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for Economic Cooperation  
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► COMPENDIUM

# FROM INNOVATION TO TRANSFORMATION

The Compendium of the Green Innovation Centres  
for the Agriculture and Food Sector



# FOREWORD

## Foreword by the Management of the Global Programme *Green Innovation Centres*

The *Green Innovation Centres* are among the most ambitious and visible programmes of the special initiative *Transformation of Agricultural and Food Systems*. Over a period of twelve years, we have been able to work with partners in 16 countries to test new ways of making food systems sustainable. This has been achieved through innovations in agriculture, strengthening value chains, and close cooperation with government, research, civil society, and private sector actors. In all countries, the programme was deeply rooted in rural areas – where food security, income and prospects for the population need to be strengthened with particular urgency. Millions of people benefited from improved farming methods, more reliable sales opportunities and new income prospects.

The initial situation presented challenges for the small-holder farms and micro, small and medium-sized enterprises involved, including low productivity, uncertain market links and a lack of access to knowledge and technologies. These issues were compounded by the growing pressures of extreme weather events, political conflicts and the effects of global crises, such as the Coronavirus pandemic and the war in Ukraine. The *Green Innovation Centres* have addressed these issues by providing practical innovations tested directly in the field, offering targeted advice and training, and strengthening local organisations and networks. The programme has therefore made a significant contribution to increasing the productivity, income and food security of the target groups.

During project visits to various partner countries, I saw for myself the impact that this support has on people's lives. I remember talking to smallholder farmers who told me how new farming methods had enabled them to boost their yields, cut crop losses and sell some of their produce through a cooperative for the first time. For these farmers, this was about more than just economic improvement; it also meant security for their families, the opportunity to send their children to school, and a new outlook on the future. Encounters like these demonstrate that the *Green Innovation Centres* are not merely abstract development programmes, but are actually transforming people's lives in tangible ways.

The results of the global programme reinforce these observations. Evaluative studies and the endline survey clearly demonstrate qualitative improvements and quantitative progress. Remarkably, these successes were achieved despite a wide range of challenges. A key factor in this success was the extensive network of partners that was established over the years. These partners ranged from farmers' organisations

and research institutions to non-governmental organisations, government agencies, and private companies. Partnerships with the private sector were particularly valuable, as they brought innovations into practice, stimulated investment, and opened up new market opportunities. Together, we have demonstrated that development can only succeed through the collaboration of a variety of stakeholders.

This compendium serves a dual purpose. On the one hand, it takes stock of the successes, challenges and lessons learned, making them accessible to policymakers and experts. On the other hand, it is an important tool for internal learning within *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ). As the largest programme of the *Special Initiative on the Transformation of Agricultural and Food Systems* (SI AGER), it provides valuable approaches and impetus for future programmes. Its findings are therefore not only a retrospective, but also a key contribution to the further transformation of agricultural and food systems. This is where the strategic dimension comes into play: global food security and the strengthening of resilient agricultural systems are in the interests of both our partner countries and Germany. Stable and sustainable food systems help to reduce price fluctuations on international markets, make global supply chains for food and agricultural products more resilient and advance international climate protection. At the same time, promoting rural areas in partner countries helps to increase their attractiveness, reduce rural exodus and create new prospects for young people. This contributes to stability and sustainable development, which also benefits Germany and Europe.

I would like to express my gratitude to everyone who contributed to this global project: the farmers in the partner countries, our implementation partners and project teams on the ground, our colleagues in Germany, all the organisational units of GIZ involved and, of course, our commissioning party – the *Federal Ministry for Economic Cooperation and Development* (BMZ). Your joint commitment and innovative strength have made the *Green Innovation Centres* a truly flagship project.

We invite you to use the contents of this compendium as inspiration, as a basis for new programmes and as a contribution to fair, sustainable and future-proof agriculture worldwide.

Christian Schulze-Koch  
Head of Programme

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# LIST OF ABBREVIATIONS

ABBREVIATION	SIGNIFICANCE
AMR	Antimicrobial Resistance
ART	Alemayehu Row Seeding Technology
ATVET	Agricultural Technical and Vocational Education and Training
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)
CCI	Cacao-Climato-Intelligent
CF	Contract Farming
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
CIP	International Potato Center
COMACO	Community Markets for Conservation
CORIS	COVID-19 Response Rice Seed
CSA	Climate-smart Agriculture
CSI	Climate-smart Innovations
EVAS	Evaluative Studies
FAO	Food and Agriculture Organization of the United Nations
FBS	Farmer Business School
FRI	Farm Radio International
GALS	Gender Action Learning System
GAP	Good Agricultural Practice(s)
GDEG	Dairy Expert Group
GIC	Green Innovation Centres in the Agriculture and Food Sector
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GPVCWG	Global Potato Value Chain Working Group
GTA	Gender Transformative Approach
ICF	Inclusive Contract Farming
ICS	Internal Control System
ICT	Information and Communication Technologies
iDPP	Integrated Development Partnerships with the Private Sector
IFOAM	International Federation of Organic Agriculture Movements
InACC	The Integrated Approach to Climate Change in Rice Production
IPC	Integrated Food Security Phase Classification
M&E	Monitoring und Evaluation

# LIST OF ABBREVIATIONS

ABBREVIATION	SIGNIFICANCE
MAP	Multiakteursplattformen (Multi-Actor Platforms)
MAP4Rice	Multi-Akteurs-Partnerschaft für Reis (Multi-Actor Partnership for Rice)
MoA	Ministry of Agriculture
MoTI	Ministry of Trade and Industry
MSME	Micro, small and medium-sized enterprise(s)
PGS	Participatory Guarantee System
PHL	Post-Harvest Losses
PHM	Post-Harvest Management
ProPFR	Responsible Land Policy (Programme Politique Foncière Responsable)
PPA	Project Progress Analysis
RAC	Rooted Apical Cutting
RTE	Référentiel Technico-Economique (Technical and Economic Reference System)
SME Loop / MSME Loop	Small Medium Enterprise Loop/ Micro SME Loop
SRI	System of Rice Intensification
ToC	Theory of Change
WG	Working group
WoFaAK	Women Farmers Association of Kenya
VC	Value Chain

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# Welcome to the Compendium of the Green Innovation Centres (GIC)

This compendium summarises the experiences and results of the *Green Innovation Centres for the Agriculture and Food Sector*. For more than a decade, innovations have been promoted in 16 countries to strengthen the productivity and income of smallholder farmers in rural areas.

## How to Use the Compendium







It is designed as a modular reference tool:

**Flexible Use:** Each thematic section stands on its own and can be read independently. A sequential reading from start to finish is not necessary.

**Navigation:** Think of the compendium as a tour guide – it leads you through the key themes, innovations, and country activities of the global programme.

## Explore the Topics

- Each chapter provides a short overview of a topic that the GIC has worked on.
- Below each thematic section, you will find a linkbox with further knowledge products:

-  Videos
-  Factsheets
-  Manuals
-  Self-learning courses

## Understand the Symbols



House symbol → Links accessible only within GIZ



Browser symbol → Links to publicly available information

## Discover Experiences

The first part of the compendium introduces the thematic work areas.

The second part offers insights into the 16 country packages of the global programme, showing how innovations have been implemented on the ground.

We wish you an enjoyable and insightful reading experience!

# Part 1

## Thematic Work Areas

# 1. OVERVIEW OF THE GLOBAL PROGRAMME GIC

## 1.1 INTRODUCTION

Ensuring global food security is one of the most pressing tasks the world faces today. The climate crisis, conflicts and pandemics have significantly exacerbated the situation for many people. In 2024, around 673 million people (UNICEF 2025) suffered from hunger, above all in rural areas affected by poverty, low productivity and shortfalls in infrastructure.

In view of the rapid growth of the global population and the increasing demand for safe food of good quality, it is essential to develop an agriculture and food sector that is both sustainable and effective. To fulfill this task, it is important that agricultural enterprises can operate more productively, that losses are reduced along the agricultural value chains (VC) and that local processing and marketing are strengthened.

It is precisely these challenges that the global programme on GIC – part of the special initiative *Transformation of Agricultural and Food Systems* – addressed. The programme operated in 16 countries (14 in Africa and two in Asia) and worked along 21 VC. GIC supported the efforts of smallholder farmers to sustainably raise their agricultural production and incomes, and at the same time promoted job creation in the processing of agricultural produce, thereby strengthening local value addition in rural areas.

To identify and achieve these objectives, the programme disseminated tried-and-tested innovations, such as locally adapted machinery, improved seeds and new forms of cooperation such as producer groups and agricultural cooperatives. It provided targeted advice and training for farmers and for micro, small and medium-sized enterprises (MSME) in the agriculture and food sector. The implementation of GIC built on close cooperation with agricultural colleges, research institutions, civil society organisations and the private sector.

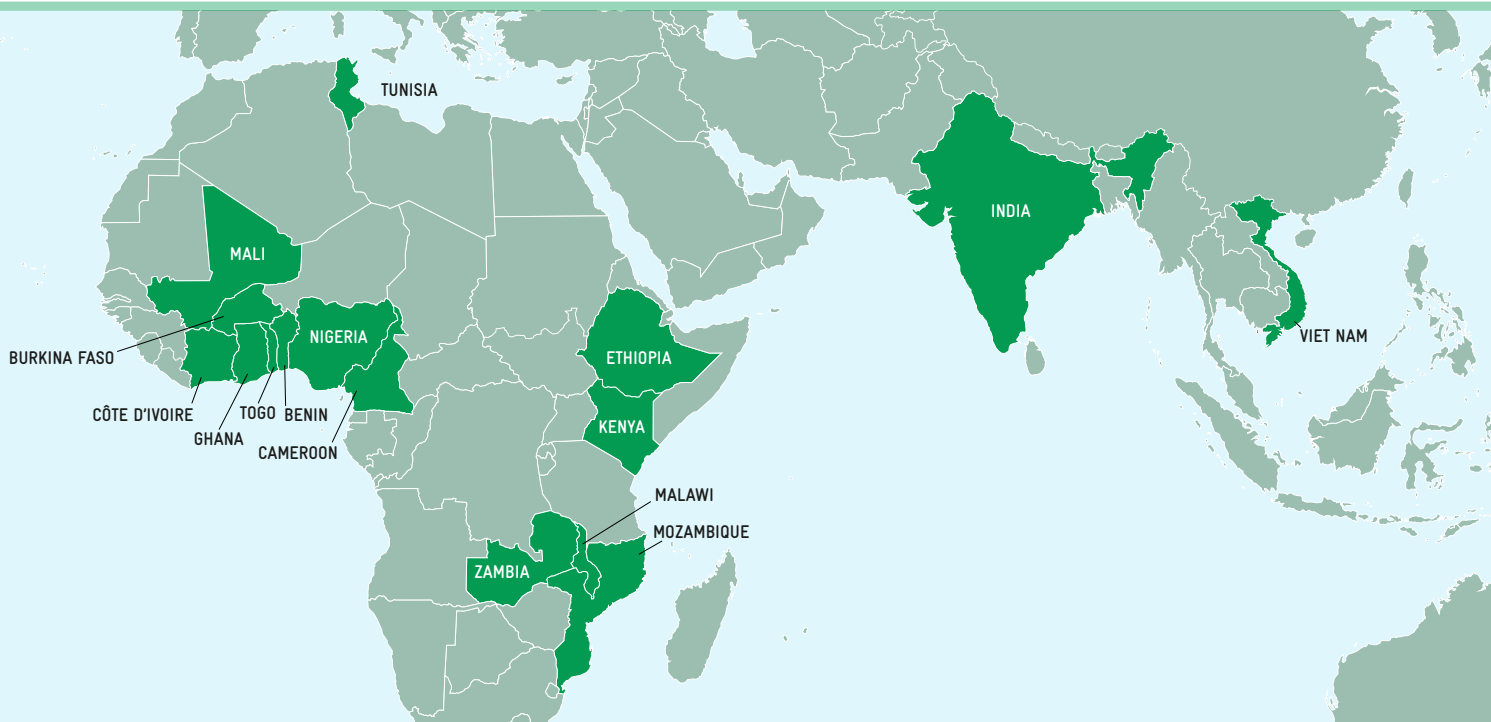


Fig. 1: Country Packages of the GIC Global Programme

## 1.2 OBJECTIVES

The GIC promoted productive, climate-resilient and sustainable agriculture along selected agricultural VC. The programme supported smallholder farmers and MSME by using innovative approaches to improve incomes, employment and food security.

### Indicators of the global programme:

1. Increased incomes and productivity for smallholder farmers
2. Additional jobs in selected VC
3. Broad uptake of training activities and advisory services
4. Active participation in shaping the framework conditions by stakeholders
5. Strengthened partnerships for the promotion of innovations at regional and international levels

### How were the programme results measured:

- **Global monitoring and evaluation (M&E) system:** Since 2015 the M&E system of the global programme has been continuously further developed and was implemented by a team of experts at country and steering unit level with the aim of providing meaningful and structured monitoring of project indicators.

- **Baseline, midterm, endline:** The three surveys were conducted at key points in the project cycle: at the beginning, in the middle, and at the end. They collected key data for monitoring the impact of the country packages and the overall global programme.

- **Standardised data collection:** Since the start of the project, 31,041 interviews have been conducted with smallholder farmers and representatives of MSME using a standardised, digital questionnaire to collect relevant data on households, businesses and indicators.

- **Data collection for evaluative studies:** The EVAS (evaluative studies) form the basis for the central project evaluation of global programmes at a later date. All projects and programmes implemented under the Special Initiative *Transformation of Agricultural and Food Systems* carry out EVAS on the level of the country packages as part of their country packages. They focus on the OECD-DAC (The Development Assistance Committee [DAC] of the Organisation for Economic Cooperation and Development [OECD]) criteria: relevance, coherence, efficiency, effectivity, sustainability and impact.

At the start of the project, the indicators were developed, their implementation defined and the corresponding impact logic (theory of change) established. The focus was on developing a Theory of Change (ToC), an impact framework that describes the project approach from an M&E perspective and provides starting points for measuring and tracking indicators at various levels (e.g. country, VC, target group, gender, age).

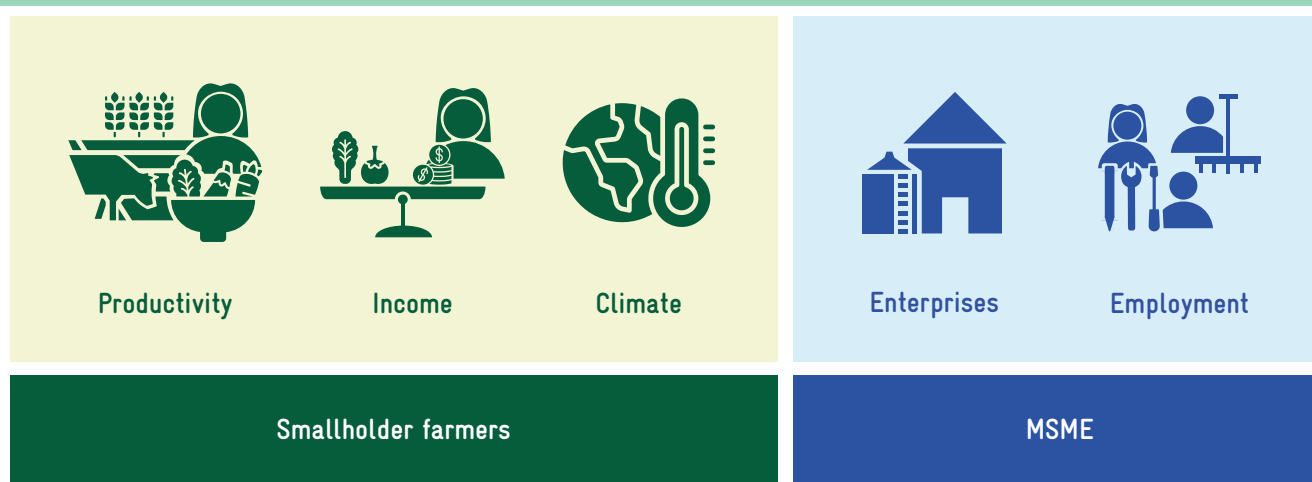


Fig. 2: Objectives of the GIC Global Programme

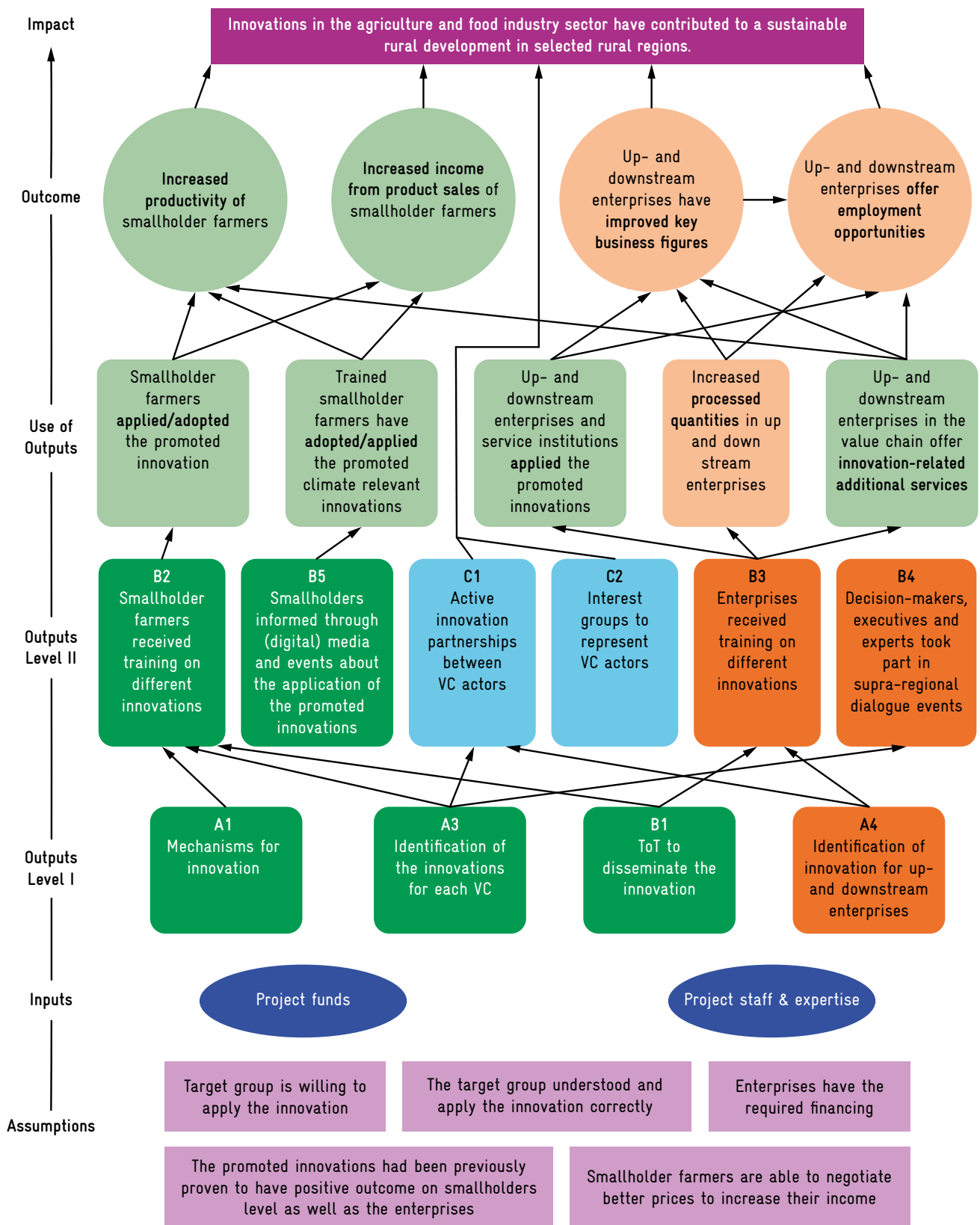


Fig. 3: Theory of Change Flow Chart

### 1.3 A BRIEF OVERVIEW OF RESULTS ACHIEVED

**2.25 million**

smallholder farmers benefited from training courses, of which

**894,000**

were women.



**34 % and 55 %**

was the increase in productivity and income, respectively in smallholder farms.

**1.32 million**

Small-scale farming enterprises now apply climate-smart innovations to improve their resilience to climate change.



**77,489**

employees of MSME benefited from trainings with a focus on agricultural expertise and entrepreneurship.

**7,900**

enterprises have improved 3 out of 5 key business figures.



**22,255**

new jobs were created, of which 68 % for young persons and 42 % women.

