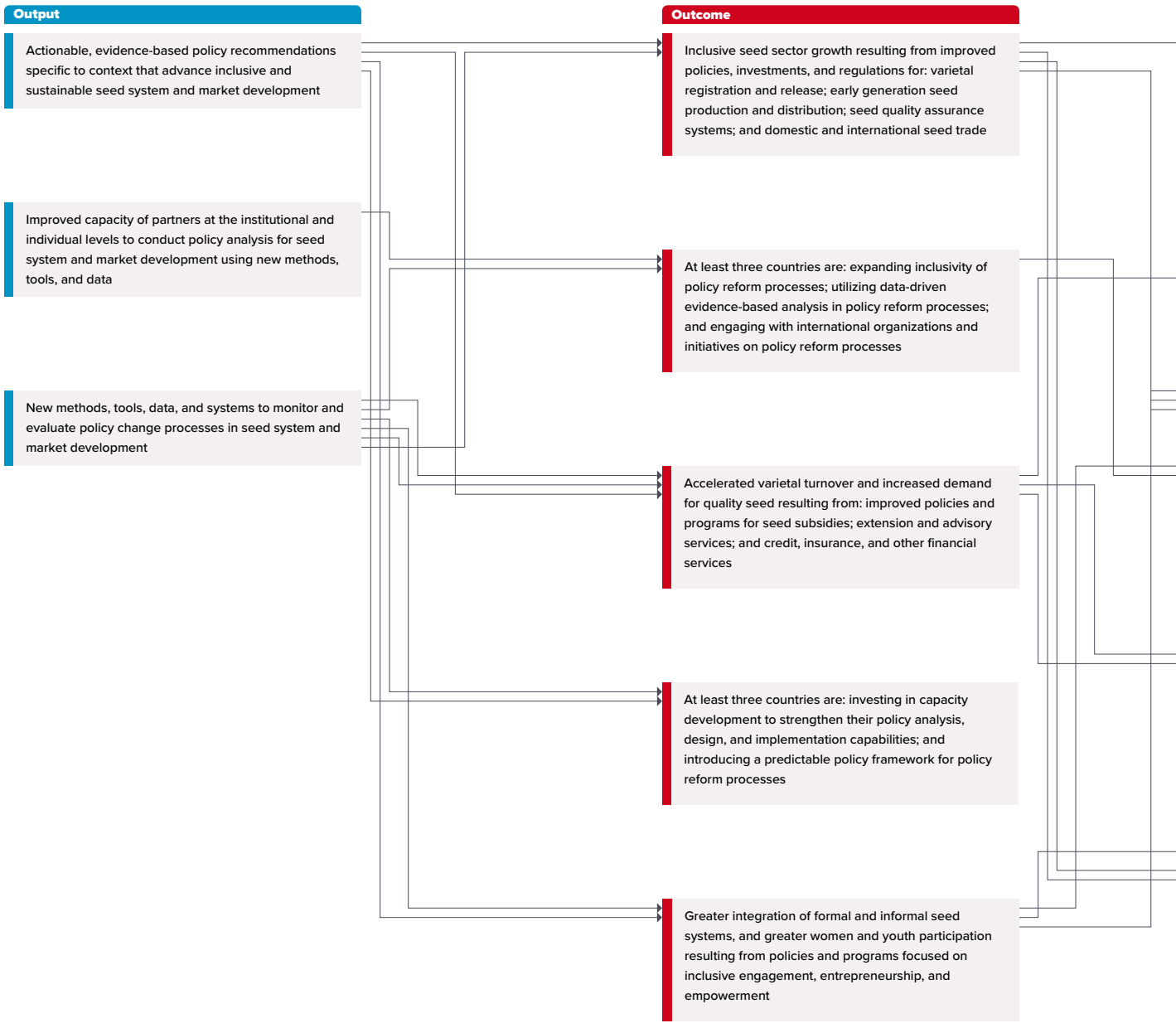
Outcomes 1 to 3 of WP3 focus on **strengthened seed delivery for VPCs**, improved characterization of seed demand, and streamlined breeding pipelines. To achieve this, a novel mechanism was piloted in "geo-targeted" regions of three priority countries — Nigeria, Tanzania, and Uganda — to improve seed delivery. Workplans were developed through **consultative meetings** involving all CGIAR Centers involved in WP3, and international partners as well as national research and seed regulatory agencies. Several deliverables were achieved, including: **a checklist** of gender and social inclusion requirements for seed-demand tools (Tanzania); **a user-friendly tool** to estimate demand for early generation seed for VPCs (Uganda); **a needs assessment** to quantify demand for seed in target geo-regions of Nigeria; and **a geospatial analysis** approach for quantifying linkages between VPC seed demand and supply. Outcome 4 on **early generation seed production** was promoted for cassava in Southeast Asia through the socialization of new rapid tunnel multiplication techniques **with 20 seed system stakeholder organizations** from Cambodia, Lao People's Democratic Republic (PDR), Thailand, and Vietnam. A framework analysis was **published** describing how to **maximize seed system investments**, using examples from seed health management for potatoes in the Andes and the highlands of East Africa (outcome 5). Results were **published** from a study of orange-fleshed sweetpotato value chains in Mozambique, in which a social relations approach was used to demonstrate that subtle changes to social norms were enabling women to increase their engagement in the system (outcome 6). In 2022, new features were added to the **SeedTracker ICT** platform for potato (Georgia) and sweetpotato (Tanzania), enabling registered users to present additional information, including variety name, seed category, available quantity, and sale windows (outcome 7). Finally, the updating of guidelines for the registration and release of varieties of **all major VPC** crops emerged from stakeholder **consultations** with national partners in Nigeria (outcome 8).

