



# Scaling Agricultural Innovations

**A Pathway to Global Impact**  
Personal Stories from the Task Force on Scaling

# Scaling Agricultural Innovations

## A Pathway to Global Impact

Agricultural innovations hold the key to addressing some of the most pressing challenges in agri-food systems, particularly in the global south. Innovations such as improved plant varieties, advanced agronomic practices, new policies, and cutting-edge information and communication technology tools have the potential to significantly enhance agricultural productivity, sustainability, and resilience.

However, the true value of these innovations can only be realised if they are effectively scaled to reach a wide audience. Without scaling, these innovations remain confined to pilot projects and controlled environments, benefiting only a small fraction of the intended target group. The need for effective scaling strategies is critical to maximising the benefits of agricultural research and thereby contribute to reach the Sustainable Development Goals (SDGs). The **German Federal Ministry for Economic Cooperation and Development (BMZ)** recognises this need.

Through the **Fund for International Agricultural Research (FIA)**, managed by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany has taken significant steps to support the scaling of agricultural innovations. One of them has been the creation of the Task Force on Scaling.



## The Task Force on Scaling

### An Interdisciplinary Team of Experts

For decades, the **CGIAR**, the global research partnership for a food-secure future, and its associated institutions (such as the World Vegetable Center and the International Center for Insect Physiology and Ecology) have been developing, testing and disseminating agricultural innovations.

When the CGIAR and its partners launched a new strategy in 2015, they set ambitious development goals focused on eradicating hunger and poverty and managing natural resources. However, there was a recognised lack of expertise within the CGIAR to take innovations from research to broad use.

To support the CGIAR in achieving its strategic goals, GIZ launched the Task Force on Scaling in 2017 on behalf of BMZ. The Task Force consists of a team of **Integrated Experts** who are placed in international agricultural research centers to support them in designing and implementing scaling approaches.

Integrated Experts are highly specialised professionals who use their skills in key positions in emerging economies. They work directly for an employer in the country of assignment under a local contract and are fully integrated into the employer's organisation. Placing Integrated Experts is a human resources tool used by GIZ.



# Keys to Success

## What makes the Task Force on Scaling unique?



### Interdisciplinary Expertise

The Task Force is comprised of experts from a variety of agricultural sectors. In addition, the team brings together diverse experience from the private sector, academia and development cooperation. This diversity enables the development of comprehensive scaling strategies that differ depending on the type of innovation in focus.

### Flexibility and Adaptability

Employment conditions for integrated experts allow international research institutions to recruit specialists from outside academia. Extensive engagement and collaboration with the private sector, public sector or civil society is crucial for scaling initiatives.



### Collaborative Approach

A small FIA team facilitates networking and collaboration. The Task Force meets regularly online and in person to share knowledge, experience and best practices. This ensures a coherent approach to scaling across regions, research centers and innovations, and promotes a better understanding of scaling contexts, approaches and methodologies.

### Holistic Approach to Scaling

Task Force members support scaling efforts from the initial design of strategies to their implementation and facilitate ongoing learning and reflection. Task Force members lead scaling initiatives and provide valuable advice within their institutional contexts.



### Tailored Strategies

Each Task Force member develops individual scaling pathways that adapt innovations to local contexts. This includes creating supportive partnerships, policies and financing modalities to ensure successful scaling.

### Inclusivity

The Task Force places particular emphasis on developing scaling strategies that are gender responsive and socially inclusive. This ensures that scaling efforts not only reach many end-users, but also promote sustainable change at scale.