\*Detailed results for the individual country measures can be found in the 'Countries' section on page 103

The focus was on:

- securing food and nutrition
- increasing incomes
- creating employment
- boosting local markets
- opening up prospects for women and young people
- promoting climate resilience

FURTHER INFORMATION



LINKBOX 1: Introduction

- |   |  |
|---|--|
|  <p><b>Green Innovation Centres</b></p> <p>BMZ<br/>Factsheet<br/>2021 (2 Pages), English</p>   | <p>➔</p>  <p><b>Seek-and-hide picture</b></p> <p>GIZ<br/>Poster<br/>2025, English</p> <p>➔</p> <p><b>giz</b></p>                                 |
|  <p><b>Green Innovation Centres For The Agriculture And Food Sector (GIC)</b></p> <p>Green Innovation Centres<br/>Presentation<br/>2025, English</p>     | <p>➔</p>  <p><b>Phasing Out-Strategy</b></p> <p>Green Innovation Centres<br/>Presentation<br/>2025, English</p> <p>➔</p> <p><b>giz</b></p>       |
|  <p><b>ONE WORLD - no Hunger – Green Innovation Centres for the agriculture and food sector</b></p> <p>BMZ<br/>Brochure<br/>2019 (48 Pages), English</p> | <p>➔</p>  <p><b>Networks against hunger</b></p> <p>Green Innovation Centres<br/>Video<br/>2020, 4 min 11 sec<br/>English</p> <p>➔</p>            |
|  <p><b>BMZ-Seite zu den Grünen Innovationszentren</b></p> <p>BMZ<br/>Website<br/>German</p>   | <p>➔</p>  <p><b>Erfolgsfaktoren von agrarbasierten Innovationen</b></p> <p>GIZ<br/>Presentation<br/>2025, German</p> <p>➔</p> <p><b>giz</b></p> |
|  <p><b>Wissensköninuität sicherstellen. Ein Strategiehandbuch der GIAE.</b></p> <p>GIZ<br/>Manual<br/>2025, German</p>                                 | <p>➔</p> <p><b>giz</b></p>   |

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## 2. METHODOLOGY AND FRAMEWORK

### 2.1 METHODOLOGY – DEFINITION OF INNOVATIONS

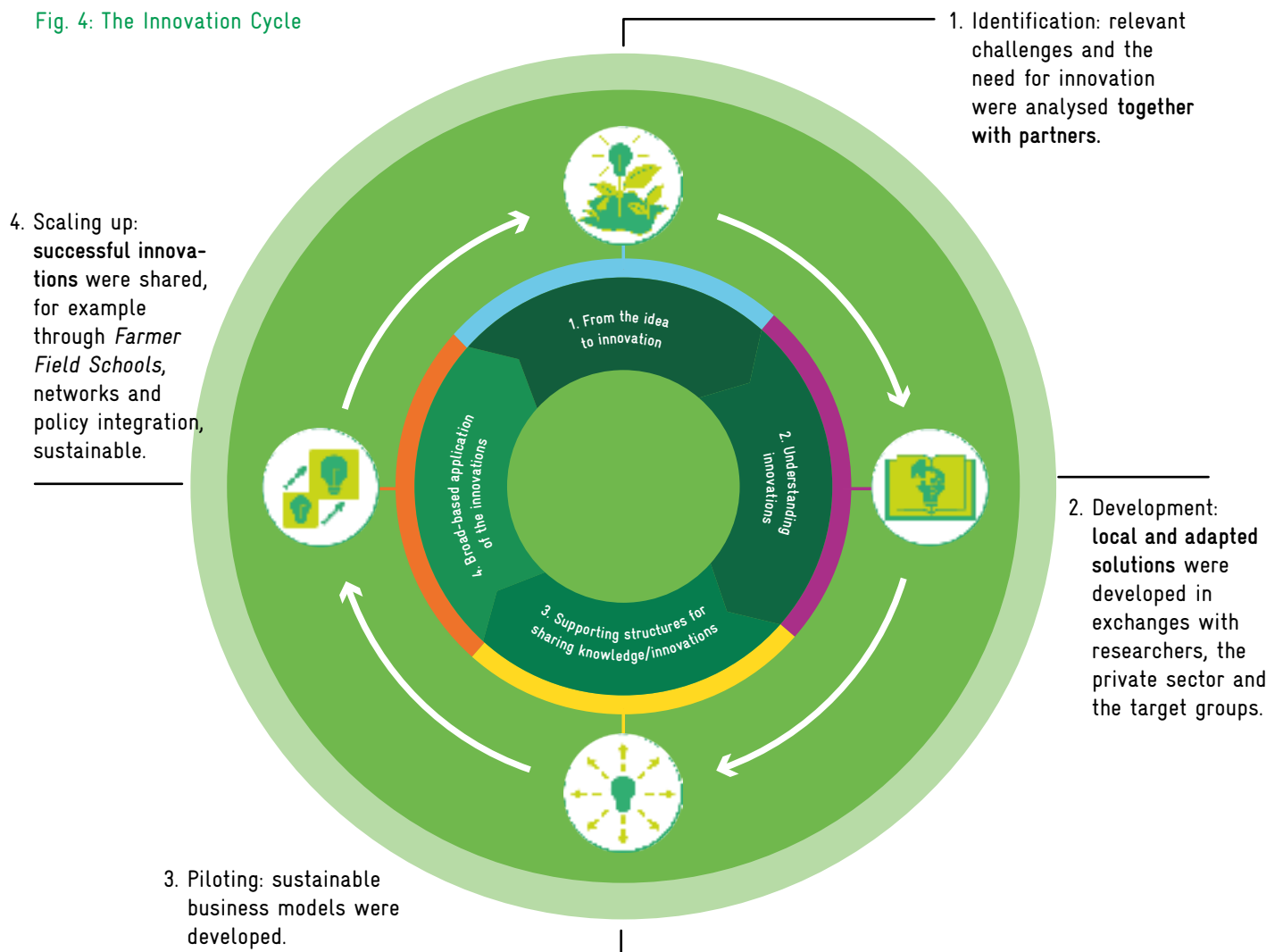
Innovations are methods, technologies, and organisational forms adapted to local conditions that enable those involved to change certain routines. They represent new ways of doing things that have already been trialled elsewhere with success but are not yet known in the region in question. In the supported VC, they provide levers to increase incomes and productivity, improve key financial data and boost employ-

ment in rural areas. The expected results must be scientifically verifiable, and the local partner and the target group must accept and support the innovations being promoted. The process should be designed in a participatory manner, particularly including specific target groups such as women and young people.

### 2.2 THE INNOVATION CYCLE OF THE GLOBAL PROGRAMME GIC – A SYSTEMATIC APPROACH

Innovations go through various phases to develop from an idea into a sustainable, broad-based solution.

Fig. 4: The Innovation Cycle



## 2.3 FOUR INNOVATION CLUSTERS

The innovations supported by the project can be divided into four core clusters:

- Input-based innovations (e.g. high-quality seed, fertilisers)
- Technical innovations (e.g. machines, cultivation and processing methods)
- Knowledge-based innovations (e.g. advice, training, coaching)
- Organisational innovations (e.g. Contract Farming [CF], cooperatives).

## 2.4 SUSTAINABILITY AS A MEASURE OF SUCCESS

From 2016 to 2022, project progress analyses (PPA) were conducted at the level of the country packages in the GIC in order to capture the current state of implementation and make strategic decisions regarding implementation.

The analysis focused on the status of target achievement, the implementation of cooperation agreements, and above all, the sustainability of the measures. In 2022, targeted sustainability analyses of all innovations were carried out to examine the economic, ecological, and social viability of the supported innovations and to continue working with those innovations that can be sustainably anchored in the partner system.

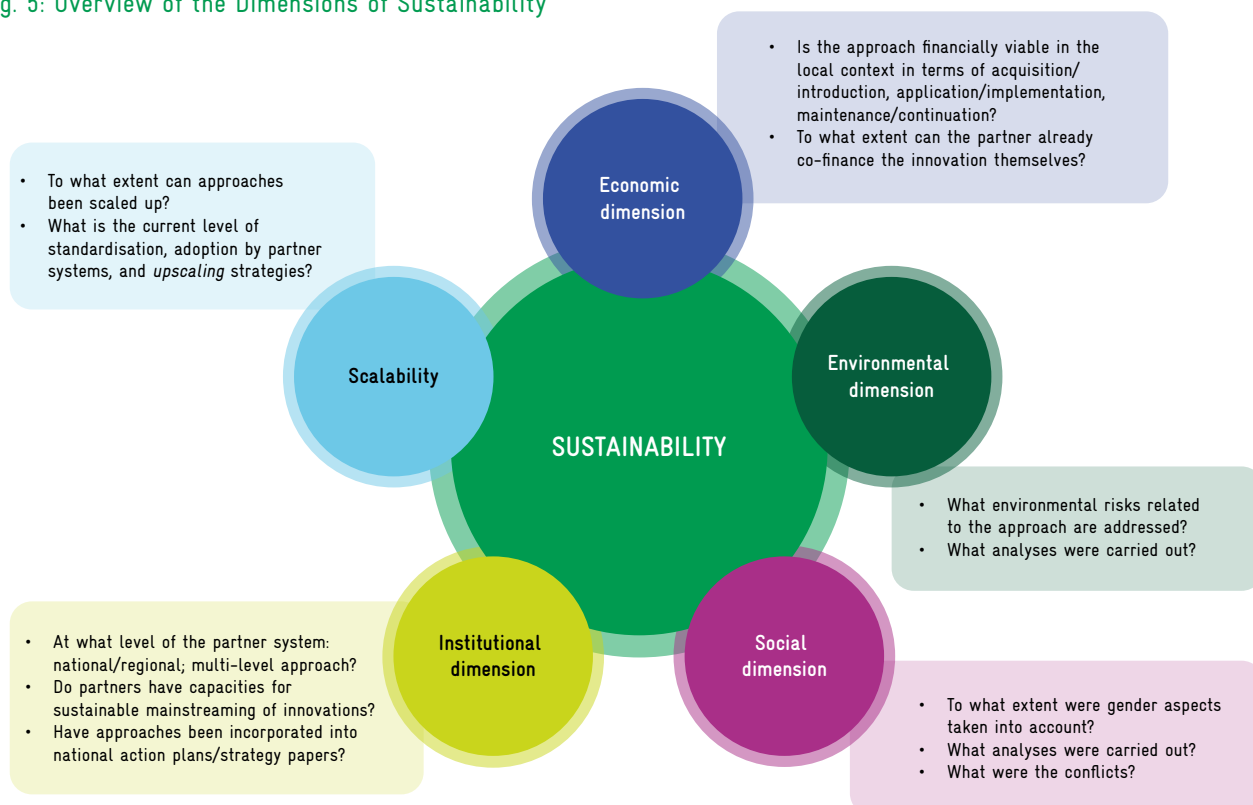
In the period from 2023 to 2025, this was followed by a final EVAS conducted in each country package. This analysis examined the completed measures and took stock with regard to the following criteria: relevance, coherence, effectiveness, efficiency, sustainability, and impact of the country package. Both analysis formats (PPA and EVAS) evaluated quantitative as well as qualitative data.

The results of all PPA and EVAS were analysed, aggregated, and prepared with regard to the success factors of agriculture-based innovations along the dimensions of sustainability.

In addition, the success factors identified were compared with proven approaches from other global and regional projects and were developed further with the aim of creating scalable and transferable solutions for other regions and contexts.

## 2.5 DIMENSIONS OF SUSTAINABILITY

Fig. 5: Overview of the Dimensions of Sustainability



## Success factors – economical dimension of sustainability

- Local impulses/demand-based innovations/high-level of interest on the part of the target group and partners encourage high ownership.
- Ongoing, close integration into the sector to be part of the sector's dynamics and to be able to respond to impetus in a timely and user-oriented way.
- Targeted analyses (cost-benefit, contribution margins, profit margins, rates of return, etc.) that demonstrate the economic benefits of the approach.
- The innovations and approaches are financially worthwhile: economic impacts of innovations include, for example, lower costs, increased returns and diversification.
- Demonstrate successful implementation: apply the user case; document and scale up functional business case/model.
- Take a long-term approach: target group and/or partners receive not just short-term training, but also long-term coaching.
- Consider the need for independent application of innovations by the partners from the outset, and integrate this into the project strategy.
- Target group/partners perform an important role in implementation and contribute gradually to the financing.

## Success factors – environmental dimension of sustainability

- Risks addressed transparently and at an early stage: environmental and climate analyses identify relevant risks and possible interventions.
- Risk-planning helps to avoid unintended impacts.
- Innovations consider risks related to soil and water management, agrobiodiversity, plant protection, animal health and freedom from deforestation.
- Sustainability labels ensure environmental friendliness and guarantee minimum social standards.
- Strong capacities in the project team in terms of ecological production.
- Standardisation of climate-friendly cultivation practices.
- Close cooperation with local organisations.
- Systematically involve different decision-makers: board meetings involve private and public sector actors; civil society actors provide relevant topics and ideas and keep a critical eye on the implementation of activities.
- Activate synergies with other stakeholders in ways that promote the project's success: cooperation with other projects or linking with other innovations can generate leverage beyond your own project.

## Success factors – social dimension of sustainability

- Basic analyses identify risks and mitigation measures related to gender, human rights and conflict.
- Carry out preparatory research and risk evaluations on critical topics such as child labour.
- Systematically involve different decision-makers: board meetings involve private and public sector actors; civil society actors provide relevant topics and ideas and keep a critical eye on the implementation of activities.
- A gender sensitive approach is in place and focuses not on the *reach* level, but at least on the *benefit* or *empower* level.
- Innovations are adapted to the target groups' local contexts and needs.
- The innovations and approaches verifiably improve people's social situations.
- Improved opportunities for women, young people and people living in poverty (approach, costs, quotas).

## Success factors – institutional dimension of sustainability

- The approach focuses on all levels (macro, meso and micro).
- A systematic evaluation of the cooperation landscape has been completed, for example by mapping actors.
- Just like the political partners, private actors are also included as executing parties and multipliers.
- Strengthen key actors and change agents by providing long-term support to achieve impacts across the entire sector; involve them systematically in implementation.
- Collaboration with local authorities and not just with the national level mainstreams innovations close to the target group.
- Integration into national policies and strategies facilitates favourable conditions.
- A very high level of participation by private-sector partners in company partnerships (50%) from the outset.
- Very high ownership within the company in the context of a company partnership (named person responsible).
- Good cluster coordination and division of tasks between bilateral, regional and global projects.
- Upscaling strategy (e.g. lead farmers, radio, new markets, financial products) is in place and will be implemented in the project cycle as soon as possible.

## Success factors – scalability

- Consider scalability from the start of the project. The role of the project changes over the course of the project, and the modalities for implementation must also change accordingly.
- Check the approaches for scalability. Not all pilot approaches can be scaled up.
- A high degree of standardisation (concept, manuals, demo plots, demo equipment, patenting) allows economies of scale to be achieved quickly.
- Established support structures are the first and most important contact points for generic training materials and manuals, qualified trainers, lobbyists, etc.
- Scaling digitalisation through faster dissemination of knowledge via mobile devices.
- Make use of national structures (extension services) to facilitate horizontal scaling.

## 2.6 INNOVATION BUNDLES: TRANSFORMATION REQUIRES INNOVATION

Isolated solutions often reach the limits of their capacity and can lead to conflicting objectives while offering no effective long-term answers to complex challenges. It is therefore crucial that approaches should simultaneously address multiple aspects of agriculture and food systems – for instance, production and the environment as well as economic and social aspects (multidimensionality). They should, moreover, connect to relevant cross-cutting topics, such as

finance or renewable energies, and be conceived as multi-topic, cross-sectoral approaches, e.g. between agriculture, business, nutrition and health. Only a targeted combination of complementary measures provides a complex answer to complex questions, thereby enabling systematic change and ensuring the long-term effectiveness of innovations.



Fig. 6: Innovation Bundle

Needs-based and adapted innovations call for:

- viable business cases
- trained stakeholders and strengthened structures
- integration into local partner structures
- scaling up and *mainstreaming* of the innovation

FURTHER INFORMATION



LINKBOX 2: Methodology – How Innovations Were Designed and Evaluated

	<p><b>M&amp;E</b> </p> <p>GIZ Presentation 2025 (52 slides), English</p> <p><b>giz</b></p>		<p><b>Endline Country Factsheets</b> </p> <p>GIZ 4-Pager Slides 2025, English</p> <p><b>giz</b></p>
	<p><b>Power BI – M&amp;E-Tool</b> </p> <p>GIZ Internal platform English</p> <p><b>giz</b></p>		<p><b>Presentation: Indicator Achievement at the Green Innovation Centres</b> </p> <p>GIZ Presentation English</p> <p><b>giz</b></p>
	<p><b>Monitoring &amp; Evaluation (M&amp;E) digital system in Green Innovation Centres</b> </p> <p>Green Innovation Centres Video, 2023, 4 min 21 sec English</p>		

The GIC Power BI Dashboard provides a comprehensive overview of the quantitative data collected over a 10-year period in the project countries of the Green Innovation Centres. The data focuses on micro, small and medium sized enterprises (MSME). The interactive dashboard allows users to filter information by criteria such as country, value chain, and year, offering detailed visual insights into the activities and progress of the various country projects. For those interested in further country-specific explanations, the dashboard also provides access to individual baseline, midterm, and endline study reports.

Sources marked with the GIZ logo are internal and can only be accessed by GIZ employees.

# 3. OUR INNOVATIONS

Overview of the innovations introduced by the GIC:

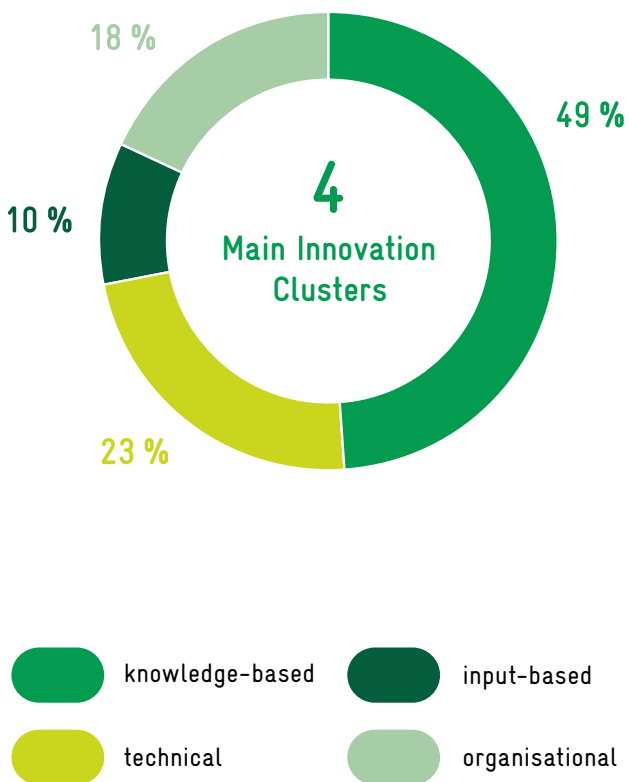
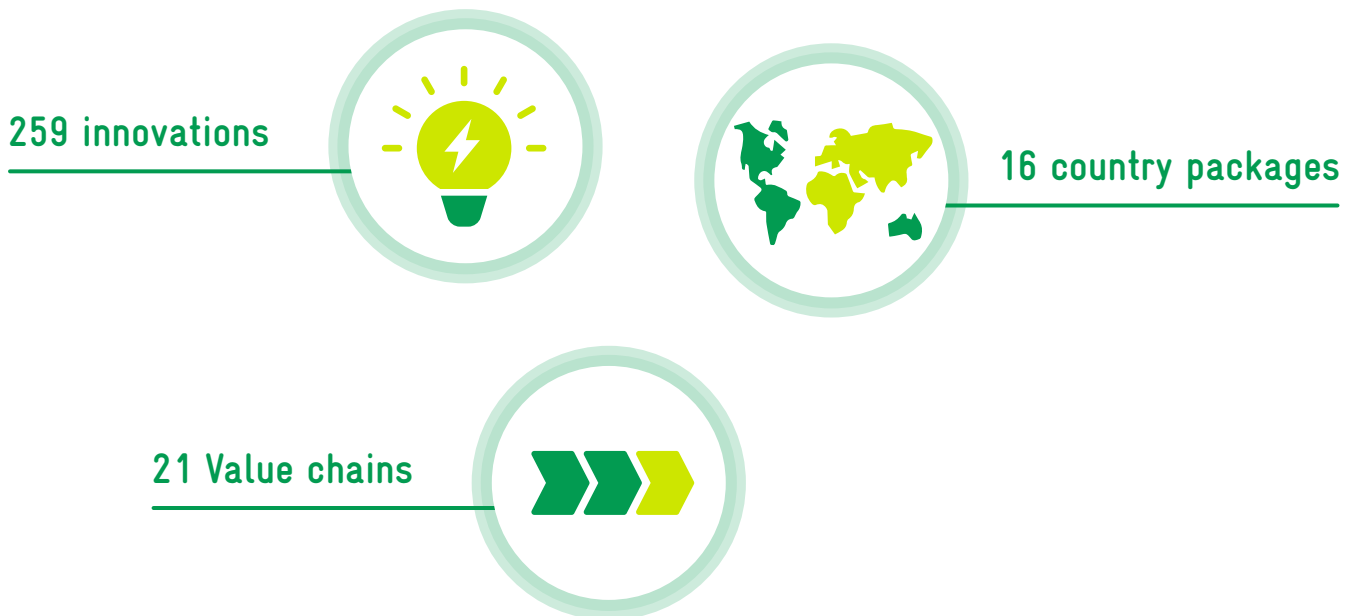


Fig. 7: Percentage Distribution of Innovations Across the Four Main Innovation Clusters of the 259 Innovations

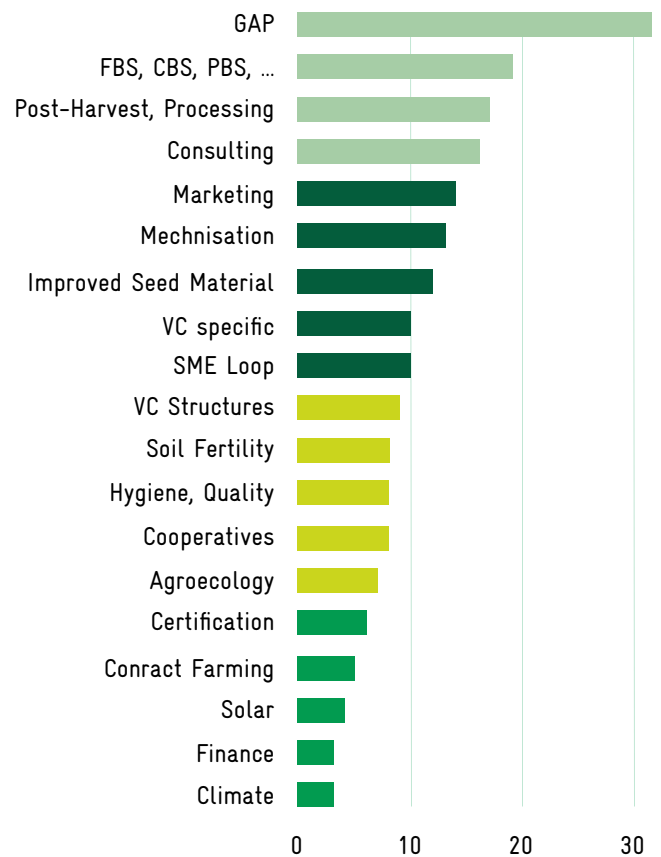


Fig. 8: Frequency of the Different Innovations in the Country Packages

## 4. CROSS-REGIONAL INNOVATIONS

Certain innovations have been developed and applied in multiple partner countries. These cross regional approaches allow effects to be observed at national level and in some cases at a global aggregated level. As well as specific regional circumstances, this also takes into consideration any framework conditions, challenges and synergies that apply above and

beyond one particular country. Innovations of this kind make a significant contribution to the ability to transfer and scale up successful solutions; they also promote the coordinated, cross-border transformation of agricultural and food systems. Five supraregional innovations are presented below as examples.

### 4.1 INCLUSIVE CONTRACT FARMING (ICF)

#### Context

Farmers often find it difficult to access markets or source agricultural inputs as they lack reliable business relationships. At the same time, buyers such as processors and traders face challenges in procuring the raw materials they need for value addition in agricultural production.

ICF entails a long-term agreement between farmers and buyers. On the supply side, the farmer or farmers' organisation undertakes to deliver the agreed quantity and quality of produce. On the demand side, traders or processing companies buy that produce at the agreed price and offer appropriate services, such as the provision of inputs or advice. The contract negotiations take into consideration any risks, such as fluctuating prices and Post-Harvest Losses (PHL), which are then shared between the two contracting parties.

ICF creates a win-win situation for producers and buyers:

- Improved access for smallholder farmers to regional, national and international sales markets, as well as to productive inputs and advisory and financial services, resulting in improvements in farmers' incomes and productivity and creating potential for additional employment

#### Training approach

The ICF approach includes the following components:

- Basic training on inclusive contract farming for project staff and implementation partners
- Awareness-raising workshop for farmers, farmers' organisations and enterprises



- Improved key financial data and competitiveness on the part of purchasing companies thanks to planning security and supply contract assurances

- Improved food security

- *Training of Trainers and Coaches (ToTC)* to create a pool of local experts to support contract farming systems
- Matchmaking forums to network enterprises, producer groups and providers of financial and other services

 Key modules

- ICF as a business model
- ICF management and digital solutions
- ICF risk assessment and management
- Cost-benefit ratio for farmers and buyers
- Contractual terms and pricing mechanism

 Results and impacts, taking the GIC's Burkina Faso country package as an example

ICF introduced by  
**12 rice mills**

to secure their supply of paddy rice



**40,000 farmers**  
contracted



**Yields doubled**

from 2–3 tonnes/ha in 2018  
to 5–6 tonnes/ha in 2022



**50 % increase**

in the price paid to farmers,  
reflecting the improved quality



**Average fivefold**

increase in rice mills' turnover



 Sustainability, taking the GIC's Nigeria country package as an example

- Costs of services offered by ICF coaches shared between the project and the enterprises
- ICF approach supported by ministries and financial institutions
- Diploma courses offered for students by agricultural colleges along with short paid courses for professionals, with the sessions continued as supplementary training even after the project activities have been phased out

## 4.2 FARMER BUSINESS SCHOOLS (FBS)

### Context

MSME in the agricultural sector provide income, jobs and food for the growing population. However, despite the significance of entrepreneurship in empowering farmers to pursue business activities for an equitable share in sustainable

economic growth, this remains a marginalised field. The FBS approach was developed by GIZ and its partners in 2010 and introduced with support from the BMZ and the World Cocoa Foundation in 2015 in Ghana.