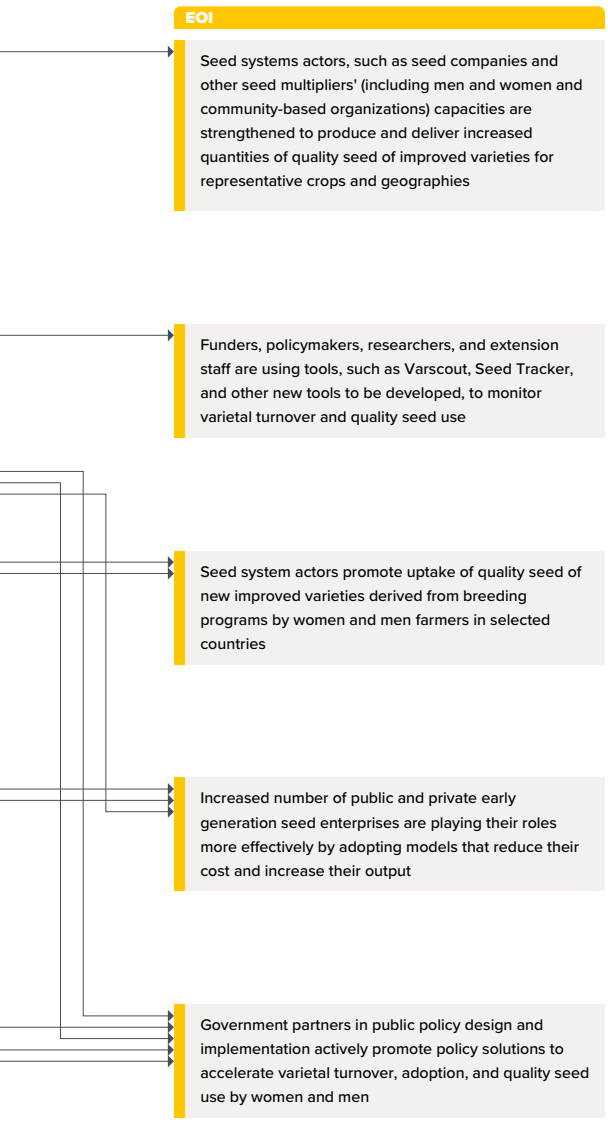
Work Package 4:
Partnerships, capacity-building, and coordination to ensure uptake of public-bred varieties and other innovations

Work Package 4 progress against the theory of change

In 2022, WP4 has engaged with five academic, non-profit, and private partners to contribute to the theory of change. For **outcome 1** (NARES network in 20 countries using and applying new product evaluation and advancement tools), key NARES staff were trained to use late-stage product advancement tools in six different countries in Southeast Asia and sub-Saharan Africa; continued monitoring will be required to estimate the level of use of these tools and the need for further training. Capacity-building activities were implemented for rice seed production through training in India, Bangladesh, Tanzania, and Kenya, focusing on fostering seed systems innovations and ensuring best practices for seed production; scientists from Yemen were trained on potato seed production practices. For progress towards **outcome 2** (VarScout app downloaded from Android App Store and providing data entry framework for 10 priority crops and 20 priority countries), varietal data are already available in **VarScout** (uploaded for two countries via local extension and NGO staff) and this work is envisioned to grow substantially in 2023–2024. To address **outcome 3** (Improved access to varietal data for priority crops and countries), best practices for seed production technologies were promoted in Asia and sub-Saharan Africa. Late-stage **product advancement meetings (PAMs)** have been organized for three crops — rice, potato, and soybeans — in Vietnam, India, Kenya, and Zambia, and evaluation of PAMs is underway with the aim to increase efficiency using private sector-based novel handbook tools. For outcome 4 (Seed delivery partners accessing the first CGIAR variety catalogue), the focus in 2022 was on advancing the licensing strategy and a first draft towards the **CGIAR germplasm licensing strategy** was finalized. Activities related to the design and implementation of the CGIAR variety/product catalogue are starting in 2023 as envisaged in the Plan of Results and Budget.

Work Package 5:
Policies for varietal turnover, seed quality assurance, and trade in seeds

