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Foreword

As an agricultural research for development institute that represents the interests of many global stakeholders, and with a goal to deliver real impacts to smallholder farming families and their communities in the drylands, this ICRISAT’s Strategic Plan 2021-2025 allows us to respond to change while remaining faithful to our mission. We have had an opportunity to step back and evaluate, consider and re-calibrate our programs and activities to co-create a forward-looking approach to continuously improve our strategy to deliver important results and outputs.

As we prepared new Strategic Plan, there were apprehensions brought about by the COVID-19 pandemic. Even as this Strategic Plan is released, uncertainties continue to affect our plans. With people still working from home and no clear resolution to the changes being imposed upon us from different sources for the major part of 2021, at times we questions the possibility of making positive changes with urgency during the last quarter of 2020 moving into 2021. Yet, with the same global challenges, we realized that there is no better way to use our efforts but to actively explore opportunities and plan for a vibrant and productive future. In these times of change and difficulty, our workforce remains our strongest asset – dedicated, committed to our vision and ready to embrace the future.

We are pleased to share this five-year Strategic Plan 2021-2025 which builds on our extensive partnerships, networking and our understanding of the needs on the ground and sets out our current expertise with our vision for the next five years of a streamlined, targeted research for development institution, working closely with our partners and stakeholders in the private and public sectors. With our unique advantages of expertise in the drylands and our nutritious grain legumes and dryland cereals that tolerate the vagaries of climate change, the recent advances in our research for development sphere will usher ICRISAT into the new changing environment so that we will be highly competitive to play a significantly greater role in supporting our partners and stakeholders to achieve their Sustainable Development Goal (SDG) targets.

This fresh perspective through our new Strategic Plan 2021-2025 elevates our work and positions our science, talent, partnerships and resources to fit into a dynamic overarching strategy. We are grateful to our stakeholders, collaborators and partners who helped shape this forward-looking strategic plan.
Vision and Mission

ICRISAT’s mission is to reduce poverty, hunger, malnutrition and environmental degradation in the drylands.

To contribute to this mission in the period 2021 to 2025, while we continue to envision a prosperous, food-secure and resilient drylands, we will adapt to the changing world in which we live. We will strengthen our research and focus on delivery to ensure increased productivity of agricultural systems in the drylands. Our crops, all of which thrive in the drylands, are both productive in adverse conditions and have a high nutritional content. We will empower women as we support the diverse cropping systems in the drylands, ensuring equitable opportunities to improve income generation at the family and community levels through value webs of diverse production systems and by influencing policies.

We will actively pursue the optimal management of scarce resources, alleviate resource degradation, contribute to improved soils and adaptation to climate change and extreme events. We will work closely with partners: CGIAR institutes, advanced research institutes, national agricultural research and extension systems, the private sector, non-governmental organizations and thought leaders to ensure demand-driven and responsive agricultural research for development to contribute to the achievement of the UN Sustainable Development Goals.
ICRISAT brings scientific, evidence-based robust solutions to agriculture and food systems of the drylands across sub-Saharan Africa and Asia.

We bring almost 50 years of experience, multi-disciplinary knowledge and expertise, association with a wide range of global, regional and local networks, as well as a healthy and inclusive partnership approach to develop innovations and deliver at scale.

Our approach and partnerships as we tackle complex challenges in the drylands makes ICRISAT stand out as a thought leader in the drylands, as well as a compelling and reliable partner to ensure delivery and impact.
ICRISAT’s areas of specialization include:

- A deep understanding of the opportunities and challenges of the drylands, which are some of the toughest zones and environments in which to attain the UN Sustainable Development Goals (SDGs).
- A focus on the most resilient, climate smart and nutritious legume and cereal crops critical to the dryland – chickpea, pigeonpea, groundnut, sorghum, pearl millet, finger millet and small millets.
- A collection of one of the broadest diversities of genetic resources of our mandate crops which is used to enhance the crops we work with.
- A core strength of world class research ranging from genomics, gene editing, modern crop breeding, natural resource management, seed systems, class and climate-smart agriculture to agribusiness models, digital solutions and policy inputs.
- A value web / value chain approach with considerable experience across whole agricultural production systems and food value chains from input supply to the consumer, as well as the associated supporting environments, including policy support.
- A focus on delivery of innovations at scale.

ICRISAT’s approach and partnerships include:

- A systems perspective to ensure holistic views and to make sure key issues along the impact pathway are addressed.
- A market-oriented focus.
- A commitment to evidence-based solutions.
- A multi-disciplinary approach to opportunities, and to finding and implementing solutions to challenges.
- A focus on sustainability, from environmental sustainability to sustainable business models.
- A participatory approach and integrating training and capacity building.
- A wide connection with international, regional and national networks as well as linkages across regions to maximize knowledge sharing, capacity building and inputs to solutions for the needs of our stakeholders.

Climate change is having a significant impact on agricultural productivity; extreme weather events cause massive crop losses impacting the lives of billions, while the global expansion of the dryland regions continues. ICRISAT is strongly positioned to deliver technologies adapted to the needs of these drylands, in partnership with stakeholders, drawing on the best technologies that are currently available and developing more targeted and more easily adopted technologies with our partners and stakeholders.

With focussed alignment towards the UN Sustainable Developments Goals, we will orient ourselves based on our vision and mission, bringing in partnerships and technologies to respond to the most critical needs of the drylands of Africa and Asia and help achieve SDGs 1 (No poverty), 2 (Zero hunger), 5.b (Gender equality), 13 (Climate action) and 17.6 (Partnerships for the Goals) for farmers in the dryland regions together with a number of stakeholders.

We will also partner with stakeholders to bring our expertise to bear on global needs.

Coordination of our activities is very important to ensure that we do not duplicate activities or send mixed messages to our stakeholders. Within Asia, we are already coordinating with our partners and will strengthen this harmonizing role by supporting partners, helping build synergies targeted and quantifiable impacts. In the drylands regions of Africa, we will continue to have a leadership role, working with our partners to maximize delivery of technologies and build local capacity to extend the research for development outputs and outcomes. Our Crop Improvement Program activities in Asia and Africa and crop testing sites will be further strengthened to provide state-of-the-art facilities and infrastructure to our partners for greater efficiencies and economies.

We look forward to enhancing our funding streams through dialogues with our donors, and are keen to implement innovative funding mechanisms to support our ambitious goals.

We share a vision where scientific innovations are deployed faster, at a greater scale, at lower costs, and with greater impact where they are needed the most. We will continue to focus on our beneficiaries and stakeholders in the drylands, ensuring improved, sustainable cropping systems and market chains.
ICRISAT leverages strategic partnerships to meet the needs of the numerous stakeholders and people in the semi-arid regions whom it serves. One of our strengths is the diversity of partnerships and the broad networks cultivated, in both public and private sectors. With these partnerships we will ensure positive impact, empowerment and environmental sustainability in the crop production and food value chains on which we focus.
Current Partnerships

ICRISAT undertakes its research through partnerships. It strongly believes that partnerships are the only way in which global challenges can be tackled, and the best local solutions created. We work with many collaborators and have over 180 unique partners.