### Training approach

The training provided by FBS is intended to strengthen the entrepreneurial skills of smallholder farmers, enabling them to generate higher incomes with diversified production. In a series of five training sessions, participants learn to understand farming as a business and to develop it further in a targeted manner.

Public and private actors pool their resources to run the FBS training courses. This reduces commercial risks and makes it easier to access a wide range of services and new business opportunities. In practice, the FBS is an effective supplement to the existing range of agricultural extension services and farmers' access to financial services.

### Key modules

- Planning and operational management
- Decision making and strategies for investment, based on a cost-benefit analysis
- Financial management, savings and loans
- Advantages of good product quality
- Advantages of membership in producer organisations
- Healthy nutrition



 Results and impacts derived from the GIC global programme

### 13 countries & 14 VC

have benefitted from the implementation of FBS.



### A total of 734,542

agri-entrepreneurs received FBS training, 45 % of them women and 46 % youth (below the age of 35).



### Increased savings

Graduates increase their savings, take out loans and register with producer organisations.



### Reinvestment

Farmers reinvest additional income back into production or, for example, into school fees or better nutrition.



### Higher productivity

According to country-specific endline studies, households participating in FBS programmes demonstrate higher productivity and higher incomes compared to non-participating households.



 Sustainability

- FBS approach firmly integrated by many public and private advisory institutions into their services in the GIC partner countries
- Flexible and needs-based access to the tools provided by the FBS freely available to smallholder farmers through [FBSInnova](#), a user-friendly, modular app for smartphones
- Institutions, enterprises and development programmes supported by the *Agri-Business Facility for Africa* (ABF) in adapting and using the FBS approach

### 4.3 GOOD AGRICULTURAL PRACTICES (GAP)

#### Context

Farmers face various challenges, ranging from extreme weather conditions and the need for access to agricultural services through to outbreaks of plant and animal diseases. These challenges influence their activities – from preparing the fields and growing produce to marketing that produce.

The application of Good Agricultural Practices (GAP), such as selecting good seed and using adapted cultivation techniques and integrated pest and soil fertility management, has a positive effect on farmers' yields and incomes, as well as their willingness to take risks.

#### Training approach

In 2016 and 2017, the GIC commissioned cross-border research on seed systems and plant protection. Based on the recommendations from these studies, country-specific and value chain-specific textbooks on good agricultural practices were developed for more than 14 VC in 16 countries. The

decisive factors in choosing certain practices were how they contribute to resource efficiency and hence to the farmers' gross margins, their resilience to the consequences of climate change (droughts, shifting rain patterns, etc.) and to pests and plant diseases, and the preservation of natural resources.

#### Key modules

The modules vary depending on the plant, tree or animal species in question. The general curriculum includes modules on the following topics for crops:

- Field preparation
- Controlling seed quality
- Improved cultivation methods
- Managing fertility
- Irrigation
- Pest and disease control
- Harvesting and post-harvest losses
- Quality management in livestock breeding and husbandry
- Animal health

For animal species:

- Poultry:
  - Approaches to husbandry (floor rearing, breeding boxes, hygiene training)
  - Introduction of incubators for farming chickens
  - Vaccination against *Newcastle disease*
- Dairy cows:
  - Dairy husbandry
  - Caring for hooves
  - Irrigation/watering trough systems

 Results and impacts derived from the GIC global programme

## 16 countries & 14 VC

have benefited from the implementation of GAP; thus, GAP is the most widely used and accepted innovation within the GIC.



**1,338,599 people**  
were trained in GAP, of whom  
35 % were women and  
35 % were young people.

## Efficiency & resilience

An agroecological assessment tool used in four countries (Burkina Faso, India, Mali and Zambia) shows the contribution of the GAP to resource efficiency and resilience.



## Sustainability

- Integration into governmental and cooperative extension systems
- Integration into the business models of agricultural traders
- Training for extension services and partners



## 4.4 SMALL AND MEDIUM-SIZED ENTERPRISES LOOP (SME LOOP)

### Context

MSME are seen as a driving force for economic and social development. The underlying conditions for their development are often unfavourable, however, and any support provided is not tailored to the context or circumstances of individual

enterprises. The SME Loop was developed by GIZ in Sierra Leone in 2014 in response to this need, taking into account experience gained from other approaches. It has since been further developed and improved by the GIC project.

### The approach

The SME Loop is an approach that combines training and coaching. It aims to enhance the competitiveness of entrepreneurs who wish to expand, while generating income and increasing the demand for labour. It consists of seven phases, each with alternating coaching sessions and enterprise training for the group. The individualised evaluation of each enter-

prise is particularly important as a means of tailoring the coaching sessions to its needs. Another important part of this approach is networking with financial service providers, which enables companies to access funding. The SME Loop is implemented over a period of six to nine months.

### Key modules

- Basic management skills
- Business analysis
- Business development strategies, including cost accounting, bookkeeping and marketing
- Risk management strategies
- Planning to enhance business
- Funding and developing business relationships



 Results and impacts derived from the GIC global programme

**5,200 entrepreneurs**

have completed the SME Loop in nine partner countries of the GIC, including 56 % youth and 67 % women.



**~5,500 new full-time jobs**  
created



**~3,500 enterprises**

have officially registered with the SME Loop.



Loans taken out by  
**983 entrepreneurs**  
to expand their business



Annual turnover improved by  
**4,212 enterprises**



Training on the approach  
provided for  
**530 coaches,**  
namely **30 master** and  
**500 business coaches**



 Sustainability

- Regional competence centre for employment promotion set up in Benin (in cooperation with Benin’s Chamber of Commerce and Industry and ADPME, the Agency for SME Development), facilitating implementation of the SME Loop in 16 additional countries and 22 projects
- Training provided by the Green Innovation Centres for 259 coaches in six countries
- Approach adapted to specific target groups
- Support for the approach provided by the International SME Loop Association

## 4.5 SYSTEM OF RICE INTENSIFICATION (SRI)

### Context

Not enough rice is produced in West Africa, so the region depends on imports – a situation exacerbated by climate change and the high cost of inputs. The SRI is an agro-ecological and climate-friendly rice-growing solution that uses less seed, water and fertiliser on soils that are rich

in organic matter. This contributes to food security, efficient water management and the reduction of greenhouse gas emissions. The GIC promoted SRI in Benin, Burkina Faso, Ghana, Mali and Nigeria in cooperation with the respective ministries of agriculture.

### The approach

A strategy of cascading training was developed to share the technology on a large scale. The experts train lead farmers, who in turn supervise one or more groups of 20 to 30 producers. To demonstrate SRI alongside conventional rice-growing,

the training includes practical comparative tests. SRI involves six practices, ranging from soil preparation and the planting of seedlings, to using organic fertilisers, weeding, harrowing and irrigation management.

### Key modules

- Techniques for creating nurseries
- Preparing the soil
- Fertilisation
- Water management
- Maintaining the plot
- Harvest and post-harvest procedures
- Evaluating experiments to compare SRI and conventional methods



 Results and impacts derived from the GIC global programme

### Resource efficiency

Savings up to 80 % of seed used and up to 30 % of water consumption



### Increased production and income

Producers who applied SRI practices were able to significantly increase their income and yields per hectare compared to those who did not apply the innovation, according to impact analyses conducted as part of the endline studies.



### Chemical fertilisers

Use of chemical fertilisers is reduced or eliminated.



### Efficient weeding

Savings of more than 70 % in labour costs for weeding



### Production cycle

shortened by two to three weeks



### Resilient plants

Plants are more resistant to disease, drought and flooding.



### Sustainability

- Capacity development for farmers' organisations (trainers from the community, teaching materials)
- Mali: integration into national agricultural extension services and support for this approach to rice cultivation
- Devising and adopting strategies for mainstreaming the innovation in the different countries

## FURTHER INFORMATION
















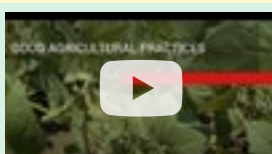



ATINGI



IDA

## LINKBOX 3: Supra-regional Innovations (a)

	IDA – Our innovations IDA Website			Contract Farming (CF) GIZ Poster 2025, English	
	Promoting Inclusive Contact Farming (iCF): Coaching Contracting Parties in Shaping Their iCF Business Models Green Innovation Centres Factsheet, 2025, English			Inclusive Contract Farming: A Practical Guide for Linking Small-Scale Producers and Buyers Through Business Model Innovation Green Innovation Centres Practical Guide 2024, English	
	Promoting Inclusive Contact Farming (iCF): Training of Trainers/Coaches on Contract Farming (CF TOTC) Green Innovation Centres Factsheet, 2025, English			Burkina Faso: Innovation in Local Rice Production Through Contract Farming Green Innovation Centres Factsheet, 2025, English	
	Promoting Innovation Through Inclusive Contract Farming atingi Self-study course			Contract Farming in Green Innovation Centres Green Innovation Centres Video 2020, English	
	Farmer Business School (FBS) GIZ Poster 2025, English			The Farmer Business School: Large-Scale Business Skills Training Approach for Smallholder Farmers Delivered by State Extension Agents GIZ Poster 2025, English	
	Farmer Business School (FBS) GIZ Video-Playlist 2025, French			Good Agricultural Practices (GAP) GIZ Poster 2025, English	
	Good Agricultural Practices Green Innovation Centres Knowledge Bulletin 2025, English			Good Agricultural Practices (GAP) GIZ Video-Playlist 2025, English	
	Global Innovations Green Innovation Centres Knowledge Bulletin 2025, English				

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FURTHER INFORMATION



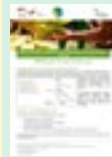
LINKBOX 3: Supra-regional Innovations (b)



**SME Loop**



GIZ  
Poster  
2025, English



**SME Business Training & Coaching Loop**



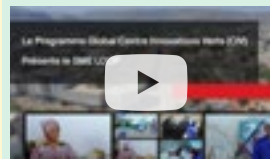
GIZ  
Factsheet  
2025, English



**SME Business Training and Coaching Loop: Standardized 6-Month Business Training and Coaching Approach for Small and Medium-Sized Enterprises**



GIZ  
Poster, English



**SME Training and Coaching Loop**



GIZ  
Video-Playlist  
2025, French



**System of Rice Intensification (SRI)**



Green Innovation Centres  
Poster, 2025, English



**System of Rice Intensification (SRI)**



GIZ  
Video-Playlist  
2025, French

## 5. INNOVATION CLUSTERS



### 5.1 INPUT-BASED INNOVATIONS

Input-based innovations play a crucial role in increasing productivity, resilience and sustainability in agricultural value addition. This already starts with farming inputs, such as seeds, fertilisers, crop protection and irrigation,

establishing the basis for more efficient and more environmentally friendly production.

The introduction of high-quality, locally adapted inputs makes it possible to significantly increase yields, conserve resources and manage climate risks more effectively. At the same time, these innovations open up new sources of income for farmers, for example through seed propagation, local processing and marketing. Especially in agricultural systems dominated by smallholder farming, input-based approaches make a decisive contribution to food security and poverty reduction. Examples of input-based innovations from the GIC are presented below.

#### 5.1.1 Seeds and plants

- *Rooted Apical Cuttings (RAC)*, (RAC, a method for the local production of seed potatoes by cutting apical [pointed] shoots and then rooting these cuttings)
- SRI+ ('plus' indicates the additional use of slow-release urea, organic fertiliser and a precision planter)
- *Parboiling device KIT 180* (a process for pre-treating rice in which the grains are soaked, steamed and dried prior to hulling; especially designed for women as a target group in the SRI+ package)
- New, climate-resistant varieties
- Seeds as a source of income
- Seed certification
- Vegetative propagation of companion trees
- Commercial vine propagation
- *Model Nursery*

#### 5.1.2 Soil fertility

- Using leguminous vegetables to improve growing conditions
- Integrated nutrient management
- Integrated pest management
- Shade trees

### 5.1.3 Best Practice: Inoculation of soybeans in Malawi

#### Description

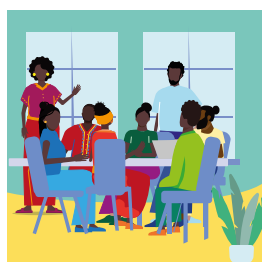
Rhizobium inoculant is a nitrogen-fixing bacterium that is used to increase yields in soybean production in Malawi. For the farmers, it is important to understand how the combination of the bacterium and their seed choice can enhance productivity and increase their annual revenue.

#### Expected results

The use of inoculants for soybeans is expanding all the time. While the production and sale of inoculants promises increased yields and productivity for farmers, it also brings higher revenues and more jobs for those who produce and sell the inoculants. In particular, the agricultural merchants who market this new product will benefit from greater turnover, and the inoculant producers will create additional employment.

#### Implementation

The sales figures achieved by *Agro-Input Suppliers Limited* (AISL), as yet the only local enterprise in Malawi that produces inoculant, reveal exponential growth in demand for the product among farmers. Since its introduction, agricultural merchants have called for stocks to be kept in warehouses, while public and private-sector institutions have been promoting the use of the technology.



## 5.2 ORGANISATIONAL INNOVATIONS

Organisational innovations form the backbone of sustainable development processes in agriculture. They are intended to reinforce structures, processes and cooperation in agricultural value addition systems with a

view to increasing the efficiency, personal responsibility and resilience of the actors involved.

These innovations focus on how agricultural-based services are organised, resources are shared and decisions are made. This includes creating cooperatives, new service models, collective savings systems and local network structures. Especially for smallholder farmers, they ensure better access to farming inputs, markets, financing and know-how, thus promoting participation, equality and economic development in rural areas. Examples of organisational innovations from the GIC are demonstrated below.

### 5.2.1 Service providers

- Mechanisation services
- Rental services
- Multi-service kiosks
- Microenterprises
- Services for farming inputs
- *Farm Service Centres*

### 5.2.2 Cooperation and groups

- Establishing and supporting cooperatives of seed and seedling producers and/or for collective processing and/or marketing activities
- Using groups and cooperatives to create savings collectives or obtain access to finance
- Learning groups for farmers
- Collective bulk purchasing of goods as groups
- Internal auditing groups
- Lead farmer groups

### 5.2.3 Best practice: Organised pickers of baobab fruit in Mozambique

#### Description

The group of women pickers organised for the marketing of baobab fruit, the Baobab Fruit Collection Association, has proved a success. In a unique business model, the processing and distribution enterprise transfers 20 per cent of its shares to the organised women.

#### Expected results

The business model contributes to better communication and an enhanced relationship between the fruit pickers and the processors. The pickers are able to defend their interests (fair prices and improved supply system). They receive a better price than on the international market. This in turn raises their incomes and creates new jobs, because other women join the group.

Another expected result is the need to apply sustainable baobab harvesting methods in order to protect the trees as a source of income.

#### Implementation

GIC supported the fruit pickers in the formation of their group, providing training for the women in local communities and for intermediaries, as well as ongoing coaching for the group's representatives at management level. The number of active pickers has grown significantly, and this has had the knock-on effect of creating more processing jobs.



### 5.2.4 Networks

- Stakeholder platforms
- Innovation networks
- *Lead Farmer Network* (currently involving 55 smallholder cooperatives, with a focus on training and crop yields)

### 5.2.5 Forms of contract

- Contract Farming (CF)
- Establishing market linkages
- Certification in the context of contract farming
- Guarantee systems

### 5.2.6 Other

- Start-up competition
- New products or markets
- Support for young entrepreneurs



## 5.3 TECHNICAL INNOVATIONS

Technical innovations are a key driver of increased efficiency, value addition and sustainability in agricultural production and processing. They enable farmers as well as upstream and downstream stakeholders to mechanise their work processes, use resources in a more targeted manner and improve the quality of agricultural products.

The GIC are developing, adapting and disseminating a wide range of technical solutions in eight countries: Benin, Burkina

Faso, Côte d'Ivoire, Ethiopia, Kenya, Nigeria, Togo and Tunisia. These range from innovative machinery and equipment, to solar-powered systems, as well as adapted technologies for irrigation, processing and storage.

The aim is to design technology-based solutions in ways that suit local conditions, are economically viable and also benefit smallholder farmers. These technical innovations make a significant contribution to increasing agricultural productivity, reducing workloads and overcoming climate-related challenges. Examples of technical innovations from GIC are explained below.

### 5.3.1 Devices and machines

- Oil presses
- Underground irrigation systems on cocoa plantations
- Remote irrigation
- Fermentation systems
- On-farm cooling systems
- Mobile seed cleaning: the Petkus cleaner (mobile facility used for cleaning and sorting seeds)
- Solar-powered irrigation
- Solar-powered steam facility
- Solar energy to improve the seed analysis and certification system (used to power cold rooms, germination chambers and steam cookers)
- Improved ploughs
- Rice husk burners
- Mobile threshing machines
- Mobile cassava processing facility
- Greenhouses

### 5.3.2 Best practice: Solar power for better groundnuts – solar dryers in Togo

#### Description

As part of the GIC global programme, various target groups benefited from the introduction of machines and technologies to reduce crop losses. One specific example of this is the use of solar dryers in Togo. Solar energy is an abundant and renewable source of energy, widely available and easy to exploit in most African countries thanks to the intense sunlight. Women involved in processing groundnuts often dry their produce outdoors, a time-consuming and strenuous process that involves constant monitoring. The produce is also exposed to risks, such as sudden rain or the intrusion of animals.

#### Anticipated results

The use of solar dryers speeds up the drying process and improves product quality. Compared to air drying, the process is faster (two hours instead of eight) and requires less labour (two workers instead of five). This represents an economic gain for the cooperatives. Moreover, the dryers can be used at any time, even if there is little sunlight. Product quality is also expected to improve, as contamination with foreign materials and losses due to unforeseen rainfall are reduced.

#### Implementation

The solar dryers involved the use of solar panels and fans for the drying process, thus avoiding delays in the production chain. The measure aimed to modernise the way women go about drying groundnuts, thus reducing their workload and enhancing the efficiency of their working methods.



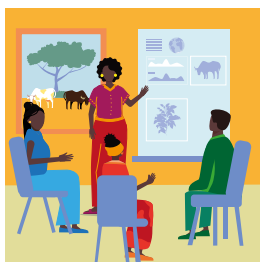
### 5.3.3 Technologies

- Artificial pollination
- Quality and hygiene standards
- *Crop Rotation*
- Hermetically sealable bags
- Introduction of shade trees
- New harvest seasons
- Zero grazing
- *Alemayehu Row Seeding Technology (ART)*, a technology that enables the sowing of seeds evenly distributed in rows, resulting in better germination and a higher yield
- *Agricultural Information System (AIS)*
- *RiceAdvice* (a mobile app that supports farmers in optimising their rice cultivation methods)

- Phytosanitary treatment using drones
- *Plantix* (a mobile app that helps farmers to identify plant diseases and pest infestations and to find appropriate treatments)
- Weather app
- *3-2-1-Voice Service barcodes*
- *Smart Valley* (an agricultural approach that aims to optimise agricultural practices and improve yields by integrating digital tools and smart technologies)
- *DigiFarm* (a mobile platform designed to support small-holder farmers in Kenya with a range of services and collaborations within the digital ecosystem)
- *Seabex* (a mobile digital app for small-scale irrigation)

### 5.3.4 Processing and marketing

- Processing of off-grade beans
- Processing facilities provided to schools and kindergartens
- Production of vinegar from cocoa
- Local processing at household level
- Market information systems
- Fuel briquettes from residue



## 5.4 KNOWLEDGE-BASED INNOVATIONS

Knowledge-based innovations involve the transfer of knowledge, competences and practical skills to enable farmers and other actors along the VC to make informed decisions and pursue new methods effectively.

The focus is on practically oriented training approaches and modules along with practical demonstrations in areas such as GAP, post-harvest procedures, processing technologies, business models and organisational development. Both tra-

ditional forms of knowledge and modern digital learning formats are used, tailored to the regional context and needs.

Knowledge-based innovations not only promote the dissemination of technical and organisational solutions, but they also reinforce people's own initiative and capacity to innovate and enhance the long-term impacts of project measures. They therefore make an important contribution to transforming agricultural systems and sustainably improving incomes, nutrition and employment prospects in rural areas. Examples of knowledge-based innovations from GIC are explained below.

### 5.4.1 Training on cultivation practices

- Good cultivation practices (GAP, SRI, training for farmers as entrepreneurs, compost, crop rotation, etc.)
- Organic farming
- Good practices in animal husbandry
- Demonstration fields
- *Farm Talk* radio broadcast
- Irrigation techniques
- Training on information and communications technology
- Training on micro-mechanisation
- Training on animal feed
- Hygiene training and standards
- Improved agricultural advice (extension services)
- *Conservation Agriculture*
- *Farmer Field Schools* (FFS)

#### 5.4.2 Training on post-harvest practices

- Courses on good post-harvest techniques
- Hygiene training and standards
- Training on contract farming
- Aflatoxins management

#### 5.4.3 Training on dissemination and marketing

- Improved processing techniques
- Hygiene training and standards
- Processing at household level
- *Parboiling* and marketing
- *Participatory Technology Development*
- Value addition through processing

#### 5.4.4 Best practice: Farmers' cooperative in Méagui (ECAM)

##### Beschreibung

ECAM, a farmers' cooperative in Méagui, Côte d'Ivoire, is headed by Doumbia Assata, who has played an important part in the organisation since 2004. This umbrella organisation unites cocoa producers from the country's south-western region, where cocoa cultivation is traditionally dominated by men. Although women own just 25 per cent of the cocoa farms, they make up 68 per cent of the workforce and earn only 21 per cent of the income.

##### Anticipated results

The support provided by GIC was crucial in terms of access to resources and knowledge. Agroforestry was promoted in order to improve soil nutrients and plant diversity. Members such as Ms Koné and Mr Bitié Karim report positive effects and would like to see further training on renewing old plants in order to stabilise their income. The training has already led to an improvement in the income situation, as producers have learned to convert unsold cocoa beans and residues into products such as soap, cocoa butter and compost.

##### Implementation

The cooperative is committed to training its members and further developing agricultural practices. In Méagui, it organised training courses on best practices in cocoa cultivation to provide producers with targeted support and improve their cultivation techniques in the long term.