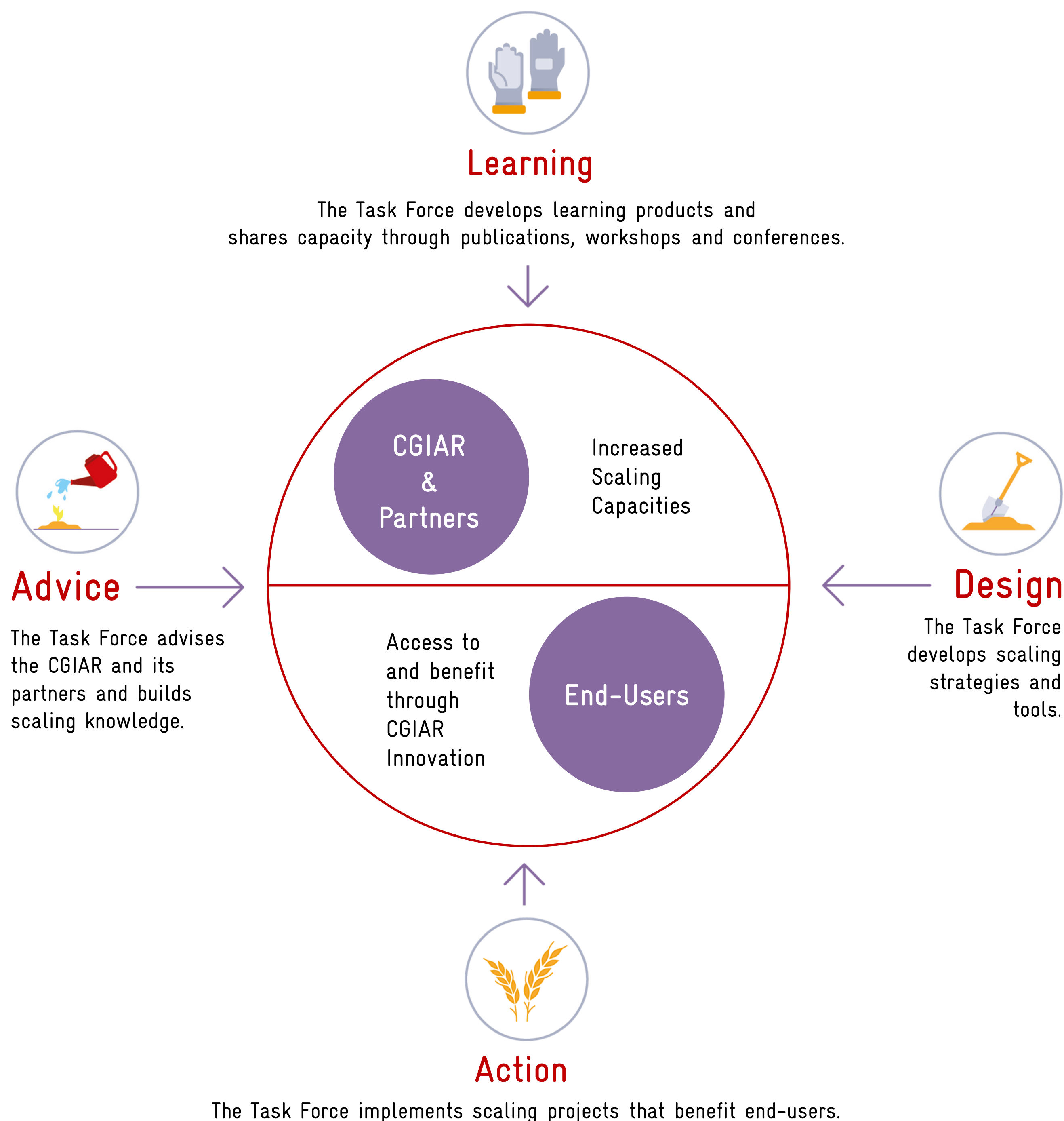
### Monitoring and Evaluation

The Task Force employs a robust monitoring and evaluation system to gain an in-depth understanding of what works, what does not, and why. This continuous learning process is essential for refining and improving scaling strategies.

# How does the Task Force approach Scaling?

## A Common Theory of Change

To focus the Task Force's work on impact, the team developed a Theory of Change. This Theory of Change is built around four types of activities: Learning, Design, Advice and Action. While activities around Learning, Design and Advice primarily aim to build CGIAR's capacity to systematically consider scaling in its research approaches, Action aims to reach a broad group of end-users and provide them with access to innovations and benefits through their use.





# Mainstreaming Scaling in Research Institutions

## Impacts of the Task Force

Over the years, Task Force members have created an important lever for advancing the impact orientation of research through scaling. They have supported the mainstreaming of approaches, methods and tools for inclusive innovation and scaling in their immediate institutional environment.

The efforts of the Task Force have also contributed to raising awareness and systematically addressing scaling within the CGIAR through various events. The team successfully organised conferences, workshops and networking events in CGIAR and other networks that facilitated knowledge exchange, cross-sectoral collaboration and sharing of best practices.

## The Way Forward

While the Task Force on Scaling will conclude its activities in 2024, GIZ's support for scaling in international agricultural research will continue through the **Fund for Strengthening Human Capacities of Partners in Agriculture, Rural Development, and Food Security (PeOPLE)**.

The **Inclusive Innovation for Transformation (II4T)** component of the PeOPLE fund will build on the lessons learned from the Task Force and facilitate multistakeholder partnerships to enhance scaling efforts across the CGIAR and other actors of national innovation systems.

## Personal Stories

### Bridging the Gap Between Research and Impact

Above, we have explored the critical mission and dynamic initiatives of the Task Force on Scaling and its goal to bridge the gap between innovative agricultural research and tangible impact in some of the world's most challenging environments, supporting the transformation of agri-food systems towards sustainability.

Now we invite you to step into the shoes of the dedicated people who are bringing these innovations to scale. In the following pages, you will hear from Task Force members who are working to translate research into real-world solutions. Their stories provide a window into the day-to-day challenges and triumphs they face, and offer a personal perspective on the impact of members' individual efforts.

From scaling biofortified beans in Kenya to promoting climate-smart agribusiness in Zambia, our team members share their unique experiences, insights and reflections. These stories highlight the importance of collaboration, innovation and resilience. You will learn about the creative solutions they have developed, the partnerships they have forged, and the lives they have touched.

Through these personal stories, we hope to convey the human element behind our work and illustrate the profound difference that committed individuals can make in transforming food, land and water systems in a climate crisis. Join us as we delve into the inspiring journeys of those at the heart of the Task Force on Scaling.

# From Scientist to Technology Profiler



Story by Bruno Tran, Integrated Expert at the International Institute of Tropical Agriculture (IITA) in Benin

## The Scientist's Dilemma

I spent years immersed in the world of biological sciences, transitioning from academic research in population biology to practical applications in postharvest pest control in Africa. Despite my dedication, the fruits of my labor largely sat unread on dusty shelves. This lingering frustration led me to a pivotal decision when a friend drew my attention to a scaling project for the African Development Bank in Benin.

## A New Opportunity

Intrigued by the prospect of turning research into actionable solutions, I accepted a position as integrated expert and became a member of the Taskforce on Scaling. I believe my profile interested the recruitment team because of my background in research and project management, with a dose of communications and training. My office at the IITA campus in Abomey-Calavi became the epicenter of my mission to understand and improve the project's processes. The onset of the COVID-19 pandemic stretched this learning period to two years, revealing significant challenges. We lacked a centralised list of technologies, a transparent validation system, and, crucially, a perspective that resonated with our intended audiences. Realising we were far from achieving our goals, I proposed a new approach. My ideas initially met resistance, but a visit of the team's main funding partner changed everything. He endorsed my vision, which convinced me to continue for another term.

## The Birth of Technology Profiling

This endorsement marked the beginning of an exhilarating, exciting phase. We decided to present technologies in a way that would captivate and persuade potential adopters. Thus, the profession of Technology Profiling was born. Forming a team of scientists, we focused on communication skills and inclusivity rather than extensive track records. We particularly encouraged women and young people to apply, groups under-represented in agricultural research on many levels.