Partnerships are critical at all steps from discovery to delivery in order to:

- **Better understand local and diverse needs** – to develop better solutions and do this together navigating through different cultures, gender differences and engaging youth and other segments.
- **Produce cutting-edge science** – to bring the best minds together through partnership with advanced research institutions and the private sector to develop better and more holistic solutions.
- **Ensure sustainable solutions** – to address the whole value web with a wide range of partnerships including the implementors, private industry and government partners.
- **Assure uptake and scaling** – to partner with development specialists and private industry, engaging at inception and working together through the whole process to ensure localization and sustainability of innovations over the long term.
- **Advocate for appropriate approaches and solutions** – to work together at international, regional, policy and local fora to share knowledge, to be thought leaders and help bring about positive change.
- **Build confidence** – to be able to attract partnerships and investment to undertake our mission.

The roles ICRISAT can play in these partnerships requires willingness and flexibility. Depending on the need and the strengths of partners and other actors:

- We can be both a leader and a collaborator.
- We work with our partners to build capacity and to partner with advanced research institutions and the private sector to develop better and more holistic solutions.
- We empower locally so that solutions on the ground can be community owned and sustainable.
- We work with our partners to build capacity and co-create knowledge through collaboration – by working together and sharing knowledge.
- Advocate for appropriate approaches and solutions – to work together at international, regional, policy and local fora to share knowledge, to be thought leaders and help bring about positive change.
- Build confidence – to be able to attract partnerships and investment to undertake our mission.

The breadth of ICRISAT’s partnerships shows that currently about half of our partnership funding went to CGIAR Centers, and the other half to non-governmental organizations, the private sector, universities and national partners.

Some unique partnerships that ICRISAT has created, in addition to those in which we participate, include:

- **Hybrid Parents Research Consortium (HPRC):** Private seed companies are members and so contribute to setting the breeding research agenda.
- **Entrepreneurs through Incubators:** Since 2004, the Agribusiness and Innovation Platform (AIP) has incubated 41 agriculture and food companies across India and Africa. In addition, we have iHub, an incubator for agriculture technology (agri-tech) start-ups and BioNCube, an incubator for biotechnology start-up companies.
- **The ICRISAT Development Center** was established in 2013 to focus on uptake of innovations at scale. This Center has facilitated many new and existing partnerships, converging with government programs and engaging local non-governmental organizations and civil society to roll out solutions on the ground.
- **For the Tropical Legumes (TL) project**, ICRISAT developed partnerships with the International Institute of Tropical Agriculture (IITA) and national institutes from seven countries in Africa to create a legume value chain that has benefitted up to 25 million farmers.
- **ICRISAT’s Centre of Excellence in Genomics** has developed partnerships with 184 partners from 35 countries on genome decoding, trait mapping and providing services for sequencing and marker development.
- **ICRISAT’s Improved water harvesting techniques:** In the Bundelkhand dryland region of India, ICRISAT partners with Indian Council of Agricultural Research (ICAR) institutes, State Agricultural Universities, Swiss Agency for Cooperation and Development (SDC) and several grassroot NGOs to improve water availability through better water harvesting techniques.
- **Corporate Social Responsibility (CSR):** ICRISAT developed its CSR strategy in 2014, which has meant more engagement with private companies outside of agriculture and food, from cement to energy companies to support our mission. Through this initiative, we access new sources of funds in India, where the private sector must use 2% of their profits for societal development including investments in agriculture.
- **Smart Food initiative:** This initiative highlights the nutritional benefits of ICRISAT’s crops and works closely with consumers in partnership with chefs and food influencers to change perceptions and highlight nutritional opportunities. This initiative has an executive team of key African and Asian networks, in partnership with ICRISAT.

Future Partnerships

Our current partnerships and approach are critical to achieving our mission; this partnership model will remain a key working modality for ICRISAT.

Our overall target for partnerships is that 70% of our projects and outputs (e.g., technology releases, publications and communications) are with collaborators and partners. We will strengthen our current partnerships and build on new networking
and partnering opportunities. Our intention is to work through partnerships to achieve targets that we will meet by 2025, as described below.

**South-South collaboration**
ICRISAT will be a catalyst for forging this collaboration.

**Target:** 30% of projects will include a South-South collaborative component, ensuring knowledge sharing and engagement between Asia and Africa.

**Private industry partnerships**
Our partnerships with the private sector will range from strengthening our incubators (for agribusinesses (see in Private industry partnerships) and digital agri-entrepreneurs), corporate social responsibility programs, research consortia and new ways to engage with private industry on high-end science to digital and downstream applications ensuring uptake and sustainability of solutions.

**Target:** 30% increase in private sector engagement; and 50% increase in corporate social responsibility activities.

**Collaboration with CGIAR centers**
CGIAR centers will be one of our points of contact when additional expertise is needed for project delivery.

**Target:** Up to a quarter of our projects are undertaken in collaboration with CGIAR centers.

**Women and youth**
Diversity, equity and empowerment will be key drivers of our partnerships. Women and youth will be further included in our partnerships, from program participants, stakeholders, researchers and engagement of ambassadors to other advocacy activities such as webinars and briefings.

**Target:** At least half of our partners will be women and 30% of the partnerships will engage youth in programs and activities.

**Development agencies, international and local non-governmental organizations:**
These organizations will help ICRISAT strengthen uptake and impact and will convert potential competitors in some of our areas into partners.

**Target:** 40% increase in involvement with development agencies.

**United Nations organizations, senior government officials and global thought leaders and influencers**

We will work closely with these partners, and additionally with Development Banks, philanthropists, high net-worth individuals, in-country government representatives and others to amplify our messages and influence high level policy.

**Target:** 40% more major new initiatives undertaken.

**Country Engagement**
Our engagement with our country partners and stakeholders will be with improved internal coordination, collaboration, efficiency, and we will present a united face to stakeholders and partners. We will strengthen our interactions with national research partners to identify common priorities as the basis for developing joint activities and workplans.

There are opportunities for ICRISAT to drive research on food systems, particularly in the drylands which comprise a significant 72%, of the land area of developing countries. In the current setting, ICRISAT’s ability to deploy technologies and influence agricultural development in some dryland areas has been limited as we are not physically present in all countries. Our renewed engagement model will include strategies at the national level driven by agro-ecological targets and national research priorities which will allow us to contribute to the national strategies through technologies and visionary thinking.

Building on the leadership role that ICRISAT has created in India, we will take the lead in consultations with the Indian Council of Agricultural Research (ICAR) to co-create a framework of action. We already coordinate a database of activities and resources in the country with a State-level breakdown that provides practical support to our stakeholders for project plans and activities. Building on this, we will leverage our strengths and look for opportunities around specific programs and projects that align with the priorities of the Government and donors, and with our global research agenda. Joint collaborative proposals on a larger scale will not only reduce the transaction costs, but also have significant positive impacts, as research outputs will be synergized in multidisciplinary agricultural production systems.

