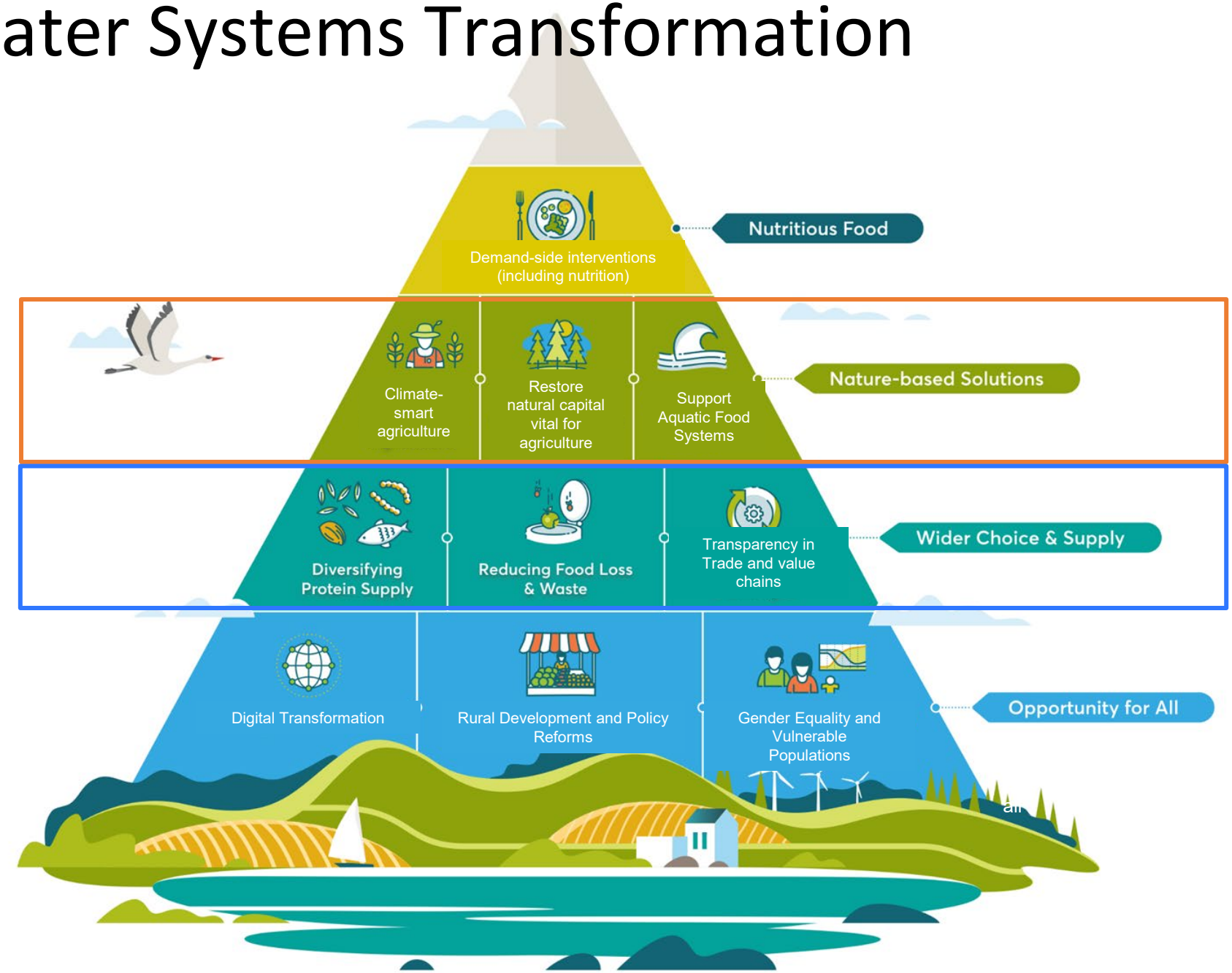
More than the Sum of the Parts: New Synergies for Transformation in CGIAR

CGIAR System Council

12th December 2024

Food, Land and Water Systems Transformation

Climate-Food-Nature Nexus is increasingly important in all areas of agriculture, but water risks are very uncertain.