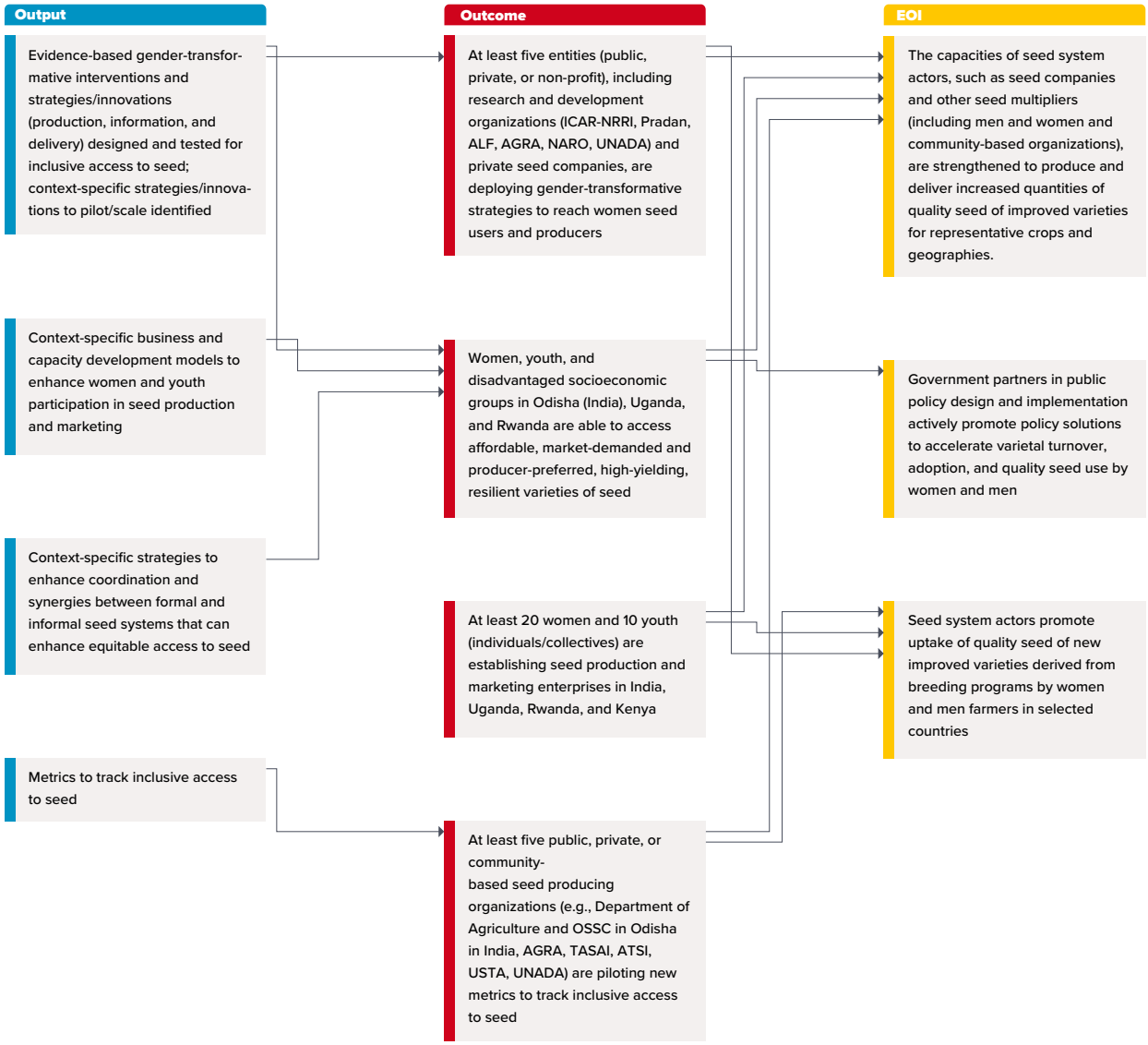




Work Package 5 progress against the theory of change

Highlights of WP5's work on **outcome 1** (Inclusive seed sector growth resulting from improved policies, investments and regulation for variety registration and release) included the following: in **Kenya**, joint work with WP3 supported national stakeholder consultations for the development of seed quality assurance regulations for VPMs; in **Uganda**, recent work highlighted gains achieved from policy innovations, regulatory reforms, and market experiments in the seed sector, while emphasizing the political economy factors limiting growth; and in **Rwanda**, WP5 continued to support the government's efforts to accelerate commercialization of the seed sector with new data and evidence. **Outcome 2** (Accelerated varietal turnover and increased demand for quality seeds resulting from improved policies and programs for seed subsidies, extension and advisory services, and credit insurance) was addressed in **Nigeria**, with new work supporting policy reform efforts with novel evidence on returns to quality assurance systems, and with consultations on new plant variety protection regulations. Concurrent with these activities were efforts to address **outcome 3** (At least three countries will invest in capacity development to strengthen their policy analysis, design, and implementation capabilities and introduce a predictable policy environment). This was pursued through continued support to communities of practice and learning, including the Integrated Seed Sector Development (ISSD) Africa initiative — a critical platform for sector stakeholders across the region. Finally, WP5 began work on advancing new methods, tools, data, and systems to monitor and evaluate policy change processes in seed system and market development.

Work Package 6:
Scaling equitable access to quality seed: Reaching the unreached with quality seed and traits



Work Package 6 progress against the theory of change

WP6 **outcome 1** (at least 5 entities — public, private, or non-profit — deploy gender transformative strategies to reach women seed users and producers), given the limited data and evidence available on the **gender-transformative strategies** on this aspect, **a global scoping review** was taken up and protocols developed. The review will be completed by Q1 of 2023. Situational analysis of gender dimensions of information and delivery pathways and seed choices have been initiated in Odisha, Telangana, Andhra Pradesh, Bihar, and Uttar Pradesh in India which offer very different situations for seed systems. An assessment of community seed banks and seed villages to understand their ability to promote inclusive access and be gender-responsive has been initiated and will be completed in Q2 of 2023. Regarding WP6 **outcome 2** (At least 20 women and 10 youth will establish seed production and marketing enterprises in India, Uganda, Rwanda, and Kenya), a **scoping review** was conducted to understand the effectiveness of different **capacity-development and business models for women's entrepreneurship in seed systems**. Final reports are to be ready by Q1 of 2023. Action research with women's collectives and other farmer producer organizations for building their capacities and establishing seed businesses has been initiated in Odisha, Telangana, and Andhra Pradesh in collaboration with IRRI and ALF,CSA and Pragati. Seed value chain analysis of key crops has been initiated in Odisha, India. This action research will be expanded to Africa in 2023. On **outcome 3**, a synthesis of evidence on formal and informal systems coordination was conducted and will be completed in Q1 2023, which will inform action research in 2023. Finally, results towards WP6 **outcome 4** (At least five public, private, or community-based seed-producing organizations are piloting new metrics to track inclusive access to seed) are on track, with the review of existing indicators on inclusive access and a proposal for new metrics in final stages. Piloting of the metrics will be initiated in three countries in Q2 of 2023, after validation with key stakeholders.