Co-creation with our partners and stakeholders in multi-disciplinary agricultural production systems will provide an opportunity to integrate ICRISAT’s focus crops (sorghum, pearl millet, finger millet, small millets, pigeonpea, groundnut and chickpea) more widely in other crop-based production systems, thus improving crop and dietary diversification, and in turn minimizing risk and improving nutrition.

Aligning with regional and national agricultural priorities will give legitimacy and help to leverage investments from global donors and investors, as well as from in-country or regional sources, as there will be support for investments that meet national needs, aligned with meeting the Sustainable Development Goal targets. We will deliver dryland system crop varieties, improved production systems, resilient value chains/webs and minimize environmental impact, at scale and with reduced cost.

**Business Development and Resource Mobilization**

**Marketing our mission**
The needs of, and opportunities in, the drylands must be recognized. These tough environments require investment to be able to achieve their Sustainable Development Goal targets.
We operate in a very dynamic environment of changing partner and donor priorities, a global pandemic and civil unrest. The needs of the drylands and the value of ICRISAT’s mandate crops are already well recognized. We will engage with, and convince, a much wider range of partners, collaborators and non-traditional funders who are key to our engagement for research partnerships and funding.

While our bilateral funding will continue to make critical contributions to our research portfolio to fulfil our mission, new areas of non-traditional funding and investment will be important to diversify our funding portfolio, reduce funding cycle risks and remain relevant in changing funding environments. New funders and investors will be approached, and existing non-traditional funding environments. New funders and investors will be approached, and existing non-traditional funding areas strengthened, such as our engagement with Corporate Social Responsibility programs.

**ICRISAT’s marketing goals are to:**

i. Build greater recognition of the needs and opportunities in the drylands and elevate our agenda globally and locally.

ii. Promote the recognition of ICRISAT’s capabilities and reputation so that we are the partner of choice in discovering and delivering solutions in the drylands.

iii. Mobilize resources to implement the needed research for development solutions.

**Critical success factors**

Critical to achieving these marketing goals are developing relationships and trust (through our partnership efforts), continuing the high quality of our research for development, assuring and documenting our impact and aligning perception (through communications) and reality (through good research management and efficient and ethical corporate management).

**Strategic approach to marketing and business development**

A new approach will include:

- **Big ideas:** Large-scale impactful initiatives will be a major focus, balancing broad impact with support for new blue-sky ideas. We will have strategic saleable packages for funders, donors, investors and partners which will coalesce diverse research aspects into more compelling package for proactive resource mobilization.

- **Monitoring and analysis:** We will track indicators that support critical success factors.

- **Relationship building:** We will empower our staff to build and nurture relationships. Strengthening new partnerships is important to support this strategy.

- **Resource mobilization intelligence and reach:** We will ensure that up-to-date information on funders, opportunities and current relationships is maintained. We will grow our skills to tap new sources of funding to support our mandate for the drylands.

**Communications – external and internal**

Strategic and effective communications are critical for us to deliver this ambitious strategy. We will strengthen our communication activities to ensure a wide reach as well as targeted communications with customized information to priority audiences, in which digital tools will play a key role. Internally, we must ensure availability of timely information, efficient and effective tools and support to staff to ensure credible communications.

**Positioning ICRISAT**

Major international events such as the UN Food Systems Summit, the World Economic Forum or the United Nations Climate Change Conferences, among others, are important avenues for ICRISAT to elevate its agenda at the global level and contribute to influencing policy. We will also build on the UN International Years, with a focus on 2023 Year of Millets. As ICRISAT celebrates its 50th anniversary in 2022, innovative approaches and greater momentum will be the leitmotifs of our engagement with the world. Depending on the nature of the event one or more of the following approaches will be adopted:

- Provide the best available evidence from research to inform policy development and implementation
- Influence a primary audience of decision makers
- Build momentum and support behind the idea or recommendation
- Develop persuasive communications to convince the target audience and encourage the uptake and dissemination of the messaging
- Work with influential networks, opinion leaders, and ultimately, decision-makers to take ownership of ICRISAT’s message, ideas, and evidence, and to act upon it for the good of the drylands.

ICRISAT is an agricultural research organization which works with the smallholder farmers in the drylands to improve the lives of farming communities by making agriculture profitable. Agriculture is the most effective engine of growth for developing economies. ICRISAT’s research enables the transition to sustainable, resilient and nutritious food systems – resilient to climate change and other external shocks, sustainable in terms of production for the farmer and nutrition and health for the consumer, while protecting the environment. ICRISAT is the partner of choice in dryland agriculture. This core positioning will be reinforced through strategic communications leveraging the appropriate channels.
With almost 50 years of experience addressing the agricultural constraints in the drylands of Africa and Asia, ICRISAT has developed key strengths which are focused on delivering impact in the drylands in alignment with its mission and mandate.
**Disciplinary Areas**

ICRISAT conducts dryland agricultural research for development working through diverse public, private and international research partnerships across Asia and Africa. ICRISAT’s unique comparative strength is upstream research in the area of genomics, transgenics and gene editing and the ability to translate this upstream science to applied research.

This makes a difference in farmers’ fields by scaling scientific innovations with due cognizance and support of the policy, market and socio-economic environment. ICRISAT works with national partners to increase crop productivity and incomes of farmers in the drylands, while improving the resilience of the lands and livelihoods of resource-poor communities.

The agricultural sector is critical for the livelihoods of smallholder farmers. The global focus is on agriculture to overcome food insecurity, malnutrition and poverty in the face of climate change, climatic events, civil unrest and the risk of global pandemics. ICRISAT will contribute to increasing crop productivity and production of nutritious food in developing countries, especially of smallholder farmers in Asia and Africa. To accelerate this process, we will integrate discovery science through multi-disciplinary teams undertaking transdisciplinary sciences to validate innovations in the complex agricultural systems of the drylands. The big data sciences of high-throughput genomics, phenotyping, precision agriculture, digital support, remote sensing and crop-scouting platforms will be critical to our success.

ICRISAT prioritizes innovation via the integrative sciences through interdisciplinary and transdisciplinary approaches. We also value focused disciplinary research to address otherwise intractable problems.

**Crop physiology, crop protection and modeling**

- Use modeling tools and precise, high-throughput phenotyping to identify traits which confer drought and heat tolerance to assist crop improvement programs breed for difficult environments and future climates.
- Devise new, innovative and environment-friendly methods for crop protection including the use of non-invasive techniques for phenotyping and the application of nanomaterials in crop protection.
- Track emergence of new diseases, work on pathogen variability for existing and emerging diseases, as well as host-plant resistance.
- Enable system-crop modeling tools to assess cropping system productivity under dynamic genetics × environment × management scenarios or to predict hotspots of pest and disease outbreaks, or frequent extreme climatic events.