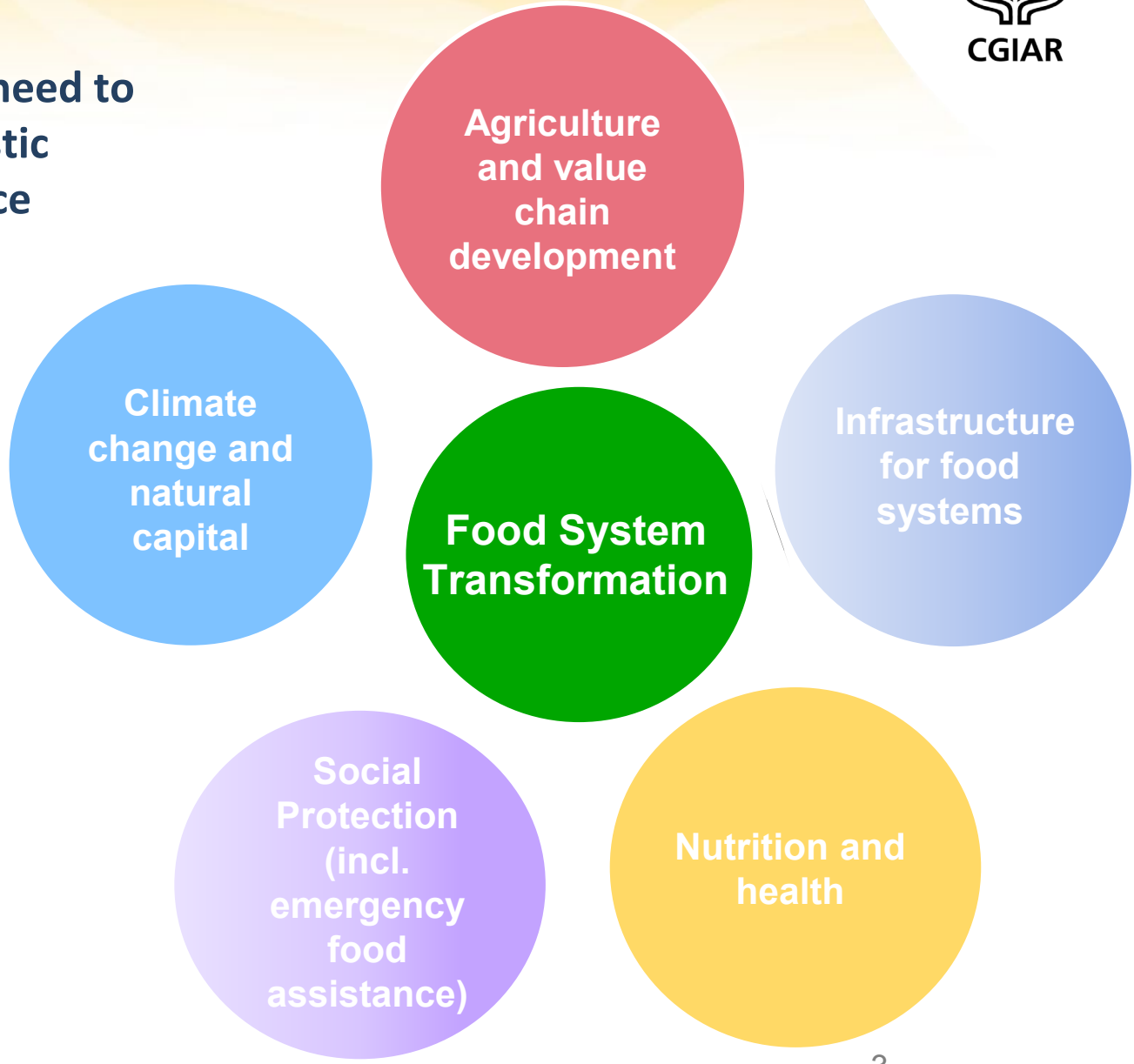
Food, Land and Water Systems Transformation

To ensure food supply and sustain food security we need to build resilience in the food system, take a more holistic approach to food system transformation and embrace complexity.

Addressing climate change rapidly, leveraging natural capital and the environment, building resilient value chains and ensuring food and nutritional security.

In the climate-impacted world we still need social protection & adequate infrastructure to ensure supply for a growing world population.

CGIAR needs a new consensus on water systems – one that is fit for the future we face.



One Planet, One Family, One Future (India)

CGIAR

NATURAL FARMING

- Regenerative Agriculture
- Soil health, food & water security
- Biodiversity & Climate Resilience
- Rural development

DIGITAL AGRICULTURE

- IOT & Remote Sensing
- Improve crop yields
- Reduce use of water & other inputs

NUTRITION

- Food Fortification & Diversification
- Policy Reforms
- Designing nutrition sensitive programs

CLIMATE-RESILIENT CROPS

- Seed tolerance to heat & water stress
- Micro-irrigation
- Aerobic rice varieties & techniques like AWD, DSR
- Innovative inputs like microbes, biopesticides