### 5.4.5 Training on business models

- SME Business Loop
- Training on *Market Linkages*
- *Processor Business School*
- Farmer Business School
- *Agrifinance*
- *Better Life Book* (a comprehensive manual for farmers in Zambia)
- Training to strengthen farmers' organisations
- Agricultural VC analyses
- Certification
- Training on *Farm Service Centres*
- Improved service provision

#### FURTHER INFORMATION


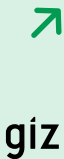


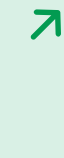

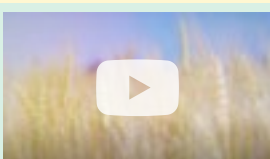
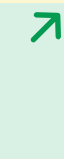

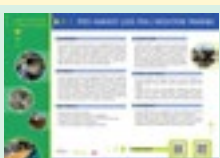
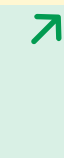


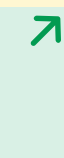

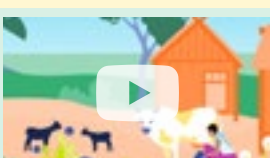
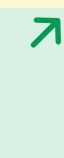



ATINGI



IDA

#### LINKBOX 4: Innovation Cluster

	<p><b>IDA – Our innovations</b></p> <p>IDA Website</p>			<p><b>Innovation: Seed Processing. Wheat Value Chain – GIC Ethiopia</b></p> <p>GIZ Poster 2025, English</p>
	<p><b>Actor-Oriented Sustainable Seed System Development</b></p> <p>atingi Self-study course</p>			<p><b>Innovative Seed Cleaner Improves Yields in Ethiopia</b></p> <p>Green Innovation Centres Video</p>
	<p><b>Crop Rotation: For Increased Production, Productivity and Income in Ethiopia</b></p> <p>Green Innovation Centres Video</p>			<p><b>Post-Harvest Management</b></p> <p>Green Innovation Centres Knowledge Bulletin 2025, English</p>
	<p><b>Post-Harvest-Loss</b></p> <p>GIZ Poster 2025, English</p>			<p><b>PHL Factsheet: Post Harvest Management</b></p> <p>Green Innovation Centres Factsheet, 2025, English</p>
	<p><b>The Contribution of Green Innovation Centres to Reducing Post-Harvest Losses</b></p> <p>Green Innovation Centres Factsheet, 2025, English</p>			<p><b>Post-Harvest Management Approaches in the Green Innovation Centres</b></p> <p>Green Innovation Centres Video</p>
	<p><b>The Scaling Scan – A Tool for Sustainable Innovations</b></p> <p>Green Innovation Centres Video</p>			<p><b>Nachernteverlust</b></p> <p>GIZ Factsheet, 2025, German</p>

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## 6. CROSS-CUTTING ISSUES

The cross-cutting issues of GIC span all three dimensions of sustainability – environmental, economic, and social – and therefore cannot be viewed in isolation. These include employment, digitalisation, gender, climate, and mechanisation.

### 6.1 EMPLOYMENT

#### Context

Half of all those living in sub-Saharan Africa are below the age of 18. What is more, young adults aged between 18 and 29 account for almost 27 per cent of the population.

This demographic will continue to grow in the coming years, and by 2030 some 440 million new jobs will be needed. The strong growth of the region's youthful population poses a challenge but at the same time presents an opportunity to drive economic development.

Against this background, the agriculture sector has a key role to play. Across Africa, agriculture, forestry and fisheries account for around half of overall employment, and as many as two thirds of jobs in rural areas. The growth of the agriculture and food industry creates opportunities to add value at local level and replace food imports. To attract more young people in rural areas to the sector, it is vital to address challenges such as access to resources and the appeal of farming as an occupation.

#### Approach

The GIC global programme focused on the expansion and wider regional uptake of successful, tried-and-tested and established approaches to promoting employment. These approaches have been documented in the *Toolbox for Youth Employment*. The GIC activities targeted young people between

the ages of 15 and 35. By combining technical capacity development with measures to promote entrepreneurial skills, it managed to create 21,901 additional jobs in all, 14,877 of which were for young people.



## Activities

### Capacity development in the agricultural and food sector

- **Cooperation with Green Colleges:** Existing curricula for ATVET programmes were optimised and aligned more closely with the needs of the labour market. Teaching staff benefited from training courses designed to improve the quality of teaching. The *African Green Store Network* (AGSN) received support for its efforts to encourage exchanges of knowledge and experience between colleges.
- **Technical innovation training:** The project contributed to the professionalisation of young people through practical training courses, particularly in the area of food processing.
- **Cross-regional networking for young managers:** Networking measures, such as leadership seminars and a post-graduate course, were used to encourage exchanges and mutual learning, and thereby promote cooperation between young actors across regional borders.

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### Promoting entrepreneurship in rural areas

- **Support for Start-ups and MSME:** The project applied targeted measures to strengthen start-ups (e.g. by setting up incubators) and MSME (e.g. with the training and coaching approach known as SME Loop). Particular emphasis was placed on connecting entrepreneurs with financial institutions (e.g. at pitching events). This was intended to develop viable business plans, encourage investments and therefore create new jobs. The activities focused in particular on companies managed by women so as to promote their economic participation.
- **Integrated development partnerships with the private sector (iDPPs) at local level:** The project established a series of local iDPPs to leverage private-sector skills and resources in various contexts.

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### Support for interest groups

- **Organisational development for youth organisations:** Many GIC country packages encouraged the development of farmers' organisations. One goal in this respect was the integration of young people, for instance through the development of additional services.
- **Development of multi-actor platforms (MAP):** By supporting platforms and industry associations, the GIC global programme helped to improve coordination between important actors. These platforms ensure greater transparency within the agricultural VC, while also promoting business relationships and links to policymakers, thereby reducing transaction costs.

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## 6.2 DIGITALISATION

### Context

Many GIC country packages involved basic digital infrastructure. However, the work of developing that infrastructure still faces challenges, such as poor connectivity in rural areas, the high cost of access and unequal levels of digital participation between different population groups. Nevertheless, digital technologies offer significant potential for economic development, education, agriculture and the

modernisation of public administration. Numerous countries are pursuing national digital strategies to systematically promote technological innovation. International cooperation and public-private partnerships play a vital role in efforts to close existing deficits and build stronger and more inclusive digital ecosystems.

## Approach

The project pursued a digital approach that aimed to develop and disseminate ICT solutions in agriculture. The digital tools used covered a wide range of applications, from advisory and information services, and solutions for production and supply chain management, through to financial services and market access. Their purpose was to drive sustainable increases in agricultural productivity and employment within the target group. At the same time, the use of digital technologies was

intended to make the agricultural sector more attractive, especially for young people, and to help strengthen rural areas. Successful ICT innovations were methodically combined, refined and shared with other country packages and development cooperation projects. To systematically expand the various stakeholders' digital skills, the project supported this knowledge transfer through events on specific issues and regular exchanges on ICT topics.

## Activities

The GIC global programme was subsequently involved in the development of **81 ICT instruments** in the partner countries. Its 16 country packages reached more than **33.79 million people** using mass media, exceeding the original target by a factor of three. This was partly due to the special supra-regional digital measures introduced to address the COVID-19 pandemic.

These included collaborations with Farm Radio International in eight country packages, with Access Agriculture in seven country packages and with the mobile app FBSInnova, which was rolled out by the programme in seven country packages as a way of sharing content from the FBS.

### Examples of the programme's digitalisation activities

- *Farm Radio International* (a non-profit organisation that supports local radio stations in developing programmes for smallholder farmers)
- *Access Agriculture* (a non-profit organisation that supports organic farming and agroecology via training videos)
- *FBSInnova* (a functional, modular smartphone app that gives smallholder farmers on-demand access to FBS)
- *Rice Advice* (a free Android-based app that provides farm-specific advice on rice management practices)
- *Ignitia Weather Forecast* (weather and climate information for early warning systems and smart cities, digital farming advice, and climate risk scores for insurers)



## 6.3 GENDER

### Reach – Benefit – Empower

GIC was commissioned in 2014 as a GG1 programme, with gender as an important secondary objective on the way to achieving the main objective. Accordingly, by the end of the programme term in 2026, the intention is for the programme's training measures to have reached some **793,520 women farmers, 15,473 intermediaries from partner institutions and 1,225 decision-makers**. At the outcome level, the plan is to create some **21,000 additional jobs by 2026**. Of these, **35 per cent (7,350) are intended specifically for women**. To achieve these ambitious goals, an internal review of project activities was conducted in 2020 using the analytical framework of the Reach Benefit-Empower Matrix, and new approaches

to promoting gender equality were developed. At the end of the project GIC, the global objectives for supporting women in various positions were achieved. Across the global programme, the training measures empowered a total of **848,886 women producers** in the 16 partner countries. In addition, **33,320 female managers and employees of MSME** took part in training courses supported by the project. Over the project term, **1,157 women in decision-making and managerial roles** also received support through cross-regional dialogue events and training courses (South-South, North-South). Finally, at the level of individual businesses (MSME), **9,179 full-time positions were created for women**.



### Finding new paths

The analysis raised awareness within the GIC global programme of the need for some decisive changes in the project logic. Gender-transformative approaches were mainstreamed as a new guiding principle for gender activities, and gender-disaggregated indicators were prepared. Introducing these approaches into the programme's various cross-border working groups also provided impetus for greater gender equality. For the GIC team and the programme's partners, this systematically raised awareness of the importance of gender-transformative approaches and of the fundamental problems surrounding gender inequality.



### Building up team capacity to address gender issues

Firstly, a video tutorial describes the importance of gender-transformative approaches in the work of the GIC. In addition to this, the GIC steering unit in Germany increased the number of cross-border training courses it offered for gender focal points in the 16 country packages and for key figures in relevant partner organisations.

The training course entitled *Accelerating Gender-Transformative Leadership* enables participants to deal critically and proactively with gender and intersectionality in the workplace, while gaining confidence with the topic, growing into their tasks related to gender-transformative change, and adopting a pioneering role as change agents.

### Strengthening women's rights

In 2020, to strengthen women's rights and promote gender equality, the project cooperated with OXFAM Novib to adapt a *Gender Action Learning System* (GALS) specially for use in Burkina Faso and introduce it there as part of the GIC country package. In all, the GALS reached **2,850 people**, including **960 men** and **680 young people**. **65 people** received coaching to help them qualify as GALS trainers so that they can pass on what they have learned in a cascading system. Successful practices were collected, and the lessons learned during implementation were documented. This helped to mainstream the approach in the partners' structures so that it can continue after the end of the project.



### Raising the profile of role models and game changers

Processes of social change require role models, otherwise known as game changers, who show other people that change is possible, even in the face of resistance. They break through existing paradigms, inspire others and help to drive social change. Krishna Radha in India, Euphrasie Modukpe Dassoundo Assogba in Benin, Juliette Pyalo in Togo and Janet Adade in Ghana – all game changers within the GIC country packages – are four of the seven winners of BMZ's 2020 competition *Game Changers – Women in Agriculture*.

### Better access to resources

To make it easier for women to access resources such as land, education, funding, loans and the internet, the GIC global programme launched multiple initiatives in the areas of finance, the labour market, entrepreneurship and training. Starting in 2021, a number of special training courses were run under the heading *Gender Makes Business Sense* as part of the Burkina Faso, Kenya, Malawi and Togo country packages. By October 2022, **1,759 agricultural entrepreneurs, 70 per cent of them women**, had benefited from this support. Various indicators, for example on employment, income and business performance, show that gender-specific differences have receded, meaning that women are less disadvantaged. Besides this, **44 partner institutions** in the programme's partner countries received training so that they can continue to offer such courses after the GIC programme ends.

To date, **3,491 women** in seven GIC partner countries have benefited from SME Loop, a combination of training and coaching activities to support MSME. In 2022, to address the particular challenges women face when developing their business, the GIC global programme expanded SME Loop to include guidelines on the integration of gender-transformative aspects. Due to outdated social norms, women remain marginalised when it comes to setting up businesses. Often, they are also constrained by social expectations, such as childcare and other domestic obligations. The gender-transformative business and coaching loop (GTA Loop) was established as a further building block to empower women in all GIZ projects and programmes that work with SME Loop. In many partner countries, the measures described above were used specifically to support young women in rural areas working in businesses or involved in business start-ups. This is important because empowerment requires economic independence.



### Gender-sensitive mechanisation

As part of the Mechanisation Working Group, measures for sustainable and gender-equitable mechanisation were implemented. In cooperation with the Food and Agriculture Organization of the United Nations (FAO) and the Benin Ministry of Agriculture, women-led business models in the WSK rice, soy and cassava sectors were identified and the capacities of fifteen women's cooperatives were strengthened through training and appropriate technology. The country packages in Malawi, Côte d'Ivoire and Cameroon also implemented gender-sensitive mechanisation approaches.



Fig. 9: Subsequent Integration of GTA

### Strengthening the role of women in decision-making processes

Another important objective of this gender-transformative approach to development cooperation was to open the way to better representation for women in both politics and business, and to include women in decision-making processes. The GIC global programme made this possible through targeted appointments of women to management positions in cooperatives in Zambia and India, and by supporting associations that represent the interests of women in Kenya, Malawi and Mozambique. One interesting example of this is the global

programme's support for an innovation partnership between the Bavarian organisation BBV-Landfrauen and women farmers in rural Kenya that led to the creation of the *Women Farmers' Association of Kenya (WoFaAK)*. This umbrella organisation has so far brought together 270 women's groups with around 4,500 members. As a representative body, it provides a platform for women to assert their rights and voice their demands. WoFaAK is recognised by policymakers and society as an important partner. Training on topics such as leadership and gender-based violence also helps to empower individual participants.

... and many other initiatives heading in the right direction



## 6.4 CLIMATE

### Context

Climate change is a growing threat to food security. Rising temperatures, shifting rainfall patterns and increasingly frequent extreme weather events, such as droughts, floods and storms, all affect agricultural production and productivity. In all the GIC partner countries, the agricultural sector is highly climate-sensitive. Smallholder farmers are not only the most exposed but also the least able to address the challenges of climate change. They lack the resources and capacity to protect themselves against extreme weather events, gradual changes in the climate and increasingly prevalent pests and plant diseases. Terrestrial ecosystems and resources are also

vulnerable. Climate change raises the land-use pressure on these natural ecosystems and exacerbates soil degradation, biodiversity loss and food insecurity. As such, it presents major risks to livelihoods and human well-being.

Against this background, there is an urgent need to improve the capacity of partner countries to adapt to climate change. To this end, the GIC programme disseminated climate-smart innovations (CSI) that help smallholder farmers and other actors in the VC adapt more effectively to the challenges of climate change.

### Approach: Climate-smart innovations (CSI)

GIC applied the VC approach in 16 countries and supported the efforts of both smallholder farmers and upstream/downstream businesses to implement CSI that not only help to drive increases in income and employment but also contribute to a sustainable rise in productivity. Originally, the innovations developed were based on a VC logic primarily aimed at creating jobs and increasing agricultural productivity and incomes. From the outset, however, many of these innovations also addressed aspects of climate change adaptation and mitigation. A specific policy of introducing CSI and including them in the objectives began in 2019, with all GIC country packages identifying and systematically promoting CSI for their VC.

A CSI is a specific practice or set of practices within a VC that has a direct impact on, or relevance to, questions of climate change adaptation and/or mitigation.

**A CSI contributes to at least one of the following three objectives:**

- Sustainable increase in productivity and incomes
- Enhanced resilience of the broader landscape/community to climate change (protecting people/ecosystems)
- Reduction and/or elimination of greenhouse gas emissions



## Activities

The introduction of CSI – in the form of targeted training, adapted practices and technological innovations – supported businesses in all 16 countries in their efforts to adapt to climate change. These locally adapted CSI contribute to increased productivity while at the same time promoting the more effective and climate-resilient use of resources.

### Examples of CSI:

- Good Agricultural Practices (GAP)
- Post-harvest protections
- Introduction of improved seeds, resistant to climate change
- Management of natural resources
- Implementation of the principles of conservation agriculture
- Introduction of appropriate irrigation technologies

- System of Rice Intensification (SRI)
- Agroforestry
- Management of soil and nutrients
- Agroecology

Studies completed in collaboration with the International Centre for Tropical Agriculture (CIAT) – 16 GIC climate profiles (2021); *Adapting GIC to Climate Change* Report 1-3 (2022) – have further raised awareness of risks and priority areas for adaptation in the selected VC, while highlighting appropriate innovations for coping with climate-related risks. In their assessments, the studies considered country-specific climate data and climate-related risks to VC, as well as the voices of local experts. The findings show that the country packages used innovations to address very effectively the risks arising in their respective target areas and that they promoted relevant adaptation strategies.

## 6.5 MECHANISATION

### Context

In the partner countries of the GIC global programme, agricultural technology is not widely used in production and processing. There is great potential for the mechanisation of agriculture to contribute to the economic, social and ecological transformation of agricultural and food systems. Project activities in the area of agricultural mechanisation are no longer restricted to a purely ‘technical’ approach or to developing and supplying machines adapted to the local context. Instead, to ensure the long-term mainstreaming of innovations in mechanisation, a holistic approach is taken that entails more involvement by state and private-sector actors while also considering the views of users.

State actors set the policy framework, which gives them significant influence over the success of agricultural mechanisation. Some African countries have recognised the impor-

tance of comprehensive mechanisation and have begun to revise their national mechanisation strategies and promote trade partnerships.

At both local and international level, the private sector is recognised as a key actor in the drive for greater mechanisation. A growing number of services are being developed and help smallholder farmers to access innovative mechanisation solutions. In some partner countries, approaches based on cooperatives have also shown promise. Technical courses and business training programmes have been established to build up the skills of those using mechanised solutions. A number of countries actively promote basic vocational training (ATVET) in the field of mechanisation.

### Approach

The GIC global programme provided support for locally adapted, micro- and small-scale mechanisation solutions in the manufacture of farming inputs, in agricultural production and in the processing of agricultural commodities. In general, this was intended to promote sustainable mechanisation as a driver of integrative transformation in rural

areas. An improved range of innovations in mechanisation for smallholder farmers, cooperatives and upstream and downstream businesses (MSME) along the entire VC brought improvements in agricultural productivity and the incomes of rural households, while also boosting local value creation and generating new opportunities for productive employment.

### Activities

The following topics are addressed by various country packages within the framework of the cross-cutting theme of the GIC



- Developing mechanisation services (contractors, machinery rings)
- Promoting the greater use of mechanisation on farms
- Deploying appropriate processing technologies, above all to avoid post-harvest losses
- Expanding the local manufacture of agricultural technology
- Practical, technical and in-company training for service providers, young entrepreneurs and manual workers
- Integrating mechanisation topics into the curricula of agricultural vocational schools (ATVET)
- Promoting access to finance
- Policy advice on creating a more enabling environment for mechanisation
- Promoting the use of ICT solutions in mechanisation



FURTHER INFORMATION



LINKBOX 5: Cross-cutting Topics

 <p>IDA – Cross-cutting topics</p> <p>IDA Website</p>	 <p>Employment Opportunities</p> <p>GIZ Presentation 2025, English</p>
 <p>(Youth) Employment</p> <p>GIZ Factsheet 2025, English</p>	 <p>Youth employment promotion in the agri-food sector through the Green Innovation Centres</p> <p>GIZ Video 2020, English</p>
 <p>ICT Innovations in The Agriculture and Food Sector. Examples and Lessons Learned from the Green Innovation Centres</p> <p>GIZ Presentation, 2025, English</p>	 <p>Gender Game (Snakes and Ladders)</p> <p>Green Innovation Centres 1-pager, 2025, English</p>
 <p>Advancing Gender Equity in Agriculture</p> <p>GIZ Presentation, 2025, English</p>	 <p>Gender Success Stories</p> <p>GIZ Presentation, 2025, English</p>
 <p>Gender: Accelerating Gender-Transformative Change</p> <p>atingi Self-study course</p>	 <p>Celebrating International Women's Day</p> <p>GIZ Factsheet 2025, English</p>
 <p>Approaches of the Green Innovation Centres (GIC) to Promote Gender Equality in the Agri-Food Sector</p> <p>GIZ Video, 2025, English</p>	 <p>Training Change Agents for Gender Equality</p> <p>GIZ Video, 2025, English</p>
 <p>Climate Resilience</p> <p>GIZ Factsheet, 2025 English</p>	 <p>Mechanisation</p> <p>GIZ Factsheet, 2025 German</p>

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## 7. EXTENSION MODULES

With the extension modules on agricultural financing, food security, renewable energies, land rights, natural resources, organic farming and animal welfare, further specific challenges in the sector were addressed on a country-specific basis in

cooperation with bilateral and global projects. The cooperation between the projects was laid down in the offer of the participating projects and thus also represents formalised cooperation in the GIZ portfolio for the first time.

### 7.1 AGRICULTURAL FINANCE

Access to capital underlies all investments in agriculture and in agricultural processing enterprises. Often, appropriate financial products are unavailable to help manage the cost of farm inputs. Quite apart from obtaining loans, it can also be difficult for smallholder farmers and MSME to access savings and insurance products. It has been possible to replace conventional savings and credit products with innovative, IT-based approaches, but this first required the development of basic financial literacy among users and of agricultural know-how among providers.

The GIC global programme already supported general capacity development for MSME through measures such as the FBS and the SME Loop. Building on this foundation, another global programme, *Promotion of Agricultural Finance for Agri-Based Enterprises in Rural Areas (AgFin)*, organised advanced financial training for farmers and MSME. In addition to this, access to financial services was improved through in-depth business model analyses and the development of financial products in cooperation with financial institutions.

Agricultural finance measures were implemented in eight country packages (Benin, Burkina Faso, Cameroon, Malawi, Mali, Nigeria, Togo and Zambia).



## 7.2 FOOD SECURITY

The target group for this module consisted of smallholder farmers who, due to weather and seasonal factors, were susceptible to food insecurity. The introduction of climate-adapted innovations in the partner countries was intended to stabilise local incomes and food supplies and strengthen resilience to the consequences of climate change.

When selecting VC, the project attached great importance to stable incomes and food security. That meant focusing not only on high-calorie staple foods, such as maize, potatoes and rice, but also on products with greater nutritional value, such as sweet potato, cassava, groundnuts and milk. Preference was given to special varieties that contain high levels of vitamins, minerals and trace elements.

In Nigeria and Togo, the projects carried out targeted activities to improve the food and nutritional security of smallholder farmers and workers in agricultural enterprises, especially women of reproductive age and their children up to the age of two. In Nigeria, a nutrition programme for smallholder farmers was set up, and MSME were offered support to help them make safe, nutritious food more attractive, accessible and affordable. Targeted support was also given to boost the production and consumption of bio-fortified varieties in the maize, cassava and sweet potato VC. In Togo, the focus was on improving the nutritional situation in selected villages and prefectures. Nutrient-rich crops such as orange sweet potato, maize, soya, papaya, moringa and dark green leafy vegetables were cultivated on 101 demonstration fields. These measures were implemented by local partner organisations.

## 7.3 RENEWABLE ENERGIES

The focus here was on establishing sustainable and decentralised energy supply systems for agricultural users, especially small-scale farms and upstream/downstream enterprises. The broad-based introduction of market-oriented innovations, such as solar dryers, and solar-powered pumps and mills, has reduced post-harvest losses and increased product quality. With a reliable power supply, it has been possible to retain a greater proportion of the value added to supply chains in rural areas.

These activities targeted farmers' cooperatives, MSME and energy service providers.