Work Package progress rating

WORK PACKAGE	TRAFFIC LIGHT / RATIONALE	
1		WP1 progress is so far **on track** and many of the achievements in Year 1 for singular commodities are beyond what was envisaged for all commodities collectively. This is partly due to capitalizing on products emerging from ongoing breeding pipelines and their adaptive testing, and strengthening existing seed system partner networks. However, in the case of GI, many specific interventions achieved results much beyond initial targets (e.g., 70% women against 40% target for capacity-building on quality seed productions).
2		WP2 results for legumes (bean, cowpea, and soybean) established through diverse partnerships' models in several African countries align with the Plan of Results and Budget and qualifies WP2's 2022 progress as **on track**.
3		WP3 progress on VPC aligns with the Plan of Results and Budget and 2022 results are on track towards strengthening seed delivery, early generation seed production, VPC variety tracking, and stakeholders' engagement in seed systems. Consequently, all the planned WP3 theory of change outcomes are being addressed, allowing WP3's progress rating to qualify as being **on track**.
4		WP4 progress is **on track** even if 2022 was primarily a year of building the foundation for achieving the set goals, mainly setting up partnerships and getting sub-award agreements. The One CGIAR licensing strategy (a key strategic document) was prioritized and achieved, and activities on the One CGIAR variety catalogue have already started in 2023 in collaboration with the Market Intelligence Initiative.
5		WP5 is **on track** as annual progress aligns well with the Plan of Results and Budget across four African countries for policy recommendations that advance inclusive and sustainable seed system and market development. Progress is also reported at the global and regional levels, improving capacity of partners to conduct policy analysis for seed system and market development through existing communities of practice.
6		**WP6 activities and annual progress** for 2022 are considered **on track**, noting that this is all new work and had to respond to comments from the Independent Science for Development Council (ISDC), some received at the end of June 2022 with responses from WP6 in Q3 2022.

KEY		
On track		• Annual progress largely aligns with Plan of Results and Budget and Work Package theory of change • Can include small deviations/issues/delays/risks that do not jeopardise success of Work Package
Delayed		• Annual progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas • Deviations/issues/delays/risks could jeopardise success of Work Package if not managed appropriately
Off track		• Annual progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas • Deviations/issues/delays/risks do jeopardise success of Work Package

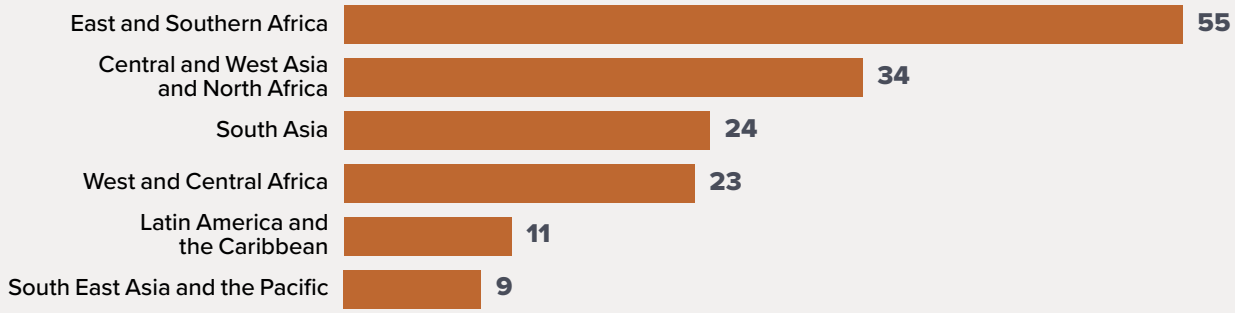
Section 4 Initiative key results

This section provides an overview of 2022 results reported by Seed Equal. These results align with the CGIAR Results Framework and Seed Equal theory of change. Further information on these results is available through the CGIAR Results Dashboard.

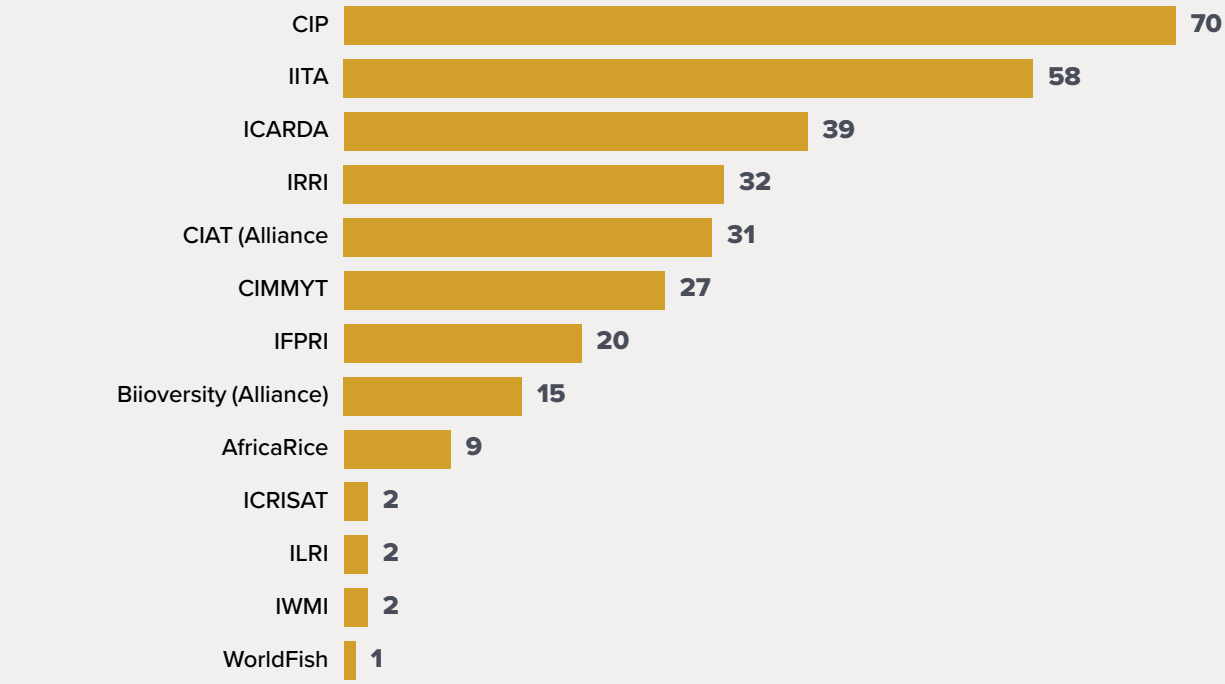
Overview

Results	Outputs				Outcomes			
171	17 Capacity sharing for development	88 Innovation development	24 Knowledge products	27 Other outputs	5 Innovation use	4 Policy change	5 Capacity change	1 Other outcomes