PARTNERSHIPS

- Bring diverse knowledge & technology

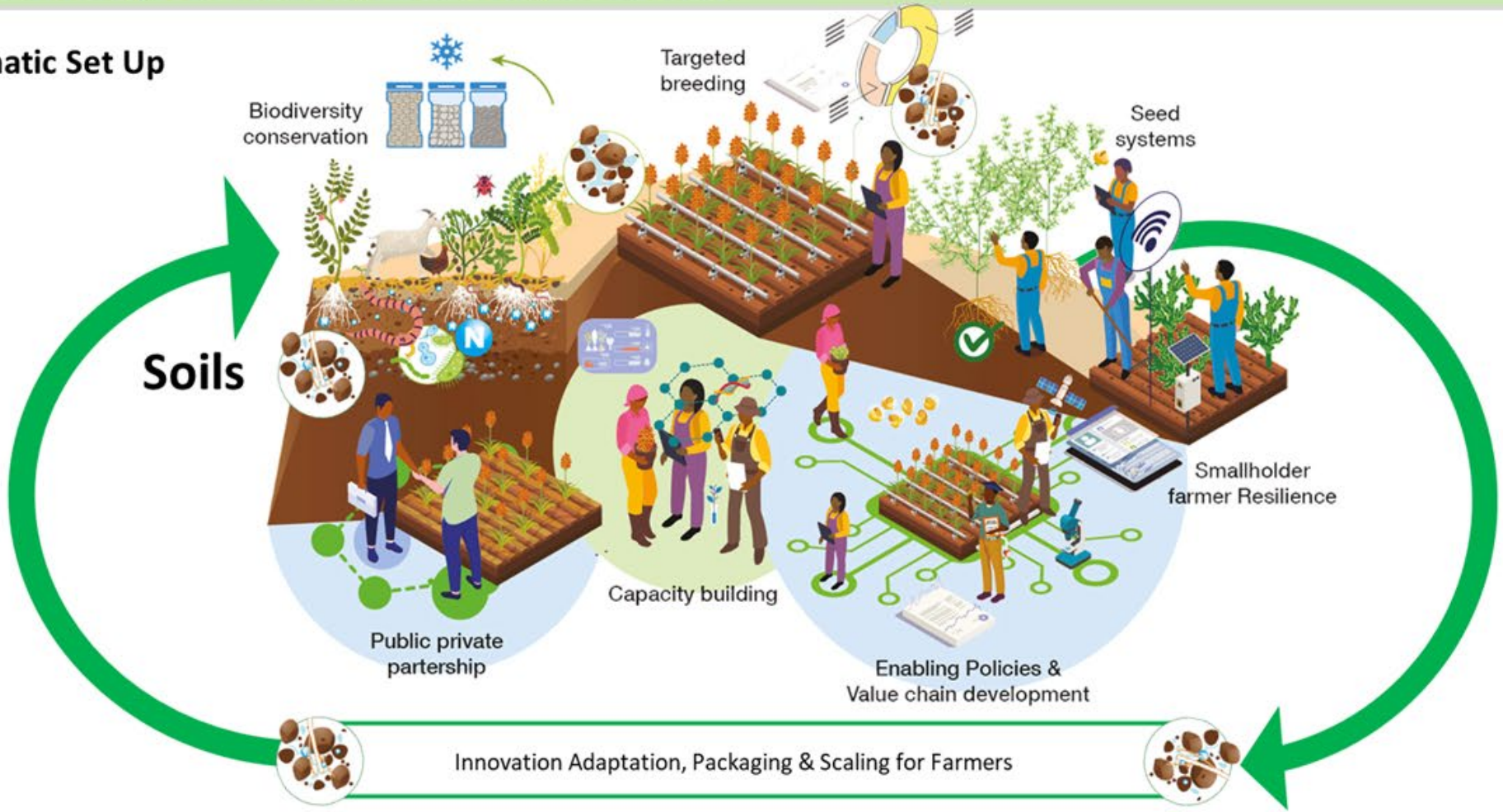
ONE-HEALTH APPROACH

- Reduce livestock emissions while improving human diets and protecting animal health
- Complementary with Agroecology/Regenerative Agriculture

VACS Implementers' Group Investment Portfolio

VACS Partnership: Strategy, Coordination, Monitoring & Evaluation

VACS Programmatic Set Up



Managed by CIMMYT, VACS Coordination Cell through - CGIAR-FAO

CGIAR participation through CIMMYT, ICRISAT, WorldVeg, IITA, CIP, ABC

Lenses & Enablers: Livelihoods, Gender, Equality, Social Inclusion, Nutrition, Climate Resilience, Knowledge Sharing & Decision Support Tools

Biofortification: Iron enriched potato – a new tool to combat iron-deficiency anemia