**Strategic priorities of the six country packages (Burkina Faso, Cameroon, India, Malawi, Togo and Zambia):**

- **Support for smallholder farmers** in the planning, procurement and use of efficient/regenerative energy systems for:
  - **Production** (e.g. solar-powered irrigation)
  - **Post-harvest management** (e.g. refrigeration and drying)
  - **Further processing** (e.g. husking machines, mills)
- **Strengthening local technology providers** in terms of cost-effectiveness, applications and maintenance
- **Collaboration with enterprises and cooperatives** in the switch to renewable energies and providing advice on energy efficiency
- **Development of financing mechanisms** for the target groups
- **Integration of training content** on renewable energies and energy efficiency into the curricula of agricultural training centres



## 7.4 LAND RIGHTS

This extension module was implemented through the project *Responsible Land Policy* (ProPFR) in Côte d'Ivoire. The objective was to improve access to land-use rights in cocoa-producing communities by documenting ownership and usage rights. The entire process was fully digitalised. ProPFR revised ten models for land-use contracts – a nationally validated institutional innovation. A pilot project in two municipalities involved issuing 130 land certificates. 40 per cent of the (co-)signatories were women. In a further 28 local authority areas, ProPFR initiated a process for clarifying land rights. It also prepared the ground for cooperation with the USAID project *Land Access for Women* (ILAW) and established a collaboration with the GIZ project *ProPlanteurs*.

Ethiopia's GIC areas of intervention were repeatedly subject to land conflicts. The absence of secure land-use rights reduced the incentive for smallholder farmers to make long-term investments in soil fertility and value creation. Working together with the global programme *Responsible Land Policy*, GIC secured land rights for 2,836 households in the Amhara region – of which 713 were headed by women. Overall, 11,604 parcels of land were surveyed and digitally recorded. The bilateral GIZ project *Participatory and Integrated Land Use Planning* (PILUP) supported this process by developing a participatory land-use plan that served as the basis for land registration. At the same time, traditional and formal conflict resolution mechanisms were strengthened, leading to the resolution of 62 land conflicts.

## 7.5 NATURAL RESOURCES

Soil, forests and water are the natural resources that form the basis for sustainable agricultural production. However, short-term efforts to raise productivity have often neglected to conserve these resources, leading to their overuse and putting increased pressure on unused land. Climate change has intensified these effects and accelerated deforestation and land degradation.

The GIC global programme built on international and national strategies, such as *Nationally Determined Contributions* (NDCs), the *Convention on Biological Diversity* (CBD) and the *Sustainable Development Goals* (SDG).

Above all, the expansion of commercial crops at the expense of natural ecosystems has jeopardised the long-term availability of fertile soils, clean water and intact forests, with corresponding implications for food security. This overexploitation has put businesses at an economic disadvantage and threatened jobs.

In many cases, the sustainable use of natural resources reduced costs along the VC, while at the same time increasing the availability of those resources for both agricultural and non-agricultural uses. The activities of the GIC strengthened the regenerative capacity of ecosystems as well as their

resilience to climate change. Protecting soils and forests also contributed to the reduction of global greenhouse gas emissions.

By promoting Good Agricultural Practices in all of its country packages, GIC contributed to the sustainable use of resources. 21 of the VC supported by the programme saw the introduction of sustainable production practices, training was provided for **1,283,575 smallholder farmers (32 per cent of them women, 37 per cent young people)**, and around **52 per cent** of the farmers implemented GAP.

The support included conducting supranational studies on seeds, plant protection, climate adaptation and PHL. One consulting approach across six country packages (Côte d'Ivoire, Ethiopia, India, Malawi, Tunisia and Viet Nam) laid particular emphasis on resource conservation.

The results were summarised in a study conducted by CIAT in 2023. The diagram contained in the study shows that GAP contributed to agroecological transformation, especially with respect to resource efficiency, knowledge transfer, circular economy and resilience. GAP also strengthened the economic and social resilience of the target groups.

## 7.6 ORGANIC FARMING

The extension modul Organic Farming provided long-term support to partner organisations in three West African countries (Cameroon, Mali and Togo) for the introduction of their own standardised production lines for organic farming. This

### Cameroon

The integrated development partnership between GEPA – *The Fair Trade Company* and the cooperative KONAFCOOP came to an end after their multi-year collaboration. Despite the difficult security situation in the project area, it was possible to push through organic certification and establish independent trade relations with GEPA. This example shows that certified organic farming is possible in Cameroon and that it offers considerable growth potential. GEPA is planning to source up to 200 tonnes of cocoa from Cameroon in the future. The country package also supports five other cooperatives on their path to organic certification.

### Togo

In cooperation with *sequa GmbH*, GIC supported the participation of partner enterprises in the trade fairs Biofach 2022 and 2023, at which they presented their products to international importers and made valuable business contacts. Four contracts were signed for sales of soya and shea butter during the actual events.

was intended to achieve sustainable impacts on sales and incomes, as well as having a positive effect on the environment.

### Mali

Together with the working group *Organic Agriculture*, the *Research Institute of Organic Agriculture FiBL/Naturland* and the *International Federation of Organic Agriculture Movements (IFOAM)*, the Mali country package focused on standardising organic production of mangos (fresh and dried fruit), obtaining positive ecological and economic results. This included, in particular, support for multiple innovations, such as ecological methods of treating mango fruit fly infestations, organic plant protections, the systematic application of the Hazard Analysis and Critical Control Point (HACCP) approach to food hygiene, and agro-ecological interventions.



## 7.7 ANIMAL WELFARE

Animal welfare refers to the health and well-being of animals, especially farm livestock. It encompasses their physical health (animal health), the freedom to behave naturally and their emotional well-being as determined by appropriate methods of animal husbandry.

In five country packages (Benin, Cameroon, Kenya, Tunisia and Zambia), the GIC global programme addressed the VC for poultry and milk. This enhanced the significance of animal health alongside animal husbandry, while focusing on increasing productivity, food safety and a contribution to the One Health approach.

### Animal husbandry

The poultry VC was addressed in Benin and Cameroon. In Benin, the focus was on improving how poultry is kept in smaller systems, while in Cameroon support was also provided for the creation of decentralised veterinary stations focused on prevention and diagnostics. This was accompanied by training for vets and animal health workers on the diagnosis of parasitic poultry diseases.

The dairy VC was addressed in Kenya, Tunisia and Zambia. In all three countries, the Good Husbandry Practices (GHP) approach was further developed and adapted to local conditions, including for feed production, feeding and stabling conditions. To complement the improvements in animal husbandry, training was also provided on prophylactic measures.

### Animal health

In Kenya, the project cooperated with the Kenyan Veterinary Association to provide comprehensive training courses on ruminant diseases in four counties. The target groups were vets and animal health workers. The training ranged from diagnostics and husbandry to overarching topics such as *One Health and antimicrobial resistance (AMR)*.

In Zambia, the focus was on herd health programmes, milk hygiene and the introduction of a special Dairy Farmer Field School.

In Tunisia, the project contributed to the development of a centre of excellence in Thibar which will reinforce practical training and education in the long term.

### One Health






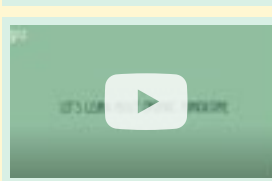
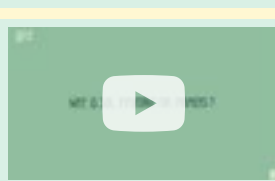


The One Health approach is based on the understanding that the health of people, animals and the environment are interlinked. It underpins prevention and promotes interdisciplinary cooperation, particularly between human and veterinary medicine and environmental sciences, while also considering the interactions between humans, domestic and farm animals, wild animals and their ecosystems.



FURTHER INFORMATION



LINKBOX 6: Extension Modules

 <p>IDA – Extension modules</p> <p>IDA Website</p> <p><b>giz</b></p>	 <p>Extension Module – Food Security in Togo.</p> <p>GIZ Factsheet, 2025, English</p>
 <p>Renewable Energies in Agriculture</p> <p>atingi Self-study course</p>	 <p>Organic Agriculture</p> <p>GIZ Poster, 2025, English</p>
 <p>Organic Cocoa</p> <p>GIZ Factsheet, 2025, English</p>	 <p>Let's Learn About Organic Agriculture – What Is Organic Agriculture?</p> <p>GIZ Video, 2021, English</p>
 <p>Let's Learn About Organic Agriculture – Why Is Soil Important for Farmers?</p> <p>GIZ Video, 2025, English</p>	 <p>Erweiterungsmodul Ernährungssicherung in Togo – Aufarbeitung nach vier Jahren Umsetzung</p> <p>GIZ Presentation, 2020, German</p> <p><b>giz</b></p>
 <p>Biodiversitätserhaltenden Maßnahmen in landwirtschaftlichen Wertschöpfungsketten</p> <p>GIZ Paper 2025, German</p> <p><b>giz</b></p>	

Sources marked with the GIZ logo are internal and can only be accessed by GIZ employees.



## 8. SUPRA-REGIONAL COOPERATION

### 8.1 CROSS-REGIONAL CAPACITY DEVELOPMENT

Starting in 2016, the GIC global programme developed and applied a range of complementary formats in the field of *cross-regional capacity development* for actors in various partner

organisations. These measures complement the skills development activities in the programme's 16 country packages while emphasising South-South and North-South exchanges.

#### 8.1.1 Exposure seminars

Between 2016 and 2023, 59 'exposure seminars' were organised as part of GIC. These consisted of ten-day events in Germany that combined theoretical and practical learning and were supported by various German actors. The topics addressed in the seminars reflected the innovations and needs selected in the country packages. Needs were identified in advance through surveys, and the seminars were then developed specifically for the participants. Seminar documentation and contact details for network partners are available for the following cross-section of seminar topics:

- Organic farming
- Cooperatives and associations
- Contract farming
- Leadership training for women in rural areas
- Agricultural knowledge and information systems (AKIS)
- Seed production
- Information and communication technology for agriculture
- Renewable energy and energy efficiency for agriculture
- Support for start-ups in agricultural VC
- Food safety and quality
- Food processing

### 8.1.2 Online seminars

In response to Covid-19 pandemic, the range of teaching activities was extended to include additional online seminars and e-learning products, with 45 such seminars organised in all, addressing a variety of topics and innovations. The seminars lasted for up to five days each, allowing in-depth training to be combined with opportunities for exchange and group work. Examples of the topics covered in online seminars include:

- Support for cooperatives and rural producer organisations
- Impacts of climate change
- Agricultural knowledge and information systems
- ICF
- Youth development and employment
- Basic food processing and food technology
- Seed system development
- Agricultural knowledge and innovation systems
- Organic production and post-harvest management
- ICT in the development of agricultural VC
- Climate-friendly VC and renewable energies

## 8.2 KNOWLEDGE COOPERATION

### 8.2.1 Green Colleges

Green Colleges are core network partners for the sustainable and broad-based mainstreaming of relevant expertise within a national or regional framework. In reality, in each of the various partner countries there is a broad spectrum of institutions that can be described as Green Colleges. While taking this diversity into account, the term can generally be understood as referring to state or non-governmental institutions run by various organisations that provide training for actors in the agricultural and food industry. They provide training both for intermediaries (employees of consulting firms, etc.) and directly to the target group (e.g. members of farmers' organisations), mainly on work of a practical nature in different VC.

The core need, faced by all the countries, was for training that covered methodological and didactic skills for teachers, quality assurance in teaching, and methods of initiating and supporting change processes within the colleges. This was addressed through training programmes of several months' duration for lecturers and managers at the Green Colleges. The cross-regional training programme has since given rise to an independent network of 30 colleges, known as *African Green Store Network* (AGSN).

### 8.2.2 Cooperation with universities

Since 2017, the GIC have cooperated with the *Weihenstephan-Triesdorf University of Applied Sciences* (HSWT) to support African partner universities and help deliver practical training courses.

This cooperation was intended to assist partner universities in those countries with GIC, while designing study programmes

and other activities that are more practically oriented and demand-driven, and therefore enable universities to exert a direct impact on regional/ national societies and economies. The measures included a postgraduate course (with participants from all the African GIC countries), university partnerships (primarily in Ethiopia, Kenya and Togo), training for teaching staff, the development of study programmes with a strong focus on applied learning, and support for the creation of structures to promote innovation and entrepreneurship.

### 8.2.3 Cooperation between rural women's organisations

The first links between the Bavarian rural women's organisation *BBV-Landfrauen* and the rural women of Kenya were established in 2017. This innovative partnership aimed to improve the living conditions of women farmers and contribute to a shift in their roles through network-building and by helping them to develop greater agency.

The two groups of women farmers contributed as equals to practical discussions that focused on developing and then consolidating an independent mechanism to represent the interests of women through self-help groups. At their meetings, they also explored options to generate additional income, the importance of educating people about nutrition and the sharing of knowledge and experience across borders.

Starting in April 2023, the project continued to receive funding from the global programme *Strengthening Farmers' Organisations*.

### 8.2.4 Internship programme

From 2019 onwards, the GIC worked with *AgrarKontakte International* (AKI) on an internship programme with African partner countries.

The internship programme involved six months of training, based on the principle of “learning by doing”, during which participants deepened their agricultural know-how. It enabled agriculture students from the partner countries to complete an internship in Germany. Students completed the internship as a supplement to their studies or vocational training, the objective being to familiarise themselves with processes and procedures in practice.

The programme facilitated the sustainable transfer of knowledge in the area of agricultural practice, while also developing young professionals and future multipliers. It helped to build a cadre of skilled workers in the agricultural sector and, through exchange visits to different enterprises, shared knowledge about the various paths to professional qualification in agriculture and in upstream and downstream sectors.

### 8.2.5 Innovative agriculture

Since 2017, the GIC has been working with various centres of the Consultative Group on International Agricultural Research (CGIAR). This research collaboration focused on the transformation of agricultural and food systems in times of climate crisis and took place in several country packages. The effects of this collaboration are manifold.

The following projects have been carried out in cooperation with CGIAR

#### 8.2.6 GIC and AfricaRice – CORIS

The *COVID-19 Response Rice Seeds Project* (CORIS) was conceived by GIC’s working group *Map4 Rice* (Multi-Actor Partnership for Rice) and implemented by the pan-African research centre *AfricaRice*, in cooperation with the consortium *COSEM-Riz* (37 rice seed companies and mills).

The COVID-19 pandemic significantly compromised West African food systems and exposed serious vulnerabilities in



agricultural supply chains, especially for rice. In response, CORIS was launched to strengthen rice seed systems, protect livelihoods and increase climate resilience in five West African countries (Benin, Burkina Faso, Côte d’Ivoire, Mali and Nigeria).

The main objective was to provide certified seed of climate-resistant rice varieties in order to stabilise farmers’ yields and build up seed stocks for future cultivation. Complementary measures were also carried out, such as delivering

training in GAP, introducing adapted hermetic storage bags to improve quality and supporting small-scale mechanisation.

## RESULTS AND IMPACTS

### Seed production

- 24.8 tonnes of *breeder seed* were produced, a third of which consisted of climate-resistant varieties.
- 934 tonnes of *foundation seed* were produced in partnership with seed companies and national research institutions.
- In all, 28,167 tonnes of certified seed were produced. Of this, 27,325 tonnes were produced by the 37 member organisations of the *COSEM-Riz* consortium with direct support from CORIS.

### Capacity building and technology roll-out

- Distribution of hermetic storage bags with integrated training materials
- Introduction of digital tools for agricultural monitoring
- Support for mechanisation in small-scale agriculture

### Strengthening institutions

- Support for national seed certification bodies
- Improvement of quality assurance systems
- Promotion of sustainable governance structures in the seed sector

### Reach and results

- 11,310 seed producers benefited directly, of whom 85.6 per cent were young people.
- Indirectly, the project reached 845,494 people, including producers, field labourers and their families.
- The project contributed to the creation of a sustainable and resilient seed supply system based on private-sector involvement, climate-resilient cultivation methods and local responsibility.

### Sustainability and upscaling

To secure its results for the long-term, CORIS:

- promoted climate-resistant varieties adapted to changed agroecological conditions;
- provided incentives for private investment in seed production and marketing;
- integrated training materials into its seed deliveries;
- used digital monitoring and evaluation tools so as to continuously improve agricultural practices and make decisions based on the latest data.



### 8.2.7 GIC & CIMMYT – a partnership for sustainable mechanisation in Africa and Asia

The GIC worked together with the *International Maize and Wheat Improvement Center* (CIMMYT) to promote the sustainable mechanisation of MSME in the GIC partner countries. The advice provided by CIMMYT focused on the following areas: post-harvest management, gender-responsive mechanisation, supra-regional partnerships, mechanisation centres and upscaling. Cooperation with CIMMYT was managed through the supra-regional working group on mechanisation, and CIMMYT also used the working group to support technical exchanges. CIMMYT concentrated its advisory services on the country packages for Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, India, Kenya, Malawi, Mali, Nigeria, Togo and Zambia. The support was demand-based, depending on requests originating from the country packages.

#### Results of the cooperation

##### Identification of post-harvest technologies

- In seven GIC countries, the rice, groundnut, soya, potato, cassava and cocoa VC were analysed to identify the causes of PHL.
- Adapted technologies, such as rice threshers, solar dryers, potato storage and fermentation boxes were identified as means of reducing losses and increasing product quality. CIMMYT provided technical support for the piloting of these technologies in each country.
- Cost-benefit analyses and awareness-raising workshops were held to support the cost-effective roll-out of these solutions.
- Awareness-raising workshops on PHL and related technologies were held with various actors in Benin, Burkina Faso and Mali.

##### Support for gender-responsive mechanisation

- In this area, CIMMYT worked with the FAO and focused on identifying and piloting appropriate technologies in Benin, Malawi and Zambia.
- Gender-sensitive analytical tools and a gender *business model canvas* were developed to identify the specific needs of women with respect to mechanisation.
- Micro-mechanisation solutions for processing cassava were piloted in various women's cooperatives in Benin.
- The transfer of cassava milling technology from Côte d'Ivoire to Malawi was accompanied by training courses for local manufacturers and users.

##### Support for cross-national development partnerships

- An integrated development partnership was established to facilitate collaboration between Rohit Krishi (India), GIC Benin and the Beninese company Techno Agro Industries.
- CIMMYT provided the partners with technical support in adapting machines to local conditions and establishing long-term business relationships.

##### Advice on mechanisation centres

- Working together with FAO, six e-learning courses were developed on *Managing Hire Services as a Business*.
- An online course for trainers was provided on *Hire Services as a Business Model*.
- For the PRODOGBO training centre in Benin, comprehensive vocational training materials were produced for course participants preparing for work as tractor drivers, mechanics and toolmakers.

##### Scaling up mechanisation solutions

- The analysis tool *Scaling Scan* was specially adapted to assess mechanisation innovations.
- At 16 workshops in 12 countries, participants assessed 23 technical, organisational and knowledge-based innovations in order to measure their upscaling potential and identify possible bottlenecks.
- Based on the results of these analyses, specific strategies were developed and implemented for disseminating innovations.

### 8.2.8 GIC & International Potato Centre (CIP) – decentralised propagation of seed potatoes using Rooted Apical Cuttings (RAC) technology in the potato VC in Karnataka, India

#### Objectives of the cooperation

- Promotion of local seed potato production with RAC technology
- Development of the seed potato sector in Karnataka by way of public-private partnerships (PPP) and state investment
- Capacity development for relevant actors (farmers, horticultural authorities, private nurseries, horticultural universities, etc.) related to the use of RAC technology and the development of business models in the seed sector

#### The role of the CIP in promoting RAC technology

- Application of RAC technology through various trials in greenhouses and on farm fields, with the aim of standardising different processes and developing business models
- Capacity building for various actors through practice-based training and follow-up support
- Testing innovative processes to reduce the costs of RAC technology
- Strengthening cooperation to increase production of seed potatoes with RAC

#### International exchanges

CIP presented the RAC technology to the crossregional potato working group.

On a study trip to Viet Nam, where the approach has been used for decades, the technology was presented to scientists from the *University of Horticultural Sciences*, Bagalkot.

At GIC level, cooperation focused on trials of the technology. CIP supported the work of the GIC in Cameroon, Nigeria and Mali to raise awareness of low-cost processes in:

- tissue culture laboratories
- tree nurseries
- field production
- the transport of cuttings.

The technology was introduced in **Kenya, Mali and Nigeria** through the potato working group supported by CIP.

#### Results and impacts

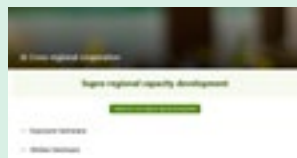
- Motivated actors have joined forces to develop an alternative seed production system.
- In its 2023–24 budget, the Government of Karnataka announced that it would introduce this innovative technology and roll it out in the state.
- Karnataka has emerged as the centre of learning around RAC for the entire country.
- Nine other Indian states have expressed great interest in adopting the technology for local seed potato production.



FURTHER INFORMATION



LINKBOX 7: Cross-regional Cooperation



IDA – Cross-regional cooperation



IDA Website

**giz**



Cross-regional cooperation



GIZ Knowledge Bulletin, 2025, English



Cooperation and Cooperative in the Agricultural Sector



atingi Self-study course



Toolbox for cross-regional capacity development – Best practices from the Green Innovation Centre



GIZ, Manual 2025, English

**giz**



Capacity Development Programme for Lecturers and Managers of Green Colleges



GIZ Brochure, 2025, English

**giz**



Weihenstephan - Triesdorf: Food Chains in Agriculture 2035: Postgraduate Training Course



Brochure 2025, English

**giz**



Ayanas Journey



GIZ Comic, 2021, English



Rooted Apical Cuttings (RACs) - Best Practices



GIZ Factsheet, 2025, English

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## 9. COOPERATION WITH THE PRIVATE SECTOR

### Context

The scale of investment needed to promote sustainable agriculture in the partner countries was greater than could be covered with public funds alone. The GIC partnered with the private sector in various ways to generate additional investment.

GIC's cooperation partners were mostly active in one of the following areas:

- Buying agricultural products from one of the partner countries
- Marketing innovative technologies or services for the local agricultural sector (e.g. seeds, agricultural machinery, digital solutions, training)

### OBJECTIVES

GIC's engagement with the private sector was intended to unite business interests and development interests. It offered companies opportunities for growth and contributed to the objectives of development policy.

#### Development cooperation objectives

- Improve local economic conditions
- Design sustainable value chains
- Mobilise capital and expertise
- Involve the local population in economic activity

#### Companies' objectives

- Access supply chains
- Gain market entry and/or expand in developing countries and emerging economies
- Market products
- Acquire/retain customers

### Activities

- Advising GIC on specific cooperation projects
- Holding webinars for GIC working groups or GIZ staff in general
- Systematising general information and specific case studies of engagement in the private sector

### Forms of engagement for private companies

- One-off cooperation (e.g. presenting a specific technology at an event; company visits as part of training courses; exposure seminars)
- Joint multi-year projects under formal contracts, i.e. integrated development partnerships with the private sector (iDPP)

Common to all the cooperation arrangements was that the companies and the GIC each contributed their core areas of expertise, and each partner covered a share of the costs incurred.