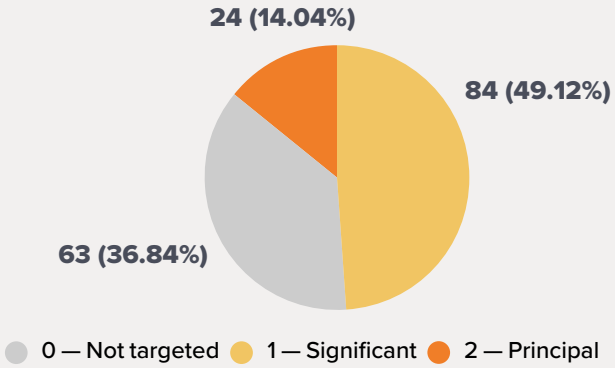
Results by region



Contributing CGIAR Centers



Results by gender tag

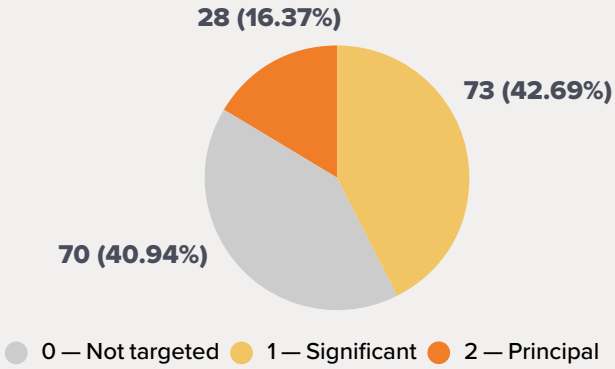


0 = Not targeted: The activity/result does not target gender equality.

1 = Significant: The activity/result contributes in significant ways to gender equality, even though it is not the principal focus of the activity.

2 = Principal: Gender equality is the main objective of the activity/result and is fundamental in its design and expected results.

Results by climate change tag

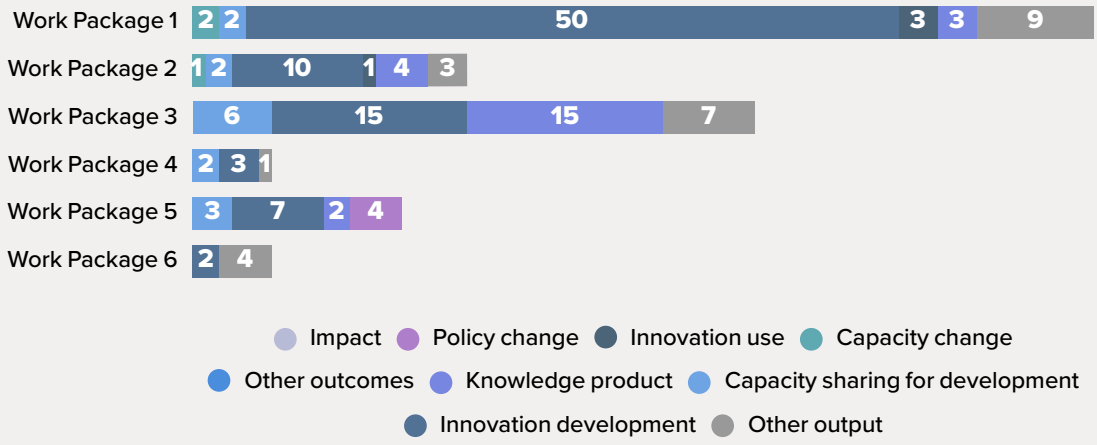


0 = Not targeted: The activity does not target climate mitigation, adaptation, and climate policy goals of the CGIAR as put forward in its strategy.

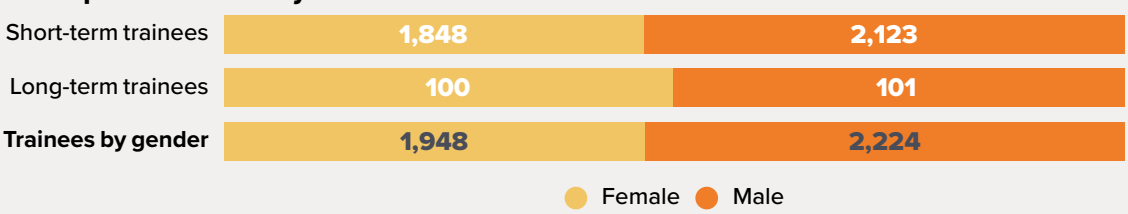
1 = Significant: The activity contributes in significant ways to either one of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.

2 = Principal: The activity is principally about meeting either one of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, and would not have been undertaken without these objectives.