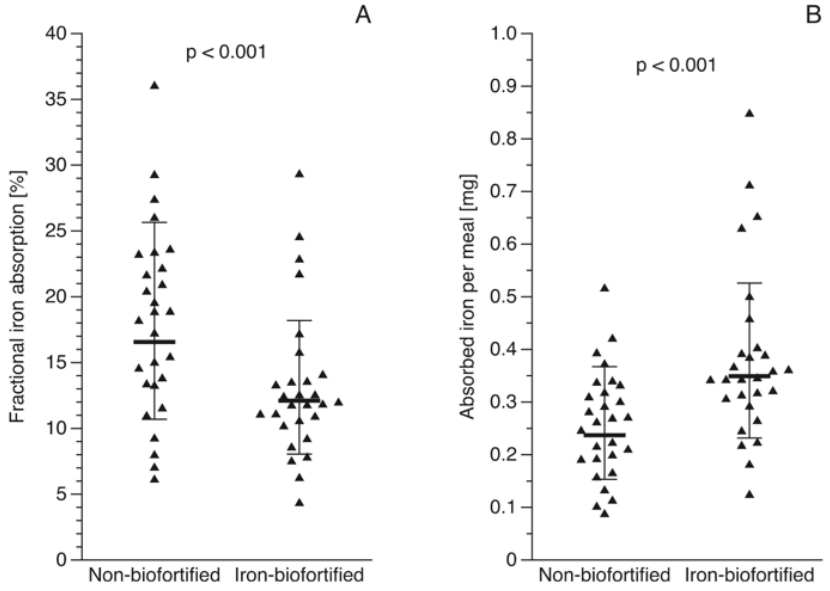


FIGURE 3. Fractional iron absorbed (%) (A) and total iron absorbed per meal (mg) (B) of nonbiofortified and iron-biofortified potatoes. Isotopic administration: ^{57}Fe for the nonbiofortified test meal and ^{58}Fe for the iron-biofortified test meal. The horizontal lines represent geometric means ± SD. $n = 28$. Nonbiofortified: yellow-fleshed potato variety Peruanita; biofortified: iron-biofortified yellow-fleshed potato clone.

Burgos G, et al. Total Iron Absorbed from Iron-Biofortified Potatoes Is Higher than that from Non-biofortified Potatoes: A Randomized Trial Using Stable Iron Isotopes in Women from the Peruvian Highlands. J Nutr. 2023 Jun;153(6):1710-1717. doi: 10.1016/j.tjnut.2023.04.010. Epub 2023 Apr 13. PMID: 37059395.

- Total Iron Absorption from iron-biofortified potato was 45.8% higher than that from non-biofortified potato meals
- 500 g of iron-biofortified potato can provide >50% of the iron requirement for women with low iron storage (plasma ferritin around 10 µg/L)
- Initial focus countries: Peru and Nepal (high anemia prevalence, high potato consumption)

ASEAN - CGIAR Innovate for Food Regional Program

8 Intervention Packages

IWMI International Water Management Institute

ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

IRRI

WorldFish

IP 1: Regenerative Agriculture & Aquaculture Practices and Judicious Agro-Chemical Use