## 9.1 INTEGRATED DEVELOPMENT PARTNERSHIPS WITH THE PRIVATE SECTOR (IDPP)

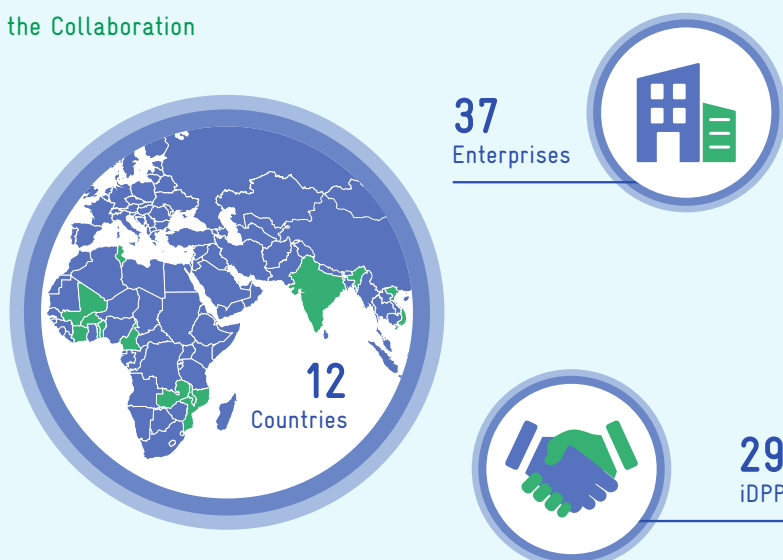
Integrated development partnerships allowed private-sector partners to participate directly in project implementation work. They contributed their own financial resources and expertise and helped the project to achieve its objectives. Whether large corporations or small enterprises, local firms or global players, all-rounders or specialists: our partners are every bit as diverse as the situation in each GIC country. Above all, the perspectives contributed by private-sector partners added to the economic sustainability of the project

measures. 29 iDPP were implemented in **twelve of the 16 GIC country packages**, with the involvement of 37 German, local or other business partners. Most of the partner businesses were small-scale producers, although some were in the processing sector. The decisive factors for the technical sustainability of the iDPP were the adaptation of the technology to local conditions, a ready supply of spare parts and access to established maintenance systems.

### Examples of iDPP contributions and activities

- Participation of private-sector partners in project implementation
- Partner funding contributions
- Specific expertise
- Implementation of 29 integrated development partnerships (iDPP) with 37 German, local or international companies

Fig. 10: Outcomes of the Collaboration



## 9.2 SEQUA GMBH/ IMPORT PROMOTION DESK

In a project running from June 2021 to 2023, the Import Promotion Desk and *sequa GmbH* offered support and guidance for GIC partner enterprises. *Sequa* is a non-profit organisation based in Bonn that conducts projects worldwide on behalf of the German Government, the EU and other donors, with a focus on vocational training, business development and strengthening institutions.

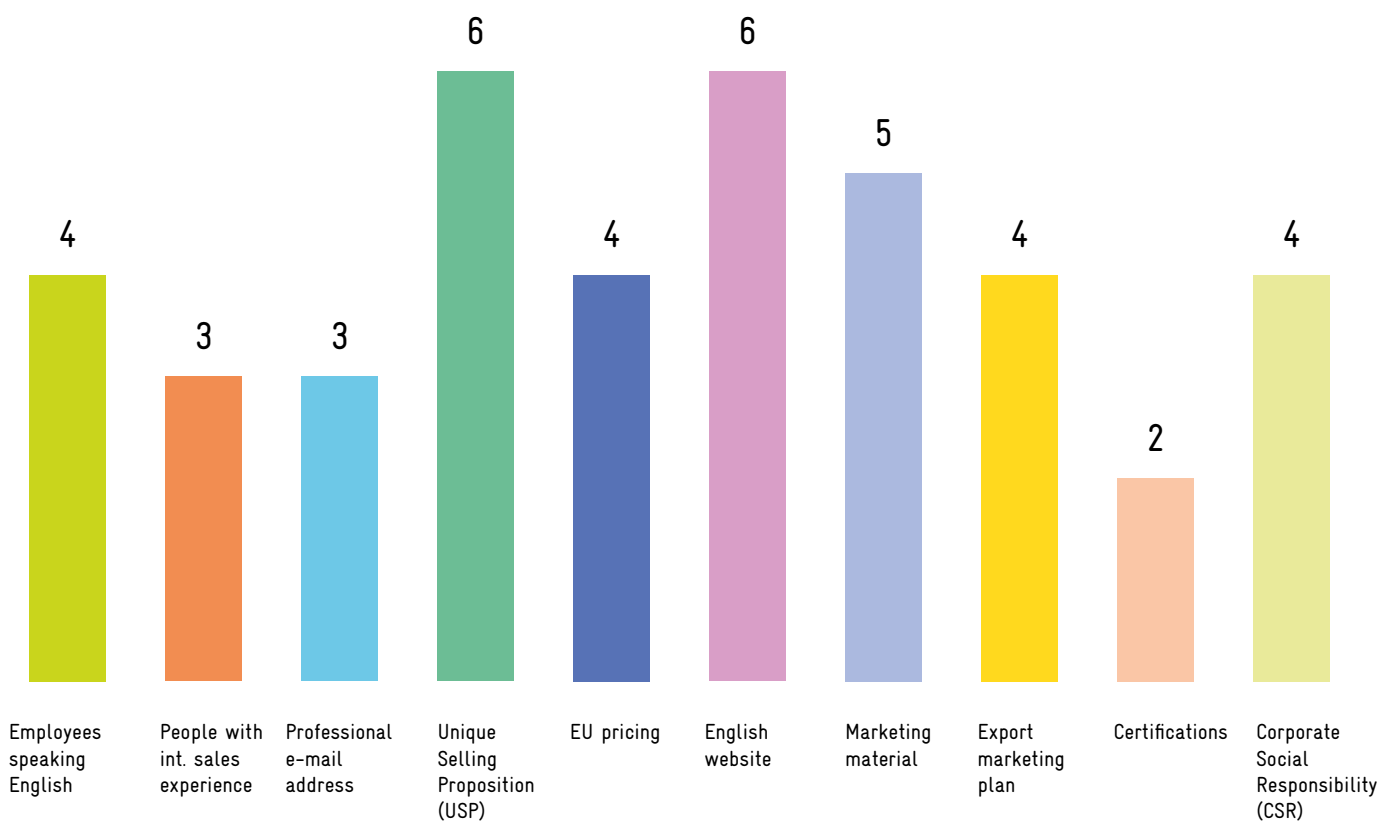
Activities promoting the sustainable development of trade relations covered six countries: Burkina Faso, Côte d'Ivoire, Mali, Togo, Viet Nam and Zambia. Overall, as many as 15 companies benefited from support in accessing the European market.

### Examples of market promotion activities

- Sourcing missions to choose local enterprises that offered market-ready products and could be matched with European importers
- *Matchmaking* local enterprises with European importers
- Training courses on corporate social responsibility and export marketing plans
- Support for trade fair appearances and negotiations

By the end of the project, a total of 189 matches had been made between the MSME and European companies. Of these, 50 led to negotiations, while nine resulted in contracts with an investment of less than €150,000, an increase in exports of more than €450,000 was achieved for the beneficiaries.

Fig. 11: Number of Companies That Improved Their Operations, by Category



FURTHER INFORMATION



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LINKBOX 8: Cooperation with the Private Sector



IDA – Cooperation with the private sector



IDA  
Website



Contribution of the Private Sector



GIZ  
Factsheet, 2025, English

Sources marked with the GIZ logo are internal and can only be accessed by GIZ employees.



## 10. SPECIAL FUNDING AND SUPRA-REGIONAL TOPICS

### 10.1 STRENGTHENING THE RESILIENCE OF TARGET GROUPS DURING THE COVID-19 PANDEMIC

#### Background

To limit the impact of the SARS-CoV2 pandemic on the agriculture and food sector, in mid-2020 BMZ provided additional funding for the GIC global programme to consolidate the results it had achieved, broaden its impact and strengthen the resilience of the target groups. Of these funds, €16,840,000 was used for supra-regional measures.

The measures were identified as part of needs analyses. These revealed that, in some cases, there were massive impacts on

target groups and the social and economic situation across countries, as well as disruptions to production, processing and marketing. The measures should respond to identified challenges and needs in a targeted manner, involving regional partners. They were particularly well suited to addressing the effects of the COVID-19 pandemic directly, while positively influencing how the pandemic affected intended project results and strengthening the target groups' general resilience to external risks.

### COVID-19 Response Rice Seeds Project (CORIS)

This measure ran from October 2020 to December 2022 and was implemented by *AfricaRice* together with local research institutes, seed organisations, the private sector, as well as national ministries in Benin, Burkina Faso, Côte d'Ivoire, Mali and Nigeria. The main target groups were seed-producing organisations, rice producers and consumers. CORIS supported the production of certified, climate-resilient seed as a means of stabilising rice production after the coronavirus crisis and strengthening the VC in the long term. As well as promoting good agricultural practices and post-harvest and storage technologies, the project digitally monitored seed production (through the data management system *e-Prod*) and provided information materials. The measure emphatically involved the local private sector and worked closely with existing seed systems to enable self-sufficiency and increased yields.

### Increased resilience and quality control – Potato

This measure ran from December 2020 to October 2022 and was implemented by the CIP together with private enterprises, research institutions and government agencies in Cameroon, India, Mali, Nigeria and Tunisia. It strengthened the capacities of basic seed producers, introduced climate-resilient varieties, supported the development of regulatory structures in the seed sector and promoted good agricultural practices. As well as developing national strategies for the potato sector, the project organised training courses for seed producers and inspectors and introduced modern diagnostic equipment for the early detection of diseases.

### Multi-Actor Platforms – Potato

From December 2020 to September 2022, in Cameroon and Nigeria, the *Andreas Hermes Academy* (AHA) supported the development of national platforms for the potato VC. These were used to help stakeholders share information, coordinate activities and facilitate advocacy work. Intensive workshops were held to develop the vision, strategic objectives and roles of participating actors, and to integrate them into national sector strategies.

### Adapted mechanisation technologies

This measure was implemented from October 2020 to March 2023 by CIMMYT in cooperation with FAO, the University of Hohenheim and other partners in ten African and Asian countries. The objective was to modernise agricultural and processing technologies in order to increase resilience in the face of crises such as COVID-19. The project focused on tailored mechanisation solutions, post-harvest procedures, gender integration, strategic partnerships and capacity development.

### Mechanisation centres

Between December 2020 and June 2022, *DEULA Nienburg*, a German educational centre for agricultural professions, set up local mechanisation centres in Benin, Burkina Faso and Mali to train young adults as mechanics, tractor drivers and machine operators, while also promoting the use of modern agricultural technology and equipment adapted to local conditions. The measure also involved support for the procurement of machinery and equipment.

### Sustainable mechanisation

This measure was implemented from December 2021 to March 2023 by the FAO in Benin, India and through supra-regional formats. It developed e-learning and training materials for providers of mechanisation services, encouraged post-harvest practices that conserve resources, boosted the participation of women in market-based agriculture, and integrated sustainable mechanisation into national strategies.

### Gendertransformative mechanisation

From October 2020 to October 2022, women entrepreneurs in Benin, Kenya and Mali received targeted support. In Benin, *Going Green* supported women working in compost production; in Kenya, *Women on Wheels* promoted transport services provided for women by women; and in Mali, modern equipment was provided to women's rice parboiling cooperatives. These measures were intended to increase the incomes and economic empowerment of the women involved.

### Interactive radio campaigns

Between November 2020 and April 2022, Farm Radio International (FRI) produced interactive radio programmes in seven African countries, addressing good farming practices, nutrition, gender and hygiene in the context of COVID-19. The measure reached around seven million people. It actively involved the listeners and provided training for radio staff on communicating relevant content in a targeted manner.

### FBS Innova App

From December 2020 to October 2021, together with the *Agri-Business Facility for Africa*, Agro-Innova developed a mobile version of the FBS. The Android app was made available in four languages and customised for 17 product packages. It has been used in six countries and integrated into training courses on cultivation skills and digital business for smallholder farmers.

### ICT impact assessment

In a five-month study (December 2020 to April 2021), the consulting firm GFA analysed the impact, sustainability and upscaling potential of four digital solutions in Benin, India, Kenya and Zambia. The study provided practical recommendations for improving the way in which digital applications are introduced and disseminated in agricultural projects.

### Agroecology via videos

Between October 2020 and December 2021, Access Agriculture shared 87 farmer-to-farmer videos on agroecological topics in local languages in six African countries. The subjects covered ranged from crop protection to post-harvest management and processing. Screenings were held in villages using solar-powered projectors, with young people working as film presenters as a supplementary employment measure.

### Digital financial literacy for women

This measure, from September 2020 to June 2021, was aimed at women's groups in Cameroon and Mali. It improved access to digital financial products such as mobile banking and savings programmes. Mobile devices and mopeds were used

to help deliver training and financial services, even in remote areas, reaching over 33,000 smallholder farmers.

### Gender-transformative approaches

From October 2020 to September 2022, a series of programmes were implemented in Burkina Faso, Kenya, Malawi and Togo for the long-term empowerment of women and female entrepreneurs. They included a training course with the title *Gender makes Business Sense*, the *Gender Action Learning System*, the GTA Loop and a number of large-scale awareness-raising campaigns on food security. In addition, gender guidelines were developed for integration into business support programmes.

### Youth employment promotion

This measure, from August 2021 to October 2023, was designed in five countries to support youth organisations, young entrepreneurs and start-ups in selected VC. The core instrument was the SME Loop, which was introduced in several countries. Besides this, the measure strengthened youth organisations, delivered training for start-ups and gave targeted support to enterprises headed by women.

## 10.2 DROUGHT RESPONSE FUNDS

### Context

The 2023–24 drought in southern Africa, exacerbated by the El Niño phenomenon, severely affected agricultural production in Malawi and Zambia and threatened the food security of millions of people. In response, GIC employed targeted drought mitigation strategies intended to strengthen resilience and food security. The measure's target group consisted of smallholder farmers who cultivate less than two hectares of land and who form the backbone of agriculture in both Malawi and Zambia. They are essential for food security and economic stability, but are highly vulnerable to climate

change and extreme weather events, especially in regions that depend on rain-fed agriculture. This vulnerability was particularly evident in the 2023–24 agricultural season, when the El Niño phenomenon triggered one of the driest rainy seasons the two countries have experienced in the last 40 years. The drought, characterised by delayed and reduced rainfall, caused considerable losses of harvests, particularly of maize, the most important staple crop, but also of other important crops, such as soya beans and groundnuts.

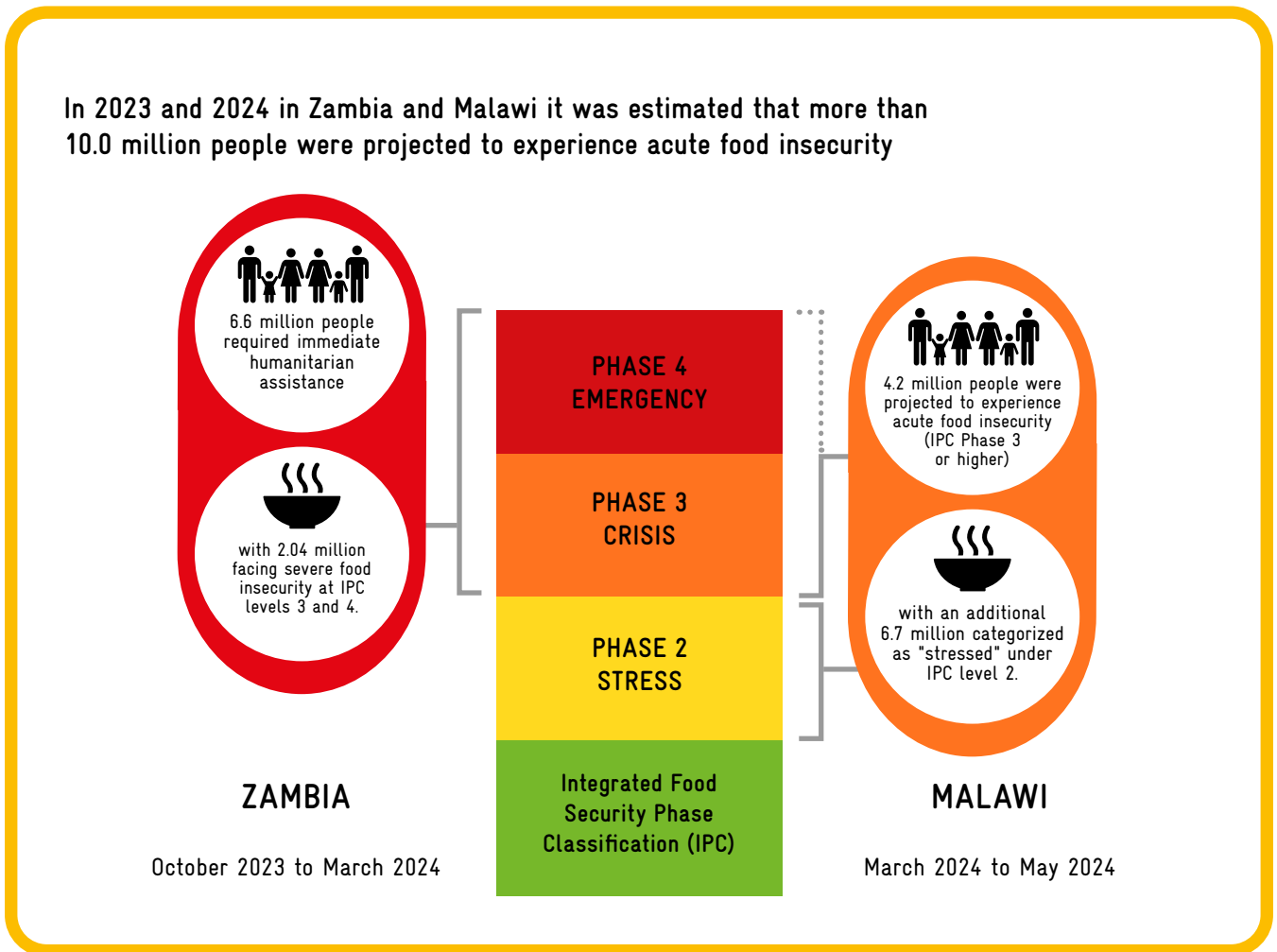


Fig. 12: Food Insecurity in Zambia and Malawi in 2023 and 2024

### ZAMBIA

In Eastern Province, a long-standing cooperation with Community Markets for Conservation (COMACO) was extended under a new 14-month funding agreement with the intention of improving the drought resilience of 15,000 smallholder farmers. The subsequent measures to mitigate the impacts of drought drew on the earlier activities and experiences of COMACO and the GIC in the fields of agroforestry, conservation agriculture and seed multiplication, while also

introducing new topics such as winter cropping. In Southern Province, the focus was on intensifying support for the dairy VC, both at farm level (agricultural inputs and production) and at cooperative level (processing and services). This holistic approach, based on the measures described below, aimed to preserve the dairy industry and support 1,000 small-scale dairy farmers.

## Activities in Zambia

### Measures to mitigate the drought's effects built on the previous activities and experiences of COMACO and GIC:



#### Eastern Province:

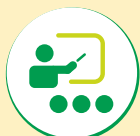
##### Promoting Winter Crop Production:

To boost food security in the short term, winter crop production under irrigation was promoted for 2,800 farmers.



##### Procurement of Seeds:

10 tons of winter maize seeds were secured for winter crop production. Legume seeds were injected into seed multiplication programmes to support mid-term recovery.



##### Training Initiatives:

Over 790 certified seed producers were trained on seed multiplication for drought-resistant crops, such as cowpeas, and on marketing strategies. Additionally, 210 master trainers were equipped with knowledge on winter crop production techniques.



##### Ensuring Water Access:

To improve water availability, 15 boreholes were drilled, and solar-powered pumps were installed at cooperatives with sufficient water sources. Furthermore, 100 human-powered treadle pumps were distributed to producer groups.



##### Awareness Campaigns:

1.8 million people were reached through radio on various topics, such as the importance of crop diversification for climate resilience.



##### Improved Storage Solutions:

To minimize Aflatoxin contamination at bulking points, 9,900 *Purdue Improved Crop Storage* (PICS) bags were distributed to farmers. Additionally, moisture meters and mobile Aflatoxin detection kits were procured and used in the field.



##### Processing and Packaging Enhancement:

At the COMACO hub, increased capacities for processing and packaging *Yummi Soy* were installed. *Yummi Soy*, a breakfast mix based on soya beans and maize, is used in school feeding programmes such as those run by the charity *Mary's Meals*.



#### Southern Province:

##### Water Access and Livestock Support:

Boreholes were drilled, and solar-powered pumps were installed at nine dairy cooperatives to ensure a reliable water supply for both fodder production and an estimated cattle population of 5,600 animals.



##### Fodder Production and Training:

Fodder grass and legume seeds were injected in fodder production programmes, and livestock farmers were trained on fodder production and business management in collaboration with the *Ministry of Fisheries and Livestock* (MFL), *Enhanced Smallholder Livestock Investment Programme* (E-SLIP), and the *Zambia Development Agency* (ZDA). Ten dairy cooperatives were supported with chaff cutters to enable fodder conservation through silage production.



##### Certification and Traceability:

To enable product certification by the *Zambia Bureau of Standards* (ZABS) and to ensure compliance with food safety standards, six dairy cooperatives received support for traceability of milk products through batch labelers and scanners.



##### Animal Health Improvements:

A spray race was installed to improve animal health management, contributing to better overall productivity and livestock well-being.

These needs-based adjustments and interventions were designed to help smallholder farmers and dairy producers in both provinces navigate the ongoing drought, enhance resilience, and sustain agricultural production in Zambia.

## MALAWI

Interventions by the GIC in Malawi combined direct emergency aid with long-term resilience-building. This ensured access to essential foodstuffs while at the same time strengthening agricultural productivity.

The target group consisted of people living in rural communities of Dedza district in Central Region, who themselves

identified the most vulnerable households based on the criteria of the Joint Emergency Food Assessment Programme (JEFAP). All the households received the full package of support as the measures were coordinated. All 1,324 of the selected households benefited from the interventions, which ensured that the assistance was comprehensive.

### Activities in Malawi



#### Unconditional Cash Transfers for Emergency Relief:

Building on Past Interventions from the Global Project on *Food and Nutrition Security to Strengthen Resilience to Food Crises* unconditional cash transfers were provided to offer immediate relief to vulnerable households, enabling them to meet their basic food and livelihood needs during the crisis.



#### Climate Smart Agriculture (CSA) Training:

To strengthen agricultural production under changing climatic conditions, farmers received training on CSA practices. This training, aligned with GIC methodologies, helped enhance resilience and sustainability in the face of future droughts and extreme weather events.



#### Provision of Seeds and Agricultural Inputs:

In line with the principles of the GIC project, seeds and essential agricultural inputs (such as groundnuts, cassava, and soya) were distributed to enhance food availability and support future production.

## 10.3 REDUCTION OF POST-HARVEST LOSSES

### Context

An estimated 30 per cent of global food production is lost because of production-side losses or wastage on the consumer side. Many of the technical and organisational innovations promoted by the GIC pursued the implicit objective of minimising these losses. This included, for example, improving mechanisation in harvesting and processing, modernising storage facilities, making it easier to access markets, raising awareness and, not least, providing comprehensive training for producers.