Results by Work Package



Capacity development trainees by term

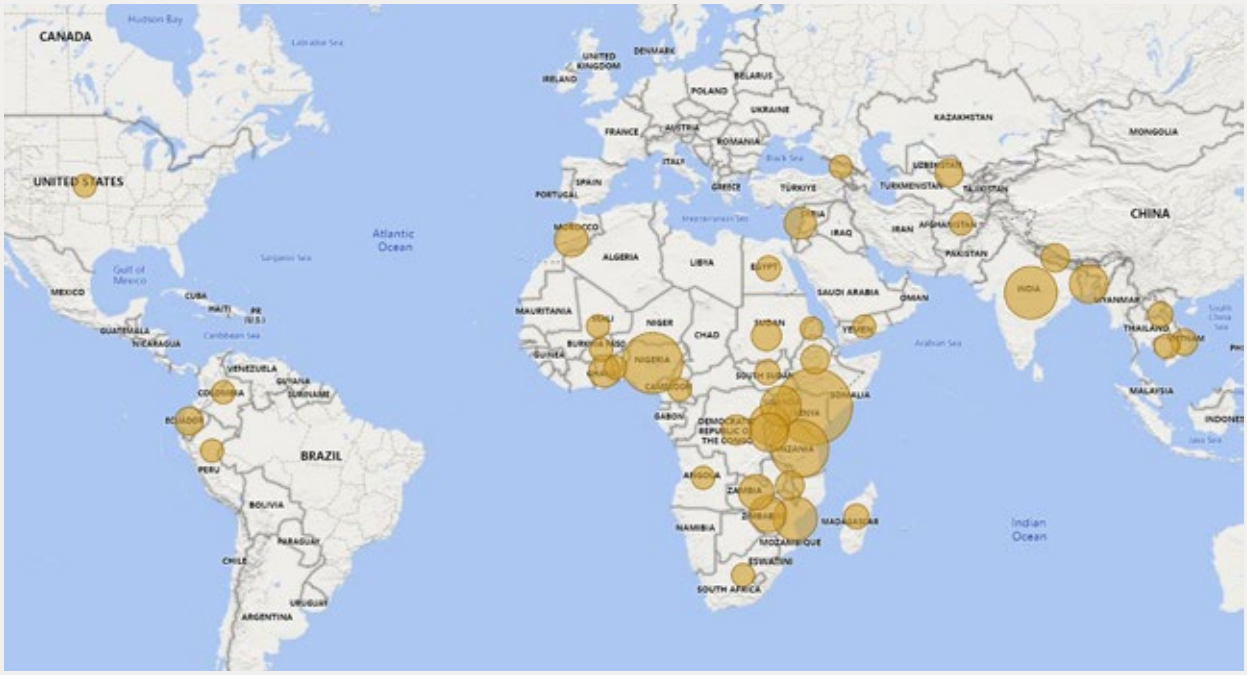


Innovations by readiness level

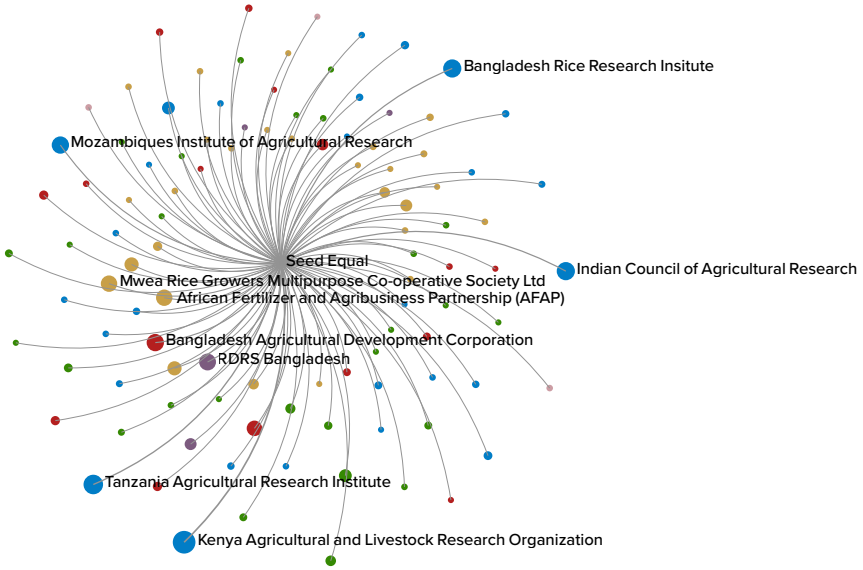
Pipeline overview
Number of innovations

9	PROVEN INNOVATION – The innovation is validated for its ability to achieve a specific impact under uncontrolled conditions	25
8	UNCONTROLLED TESTING – The innovation is being tested for its ability to achieve a specific impact under uncontrolled conditions	5
7	PROTOTYPE – The innovation is validated for its ability to achieve a specific impact under semi-controlled conditions	3
6	SEMI-CONTROLLED TESTING – The innovation is being tested for its ability to achieve a specific impact under semi-controlled conditions	4
5	MODEL/EARLY PROTOTYPE – The innovation is validated for its ability to achieve a specific impact under fully-controlled conditions	4
4	CONTROLLED TESTING – The innovation is being tested for its ability to achieve a specific impact under fully-controlled conditions	23
3	PROOF OF CONCEPT – The innovation's key concepts have been validated for their ability to achieve a specific impact	9
2	FORMULATION – The innovation's key concepts are being formulated or designed	12
1	BASIC RESEARCH – The innovation's basic principles are being researched for their ability to achieve a specific impact	3
0	IDEA – The innovation is at idea stage	0

Results by country



Section 5 Impact pathway integration – External partners



Partners typology	# of partners	% of partners
Research organizations and universities (NARS)	28	26.7%
Research O&U (National) (Universities)	27	25.7%
Government (National)	16	15.2%
Other	4	3.8%
Financial institution (National)	3	2.9%
All other categories	27	25.7%

Top five institution types

All other categories · Financial institution (National) · Government (National) · Not applicable · Other · Research O&U (NARS) · Research O&U (National) (Universities)

Note: CGIAR Centres are excluded from the analysis. Partners and edges are sized by the number of results. Labels are shown for the partners involved in the most results.