IP 2: Climate Neutrality and Circular Agriculture

IP 3: Enhancing ASEAN Agrobiodiversity use and landscape biodiversity

IP 4: Enhancing Value Chains and Regional Trade

IP 5: Transboundary Pests and Disease

IP 6: Private Sector Investment and Sustainable Financing

IP 7: Farmer-led irrigation for Climate-Resilient Agri-Food Systems

IP 8: Food Systems Transformation for More Nutritious and Healthy Diets

Alliance Bioversity & CIAT

CIMMYT International Maize and Wheat Improvement Center

CIP INTERNATIONAL POTATO CENTER

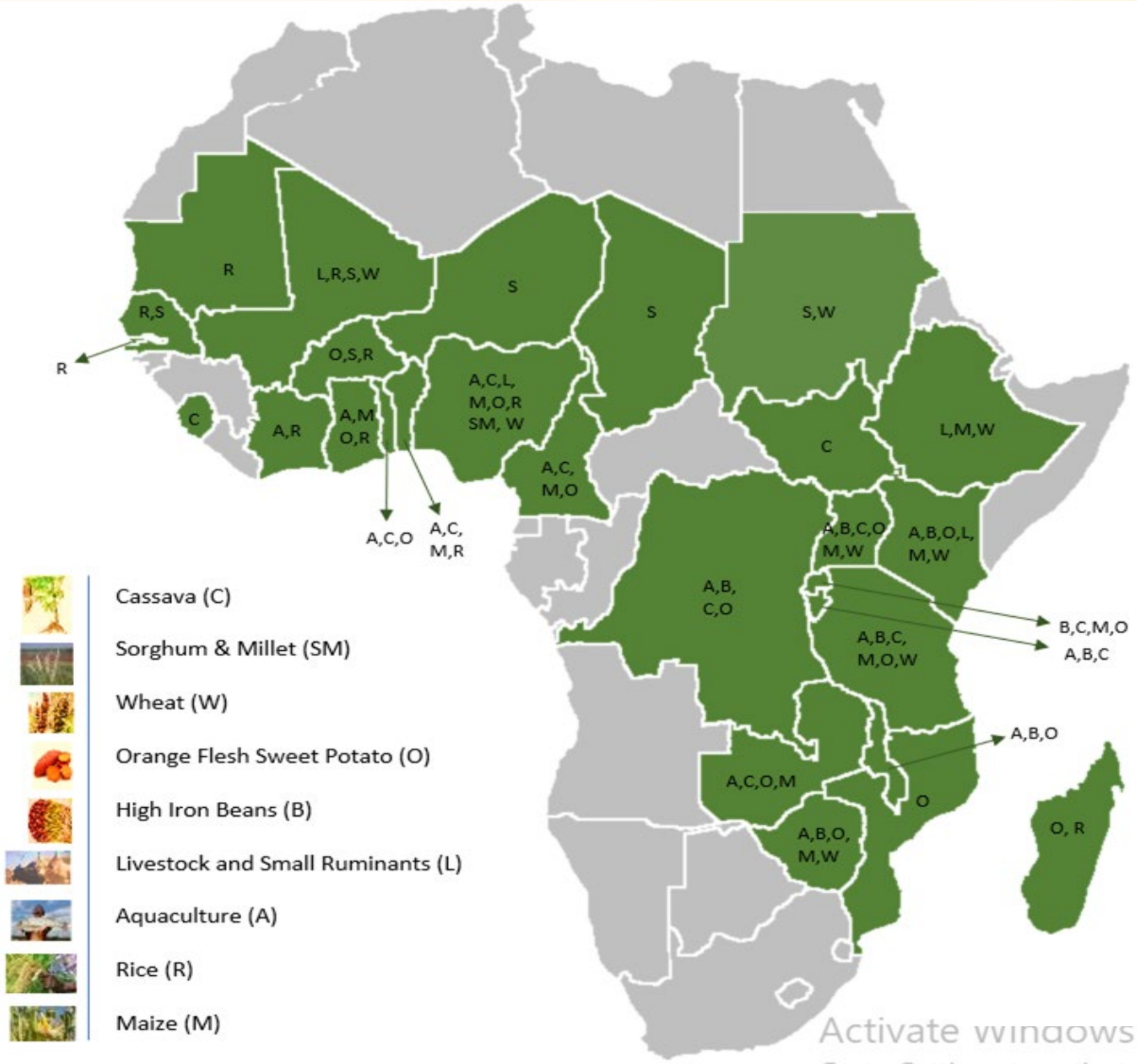
IFPRI INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

TAAT Footprint across Sub Saharan Africa

TAAT is more than **150 technologies**

The Program has engaged with technology providers:

- 10 Commodity compacts and
- 3 Enabler compact Institutions



A Complex Program

- Many commodities (11)
- Many African RMCs (34)
- Many implementers (11)
- Very ambitious goals
- (4)

IITA, AfricaRice, ICARDA, ICRISAT,CIP, IITA Alliance (CIAT), WorldFish, ILRI, AATF, WorldVeg, FARA.