Since post-harvest protection is such an important topic, not only for income and food security but also in terms of

climate-friendly production, in 2021 BMZ provided an additional EUR 5 million to roll out carefully adapted solutions in selected country packages (*PHL Booster*). Following an internal GIC competition, eight country packages (Burkina Faso, Cameroon, Côte d'Ivoire, India, Mali, Togo, Viet Nam and Zambia) received additional funding to disseminate innovative technologies, such as harvesters, threshing machines, refrigerated warehouses, dryers, *parboiling* equipment and transport bicycles. Training courses and teaching materials were developed, and support was given for wide-ranging information campaigns.

## Activities

- Identifying causes of PHL
- Parameters for effective PHM
- Innovations before and after harvests to minimise food losses
- Preventing and controlling mycotoxins
- Management systems for quality and traceability

## Results and impacts

- Thanks to additional PHL Booster funding, more than 170,000 producers, 40 per cent of them women, benefited from specific training measures.
- Effective PHM reduces quantitative losses and increases the economic viability of production.
- Better quality harvests result in better market opportunities, while effective storage means farmers can expect better market prices.

## Sustainability

- General PHL topics were integrated into GAP and FBS training courses and were consequently applied and mainstreamed.
- Specific PHL training activities were delivered using a training-of-trainers approach.
- Knowledge and learning materials remained with local multipliers so they could still use them after the end of the project.

## FURTHER INFORMATION

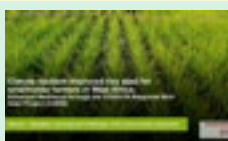


ATNGI



IDA

### LINKBOX 9: Special Funds



Climate-Resilient Improved Rice Seed for Smallholder Farmers in West Africa: Enhanced Resilience Through the COVID-19 Response Rice Seed Project (CORIS)  
GIZ  
Presentation, 2023, English



Drought Response  
GIZ  
Factsheet, 2025, English



Concept Note – How to Evaluate Climate Resilience for the Rice Farmers and Agro-Pastoralists in Nigeria  
GIZ  
Factsheet, 2024, English



GIC Nigeria – INACC – An integrated Approach to Climate Change in Rice Production  
GIZ  
Presentation, 2024, English



## 11. GLOBAL COOPERATION: SOUTH–SOUTH/SOUTH–NORTH EXCHANGE

The GIC global programme promoted exchange between Africa, Asia and Europe in various ways and using different formats. The global programme's seven working groups (WG) played a key role. Four of these focused on specific VC (cocoa, potatoes, rice and dairy) while the other three addressed cross-cutting issues such as ICT, mechanisation and organic farming. In addition to online exchanges, *exposure seminars* were held at trade fairs and the WG met in person.

The programme also organised several thematic study trips to China, Viet Nam and Germany so that representatives of partner institutions could benefit from local expertise in specific areas. One particular form of South–South exchange was the trilateral cooperation between Germany and India with Benin, Malawi and Cameroon, and between Germany and Brazil with Ethiopia. This aimed to incorporate the expertise

of emerging economies to a greater extent and consolidate their role as a "global partner" of BMZ.

It is important to underline that all of these activities were not an end in themselves. Rather, the deliberate aim was to share knowledge and to support the 16 country packages to achieve their specific objectives and indicators more effectively in the respective VC and in the cross-cutting issues mentioned. The WG and exchange formats – including the North–South exchange via Feldafing – were shown to make a significant contribution to the achievement of these objectives (see ToC on page 14).

The formats developed for this purpose and the supplementary materials are presented as follows.





## 11.1 WORKING GROUPS

### 11.1.1 Cocoa VC

West and Central Africa produce over 70 per cent of the global cocoa supply. Côte d'Ivoire and Ghana are the world's largest cocoa producers. However, the cocoa-producing countries, especially in Africa, face major challenges when it comes to the sustainability of current production methods, which have a negative impact on the livelihoods of the cocoa-producing households in rural areas. These include low producer incomes, insufficient local value addition, stagnating productivity, the loss of natural resources and increasingly extreme climate events, such as droughts.

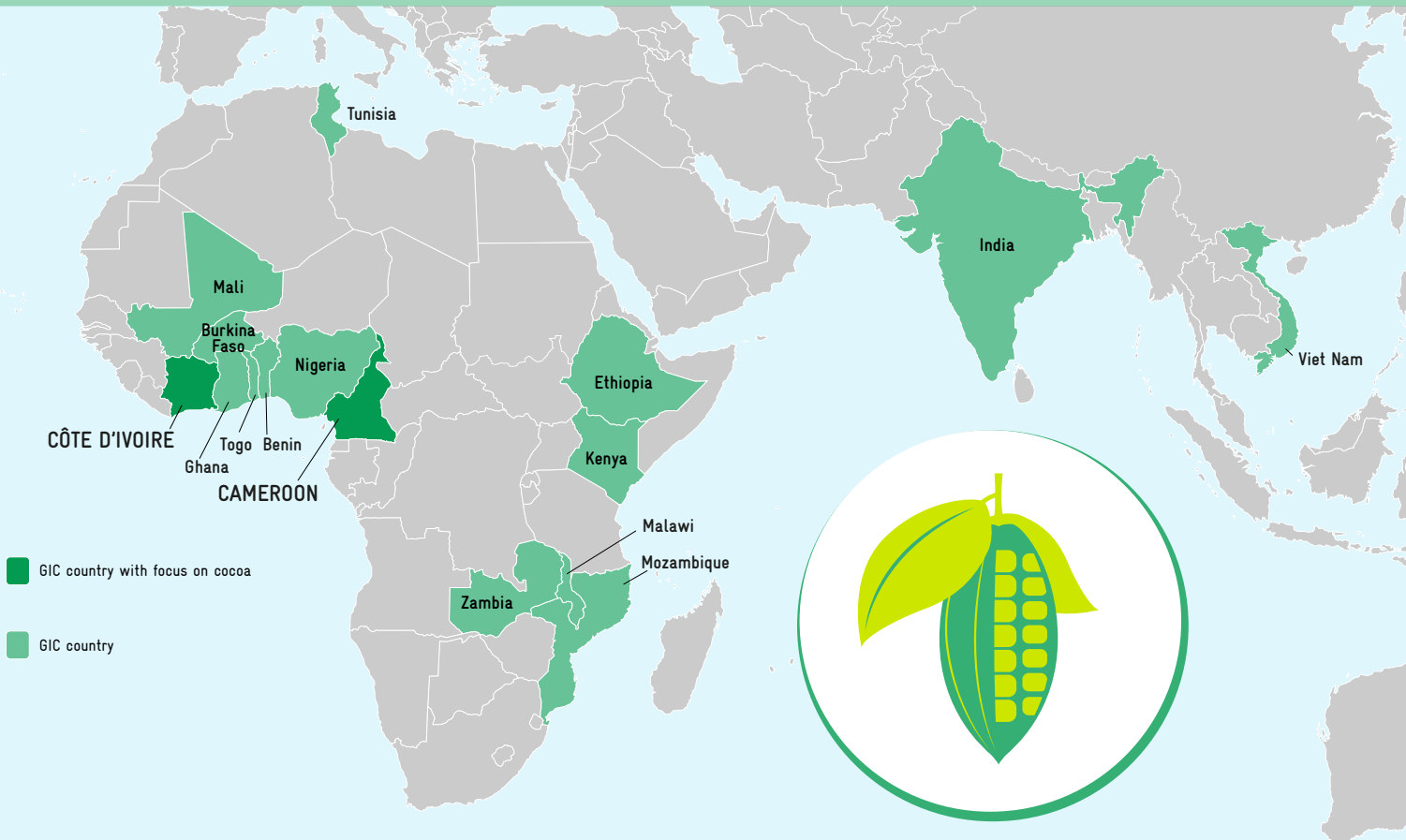
These issues were addressed in the Côte d'Ivoire and Cameroon GIC country packages. The *International Dialogue for*

*Sustainable Cocoa* component managed from Germany additionally supported the sharing of experience and transfer of innovations between the two country packages and between the actors in the cocoa sector in Germany and the other cocoa-producing countries in West Africa as well as communication with German consumers.

As part of efforts to promote South-South Dialogue, the *African Cocoa Platform* was established as a cross-regional cocoa WG in Cotonou (Benin) in September 2018. It brings together stakeholders from civil society, the private and public sectors, and research and education institutions in Côte d'Ivoire, Ghana, Nigeria, Cameroon and Togo.



**African Cocoa Platform**  
(Supra-regional cocoa WG)



**Objectives:**

The platform strengthened cooperation between the cocoa-producing countries to enable them to make joint use of successful and innovative approaches to cultivation and processing. The aim was to make the cocoa sector more sustainable in the long term by embedding the innovations in local knowledge systems, strategies and partnerships.

**The focus areas of the exchange were:**

- the **sustainable design** and performance capacity of cocoa production systems,
- improved marketing** and services through strong producers' cooperatives and national farmers' associations and
- local processing** and consumption of cocoa.

The thematic cross-cutting issues addressed were gender in VC, agricultural finance, renewable energies and sustainable use of natural resources, and digital transformation.

The platform also fostered institutional knowledge, individual capacities and partnerships along the entire VC. In this context, it pursued an approach focused on participation, independent responsibility and links to international programmes and national institutions.

The platform consisted of five member countries (Côte d'Ivoire, Cameroon, Ghana, Togo and Nigeria) as well as:

- a **secretariat** led by GIZ (responsible for coordination, strategy and administration)
- a **core group with 13 members**: this functioned as a permanent technical advisory body for the platform. It was composed of one national representative of a partner institution in each case and one GIZ contact person per country. The group advised the secretariat on strategic and operational matters and supported the planning, implementation and follow-up of activities.
- three **technical WG** with up to 15 people per group: there were three WG focused on *Sustainable production*, *Local processing/consumption* and *Strengthening farming organisations*. These WG brought together technical experts from the member countries and implemented technical activities (e.g. webinars, studies and an agroforestry competition).



Activities:

To foster cooperation and knowledge sharing, the platform offered a wide range of formats: seminars, workshops, WG sessions, training, field visits and exposure programmes. In addition, expert studies were conducted on request. The activities included:

#### Knowledge and information management

- Collection of relevant cocoa studies
- Webinars on agroforestry, the living wage, gender, landscape approaches, marketing, standards and traceability, financial services and innovations
- Common database and regular project newsfeed

#### Conferences and events

- General assembly (2019 and 2022)
- Participation in the SARA Côte d'Ivoire agricultural fair (2019)
- Symposium on the health aspects of cocoa in Côte d'Ivoire (2021)
- Ten meetings of the core group
- Agroforestry competition recognising the best plantations in Côte d'Ivoire, Ghana and Cameroon (2022)

In October 2023, the *International Dialogue for Sustainable Cocoa* component came to an end and the activities of the African Cocoa Platform were discontinued.



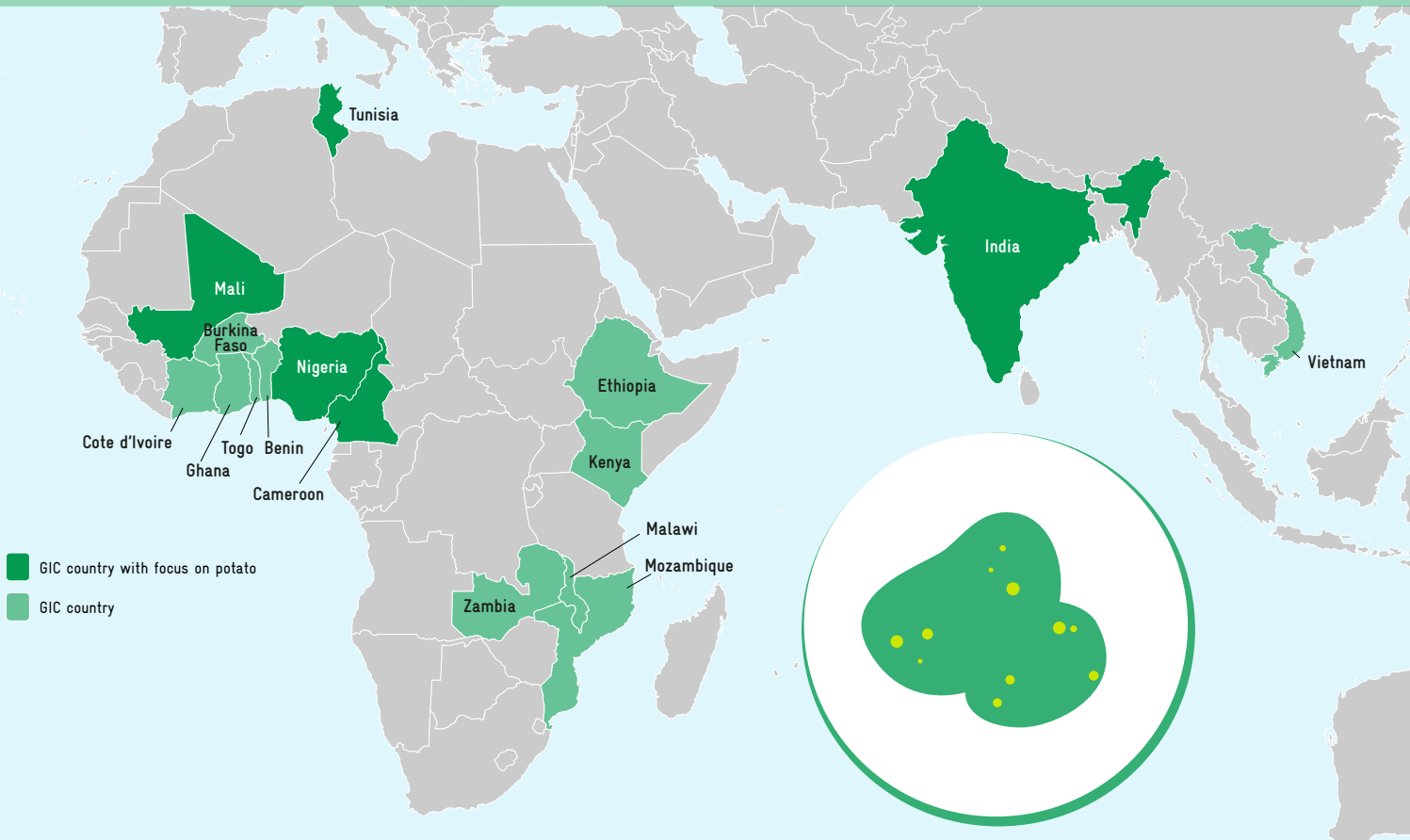
### 11.1.2 Potato VC

After rice and wheat, the potato is the world's third most important food crop for human consumption. More than a billion people globally eat potatoes, often in places where other crops are scarce. The short potato growing cycle of 90 days ideally complements wheat and rice systems; around 380 million tonnes of potatoes are produced worldwide. Given population growth and increasing hunger, the potato is an important crop for food and nutrition security. Ten million smallholder farmers and companies in Africa, Asia and Latin America depend on the potato for their income and prosperity. To harness the potential of this crop, global investment, programmatic work in partnerships and research are needed to increase productivity and develop the VC, policies and the institutional framework.



Global Potato Value Chain Working Group (GPVCWG)

The potato WG was coordinated by the global programme on *Promoting Nutrition-Sensitive Potato VCs in East Africa*. The group was made up of the India, Cameroon, Mali, Nigeria and Tunisia GIC country packages and the Uganda and Kenya country packages of the global potato project. Joint activities were implemented in cooperation with the CIP, including the provision of extension services on national potato strategies and their implementation as well as measures for propagating and trading quality seed. These initiatives helped to improve seed availability and facilitate access for potato farms to markets in the participating countries.



Promoting national dialogue platforms and sector strategies was a key field of activity for the WG. A potato sector strategy was developed and adopted in Mali as part of a participatory process, for example. In addition, platforms began to be developed for stakeholders in the potato VC in Cameroon and Nigeria with the support of the Andreas Hermes Academy (AHA). The stakeholders involved had already formulated strategic objectives for their platforms in those countries.



#### Objectives:

##### Strengthening national potato strategies

- Advice on sector-specific strategies for sustainable promotion of the potato VC and development and implementation of such strategies

##### Improving seed availability and quality

- Promotion of the propagation of and trade in quality seed to increase the productivity and resilience of potato farms

##### Facilitating market access

- Provision of support to potato farms with regard to access to local, national and international markets

##### Promoting dialogue platforms

- Development and strengthening of platforms for stakeholders along the VC, enabling exchange, coordination and joint decision-making processes

##### Participatory strategy development

- Involvement of relevant stakeholders in the design of sector strategies to ensure acceptance, sustainability and practical relevance

##### Capacity development and institutional strengthening

- Provision of support to institutions, associations and actors (e.g. through cooperation with the AHA) to professionalise potato VC structures in the long term



#### Activities:

##### Analyses and strategies

- Production and analysis of country-specific studies on the potato sector
- Identification of the needs and options of the partner countries and the main intervention topics as part of a harmonised approach

##### Advice and coordination

- Provision of advice for coordination of the potato sector through the *National Potato Council of Kenya* (NPCK) in Cameroon and Nigeria (October/November 2019)
- Provision of technical extension services on seed quality control and the relevant legal framework in Kenya and Uganda (November 2019)
- Provision of technical extension services on GAP for selected experts in the potato sector in Tunisia (January 2020)

##### Training and knowledge sharing

- Training in the RAC method for quickly propagating potato plants for experts from Mali, Nigeria and Tunisia in Kenya at Stokman & Rozen Ltd (October 2019)

##### Exchange and networking

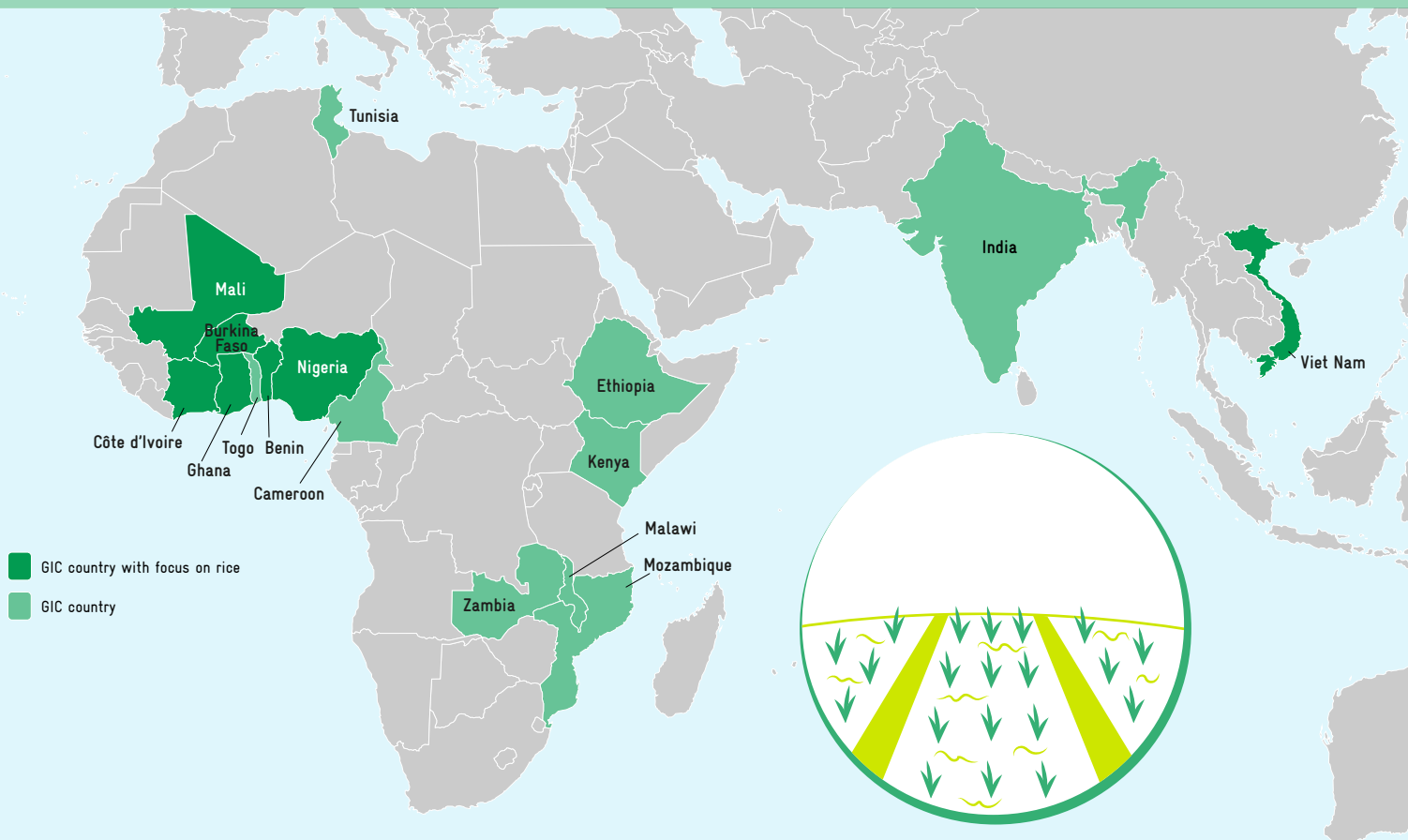
- The GPVCWG met annually in person. The last meeting was held in Tunis (2 – 6 March 2020) and was attended by participants from all seven member countries. It addressed follow-on measures for extension and training activities, the status of the country-specific potato strategies and sector coordination, and options for introducing advanced technologies, e.g. RAC technology. Furthermore, 19 members of the WG actively participated in the African Potato Association conference in Lilongwe, Malawi, from 26 June to 1 July 2022.



### 11.1.3 Rice VC

Demand for rice in Africa has tripled since 1970. It has replaced maize, sorghum and cassava as the most important basic foodstuff in many regions. Rice production therefore plays a key role in strategic planning of food and nutrition security in many African countries. In West Africa, however, rice productivity is still low and production meets only 60 per cent of demand. Large quantities of rice are still being imported, with substantial foreign exchange being spent. This dependence on third countries undermines food and nutrition security, something already clearly demonstrated in the 2007–2008 global food price crisis.

The GIC project therefore also focused on the rice VC in an attempt to improve productivity, incomes and employment through innovations and thereby contribute to sustainable rural development. The GIC global programme actively supported the expansion of the rice VC in six of the 16 partner countries: Benin, Burkina Faso, Ghana, Mali, Nigeria and Viet Nam.





### MAP4Rice WG

The multi-actor partnership for rice (*MAP4Rice*) was launched as a special platform for coordination and joint learning in order to promote technical cooperation and knowledge sharing between countries and actors.

*MAP4Rice* was a transnational WG that brought together stakeholders in the rice sector from the GIC and their partners. It served as an important platform for knowledge sharing, collective problem-solving and strategic coordination within the rice VC. The *MOVE-CARI* regional programme, which also focused on the development of the rice sector in West and East Africa, was an integral part of this platform and further strengthened its regional relevance.

This knowledge sharing was complemented by the work of *MAP4Rice*. Members from all partner countries teamed up to identify common problems and provide mutual support through the exchange of good practices and solutions. As the members came from national and international research institutions (e.g. *AfricaRice*, IRRI), farmers' organisations, ministries and private sector companies (e.g. rice mills), *MAP4Rice* supported the creation of valuable synergies between the people working in the rice sector along the entire VC.

While the emphasis in the African countries was on strengthening the rice sector and improving competitiveness vis-à-vis imported rice, the biggest challenge in Viet Nam – the only Asian member of the WG – was to boost the climate resilience of the highly productive rice-growing areas in the Mekong Delta. Networking among members also promoted the exchange of innovations between the Asian and African growing regions.