These technology profilers bridged the gap between researchers and end-users, translating complex technologies into accessible and engaging profiles. Training these profilers was a rewarding experience. One of them since secured a consulting position with the African Development Bank, while another went to pursue a PhD. Our team has successfully profiled over 100 technologies, creating an interactive online database that has garnered positive feedback from governments and the private sector alike.

## Looking Ahead

Beyond the creation of a sophisticated database, our efforts have led to a new role: the Technology Profiler. This role is vital for translating ground-breaking research into practical applications, ensuring that innovations reach those who need them most. By supporting project proposal teams across Africa, we are beginning to see real impacts from our work. Reflecting on this journey, I am proud of the strides we have made. From the dusty shelves of forgotten research to the hands of those driving agricultural progress, we have forged a path that ensures scientific advancements do not remain theoretical but become tools for real change. The role of Technology Profiler is here to stay, bridging the gap between science and society for years to come.

# Gender Equality

Technology Profilers evaluate each innovation in terms of its effect on women and socially disadvantaged groups, like elderly and young people. Each technology receives a score (negative, neutral or positive), indicating its impact on social equality. The team of technology profilers also worked together with IITA's Gender Focal Point to develop capacity sharing instruments on gender for those colleagues who pitch the technologies to government and private sector. This ensures gender-informed decision making in technology adaption.



# Example of a technology profile in the innovation e-catalogs



Bruno Tran and his team: Marie-Michèle Codja, Béata Adonon and Hardi Hinvi

**e-catalogs** for **Private sector** for **Government** for **Dev partners**

Development partners e-catalog Technologies

[Request information](#)

## Purple Antioxidant Potatoes Purple-fleshed sweet potato (high in antioxidants)



Sustain Your Health with Purple Potato

The technology of Purple-fleshed sweet potatoes (PFSP) is a sweet potato variety with purple-colored flesh. These PFSP varieties are characterized by their high levels of anthocyanins, a type of flavonoid that imparts the purple color and contributes to their antioxidant properties. This technology provides a nutrient-rich crop with enhanced antioxidant activity, thereby addressing dietary imbalances and vitamin deficiencies in...

[More](#)

This technology is **TAAT1 validated**.
  Scaling readiness: idea maturity 8/9; level of use 8/9

**Gender assessment**

Positive or neutral impact

- Adults 18 and over**  
Positive high
- The poor**  
Positive high
- Under 18**  
Positive high
- Women**  
Positive high

**Climate impact**

Positive or neutral impact

- Climate adaptability**  
It adapts really well
- Adaptability for farmers**  
It helps a lot
- Biodiversity**  
It helps them grow and thrive
- Carbon footprint**  
It doesn't reduce emissions at all
- Environment**  
It doesn't make a difference
- Soil quality**  
It doesn't harm the soil's health and fertility
- Water usage**  
It uses the same amount of water

**Problem**

The problems mentioned regarding "Purple-fleshed sweet potato (high in antioxidants)" include:

- Vitamin Deficiencies:** Vitamin deficiencies are widespread in subsistence farming and poor communities due to low intake of vegetables and fruits.
- Health Risks:** People in these communities face health risks related to heart disease and cancer due to insufficient intake of antioxidants.
- Dietary Imbalance:** There is a need to address dietary imbalances in these communities.
- Low Intake of Vegetables and Fruits:** Low consumption of vegetables and fruits among these communities.

**Solution**

- High Antioxidant Activity:** PFSP varieties have two to three times more antioxidant activity compared to white or yellow sweet potatoes.
- Health Benefits:** The high levels of antioxidants in PFSP contribute to the body's growth, immune system, and brain activity.
- Dietary Improvement:** Eating PFSP helps improve dietary balance and addresses vitamin deficiencies common in subsistence farming and poor communities with low vegetable and fruit intake.
- Health Promotion:** PFSP offers health advantages for individuals of all ages, supporting early childhood...

**Key points to design your project**

In the near future, this section will provide an overview of this technology's success in various contexts, details on partners offering technical support, training, and implementation monitoring, along with other valuable insights for your projects and programs. These details will be added progressively.

In the meantime, use the 'Request information' button if you need to contact us.

**Cost: \$\$\$ 20 USD** **ROI: \$\$\$ 30 %**  
 A bag of 10 Kg of sweet potato vines Increase in better health

**IP**  
Open source / open access

Tested/adopted in ▼  
 Where it can be used ▼  
 Sustainable Development Goals ▼  
 How to use ▼

**International Potato Center (CIP)**  
 Kwikiriza Norman

Technology from [ProPAS](#)

IITA CGIAR

Commodities

**Sweet Potato**

Sustainable Development Goals [Details](#)

Category

**Improved varieties**

Subcategory

**Quality improvement**

Value chain step

**Production**

Solution

**quality improvement**

Best used with

Community-based multiplication of ...

Tent-style greenhouse for multiplication ...

Raised beds for sweet potato production ...

Specially blended fertilizers for root ...

Relay intercropping of sweet potato with ...

Silage production from sweet potato vines ...

Tested/adopted in [Details](#)

■ Tested & adopted  
 ■ Adopted  
 ■ Tested

Where it can be used [Details](#)

This technology can be used in the colored agro-ecological zones.

PFSP puree and products: Puree ...

Target groups

Explore the e-catalogs:  
[taat-africa.org/e-catalogs](http://taat-africa.org/e-catalogs)





# Growing a Better Future with Biofortified Beans



Story by Katharina Diehl, Integrated Expert at HarvestPlus in Kenya

## Discovering the Power of Beans

For the past three years, I've been working with HarvestPlus in Nairobi, Kenya, to scale up the production of biofortified beans - beans enriched with iron and zinc. Although beans aren't my favourite food, I've come to appreciate their incredible potential. My colleague, a nutritionist, often reminds me of their nutritional value, especially their role in providing essential proteins.

Beans have been a staple of Kenyan cuisine for centuries, deeply integrated into local dishes such as Githeri, a simple mix of beans and maize. They are also an important part of school feeding programmes. By introducing biofortified beans into these programmes, HarvestPlus aims to improve the nutritional value of school meals, ensuring that students receive more iron and zinc.