**Genomics, systems biology and crop informatics**

- Develop genomic resources, low-cost genotyping technologies and decision support tools.
- Identify valuable and novel alleles, and haplotypes with traits for climate resilience, nutrition, market demand and consumer preferences as identified in crop product profiles.
- Multi-omics approaches to understand the mechanisms of complex traits for crop breeding.
- Machine learning models to integrate data from multiple sources to develop predictive models.

**Molecular biology**

- Transgenic breeding and gene editing for intractable traits in ICRISAT’s mandate crops.
- Develop protocols for generating double haploids and other new breeding tools and technologies.

**Crop genetics, pre-breeding, breeding and seed systems**

- Develop crop product profiles identifying consumer-preferred and demand-driven traits, understand the genetics of new traits, crop wild relatives.
- Enrich the diversity of the cultivated gene pool by utilizing distantly related germplasm such as exotic landraces and crop wild accessions.
- Optimize and deploy novel breeding methods to develop superior varieties; adopt speed breeding technology/rapid generation advancement.
- Work with national partners to release improved varieties; develop and evaluate more efficient and cost-effective seed supply options and institutional arrangements.

**Socioeconomics**

- System dynamics modeling to analyze food chain complexity, map and assess efficiencies in agricultural value chains/webs, and understand the behavioral dimensions of the dynamic linkages between agri-food value chains and nutrition.
- Ex-ante assessments and scenario development to estimate economic and other value of future and emerging crop traits linked to market demand to develop product profiles for breeding prioritization.
- Value chain and food systems studies to support biofortification and integration of emerging high value traits (e.g., high-oleic groundnut) through demand creation and value chain development.
- Research to improve institutional arrangements including policies and market relations as part of the enabling environment supporting sustainability transitions in dryland agriculture.
Geographic Strengths
The drylands cover about 6.5 million km² in over 55 countries with a population of over 2 billion. ICRISAT’s geographic focus is on the drylands of Africa and Asia. Our mandate crops (sorghum, pearl millet, finger millet, small millets, groundnut, chickpea and pigeonpea) contribute significantly to food, nutrition and incomes of smallholder farmers in the drylands. Our global research for development programs are implemented regionally in Asia, Eastern and Southern Africa and West and Central Africa, making it easier to respond to regional and national priorities that are aligned to our mission.

Asia
Agriculture in Asia is far more intensive than on any other continent. It supports about 60% of the global population on only about 23% of the world’s agricultural land. Average farm size is small (about 1 ha) and more than 60% of land is under rainfed agriculture. The ICRISAT mandate grain legumes and dryland cereals are an integral part of the cropping systems and diets of people in Asia and are grown on over 49 million ha, which is 39% of the global area of these crops. Asia accounts for about 80% of the global area of chickpea, 87% of pigeonpea, 40% of groundnut, 15% of sorghum and 33% of millets. ICRISAT is a recognized global leader in breeding these crops with a track record of high performance. With a focus on India and working with other countries in the South Asian Association for Regional Cooperation (SAARC) and Association of Southeast Asian Nations (ASEAN), close to 500 improved varieties have been released in Asia from ICRISAT-bred materials and contribute to increased crop productivity, climate resilience of the cropping systems and incomes of farmers. Protein-rich varieties of legumes, groundnut varieties improved to contain oil with high levels of oleic acid and biofortified varieties of sorghum and pearl millet with high levels of zinc and iron are highly valued to improve nutrition and health of the poor in the drylands, and varieties of sorghum and pearl millet with high fodder yield and quality improve their livestock.

ICRISAT Headquarters in Hyderabad, India, has 1390 ha of land for research. The Crop Improvement Program is well supported by research on genomics for trait development, breeding for traits well defined in product profiles, research on biotic and abiotic stresses including host-pathogen interactions as well as a phenotyping. Multilocation evaluation of early generation breeding lines as well as evaluation for varietal release in different national systems in partnership with national institutes, and subsequently efficient seed systems to enable new varieties to reach farmers quickly will help create greater impact more quickly, than before. The multi-disciplinary team of scientists works with a global network of partners including public, private, non-governmental and community-based organizations as well as members of the Hybrid Parents Research Consortium (HPRC). Our Crop Improvement Program uses global germplasm collections of our mandate crops from the ICRISAT genebank, cutting-edge technologies (genomic tools and techniques, rapid generation advancement) and state-of-the-art facilities (LeasyScan, Center of Excellence in Genomics, Platform for Translational Research on Transgenic Crops and Center of Excellence on Climate Change for Plant Protection). ICRISAT shares breeding materials and advanced breeding lines with different countries and facilitates cross-country knowledge sharing and learning.

To address the challenges of water scarcity in dryland agriculture, ICRISAT promotes an evidence-based, community-driven and proven model of watershed management. The model uses a holistic approach which, in addition to integrated water management, includes soil management, improved crop varieties and production practices, increased on-farm diversity, livestock integration and linking farmers to markets. The ICRISAT Development Center facilitates large-scale transfer of technologies to farmers. Artificial Intelligence (AI) is an emerging technology in Asia to enhance resource-use efficiency. ICRISAT collaborates with national, international and multinational companies to develop digital tools for farmers. ICRISAT has an exceptional track record of capacity development, training and knowledge sharing with partners across our research for development agenda.
Eastern and Southern Africa

Eastern and Southern Africa is home to a population of approximately 470 million people. The agriculture sector in the region has low crop productivity. Some of the crops are highly susceptible to pests and diseases and abiotic stresses such as droughts, floods and poor soils, that are pervasive and can be quite severe.

Our strengths to contribute to the agriculture sector in the region to meet their Sustainable Development Goal targets lie in several areas. Our focus on crop and allied technology development and improvement has resulted in the release of over 430 varieties of sorghum, finger millet, pearl millet, chickpea, pigeonpea and groundnut from ICRISAT material in 18 countries. We develop integrated farm and landscape management models to address the rampant soil degradation through soil health and water management practices, land restoration and crop-livestock integrated systems. Such systems improve and unlock livelihood opportunities for dryland communities of the region. Through systems analysis, we perform foresight characterization of agro-ecological zones, develop crop suitability maps; help manage risk and analyze value chains to drive adoption of improved cultivars and other technologies. Our decision support tools are used to improve fertilizer use efficiency across farming systems, agro-ecologies and landscapes. We also improve food safety through mycotoxin diagnostic and management tools.

In Eastern and Southern Africa, we have offices and research facilities in five countries – Kenya (regional hub), Malawi, Ethiopia, Zimbabwe and Mozambique. We align well with national agricultural and regional research facilities in five countries – Kenya (regional hub), Malawi, Ethiopia, Zimbabwe and Mozambique. Our Crop Improvement Program in Zimbabwe offers a unique opportunity to deliver new varieties, hybrids and parental lines that are market and consumer driven, gain access to elite genetic diversity from other regions, create rapid breeding cycles delivering high rates of genetic gain, provide extensive multi-location testing opportunities and rapid varietal replacement by an effective dissemination system.