Strategic Partnerships: to accelerate food systems transformation

Scaling up innovative technologies through clearing house mechanism

CGIAR

BILL & MELINDA GATES foundation

Developing carbon credit market in agriculture low carbon rice

MAFF Ministry of Agriculture, Forestry and Fisheries 農林水産省

環境省 Ministry of the Environment

IRRI

ASSOCIATION OF SOUTHEAST ASIAN NATIONS

Natural capital investments

Stanford University

Innovation Commission: Climate Change Food Security Agriculture

gef

GAFSP global agriculture & food security program

Promoting efficient agricultural value chains and climate-smart agriculture

Ministry of Agriculture, Food and Rural Affairs

IAEA International Atomic Energy Agency

IFI coordination for food systems transformation

THE DEPARTMENT OF THE TREASURY 1789

THE WORLD BANK

IDB Inter-American Development Bank

IFAD INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT

BANQUE AFRICAINE DE DEVELOPPEMENT AFRICAN DEVELOPMENT BANK

European Bank for Reconstruction and Development

Mainstreaming nutrition in ADB operations

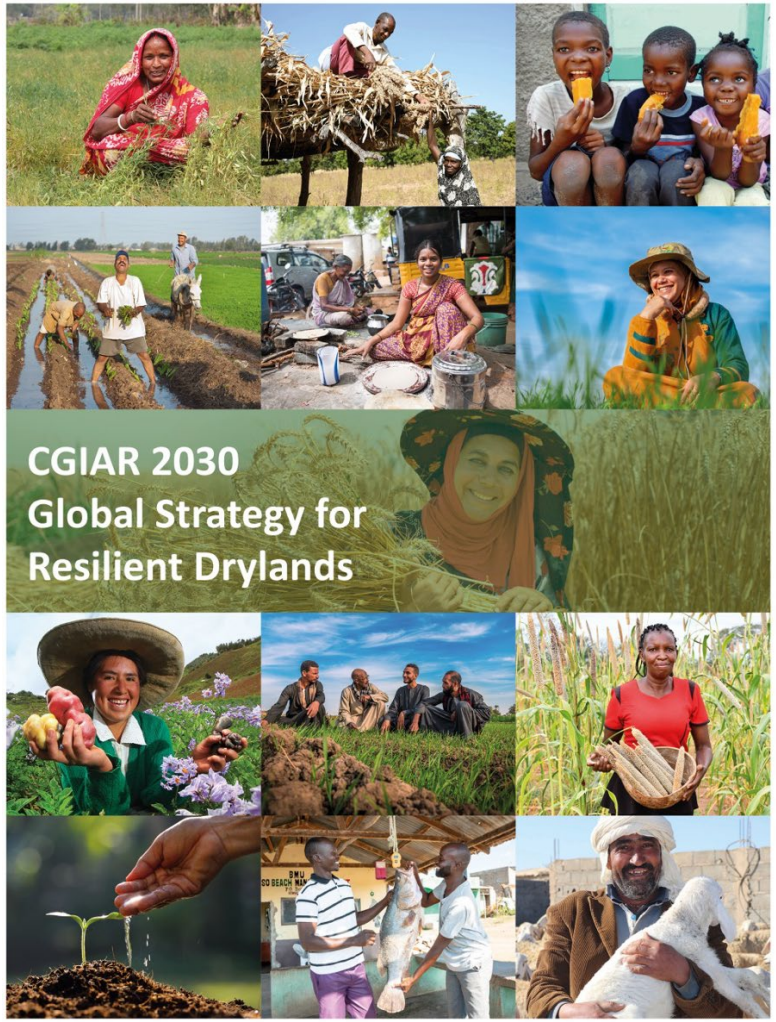
WFP World Food Programme

gain Global Alliance for Improved Nutrition

NUTRITION INTERNATIONAL Nourish Life

Scaling Up NUTRITION ENGAGE • INSPIRE • INVEST

CGIAR Drylands Research Strategy



- **Expertise, capacity and global science resources of Drylands CGIAR Research Centers for deployment of pioneering strategic agri-science**
- **Prioritizing the interests and needs of our partners by:**

1. Optimizing agrifoods systems to adapt to climate change
2. Conserving and using biodiversity to support resilient ecosystems and communities
3. Managing soils, land, and water systems to sustainably intensify production
4. Ensuring access to sustainable healthy diets to alleviate hunger and malnutrition
5. Promoting inclusive, equitable development to nurture safety, agency, and peace

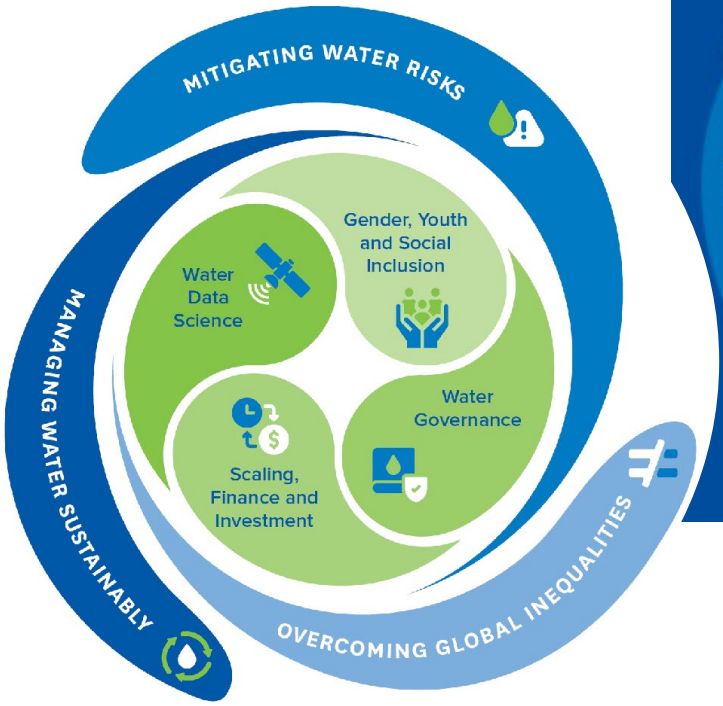
ICRISAT Transforming Dryland Agriculture