## Strategic Scaling in East Africa

My role as an Integrated Expert is to ensure that projects like the school feeding programme include scaling approaches. While HarvestPlus has included scaling since its inception 20 years ago, my mission is to explore further scaling potential in East Africa, and to ensure more strategic scaling, including commercial approaches.

## Connecting Farmers and Schools

To make biofortified beans available to schools, we need farmers to grow them. As manager of the school feeding programme, my work focuses on establishing a direct link between school procurement committees and local farmers. This creates a virtuous circle: farmers grow biofortified beans, schools buy them, and students benefit from nutritious meals. Parents pay the schools for the meals, which then pay the farmers, keeping the system going.

Implementing this simple idea has not been easy. One major challenge is the availability of biofortified bean seeds. Farmers often struggle to find these seeds in local agricultural shops or cannot afford them. Some resort to buying from other farmers, but they cannot always be sure they are getting the right variety.

Through our partnership with KALRO, Kenya's national seed supplier, we have increased the production of certified seed. This year, more than 50,000 farmers are growing biofortified beans. But the next few months will be critical in determining whether these beans reach the schools and how we can continue to support the supply chain.

## Listening to Farmers

I recently spoke to farmers in western Kenya, many of them women. They shared their struggles, from dealing with rodents to plants turning yellow before flowering. More experienced farmers who had achieved good yields found it difficult to find buyers and often had to take out loans to finance the planting of their crops. Declining soil fertility is another major challenge.



Katharina Diehl in dialogue with farmers to assess their needs



To address these issues, HarvestPlus is testing a phone-based technology developed by VIAMO to provide farmers with AI-based advice on soil management, disease treatment and crop handling. This support could help farmers improve their production and ultimately benefit from a more robust market for biofortified beans.

### Social and Economic Impact of Beans

Through our projects, I have seen the potential of biofortified beans to create a sustainable market. One that benefits both farmers and consumers.

Market dynamics alone won't realise this potential. But by addressing the challenges of production and distribution, we can build a value chain that provides farmers with a reliable income.

As I continue my work with HarvestPlus, I am committed to bridging the gap between research and practice. By supporting farmers, improving school nutrition and promoting sustainable agricultural practices, we are taking steps towards a better future. Together, we can ensure that biofortified beans become a staple in Kenyan diets, providing essential nutrients and supporting the livelihoods of countless farmers.

## Gender Equality

Beans are not only a nutritious crop, they are also a social crop. Women are often responsible for growing and providing food for the family. Women farmers are well organised and share best practices within their groups. However, with limited access to training and information, women farmers in remote areas may produce lower yields. Market access then becomes a challenge. As part of the development of agricultural information exchange platforms in western Kenya, I conducted the first user test of a phone-based AI tool

that provides advice on crop management. The group of participating farmers consisted of 77 women and 64 men. The high level of women's participation shows that biofortified crops, such as iron beans and orange-fleshed sweet potato, are of great interest to women. Together with VIAMO, we are now tailoring the AI tool specifically to women's needs, taking into account their affinity for technology, time availability, language use, and women's specific challenges in crop production and market participation.



Katharina Diehl visits a farmers' association in western Kenya



# Scaling for Sustainability Transition

Story by Hauke Dahl, former Integrated Expert at the International Water Management Institute (IWMI) in Sri Lanka



## Grand Challenges in Access to Capital

Agricultural small and medium-sized enterprises (agri-SMEs) and agrifoodtech start-ups in sub-Saharan Africa form the economic backbone of the extended food systems ecosystem. They face a common challenge - access to capital. It is estimated that small and medium-sized enterprises (SMEs) in Africa's agricultural sector need an additional USD 226 billion per year to make farmers resilient to climate change and meet the rising food demand of a rapidly growing population. Yet investors struggle to find lucrative investment opportunities in this sector. Similarly, agri-food innovations - research, knowledge and tools - often lack non-research platforms for widespread dissemination.

## Building Bridges

Catalysed by digital innovation and sustainability trends in the financial sector, there is a unique opportunity to enable private companies to adopt innovations for greater impact, thereby increasing their attractiveness to private funding streams. In this triple-win scenario, agribusinesses and start-ups can improve their business models, researchers can establish strategic partnerships to scale their innovations, and investors can discover unique ways to increase their returns while mitigating risks and costs.

Despite the vast differences between these three stakeholder groups, certain commonalities allow for fruitful partnerships: a) targeting similar groups (e.g. small-scale farmers), b) a desire to achieve quantifiable financial and/or sustainability impacts, and c) shared systemic risks, such as the negative effects of a deteriorating climate. However, these partnerships don't form organically. As a member of the Task Force on Scaling, I have had the privilege of working in this vibrant nexus over the past three years. Using my background in strategy consulting and the digital economy, I have been able to support IWMI in developing a strong private sector engagement portfolio - resulting in partnerships with over 100 SMEs, start-ups and investors across 15 countries.

## Concept, Pilot, and Scale

My tenure can be divided into three distinct phases: conceptualisation, piloting and scaling.

### 1. Conceptualisation

In the first six months, I participated in several scaling projects, which gave me an understanding of the complexities of scaling research and practice. During this time, it became evident that there was a distinct gap in the scientific literature and practice regarding the strategic involvement of the agri-SME and start-up sector. As a result, I designed a concept for a science-driven accelerator programme - a method that uses bundled innovations to support business growth and attract private investment.



Hauke Dahl meets aquaculture entrepreneurs in Luapula Province, Zambia

### 2. Piloting

This method was first implemented in AICCRA, a World Bank-funded project spanning six African countries. From 2022 to 2023, I led the AICCRA Zambia Accelerator, the first science-driven accelerator programme for climate-smart agribusinesses.