We drive sustainable seed production and delivery models for our mandate crops. We partner with community seed banks, seed revolving funds, and public-private sector models with clear linkages to early generation seed and to grain market demand. Through these models, over 100,000 MT of certified seed or Quality Declared Seed have reached 9.6 million smallholder farmers. These effective models are adopted by our partners.

West and Central Africa

In West and Central Africa, research outcomes are linked to the strengthened livelihoods, resilience and production systems in response to food and nutrition requirements, land degradation, climate variability and other related shocks. Our research program in the region has developed and delivered improved sorghum, millet and groundnut varieties providing increased economic returns and several advances in nutritional and agronomic technologies. Information and communication technology-based innovations have been developed and delivered in partnership with non-governmental organizations and the public and private sectors to improve the reach of extension, advisory services and profitable value chains/webs. We also target cross-cutting themes such as crop protection, agroforestry and agro-sylvo-pastoral systems, genetic resources conservation, gender inclusion and empowerment and impact analysis of our demand-driven research for development.

Our regional Crop Improvement Program in Samanko, Mali, provides new organizational structure to consolidate and streamline crop improvement in the region. Infrastructure and breeding program platforms are being upgraded with near-infrared spectroscopy (NIRS) and X-ray fluorescence (XRF) technologies, efficient seed processing facilities, digital tools, a centralized seed inventory system and precision agriculture in experimental fields. Our regional research facilities encompass a 124 ha farm in Samanko, 500 ha in Sadore, Niger, 4 ha in Minjibir in Nigeria and 16 ha at Bayero University, Kano. We have a genebank at our research center in Niger with over 46,810 accessions of 25 species. Other facilities in Niger and Mali include our soil-plant laboratory, plant pathology (including aflatoxin analysis, quality control and certification), biotechnology laboratory for DNA extraction and a drought phenotyping platform offering a lysimeter system and rain-out shelters. The Sadore facility is used for the discovery and delivery of beneficial insects for biological control of pests such as millet head miner and fall armyworm.

The Agro-innovation Business Center at Sadore is a joint initiative between ICRISAT and the Government of Niger, and hosts a Startup and SME Acceleration and Incubation Center, a coding academy, a national data center and some units which will assemble solar panels, computers and other machinery depending on national needs and opportunities. A similar center, The Tubaniso Agribusiness and Innovation Center (TAIC) in Samanko supports agribusiness startups in the Sahel. We rely on our strong and enduring partnerships with national and regional stakeholders, the private and public sectors, CGIAR Centers and other international agencies.
Capacity Development

Capacity development of partners is an integral and important part of ICRISAT’s agenda. Our outstanding track record of implementing capacity development ranges from organizational and systems strengthening to individual training activities targeting a wide range of stakeholders.

Organizational and systems strengthening: ICRISAT has been building the capacity of National Agricultural Research Institutes (NARIs), other organizations in the diverse value chains/web systems with which we engage, and institutions such as providers of extension advisory services, cooperatives, farmer organizations and the private sector. ICRISAT is also credited with capacity development of institutional systems such as sustainable seed systems, including early generation seed management program (USEBA) in Mozambique, and extending the Hybrid Parents Research Consortium (HPRC) to the region.

We have provided improved breeding lines to partners from both the public and private sectors in the region to strengthen crop breeding programs and to increase the rate of release of improved varieties and hybrids. The Agri-Business Incubation (ABI) program of the Agribusiness and Innovation Platform helps start-up enterprises to establish a sustainable business and build capacity to harness opportunities and minimize risk.

Human resource capacity development: ICRISAT provides both group and individual training based on the need of collaborative research for development efforts and our partners’ needs and requirements. ICRISAT mainstreams gender and diversity in building capacities of researchers to ensure women and men preferences are key in designing and delivering technologies. We conduct training activities in integrated crop breeding, genomics and trait discovery, cell and molecular biology, genetic engineering, crop production, crop protection, genetic resources conservation, natural resource management, post-harvest management, value addition, digital agriculture, sustainable business models and marketing. Individual training includes long-term on-the-job and degree training as well as short-term orientation and specialized training. By training young women and men researchers, ICRISAT contributes to developing the next generation of scientists to implement modern tools and techniques and to have a key role in the development of an eco-efficient agriculture in the drylands of Asia and Africa. ICRISAT’s Center of Excellence in Genomics has trained about 500 scientists from national partners in genomics and molecular breeding. We are proud of our record of mentoring over 1700 MSc and PhD students for their thesis research work at ICRISAT locations in Asia and Africa. In addition, we provided opportunities to many students and scientists from national programs to spend 3 to 6 months as interns or visiting scientists.

We extend our capacity development beyond research. We train and build capacity of those in the research to development continuum, including farmers, extension personnel, private firms and non-governmental organizations, so they are empowered to co-create and adapt innovations. ICRISAT organizes short-term training courses, workshops and field days for knowledge sharing and learning. With the support of our partners, farmers are trained in improved crop production practices, post-harvest handling, value addition and seed storage.

Capacity development partnerships: Over the years, ICRISAT has developed strong partnerships with resource organizations, universities and governments which helps assure smooth delivery of capacity development interventions. These partnerships include universities and sub-regional and regional organizations such as the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA), Regional Universities Forum for Capacity Building in Agriculture (ROFORUM), Forum for Agricultural Research in Africa (FARA) and African Women in Agricultural Research and Development (AWARD).

Because of funding constraints, particularly project-based short-term funding, there has been an increase in “informal” and short-term training linked to collaborative research projects. Nonetheless, we align training activities, wherever possible, to the wider needs of the institute and the trainees. Through the term of this Strategic Plan we will strengthen our capacity development activities and partnership to assure greater impact through the sharing of knowledge and technologies with our partners and stakeholders.

Public-Private Partnerships

Over the past two decades, ICRISAT has inculcated a strong culture of engaging with public and private sector partners with well-defined common objectives for the delivery of initiatives, including the Agri-Business Incubator (ABI), Agribusiness and Innovation Platform (AIP), ICRISAT Development
programs implemented in a consortium mode involving multiple types of agencies, including the private sector, can be more efficient at scaling-up and scaling-out.

Moving forward: With the increasingly complex nature of challenges faced by rural communities, particularly in the drylands, more creative approaches to partnership are needed. We will ensure that our multiple interfaces and interactions with the public and private sectors will operate under a common umbrella to assure effective management and delivery of impacts.