ICARDA Science for resilient livelihoods in dry areas

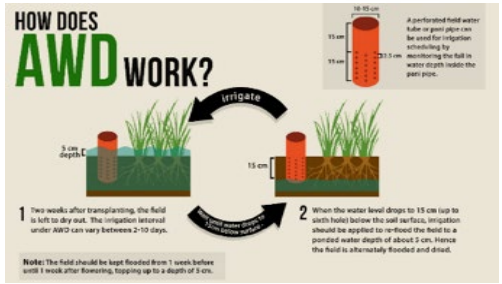
CGIAR Water Systems Integration Roadmap

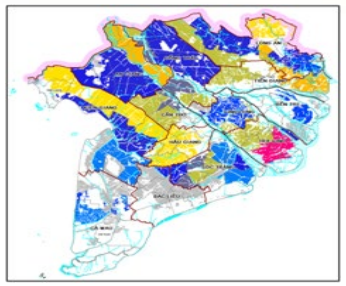
UNTAPPED SYNERGIES IN CGIAR FOR WATER SYSTEMS SCIENCE

- Integration Roadmap is the product of consultations with external stakeholders and partners and all CGIAR Centers
- It provides 'One Common Framework' for water systems science for all of CGIAR
- 'Mitigating Water Risks', Overcoming Global Inequalities' and 'Managing Water Sustainably', enabled by 4 Transformational Levers, contribute to all 5 CGIAR Impact Areas
- CGIAR provides a unique offer: building future water security through <u>water systems science from genes to basins</u>



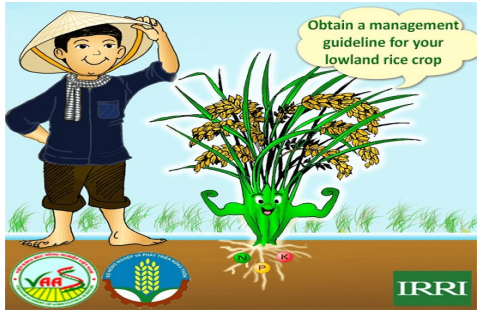
Increasing rice quality and reducing carbon footprint





Optimized water mangememt and CS-MAP

Mechanized DSR combined fertilizer deep placement



Digital agriculture: e.g. site-specific nutrient management

Rice straw -circular economy

mechanized collection, mushroom, and composting add 10% income and reduce up to 30% carbon footprint

- **Reduce water AWD - 35%**
- **mDSR+ improved farming practices - reduced lodging, reduced seed rate/certified - 50%**
- **Reduce pests via optimal seed density and integrated weed management**
- **Combined with fertilizer deep placement -reduced by 20% +SSNM**
- **Higher productivity and profits (3-13% Can Tho demos in 5 districts 50K ha)**
- **CH4 emissions reduced 40-60%**

The Southern Africa Accelerated Innovation Delivery Initiative (AID-I) Rapid Delivery Hub