The programme scaled four innovation bundles (off-grid solar irrigation, integrated aquaculture management, drought-tolerant seeds and legume-livestock systems), supported 14 agri-SMEs and start-ups, reached over 350,000 small-scale farmers and attracted USD 500,000 in additional investment.

### 3. Scaling

From 2022 to 2024, the Accelerator approach has been introduced in four additional regional and global research projects. Highlights include the establishment of an USD 11 million revolving debt fund for agribusinesses under the CGIAR Food Systems Accelerator in the Initiative on Diversification in East and Southern Africa, and a partnership with the WFP Innovation Accelerator to increase the resilience of innovators in food, land and water systems in fragile and conflict-affected settings in the Initiative on Fragility, Conflict and Migration.

### New Horizons

During my time at IWMI, I have worked with ambitious minds driving tangible impact in food systems and broadened my skills in systems thinking in a development context.

The diverse project portfolio has taken me to work in over 15 countries, including Rwanda, Namibia, Mexico, Uzbekistan, Jordan and Kenya. Moving forward, I plan to focus on scientific research on the role of agrifood technologies in the development of sustainable food systems. Through economic analysis, I aim to explore the link between scaling innovations and increasing private sector growth, thereby contributing to a more equitable and ecologically resilient future.



At an investor roundtable in Nairobi, Kenya, Hauke Dahl discusses access to capital



# Calculating Innovation Readiness

Story by Nicoletta Buono, Integrated Expert at the International Livestock Research Institute (ILRI) in Kenya



## A Passionate Veterinarian

For over 20 years, I have been dedicating myself to development and humanitarian projects in some of the world's most fragile environments. My name is Nicoletta and I am a passionate veterinarian and advocate for the role of livestock in development and food security. Since 2007, Nairobi has been my home, drawn by the powerful work of the International Livestock Research Institute (ILRI).

In 2022, I seized the opportunity to take up a position as an Integrated Expert to work as a scaling specialist at ILRI. My mission was clear: to bridge the gap between research and the realities on the ground. Joining ILRI's Impact at Scale team marked an important new chapter in my career. My experience working with both government and non-governmental agencies, as well as my collaborative approach with scientific institutions throughout my career as a humanitarian and development professional, made me the ideal candidate for this role.

## Adapting to Remote Collaboration

When I first arrived at ILRI, the campus was unusually quiet due to summer holidays and COVID-19 policies. Collaborating with multiple research teams across different departments and countries was challenging. My line manager was based in Montpellier, and most of my colleagues worked from home, both in Kenya but also abroad in the Netherlands. Our interactions were entirely online, making it difficult to navigate ILRI's intricate structure and its parent network, the CGIAR.

Adjusting to my new role felt like returning to university. I spent countless hours studying and reading papers to grasp the science behind the scaling readiness system, a critical part of my job supporting scientific teams. The Task Force members, including the coordinator based in Germany, and other colleagues were invaluable, guiding me through the CGIAR system.

## Introducing IPSR Methodology

Before my arrival, a methodology called IPSR (Innovation Package and Scaling Readiness) was introduced within the CGIAR. This approach measures and monitors the maturity of innovations, their use, demand, partner engagement, and other aspects. Initially, research teams were sceptical, seeing IPSR as a mere monitoring tool with limited potential.

Despite initial resistance, a few researchers specialised in Rangeland Management and the head of the Sustainable Animal Productivity Initiative were open to testing the system. I began conducting IPSR sessions to explain the methodology, clarify objectives, and address any concerns. These exchanges were crucial in understanding and addressing the research teams' reluctance.

## Shifting Perceptions

As we started conducting IPSR workshops for specific innovations, involving partners, government and community representatives, and other stakeholders, the atmosphere began to change.



Scaling Readiness Workshop with Nicoletta Buono at ILRI



My background in working with diverse stakeholders and my ability to use participatory techniques with people from different cultural and educational backgrounds proved an asset as we conducted the first workshops, refined the process and gathered feedback.

These workshops demonstrated the need for innovations to be context-specific, operate in enabling environments, and require support from diverse expertise and organizations. Identifying bottlenecks and developing strategies to overcome them became a collaborative effort.

Research teams and partners began to see the value of the workshops and their deliverables. They uncovered previously overlooked aspects, discussed gaps and challenges from different perspectives, and recognised the process's usefulness. Initially perceived as a management tool, the IPSR approach, when implemented collaboratively, revealed new insights. It helped teams consult with partners to design and assess what was needed for their innovations to progress along the impact pathway.

## Training the Next Generation

In 2023, I was also part of a small team that trained many colleagues and consultants to run these workshops.

During the first few months, I provided technical backstopping and served as a liaison with the IPSR unit, continually assessing and improving the workshops to make them more inclusive and responsive.

The development of an IPSR package through these workshops has become a key step in the innovation and scaling process. It lays the foundation for a systematic and comparable process that ensures partner participation and prompts scientists to reflect on the impact of their research.



The Scaling Readiness Calculator



# Scaling for a Food Secure Future



Story by Etienne Claereboudt, Integrated Expert at the International Potato Center (CIP) in Kenya

## Improving Start-ups' Business Models

Before joining CIP and the Task Force on Scaling, I worked at the EU's main climate innovation initiative. I managed a French start-up accelerator programme and supported start-ups throughout their development, from a promising idea to a marketable product. This included not only connecting them with investors and institutions, but also challenging their business model and advising them on how to improve it. It was this role that prepared me for my subsequent assignment as an Integrated Expert. During my assignment, I have focused on scaling several innovations that hold the potential to transform food systems.

## A Game Changer in Potato Farming

One of the most exciting innovations I have worked on is a technology that can triple potato yields. My efforts to scale this technology have included data analysis, private sector engagement and the development of an application that makes the technology accessible to farmers in both rural and urban areas.

## Combating Vitamin A Deficiency in Infants

Another innovation is the Healthy Baby Toolkit, designed to tackle vitamin A deficiency in East Africa. Successful scaling activities have included free distribution of these toolkits through health facilities, young mothers' associations and school programmes.