Partnerships and Seed Equal's impact pathways

Diverse partners from national bodies and formal and farmer-managed seed systems are playing a critical role to strengthen seed systems actors' capacities (EOI-O 1) and promote the uptake of quality seeds of new improved varieties (EOI-O 2). For **cereals** (WP1), public sector seed corporations or trade associations, larger private seed companies (e.g, hybrids), seed SMEs (for OPVs) or registered farmer producer companies are critical for product positioning and to produce and deliver increased quantities of quality seed of improved varieties. For **legume seed systems**, WP2 engaged with nine NARS and two African universities to catalyze processes that influence local seed system actors to respond to variety demands from the off-taker/traders or processors. The collaborating NARS' influence then cascades to other local seed system partners: seed producers, non-governmental organizations, traders, agro input dealers, and extension agents, to facilitate promotion of improved varieties and use of quality seed. For **VPCs**, WP3 has facilitated cross-collaborations, based on comparative advantage, between research teams partnering with NARES on banana, cassava, potato, sweetpotato, and yam, and downstream private companies and decentralized seed multipliers, with a particular focus on "geo-targeting" regions of Nigeria (southern states), Tanzania (north-west) and Uganda (south). To actively promote policy solutions WP5's scaling partners are governments themselves — ministries of agriculture, finance, commerce, and trade, as well as their specialized agencies — where decisions are made that accelerate varietal turnover, adoption, and quality seed use. Examples include the Ministry of Agriculture and Animal Resources (MINAGRI) in Rwanda and the National Agricultural Seeds Council (NASC) in Nigeria, among many others. In India, WP6 is building a range of research for development (R4D) partnerships, including national and international research organizations such as the National

Institute of Agricultural Economics and Policy Research of the Indian Council of Agricultural Research (ICAR-NIAP), Centre for Research on Innovation and Science Policy (CRISP) and MART Global. In addition, civil society organizations like CSA, the MS Swaminathan Research Foundation (MSSRF), and Pragati, are also engaged in R4D, including situational analysis and action research. The African Seed Access Index (TASAI) is leading the work on inclusive seed access metrics with WP6 towards EOI-O 5, which could be taken up by the Access to Seeds Index of the Benchmarking Alliance.

Key **research questions** are being addressed by Seed Equal in partnership with key research centers, such as the University of Florida on modelling VPC seed networks, or the Wageningen University & Research on characterizing VPC seed demand for WP3. Collaborative research involving the National Root Crops Research Institute (NRCRI), the National Horticultural Research Institute (NIHORT), and the National Centre for Genetic Resources and Biotechnology (NACGRAB) in Nigeria, the Tanzania Agricultural Research Institute (TARI), and the National Agricultural Research Organization (NARO) in Uganda, as well as other national partners, is leading to the development of improved, more efficient models for VPC seed delivery, and higher rates of varietal turnover. For policy work, WP5's research partners are, typically, policy think tanks, universities, and advanced research institutes working in the food systems space; they play a critical role in providing context to the WP5's legal and economic analysis, while also contributing to the research itself with conceptualization, execution, and communication to policy partners and stakeholders. Examples include the Centre for African Bio-Entrepreneurship (CABE) in Kenya, Ahmadu Bello University in Nigeria, and New Markets Lab in the USA, among many others.

Section 6 Adaptive management

RECOMMENDATION	SUPPORTING RATIONALE
Maintain the current Work-Package structure within Seed Equal. Continue to strengthen coherence and co-delivery between crop archetype Work-Packages and cross-cutting Work-Packages.	2022 delivery experience supports the Seed Equal strategy of cross-crop, within-archetype Work Packages (cereals, legumes, RTBs) as well as the cross-cutting Work Packages.
As part of integration processes in Genetic Innovation (GI), adjust workplans to align with detailed **impact pathways** that link Seed Equal Work Packages with each other, with other Initiatives, and with partner activities to ultimately reach farmers' fields and generate substantive impact. This adjustment process includes: supporting partner-driven **scaling strategies**; aligning the geographic footprint of relevant Work Packages with market segments identified by the **Market Intelligence Initiative, AGRA's strategies**, and other partner priorities; and participating in development of a **GI Action Area-wide MELIA (monitoring, evaluation, learning, and impact assessment) framework** to build a streamlined set of progress indicators with appropriate data collection strategies based on a portfolio-level theory of change for GI.	The GI Action Area is developing integrated sets of processes that, for the first time, bring together GI Initiatives and bilateral projects into an optimised, dynamic, end-to-end breeding pipeline which responds to demand from the Global South and targets opportunities for impact, across market segments and crop archetypes, and against CGIAR's five Impact Areas. Seed Equal's critical role in this integrated approach is to develop, with partners, the capability of seed systems to take new, high-potential varieties to scale with partners. In the coming year, Seed Equal will refine its internal and external coordination processes to further align to, build on, and integrate with, the data-driven prioritization from Market Intelligence and breeding outputs from the joint efforts of Accelerated Breeding, Breeding Resources, and Genebanks.
Strengthen communities of practice in seed sector development, including across Initiatives and with external partnerships, partly in line with partner/donor demands and in response to ISDC review comments.	Demand articulated by partners and funders in 2022 requires that Seed Equal invest in supporting and coordinating cross-country and North–South learning on integrated seed system approaches. This will be done in partnership with the NATURE+ Solutions Initiative, Wageningen UR, and other partners.
Expand engagement with non-traditional seed sector actors, including off-takers, aggregators, traders, millers, and humanitarian aid organizations, and independent policy think tanks.	Findings from recent research (Analysis of the yellow bean corridor in Tanzania and Third communiqué on Integrated Seed Sector Development in Africa) and partner demand (e.g., USAID's Bureau for Humanitarian Assistance) suggest a need for stronger partnerships with non-traditional seed system actors.