Outreach and Scaling
ICRISAT is one of the very few CGIAR Centers to have a structured and executed outreach and scaling program. Although our outreach and scaling started with model sites of watershed management in the drylands regions of India, soon ICRISAT became a center for quality data on the hydrological processes and capacity building. However, the issues of scale remained to be addressed. It is only recently that the issues of creating impacts at scale are being addressed just as are those relating to the science of discovery. Thus, leapsfrogging from the realm of ‘science of discovery’ to ‘science of delivery’ has been the subject of research and discussion in the context of outreach and scaling at ICRISAT.

Two delivery mechanisms that are striving to improve outreach and scaling are the ICRISAT Development Center (IDC) and the Agribusiness and Innovation Platform (AIP). Both represent innovative institutional mechanisms that have evolved in response to regional challenges faced by the governments, civil society, farmers and their collectives, and their aspirations. In addition, the regional crop breeding programs have been working with public and private sector partners to enhance adoption of improved varieties of ICRISAT mandate crops by farmers.

The ICRISAT Development Center (IDC) over the past six years has scaled out several technologies in collaboration with research and development partners in India. We will expand our approach to scaling new knowledge in other regions of Asia and Africa based on what we have learned from our experience in Asia. The ICRISAT Development Center will continue to play the role of an innovation broker supporting development of multi-stakeholder consortia to implement large-scale projects and drawing lessons from facilitating innovation.

It will sharpen its focus to enhance its contribution to our research agenda, as well as impact on the ground. We will develop and implement a learning framework to draw policy-relevant lessons on scaling new knowledge and we will strengthen our knowledge management and communication activities.

The Agribusiness and Innovation Platform (AIP) has been working with the public and private sectors on technology commercialization, entrepreneurship development, value addition, nutritional enhancement and providing farmer producer organizations with sustainable business models. With our expertise, the Agribusiness and Innovation Platform incubator provides technical and business support to entrepreneurs in the agriculture domain. The Agribusiness and Innovation Platform has reached out to farmer and rural communities through capacity building and training programs that have resulted in successful case studies and models that can be easily replicated. There are various successful models of interventions that have worked well in India and Africa, and which can be scaled up and scaled out. Similar platforms are planned for Africa through which high positive impact can be created for farming communities, including women and youth.

Human Capital Management
ICRISAT is fueled by its mission and the people driving it. We aim to position our workforce not only as a resource but as a valued asset that forms the foundation of organizational growth and development and thus increasing our impact on communities and livelihoods in the drylands.

This journey from Human Resources to Human Capital at ICRISAT has begun and will continue to be executed through detailed and pragmatic change management. The key objectives of the plan will be:

• Driving excellence and innovation that leads to successful outcomes and propels the Institute forward while leveraging technology and remaining a financial steward.
• Deploying recruitment and retention strategies, including branding and communication to attract and retain talented and diverse individuals.
- Investing in staff development and expanding the succession management programs.
- Enhancing the overall work experience through a culture of engagement, wellness, diversity and inclusion, that leads to overall employee well-being, productivity and retention.

Aligned with ICRISAT’s overall Strategy, the objectives will be achieved through a progressive movement towards a proactive business-partner approach that adopts modern policies, procedures and technology; and is focused on people and culture. We will sustain our efforts to promote a work culture that is inclusive, accountable, performance driven and people-centric. There will be a constant endeavor to upscale the people processes to accommodate best practices and latest technology. During this transformation, any change management will integrate sustainability in the decision making, preserving the Institute’s long-term interests.

Talent acquisition will have a pivotal role in realizing the Institute’s vision and goals. An employee value proposition will be institutionalized to project ICRISAT as an employer of choice. The recruitment strategy will utilize the latest techniques to enhance quality of hire, while upholding the five guiding principles of Equal Opportunity, Transparency, Diversity, Confidentiality and Compliance. ICRISAT will nurture our next generation of scientists and leaders while also building the capacities of our partners. We will develop the Institute’s talent pool through focused interventions on knowledge management, leadership development, performance orientation, top talent recognition and succession planning. ICRISAT will provide a structured global career path to our workforce to enable their career development. The workforce will be aided to explore both functional and cross-functional opportunities.

The Institute will strive for job equivalence between staff categories. This will be achieved through rationalization of multiple contract modalities to a progressively linear organizational structure based on job evaluation and classification. The modern organizational structure will be the foundation of all future people strategies and development initiatives. This approach will strengthen the compensation concepts of fairness and consistency; and facilitate mobility across Programs and locations within the Institute. ICRISAT’s Total Reward philosophy will be administered through a balanced approach of monetary and non-monetary tools to motivate our workforce. The compensation and benefits principles will ensure that our pay positioning is fair and attractive. It will be designed for parity within the Institute as well as with global comparators.

ICRISAT’s Ethics and Safeguarding Framework describes the governance, oversight, leadership and management engagement necessary to implement a high caliber ethics function. We recognize that operating according to the highest ethical standards is a prerequisite for delivering our vision. A ‘Leadership Charter’ will identify the clear and concise parameters of behavior that are important under the Institute’s Code of Ethics and Conduct. A well-articulated ‘Speak-Up’ model will empower all workforce members to voice their ideas and concerns; and be ambassadors of the cause.

The safety and wellness of workforce members will continue to be paramount. ICRISAT will maintain its investment in healthcare covers for staff and their dependents. In addition, a comprehensive Employee Assistance Program will be in place to support workforce members in their personal and professional spheres, through multiple well-being initiatives.
ICRISAT has a unique role in dryland agriculture research for development, working through diverse partnerships across Asia and Africa. ICRISAT’s unique comparative strength has been to conduct upstream science and to translate upstream science to applied research. This makes a difference in farmers’ lives by scaling scientific innovations with due attention to the environment, policy, marketing and socioeconomics. In the complex farming systems of the drylands where ICRISAT mandate crops including grain legumes and dryland cereals are grown, integrated solutions are needed to address the challenges of poverty, climate change, nutrition and sustainability of natural resources.
To address these goals, ICRISAT research is directed to fulfil its dual mandates:

i. Genetic resources and crop improvement of six important and nutritious grain legume and dryland cereal crops this will be delivered through access to its global genebank, upstream pre-breeding science, targeted demand-driven breeding programs and innovative seed systems

ii. Systems research for the drylands these will be that characterized by resource-constrained, multi-objective, multi-function smallholder crop-tree-livestock farming systems which face high climate and market risks as well as natural resource degradation.

The overall vision of ICRISAT’s research strategy is to support transition to sustainable and nutritious food systems – sustainable in terms of production for the farmer and nutrition and health for the consumer, while protecting the environment. ICRISAT will deliver through genetic resources and breeding; sustainable agricultural production systems; land, soil and water management systems; inclusive economies; nutrition and food security and policy, value chains and markets, with overarching domains of gender and climate change. We will contribute to more resilient agri-food systems, food and nutritional security, poverty reduction and effective and sustainable use of natural resources.

The new research strategy will leverage ICRISAT’s competencies and assets, including its strong basic and applied science, integrated multi-disciplinary expertise and multi-layered presence across regions. This will be achieved by working through strategic partnerships at global, regional and local levels, with public and private sectors and civil society partners to leverage the research portfolio and deliver impacts at scale.