## Mitigating Urbanization Impacts

The Resilient Cities Initiative is another project I am involved in. As co-lead and scaling lead of the initiative, I contribute to strengthening the resilience and sustainability of urban and peri-urban food systems facing the challenges of rapid urbanisation in low- and middle-income countries.

I have worked on several activities to improve the business skills of informal urban vendors. We launched Vendor Business Schools in Kenya and the Philippines. We also designed a new accelerator programme for students dedicated to improving urban food systems. This has resulted in promising new ventures.

Both activities have created better opportunities for youth while addressing the food challenges of the urban poor. Institutional support from local governments and international donors such as the World Bank has been instrumental in this initiative.

## Advocacy for Urban Food Systems

Advocating for greater political commitment to urban food systems has been an eye-opening experience and a newfound passion. This advocacy will remain an important part of my future involvement with CIP. I am now part of a core team of World Bank and CGIAR experts collaborating on a World Bank white paper on urban food systems. This publication aims to identify intervention needs and high-impact investment opportunities.



Etienne Claereboudt together with entrepreneurs and the team of Incubagraria, the business incubator of La Molina University in Lima, Peru



# Scaling meets Systems Thinking



Story by Lennart Woltering, former Integrated Expert at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico

## Challenges in Technology Adoption

When I graduated as a civil engineer in 2005, my first assignment took me to Niger with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). My mission seemed straightforward: increase the adoption of drip irrigation among smallholder farmers in the Sahel. Drip irrigation saves water, energy, and labor while boosting yields.

After five years of work, adaptation and redesigning with mixed impact, I realised that technology wasn't the problem. The real challenges lay in supply chains, regulations, policies, financial barriers, and other non-technical issues we had initially deemed out of scope.

Disillusioned but not defeated, I left Niger and started working for a German consulting firm. I designed and implemented a variety of projects, each one offering a new lesson. However, this rapid-fire approach to development work soon revealed a deeper flaw: project funding and targets often gamify development, prioritising quick wins over sustainable impact. Yet, this experience prepared me for my next role.

## A New Path

Meanwhile, CIMMYT in Mexico identified the necessity for dedicated attention to scaling. In 2017, they searched for an Integrated Expert and considered my background in both technology adoption and short-term development projects to be an asset in providing insights into scaling.

## Losing my Religion

As an engineer you think you can engineer your way out of any problem. Similarly, the CGIAR was steeped in the dominant belief that technology alone could drive positive change. When I rejoined CGIAR after 6 years of work in development projects, I realised that I needed to lose my religion.

A religion of tech-optimism and control thinking. Short term projects and quick fixes cannot solve the very complex problems of food security and poverty. I connected with like-minded individuals, mainly through the international scaling community of practice. We learned that the focus on innovation, innovators and projects as the solution to everything is a myth that is very much alive in sectors such as health, education and many others.

Fortunately, both CIMMYT and GIZ have given me the autonomy to pursue an alternative approach to scaling, one that more accurately reflects the multifaceted nature of the challenges that the CGIAR is addressing.

## System Thinking in Scaling

Navigating between the development world of GIZ and the research-oriented CGIAR offered me a unique vantage point. It helped to challenge established ways of thinking. It gave me the opportunity to connect with great minds and learn from their perspectives.



Lennart Woltering presents at a Conference organised by CGIAR and the Task Force on Scaling



It struck me that all these people had something in common; they were all systems thinkers. They were thinking holistically about the purpose of scaling, going beyond 'what to scale' but being clear about 'why to scale' and 'who should scale'.

### The Scaling Scan – a Holistic Scaling Tool

Within a year, collaborating with SNV, the Dutch development organisation, led to the creation of the Scaling Scan tool. This tool helps stakeholders examine what an enabling environment for scaling truly means, consider the responsible limits of scaling, anticipate unintended consequences for society and the environment, and develop realistic scaling ambitions.

Today, the Scaling Scan tool is available in English, French, and Spanish, and has evolved into an online tool. It has been fine-tuned with numerous other partners. It is widely used beyond CGIAR, for example by GIZ (in Mexico, Zambia and Kenya).

Academically, I have also been able to develop a systems thinking approach to scaling, which I will defend as part of my PhD at the Wageningen University in October 2024. While I have moved on from CIMMYT, I am happy that my former 'scaling' position has been retained and has evolved into a position on 'sustainability transitions', where scaling is seen as a means to an end and not an end in itself.



Maria Boa, scaling advisor at CIMMYT, helps extension agents in Chiapas, Mexico, make sense of scaling using the Scaling Scan tool.



# Taking Root - A Scaling Journey

Story by Mwasilwa Ambali, Integrated Expert  
at the World Vegetable Center (WorldVeg) in Benin



## A Fresh Start

In late 2020, as COVID restrictions began to ease, I found myself at a crossroads. After five fulfilling years in Senegal, the longest stay in any country during my nine-year odyssey across Africa, I craved a sense of stability for my family. My experience with development agencies and private companies in Cameroon, Congo, Burundi and Djibouti had been enriching, but I yearned for a new challenge.

That's when I learned about an Integrated Expert position in Benin at the World Vegetable Center. WorldVeg is an international research center that has been successful in developing new vegetable technologies. In seeking to scale these technologies more efficiently, WorldVeg needed an individual who could bring together a range of soft and hard skills, such as communication, problem solving and agronomy.

## Empowering Agricultural Entrepreneurs

The role resonated deeply with me. Scaling up initiatives to benefit smallholder producers, a cause that had driven me to study agronomy and shaped my career, was exactly where I wanted to be.

Landing in the humid embrace of Cotonou in November 2021, I embarked on a new adventure. Onboarding at the WorldVeg research institute, a world unfamiliar to my development background, meant navigating scientific articles and research protocols. I dove headfirst into the unknown.