RECOMMENDATION	SUPPORTING RATIONALE
Re-examine workplans in response to shocks to the global agrifood system to help national partners develop appropriate, agile seed-system responses to crisis.	The global food, fuel, and fertilizer price crisis in 2022 demanded Seed Equal to pivot its work to provide partners with guidance on appropriate seed-system responses to crisis (see What price wheat?). Responses include, for instance, developing a roadmap for rebuilding Afghanistan's wheat seed sector in collaboration with international and local partners. Seed Equal will need to remain prepared for future pivots as needed by partners experiencing unexpected shocks and crises.

Immature wheat seeds.
Ciudad Obregon, Mexico 2017.
Photo credit: CIMMYT/ Peter Lowe

Section 7 Key result story

Advancing regulatory change for quality assurance of planting material for vegetatively propagated crops in Kenya

Kenya stands out in the Africa region for its comprehensive regulatory approach to seed quality assurance. Indeed, such regulations are critical to delivering genetic gain and quality seed to farmers' fields. The Kenya Plant Health Inspectorate Service (KEPHIS), the country's premier regulator overseeing the country's market for seed and planting materials, is a well-respected actor in this space, and has demonstrated its capacity as an effective implementor of Kenya's seed laws, regulations, and guidelines. Its long-standing efforts to weed out counterfeit and poor-quality seed from Kenya's strategically important maize market are lauded across the region.

Yet farmers in Kenya cultivate much more than maize, and KEPHIS's mandate covers a much wider range of crops. This includes vegetatively propagated crops (VPCs), such as potato, sweetpotato, and cassava, that are critical to the livelihoods of Kenya's many smallholder farmers (McEwan et al., 2021). Ensuring that these farmers have access to quality seed remains a challenge.

Working closely with Kenya Agricultural and Livestock Research Organization (KALRO), the International Potato Center (CIP), and other partners, KEPHIS has made significant advances in regulating the multiplication and sale of VPC seed. But unique challenges remain, which impact in different ways on the women, men, and youth smallholders who produce, exchange, and use VPC seed themselves. The unique biological and economic characteristics of vegetative propagation — bulkiness, perishability, low multiplication rates, and susceptibility to seed- and soil-borne pests and diseases — make it distinct from maize, requiring radically different regulatory approaches to quality assurance (Spielman et al., 2021). This challenge is most acute in smallholder production systems where VPC seed is often exchanged between farmers within limited geographies, but sometimes without the associated benefits of clean seed or genetic improvement.

The Centre for African Bio-Entrepreneurship (CABE), the Tegemeo Institute of Agricultural Policy and Development, CIP, IITA, and the International Food Policy Research Institute (IFPRI) have been collaborating for several years to expand and deepen the national discourse on seed policy and regulation. Central to this collaboration is an ongoing research and outreach effort to better understand the tradeoffs and policy processes that enable regulatory reforms in the seed sector — the actors, their interests, their histories, and their steps on the road to reform (Ayieko et al., 2021). This work was originally supported by the CGIAR Research, Program on Policies, Institutions, and Markets (PIM), the CGIAR Research Program on Roots, Tubers, and Bananas, and the Integrated Seed Sector Development in Africa (ISSD Africa).

Building on the success of this work, in 2022, Seed Equal leveraged cross Work Package expertise to support the groundwork for a **national policy engagement process** to design new regulatory guidelines for VPCs. The Constitution of Kenya, 2010 (CoK 2010) under Article 11 (3) (b), requires Parliament to enact legislation to recognize and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics, and their use by the communities of Kenya. Moreover, there are initiatives to provide for an Access and Benefit-sharing (ABS) system that will allow for access and exchange of seed among communities, i.e., recognizing the importance of **farmer-managed seed systems**. This effort is led by the Ministry of Agriculture, Livestock, Fisheries and Co-operatives with engagement from CABE, CIP, IFPRI, and IITA, among many other actors.

This work speaks directly to at least two of Seed Equal's End of Initiative outcomes:

- Seed system actors promote uptake of quality seed of new improved varieties derived from breeding programs by women and men farmers in selected countries.
- Government partners in public policy design and implementation actively promote policy solutions to accelerate varietal turnover, adoption, and quality seed use by women and men.

Seed Equal will continue to support this engagement in 2023. The next steps, as required by the Kenyan Constitution, are **County and National stakeholder consultations**, followed by a **Regulatory Impact Assessment** (RIA). These processes are overseen by the **Sector Wide Agriculture Group** (SWAG) to ensure that the draft regulations are revised to reflect concerns raised. By the end of 2023, the new Regulations for Vegetatively Propagating Seeds will have been submitted to the Attorney General's Office for subsequent gazettement.

While a national consultation process may seem like a lengthy, tiresome means to affecting policy change, it should never be overlooked. Consultations ensure that key groups in Kenya's agriculture sector — women and men farmers, seed companies, farmer-based seed businesses, and small-scale seed entrepreneurs, as well as national regulators, county administrators, researchers, and extension service providers — have a voice in the change process. And, when combined with effective coordination across organizations and the application of evidence-based analysis, consultative processes can lead to improved institutional architecture for seed sector policy and, ultimately, to delivering genetic gain and quality seed to farmers' fields.

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LINKS TO IMPACT AREAS

Primary Impact Area:
Poverty reduction, livelihoods and jobs

Other relevant Impact Area(s): Climate adaptation and mitigation; Nutrition, health and food security; Gender equality, youth and social inclusion

GEOGRAPHIC SCOPE

Country/ies: Kenya

KEY CONTRIBUTORS

CIP, IITA, IFPRI, CABE, Ministry of Agriculture and Livestock Fisheries and Cooperatives, see write up for further details.

LINK TO CGIAR RESEARCH PROGRAMS

RTB and PIM CRPs; Seed Equal

We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund

COVER PHOTO: A customer buys maize seed produced by Suba Agro-Trading and Engineering Company at an agrovet shop in Arusha, Tanzania. Photo credit: Kipenz Films/CIMMYT