ICRISAT’s New Research for Development Agenda

Accelerated crop improvement

Improved crop cultivars are a key component of agri-food systems, and business-as-usual breeding scenarios do not suffice to meet future agri-food system demands. While technological advances and the grain legumes and dryland cereals genetic resources conserved in our genebank provide unique opportunities to identify and use unique alleles for climate-smart traits, innovations and enabling technologies for improving crop genetics will address the immediate problems, while allowing us to anticipate future needs. Today’s research will guide tomorrow’s solutions, and we must react quickly to emerging issues through collaborative development of timely interventions and technologies. As we continue in our crop improvement modernization efforts, we will expand our inter-CGIAR collaborations and identify areas of complementarily to better manage scarce resources with the focus on crop improvement (80%) and seed systems (20%). Through harnessing synergistic partnerships and integrating modern tools and techniques, we will focus on establishing efficient crop breeding and seed systems which will rapidly deliver improved varieties well adapted to existing and evolving cropping systems and growing environments and meeting requirements of farmers, industry and consumers.

An essential part of our “Accelerated Crop Improvement Program” will be the use of modern tools and advanced breeding technologies, such as genomics-assisted breeding, accelerated breeding cycles, precision phenotyping employing high-throughput testing platforms including drone-based decisions; big data curation and management; breeding management systems and effective seed management systems involving public and private seed sectors and entrepreneurs. Bridging gaps in knowledge and experience by engaging the strengths of ICRISAT and leveraging industry partnerships for robust modern crop breeding pipelines will be critical to deliver climate-resilient improved crop varieties with pest and disease
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resistance, improved nutritional quality and market-preferred traits and improved genetic gains. Expanding our breeding toolbox to comprise the most current cutting-edge technologies will allow us to develop elite germplasm to address the intractable, difficult-to-breed traits and enhance the productivity and sustainability of our mandate crops. Differentiation from private-sector seed companies must be evident while we adopt modern breeding practices.

A component of ICRISAT’s crop improvement program will be to implement monitoring and evaluation (M&E) procedures to regularly quantify the needed metrics, document success and give us the ability to learn quickly from areas that need improvement. This will enable us to track the entire pathway from research entry point to impact delivery.

**Climate change and drylands agro-ecology**

Addressing the complex challenge to our food systems of growing more food, growing more diverse foods to support nutritious diets in a climate crisis, and within planetary boundaries in drylands regions drives us forward. Addressing climate change is central to this positioning and is a priority identified in donor strategies for agricultural development. Similarly, the dryland agro-ecologies are where societal grand challenges, specifically relevant to ICRISAT are most acutely evident — malnutrition, climate change, soil degradation, competition for land, post-harvest losses, and an ageing and changing workforce. These dryland regions, and the women, men and youth who depend on the local agriculture, represent the “hot spots” that we need to target for investment. Nowhere else are these grand challenges more acute than in the dryland cereal-legume agri-food systems of Africa and Asia.

Without doubt, the comparative advantage of ICRISAT’s acknowledged mandate, encompassing both mandate crops and the drylands ecology, must be maintained and strengthened in linking the resilience of rural communities and agri-food systems across the drylands of the Middle East and North Africa, West, Central and South Asia as well as sub-Saharan Africa (the Dry Arc Region). ICRISAT has legitimate responsibility for the drylands of Africa and Asia. This natural connection between the two main regional ecologies of ICRISAT’s mandate enforces this connection and opportunity for sustainable agricultural intensification, employment and enhanced adaptation to climate change by integrating, drawing together and streamlining technologies and global networks.

‘Climate-Smart Agriculture’ presents a challenging and worthwhile research agenda to look for synergies and trade-offs between the necessity for agriculture to increase production and food security to support more nutritious and diverse diets, while improving adaptive capacity to climate change and concomitantly decreasing net greenhouse gas emissions from agricultural lands and practices. ICRISAT has a strong portfolio of research addressing climate change adaptation through climate-smart agriculture — this is a daily reality in the drylands — and we must also consider any possible opportunities in the drylands agricultural systems to address mitigation in these ecologies and by smallholder farmers.

**Nutrition**

ICRISAT has always understood the opportunities from our nutritious mandate crops that thrive in the drylands. A critical step to integrate and consolidate the various nutrition-related initiatives within ICRISAT is a framework around which our nutrition-related research, collaboration and investments will be structured. Such integration must bring ICRISAT’s current research and initiatives on nutrition — including Smart Food, biofortification, removing anti-nutritional factors through advanced breeding approaches, and value addition through primary and secondary processing — closer together, developing synergies and cross-learning. Smart Food — good for you, the planet and the farmer — is an established, well-articulated way to communicate the importance and value of ICRISAT’s mandate crops. In ICRISAT’s new strategy, Smart Food will be a distinguishing and informative byline, a platform for the nutrition inherent in our crops to be understood and to ensure that thought leaders in Africa and Asia lead their communities to adopt these foods both in a cultural context and to ensure good nutrition.

**Gender**

In our legume and cereal crop improvement, product profiles will be defined ensuring consultation across society and ensuring inputs from women and men to ensure the product profiles correctly meet the needs of the consumers as well as farmers. Seed production and delivery systems will be better aligned for gender-responsive, end-user demands and preferences using standardized tools and procedures for collecting digitized gender-disaggregated data. Such quantitative and qualitative analyses of gender gaps in adoption, production, market access and welfare outcomes (nutrition and poverty) and their trends over time, will drive a process of genuine change toward greater gender equality and better livelihood for smallholder farmers and their communities. ICRISAT supports GENDER (Generating Evidence and New Directions for Equitable Results), the CGIAR platform designed to put gender equality at the forefront of global agricultural research for development. Our gender research will explicitly address the issues pertaining to how gender equity and empowerment can be achieved through research for development interventions and scaling programs within ICRISAT’s mandate regions and target communities.
Agri-food systems

Crop improvement and agronomy research are vital. However, they alone cannot address the challenges of the drylands where institutional and policy constraints may restrict the development of effective agri-food systems. A credible vision for dryland agri-food systems is essential for ICRISAT’s new strategy to deliver the impacts we envision.

The overarching logic is that improved capacities of agri-food systems of key cereal and legume crops will enable coherent production, market and policy innovations that deliver resilience, inclusion, poverty reduction, nutritional security and economic growth. A high-level organizing principle is that targeted agri-food systems cover the full continuum from: Subsistence agriculture, where farmers produce and consume on farm, selling and buying locally in good and poor seasons; through to commercial agriculture, where commodities are produced for specific end-markets.

This scope of agri-food systems will allow ICRISAT’s research to deliver both resilience in food and nutritional security and opportunities for market-oriented development for smallholder farmers. Beyond the major global commodities of rice, wheat and maize, our cereal and grain legume crops – sorghum, pearl millet, finger millet, small millets, chickpea, groundnut and pigeonpea – are critically important in the drylands food systems of developing countries.