## Overcoming Imposter Syndrome

I became a member of the Task Force on Scaling. The first Task Force meeting intensified my imposter syndrome. My brilliant, research-savvy colleagues, most with over four years of Task Force experience, presented impressive scaling pathways. Some theorised the concept of scaling, others implemented strategies. Their explanations were instrumental in refining my own scaling approach.

Despite initial concerns, my plan to scale up innovations to increase producer efficiency and income began to take shape. My focus was twofold: empowering agricultural entrepreneurs and ensuring farmers had access to high-performing, climate-resilient seed varieties.

## Vegetable Business Network

Through the Vegetable Business Network approach, I facilitated business relationships within the pick-your-own industry. One entrepreneur, a woman with a sewing background, had started a natural vegetable juice business. Through discussions, I identified the challenges - access to finance and knowledge for pesticide reduction and quality produce.



Mwasilwa Ambali visits a habaneros selection field during a workshop on market requirements for farmers

My position as Integrated Expert facilitated collaboration with a GIZ project that provided training on business plans and pitches. Meanwhile, colleagues developed specific training programmes on good agricultural practices, creating an enabling environment for innovation.



## Africa Vegetable Breeding Consortium – now a key player in WorldVeg's African Innovation Strategy

My other mission was to link seed companies with the genetics developed by WorldVeg. Improved seeds mean better yields and less need for pesticides for farmers, ultimately increasing their incomes. WorldVeg set up the Africa Vegetable Breeding Consortium (AVBC) to facilitate this link. As one of the first to experience the language gap between researchers and companies, my first task was to translate genetic innovations into a format accessible to all seed producers, large and small. A comprehensive catalogue of innovations streamlined this process. To promote the consortium, I attended trade fairs and interacted with seed producers to understand their needs and tailor services and training. We successfully transformed the consortium from a limited exchange platform to a key player in WorldVeg's African Innovation Strategy.

## Access to High-Performing Seeds and Boosted Incomes

After three years at WorldVeg, my practical business development experience brought a fresh perspective.



Mwasilwa Ambali and Africa Vegetable Breeding Consortium (AVBC) members evaluate tomato lines

Today, Malian producers are benefiting from more resilient pepper varieties, increasing their incomes. Major African seed companies are members of the consortium. The incredible juice producer now operates a new processing plant that handles over two tonnes of product a month and employs over 20 people. By scaling innovations and fostering sustainable agricultural practices, we are planting seeds for a more resilient and prosperous future.



Africa Vegetable Breeding Consortium (AVBC) members



# From Fashion to Fruit Juice

The story of Colette Yèhouénou, Entrepreneur from Benin supported by WorldVeg

Colette walks through the tall grass, slowly approaching the green and white painted building in Tori, a village near Ouidah in rural Benin. Passing an old baobab tree, she waves to her neighbour who is balancing a tray of fruit on her head. When Colette started building her third juice production facility in 2023 in Tori, the villagers were surprised to see a 41-year-old woman running the business.

## A Vision Born From Waste

Now, as she pushes down the handle of the front door, Colette reflects on how it all began. The idea to start a fruit juice business came when she realized how much fruit and vegetables were going to waste. In Benin's hot, humid climate, fruits and vegetables must be eaten or cooked quickly. Refrigeration is rare in rural areas, and drying is challenging due to humidity. Processed into juice, however, they could be consumed for months, providing essential vitamins.

Getting the business off the ground wasn't easy. Colette left school at 14 and never attended high school or university. Despite a successful 25-year career in fashion, she dreamed big and ventured into the food industry. She started small in Benin's capital Cotonou, experimenting with new juice flavours. For a nutritious diet, she made juices from vegetables such as cabbage or carrots - a novelty in Benin. She also mixed fruit and vegetable juices to create a sweetness that appealed to children. Her juices quickly became a success.

## The First Vegetable Juice Production in Benin

As the business grew, Colette secured funding to build a factory in a prime fruit and vegetable production zone, one hour from Cotonou and its port and airport, close to a major road for exports to neighbouring countries. This strategic positioning paid off.



As Colette enters the building, her thoughts return to the present. She passes the changing room she has set up for her employees. So far, she has hired 14 women and 6 men. She strides into the production hall. Usually, the room is a buzzing hive of activity. Her staff wash and cut pineapples, mangos, beetroots, carrots and ginger on shiny, clean surfaces. They extract the juice, pasteurise it and bottle it, ready to be shipped to her wholesale customers in Senegal, Burkina Faso, Mali, Niger and the Ivory Coast. But today the room is empty. Fruit prices are currently high, so she will hold off on her next order until they fall.

## Fostering Trust with Farmers

Along with the business's growth, Colette's need for large quantities of high-quality fruit and vegetables increased. By placing regular and consistent orders, she was able to build a relationship of trust with the farmers who supplied her. Her predictable orders gave them security and access to bank loans. Colette persuaded the farmers to invest in high-quality seeds and to grow new varieties of vegetables that were more resilient and required less pesticide and fertiliser. Ecological production has always been important to Colette. She also runs her own pineapple plantation, which supplements the products she buys from the farmers.



## Joining the Vegetable Business Network

Colette is a member of a Vegetable Business Network (VBN), built around Jinukun store, an e-commerce platform and marketplace for food. The VBN strengthens relationships between market players. Through Jinukun, Colette is even selling her carrot juice to the cosmetics industry in Nigeria.

Colette enjoys the silence in the production hall for a few more minutes. She looks around, taking in every detail as her fingers caress the stainless-steel instruments. For Colette, this place is more than just a factory. It is her family's future.

## A family's future

The financial independence it has given her has enabled her daughter to study agriculture and food processing at university in Cotonou. She even received a scholarship to go to Montpellier, France, to further her knowledge. Soon, her daughter will return to Benin to take over the business.