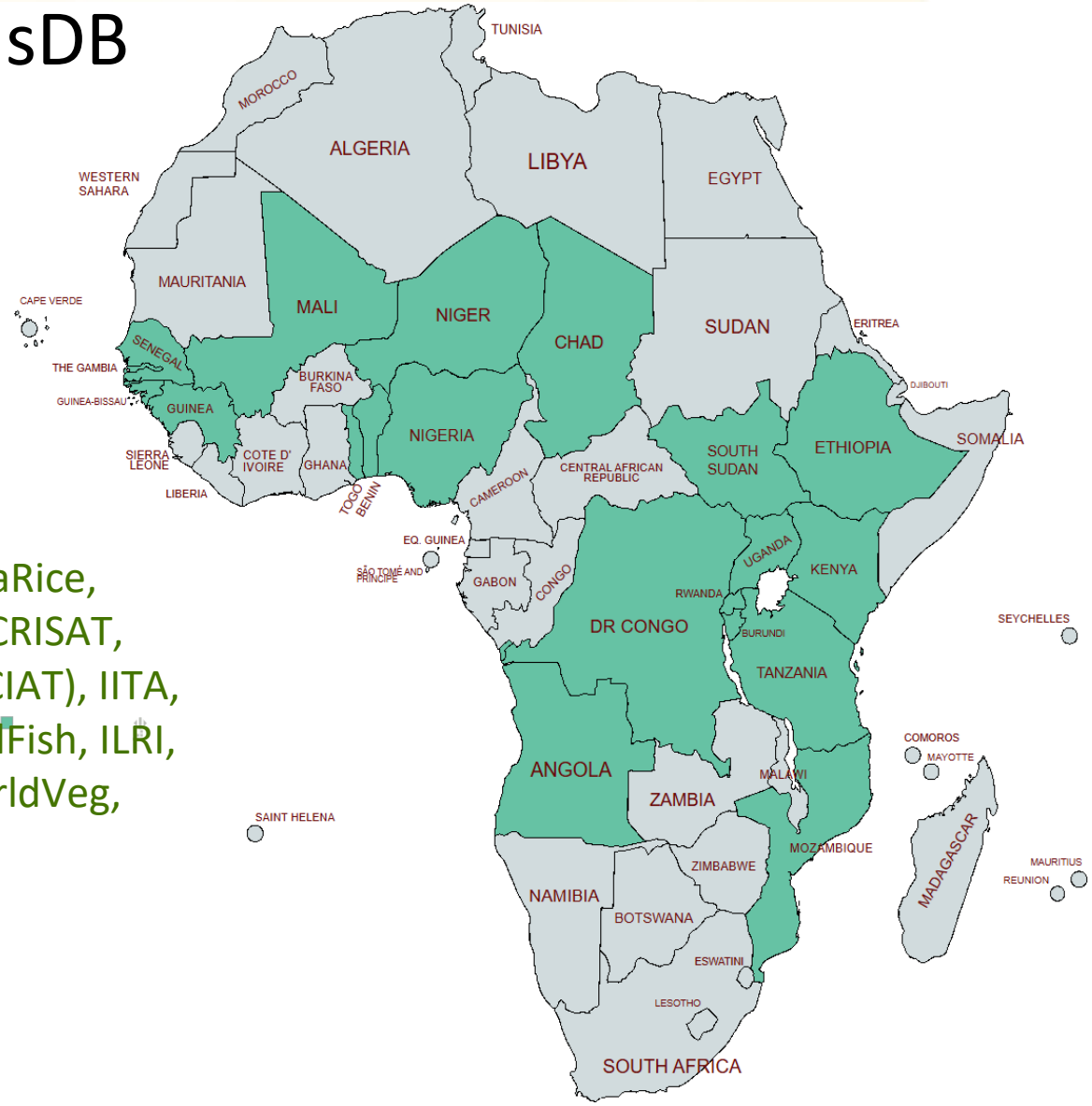
- **More than 1.4 million people** in Malawi, Tanzania and Zambia reached by AID-I MasAgro Africa, **44% of whom are women**.
- **41 improved maize varieties, 39 legume genetics, 1 million listeners reached with agricultural soil and agronomic advisories** – increased access.
- Local private partners have invested approximately US $600,000 in producing more than 13,700 metric tons of seed that will **benefit 420,000 households and 2.8 million people in rural communities**.
- Leveraging CGIAR research for development expertise and local PPP: **Alliance Bioversity Intl - CIAT, CIFOR-ICRAF, ICRISAT, ILRI, IWMI & World Veg**

TAAT Country Engagement achievements for integrating vetted IITA/CGIAR technologies into large scale agricultural investments financed by AfDB and IsDB

Updates (January 2024 – Nov. 2024)

- 18 projects
- 20 countries
- 79 technologies integrated
- 1.7 billion USD influenced
- 8.16 million USD mobilized for compacts' implementation support

IITA, AfricaRice, ICARDA, ICRISAT, Alliance (CIAT), IITA, CIP, WorldFish, ILRI, AATF, WorldVeg, FARA.



Key Messages

1. Transformation in CGIAR means results and delivery for transformation in FLW systems by CGIAR in unprecedented ways
2. A singular focus on one aspect of demand is no longer adequate or desired CGIAR must integrate delivery of multiple goals e.g. Productivity, resilience + climate change mitigation + nutrition + biodiversity
3. The CGIAR integrated partnership is changing the way we work and what CGIAR is capable of. We must embrace complexity in agile ways – and can't respond as 12 different Centers
4. New modalities such as ASEAN, AfDB and recently the ADB initiative are enabling a sum of our parts in interesting and impactful ways to be delivered at scale
5. New Frameworks across centers including the CGIAR Drylands Research Strategy, and the Water Systems Integrated Roadmap and unified Post Malabo policy engagements are framing how we bring compound propositions across the Integrated Partnership
6. Significant impacts of integrated efforts are visible on the ground and increasing on a daily basis.
7. Understanding these models, and the actors will enable applications in different ways and in South-South collaborations

Thank you!

CGIAR
Science for a food-secure future