While we carry out the major research on pearl millet and finger millet, other small millets are important in specific regions of the drylands and form an important component of the diets, and hence, ICRISAT incorporates these millets as mandate crops in its nutritional and systems research for sustainability and nutritional security.

Grain legume and dryland cereal crops are found in shared, but also different, agro-ecologies and farming systems and are critical to delivering on the ICRISAT strategy and its objectives of reduced poverty and improved food security, nutritional security for health, and improved natural resource systems and ecosystems services. Moreover, these grain legume and dryland cereal crops are vital for the countries in the drylands to achieve their Sustainable Development Goal targets.

Technological advances in the form of new and better performing varieties, agronomy and farming system improvements and the development of novel value-added products could contribute significantly to livelihoods and farming systems. However, the key to unlocking this opportunity is the common set of institutional and policy issues that restrict the development of effective agri-food systems. While component technologies are an essential ingredient to progress, there is a wider system problem that needs addressing. This reframing of crop improvement and farming systems research opens new research enquiries that explore and progress the functioning and dynamics of the agri-food system in ways that create the demand for technology and create the conditions for its adoption and use.

While there are opportunities in upstream science across the grain legumes and dryland cereals that enable efficiencies in variety development, the real synergies are in downstream demand-responsive research to find and develop the priorities, opportunities and niches for these crops to build functional agricultural value chains. The linkage between downstream demand-responsive research and upstream science is common among these crops; success in one commodity can inform opportunities for the others.

Scaling

ICRISAT has well-established and successful institutional approaches to scaling through the Agribusiness and Innovation Platform (AIP) and the ICRISAT Development Center (IDC), both based in Hyderabad, India. While operations are currently almost exclusively in India, we look to expand their reach and influence across Asia and Africa. Both entities leverage the significant public funding of subsidies for Indian agriculture and are largely funded to deliver these public programs even when supporting start-ups and small to medium sized enterprises. In their impressive scaling efforts, both entities act fundamentally as innovation brokers, connecting the many and often incongruent sectors supporting agriculture in India to deliver more effective and helpful support to beneficiaries, whether farmers or agribusinesses. Having established the networks in India, we will use this mechanism and opportunity to act as innovation brokers and scaling partners for innovations coming from our research. Scaling of ICRISAT technologies in Africa is not yet institutionalized. Successes in watershed development in Ethiopia and small-scale irrigation in southern Africa provide examples of scaled project-level activities based on technologies embedded within a systems intervention. The business models of the Agribusiness and Innovation Platform and the ICRISAT Development Center cannot be exactly replicated in Africa as there are neither large government-sponsored programs nor corporate social responsibility initiatives from which to draw funding, nor are there readily accessible government extension and outreach programs for widespread farmer engagement. However, the reputation and experiences from India are transferable to Africa, especially under South-South Collaboration initiatives. The demand for business incubation and acceleration is growing in Africa and the Agribusiness and Innovation Platform can readily support ICRISAT to lead such efforts in African agriculture, particularly in the drylands. Further, scaling through policy influence will be strengthened in ICRISAT, with our strong history of socioeconomic and policy research, to maximize opportunity for impact.
In support of the Sustainable Development Goals and while respecting planetary boundary challenges in the African and Asian drylands, ICRISAT researchers will deliver international public goods and innovations (improved germplasm, scientific knowledge, problem-solving expertise and policy advice) to help achieve SDGs 1 (No poverty), 2 (Zero hunger), SDG 5.b (Gender equality), 13 (Climate action) and 17.6 (Partnerships for the Goals) for farmers in the drylands together with a number of stakeholders. As in the past, these public goods will be made freely available to all, complementing the contributions of partners at local, national, regional and international levels. They will serve both public and private organizations inside and outside the realm of agriculture.

Impact Aspirations
The ultimate purpose of our public goods is to enhance progress leading to reduced malnutrition and poverty, empowered women and enhanced gender equity and equality, climate change adaptation and mitigation and environmental management in the drylands. Given the slow progress towards the targets of the Sustainable Development Goals, we will intensify our analyses and publish the outputs, outcomes and impacts of our work to learn what works, what fails and why. This will provide the understanding needed to contribute relevant advice so that appropriate course corrections can be made to national, regional and global policies and strategies aimed at achieving the Sustainable Development Goals by 2030; support regional stakeholders with evidence of what their efforts and investments have achieved and offer immediate solutions to agricultural development challenges through our extensive partner network.

As done in the past, ICRISAT researchers challenge conventional assumptions about pathways to well-being and prosperity. ICRISAT research is designed to enhance both the agency of people and engage in structural reforms of market institutions and policies limiting transitions towards sustainable dryland agriculture. Through the six mandate crops ICRISAT improves, we strive for permanent change for the better by sustainably enhancing people’s knowledge, incomes and re-investing some of that income to enhance farm enterprises. In future, we must reach those households swiftly, more effectively and efficiently through partners. Our seeds must be profitable, as well as offer traits that are desired by farmers while fitting the ecology.

We recognize that those we serve are a diverse group with differing needs across development sectors and vast geographical distances. As an international organization, however, we will focus on widely applicable issues that can lead to the scaling of impact. We will deliver a specified number of quantifiable outputs that include seeds or new varieties informed by product profiles, crop management support, environmental tools, capacity-strengthening services and new information resources that include ways to de-risk agriculture. Baselines, benchmarks and counterfactual treatments (i.e., considering what would happen in the absence of specific outputs) will be established to serve as a basis for measuring progress. We will ensure that our impacts on food systems are well understood and differentiated to serve our mission through effective impact pathways.

Along these impact pathways, we recognize the roles and responsibilities of different partners as well as the enabling influences of external factors. As our outputs progress along the impact pathway towards outcomes and impacts to benefit the poor, the roles and responsibilities of development-oriented agencies and other enabling parties increase. In collaboration with our partners, we will remain engaged to assist (but not to compete with) key stakeholders and partners, providing them with the knowledge and expertise they need to maximize the intended outcomes and impacts.

With new tools and approaches, better policies and regulations based on sound scientific advice, and the adoption of better and higher value varieties, we will empower women and support youth, and enable the consumption of more nutritious and diverse foods and the marketing of excess production. As these outcomes are further reinforced through development activities of many other players globally, we will together achieve the desired impacts of more resilient dryland farming and reach the targets of the Sustainable Development Goals while staying within planetary boundaries.
ICRISAT appreciates the support of its donors to help overcome poverty, malnutrition and environmental degradation in the harshest dryland regions of the world. See http://www.icrisat.org/icrisat-donors.htm for full list of donors.

ICRISAT works in agricultural research for development across the drylands of Africa and Asia, making farming profitable for smallholder farmers while reducing malnutrition and environmental degradation. We work across the entire value chain from developing new varieties to agribusiness and linking farmers to markets.