When Colette finally steps out of the building and into the sunlight, excitement builds in her chest. Where there are now fields of green grass, she plans to build a methanation plant. By fermenting the fruit and vegetable waste which comes with the juice processing, the plant will produce methane, which she can use as a renewable energy source for her factory. At the same time, the methanation plant will produce natural fertiliser for her pineapple fields. As she makes her way back to the main road, Colette wonders: What will she learn next?



Colette shares her experience with the Task Force on Scaling at her juice plant

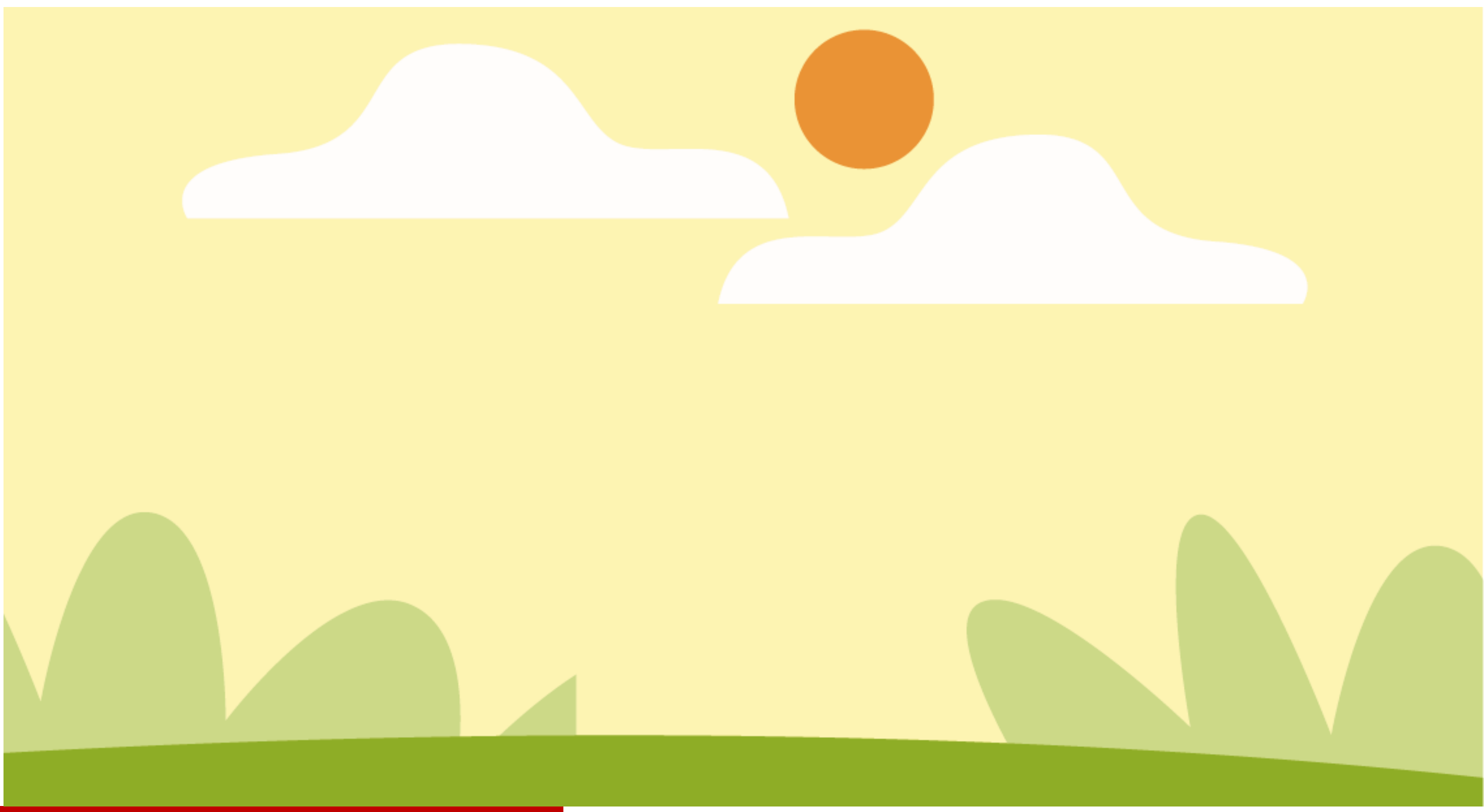
# WorldVeg's Support

## Vegetable Business Network

The Vegetable Business Network (VBN) approach, developed by WorldVeg, aims to improve existing business relationships. Each VBN is centred around a champion, such as a produce wholesaler. WorldVeg supports the VBN in developing a common goal, for example expanding product sales internationally, and in creating an action plan. Through trainings WorldVeg strengthens the skills of VBN members and links the VBN to financial and insurance institutions and government agencies to support the network's operations. The Fund for International Agricultural Research (FIA) supports WorldVeg in this endeavour through the work of the Integrated Expert Mwasilwa Ambali.







Published by:  
Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices  
Bonn and Eschborn, Germany

Friedrich-Ebert-Allee 32+36  
53113 Bonn, Germany

T +49 61 96 79-0  
F +49 61 96 79-11 15  
E [info@giz.de](mailto:info@giz.de)  
I [www.giz.de/en](http://www.giz.de/en)

Project: Fund for International Agricultural Research (FIA)

Design Cover & Icons: Felix Leander Wozny  
Author: Task Force on Scaling

Photo credits/sources:  
Page 5,6: Bruno Tran  
Page 7,8: Katharina Diel/Harvest Plus  
Page 9,10: Hauke Dahl  
Page 11,12: Nicoletta Buono/ILRI  
Page 13: Etienne Claereboudt, Incubagraria  
Page 14,15: Lennart Woltering/CIMMYT  
Page 16,17: Mwasilwa Ambali/WorldVeg  
Page 18,19: Lisa Hilgers

On behalf of  
German Federal Ministry for Economic Cooperation and Development (BMZ)  
Division of Agriculture and Rural Development  
Berlin

Germany, 2024

On behalf of



Federal Ministry  
for Economic Cooperation  
and Development