### Objectives:

- Sharing of knowledge concerning innovations along the rice VC
- Implementation and modification of proven technologies
- Analysis and implementation of efficient, cost-effective and scalable production models
- Promotion of South–South cooperation through learning journeys, webinars and networking among different stakeholders
- Provision of advice on regional trade policy and a coherent strategy (Economic Community of West African States, ECOWAS) for promoting locally produced rice for regional markets
- Coordination of joint projects and activities in the country packages

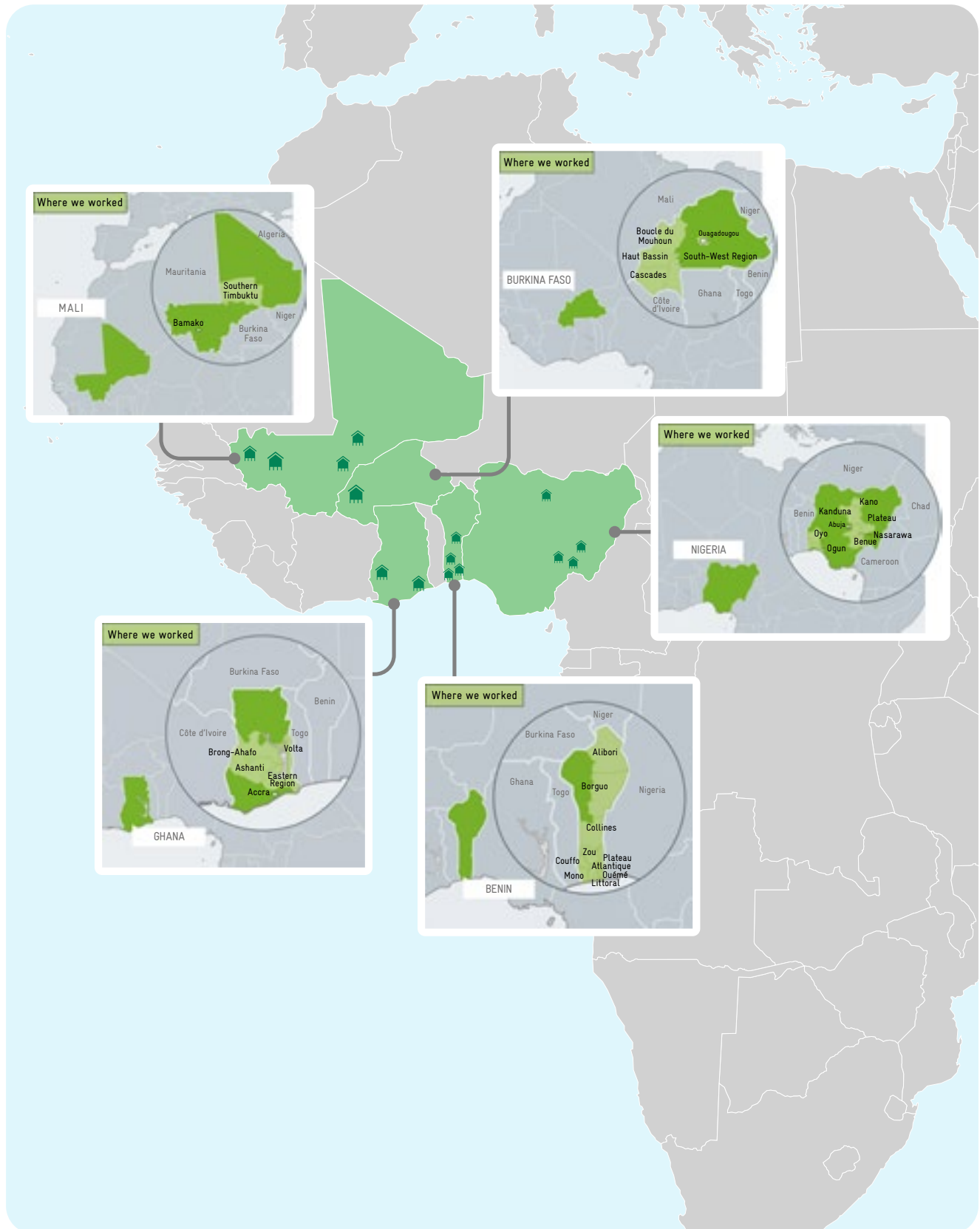


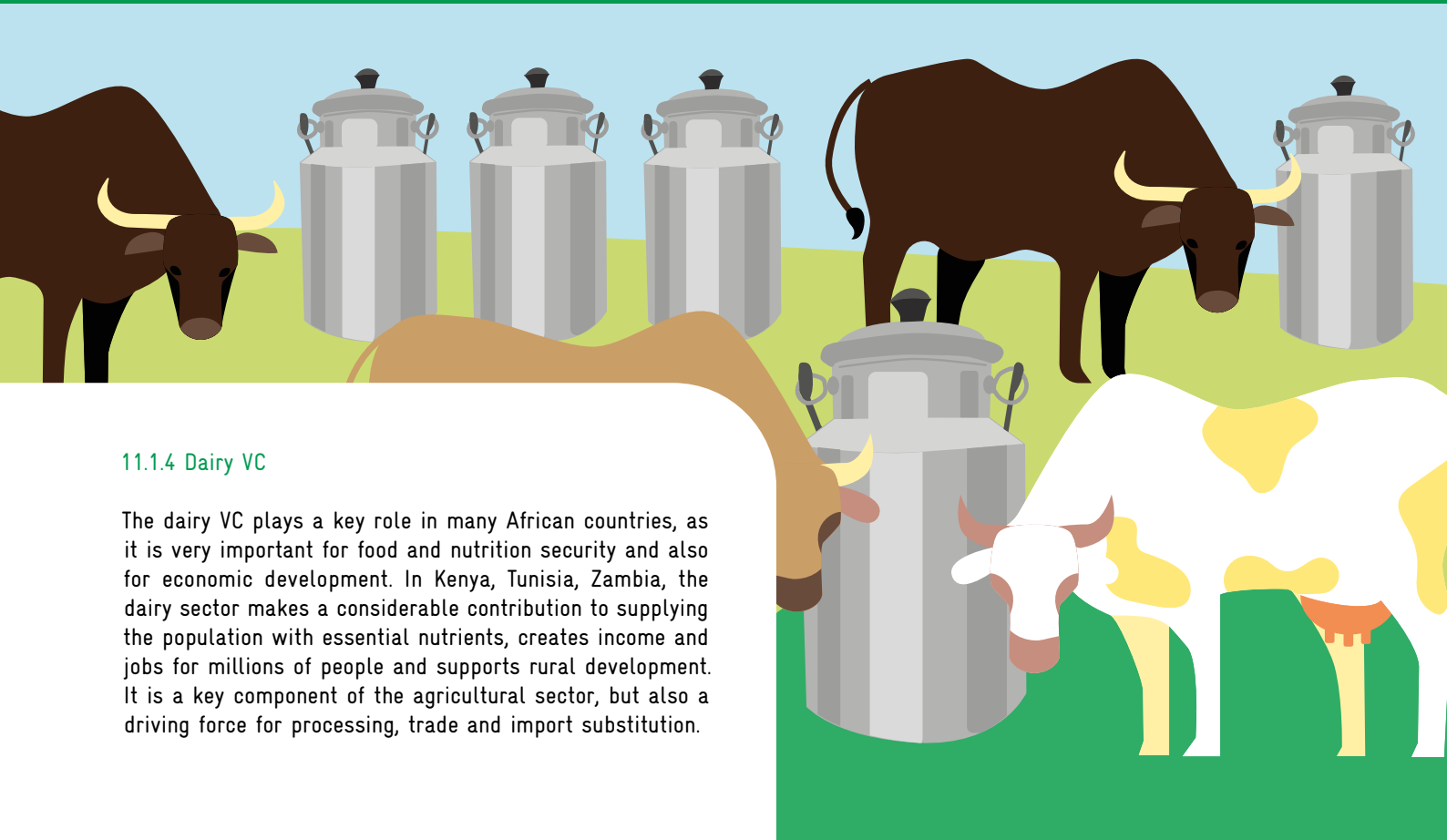
### Activities:

All of *MAP4Rice's* activities were jointly adopted and developed as the secretariat was comprised of CARI and GIC employees and core members of both projects took part in meetings and activities (e.g. studies and exchange visits). The WG implemented the following activities:

- Regular WG meetings (in-person and online) and webinar series for technical exchange
- Discussion of mechanisation, parboiling technologies and improved rice varieties; tailoring of proven solutions to local conditions
- Analysis and assessment of different cultivation models; recommendations for national and regional strategies – with a particular emphasis on SRI
- Study trips to China (2019) and Viet Nam (2023) to promote South–South exchange

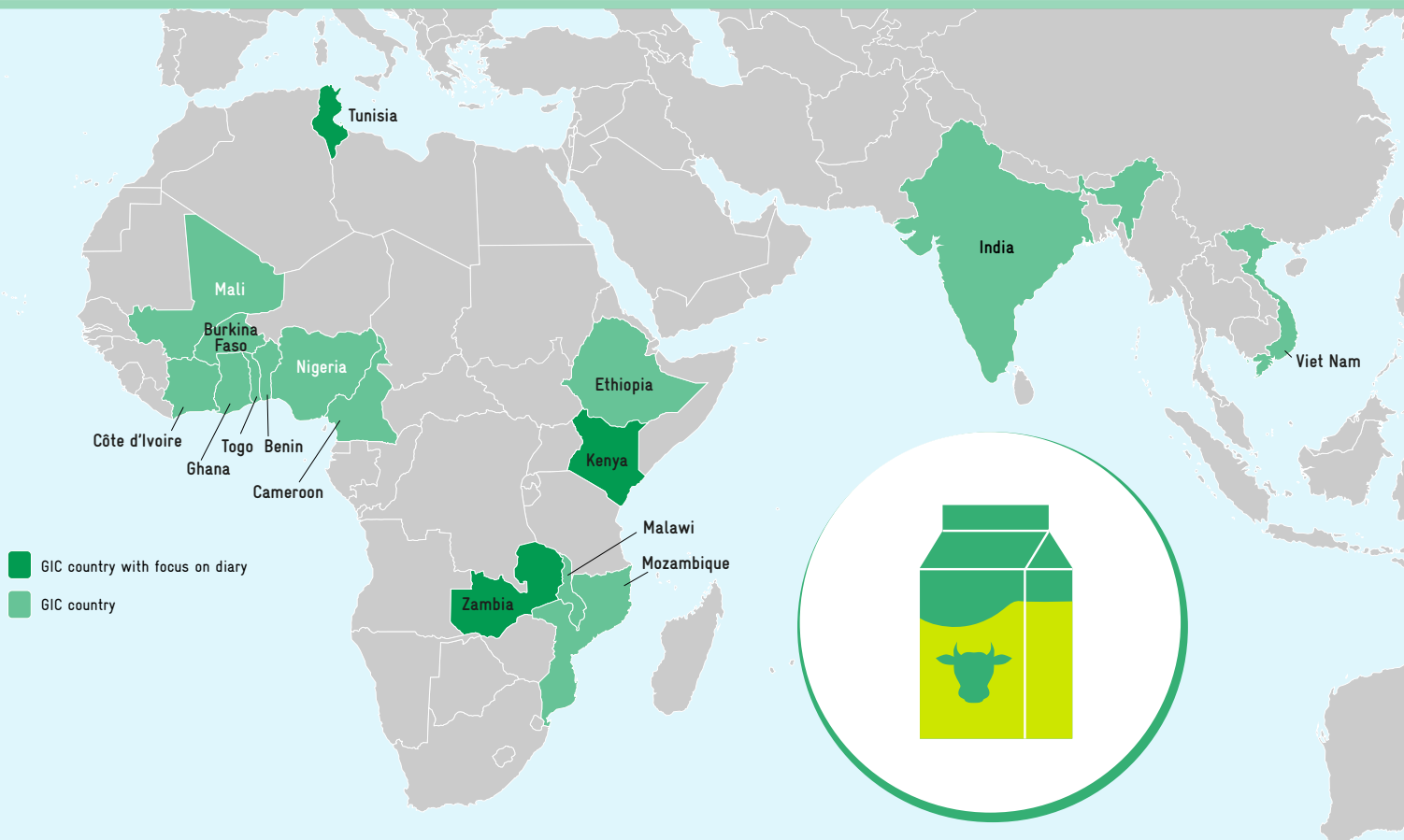
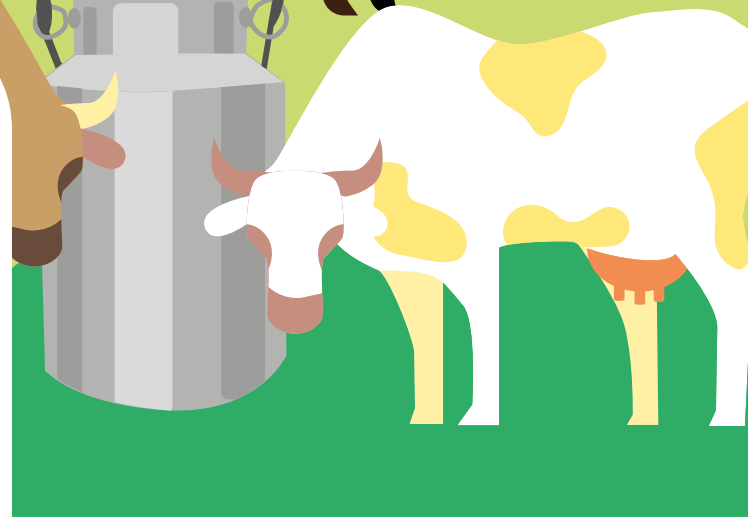
### Intervention Areas of the Rice WG in West Africa





### 11.1.4 Dairy VC

The dairy VC plays a key role in many African countries, as it is very important for food and nutrition security and also for economic development. In Kenya, Tunisia, Zambia, the dairy sector makes a considerable contribution to supplying the population with essential nutrients, creates income and jobs for millions of people and supports rural development. It is a key component of the agricultural sector, but also a driving force for processing, trade and import substitution.





Dairy Expert Group (GDEG)

The GIC *Dairy Expert Group* (GDEG) was a platform between the three GIC partner countries Kenya, Tunisia and Zambia that work on the dairy VC. The group served as a platform for transnational exchange, technical cooperation and joint learning. It facilitated a unique transfer of knowledge and productive exchanges of experience, challenges, success stories and lessons learned. This encouraged the GDEG members to drive the implementation of innovations in the dairy VC and accelerate their dissemination and scaling up.

The target groups were partner structures that worked to promote the dairy VC under the GIC project. These included representatives of the relevant partner institutions, local GIZ staff members and employees of extension firms. A national group with between six to eight committed members was established in each country package. Each national group chose one contact person to function as a bridge to the project. The national groups agreed to hold at least two national meetings per year to strengthen exchange at national level.

At international level, the GDEG was led by a team of three contact persons. This body met four times a year and was responsible for planning and implementing the GDEG's activities. The GDEG was supported by ADT Project Consulting GmbH, Bonn, which was commissioned to provide technical expertise and organisational support.



Objectives:

#### 1. Establishing food and nutrition security and ensuring the animal feed supply

- Improvement of the year-round supply of sufficient, locally available feed for dairy cows
- Promotion of pasture management, forage production and use of byproducts to reduce seasonal bottlenecks and increase milk yields

#### 2. Strengthening animal health and food safety

- Reduction in antimicrobial resistance (AMR) through responsible use of antimicrobial agents guided by diagnostics
- Promotion of alternative treatments and preventive measures along the VC ("from farm to fork")

#### 3. Strengthening knowledge transfer and capacity development

- Development and application of practical training concepts for small dairy farmers
- Design and use of exchange platforms (workshops, field days, online seminars) for disseminating good practices

#### 4. Improving quality and market integration

- Increased milk quality and implementation of transparent payment and contract models in the VC
- Optimisation of organisational and business structures for greater market integration of small dairy farmers

#### 5. Promoting innovation in the VC

- Implementation and scaling up of technical, business and organisational innovations that improve efficiency and sustainability in the dairy sector



## Activities:

### Sufficient cattle feed

Small dairy farmers often cannot supply their dairy cows with feed all year round. The lack of fodder leads to shorter lactation periods and lower milk yields and increases the seasonal variability in raw milk supply. Small dairy farmers can use their on-farm pasture and forage production and combine this with bought-in feed. Tried-and-tested practices that have already been applied in Kenya, Tunisia and Zambia in the relevant areas of pasture management, forage production, methods and use of byproducts are presented below. This section focuses on locally available feeds and does not address the use of industrial compound feed, which is also available and can supplement the diet of lactating cows.

### Antimicrobial resistance (AMR)

AMR is one of the biggest challenges for global health security. It is also very significant for the dairy VC, as the farm-to-fork production continuum has multiple entry points for diseases that require treatment – frequently with antimicrobial agents. Participants were given an introduction to this topic in an online seminar, after which they discussed possible interventions and measures for reducing AMR as well as the antimicrobial alternatives and options available in the countries. This was intended to help better position GIC activities for reducing AMR and ensure the use of antimicrobial agents based on appropriate diagnosis.

### Activities and implementation formats

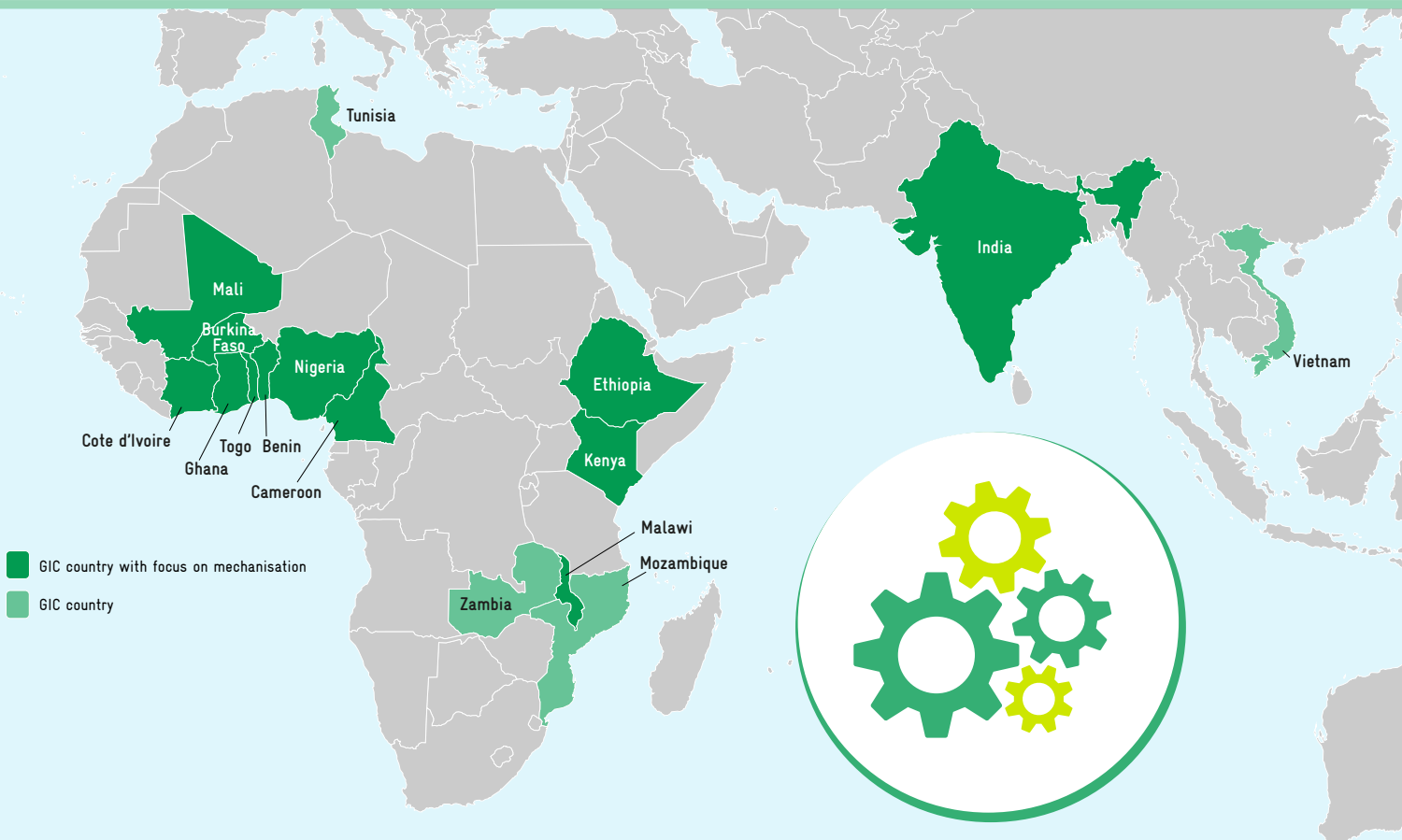
- Promotion of technical, business and organisational innovations in the dairy VC
- Annual meeting of GDEG members to review relevant technical matters in the dairy VC and agree on priorities addressed by the GDEG
- Two online seminars held in October and December 2020 to address the topics of *sufficient cattle feed* and *AMR* in depth
- Series of exchange workshops and field days held under the expert group, both in the partner countries and in Germany

### Events and workshops

- **Animal health:** Online seminar on reducing AMR in the dairy VC
- **Sufficient cattle feed:** Online seminar on *Sufficient feed for dairy cows – options and good practices for small dairy farmers in Africa*
- **Training and practical training concepts for small dairy farmers:** Exchange workshop on training and practical concepts for small dairy farmers in the dairy VC held in Bavaria, Germany
- **Milk quality, payment and contract management in the dairy VC:** Workshop on milk quality, milk payment and contract management in the dairy VC held in Tunisia
- **Training concepts and material for the dairy industry:** Workshop on training concepts and material – applied in GIC in Nairobi, Kenya
- **Optimisation of VC**
- **Dairy:** Exposure seminar on VC optimisation held in Feldafing, Germany

### 11.1.5 Mechanisation

In many African countries, the degree of mechanisation in agriculture is low. However, mechanisation can be an important driver of agricultural modernisation, enhanced local value addition and job creation for young people. It therefore became a thematic focus of the project. The topic was implemented as a cross-cutting issue and was also addressed by a WG from 2017 to 2023.





### Mechanisation WG

The mechanisation WG helped the partner countries to implement and further develop mechanised solutions in agriculture. It focused on four key areas: post-harvest technologies, gender-sensitive mechanisation, cross-border development partnerships and the establishment of mechanisation hubs and specialised training centres. The group also addressed the cross-cutting issue of the sustainable scaling up of mechanisation innovations with the help of Scaling Scan and other tools. In addition to mechanisation experts from the GIC country packages, the WG also included international partners such as CIMMYT, the Food and Agriculture Organization of the United Nations (FAO), the University of Hohenheim, DEU-LA-Nienburg and Indian machine manufacturer Rohit Krishi.



### Objectives:

- Knowledge building: improving the knowledge base of the members with regard to specific topics of relevance to mechanisation
- Exchange of experience: exchanging best practices to promote joint learning processes
- Solution-oriented approach: promoting suitable mechanisation solutions for cross-border dissemination
- Networking: creating and fostering links between the members of the WG and with international mechanisation stakeholders



### Activities:

To achieve these objectives, the mechanisation WG provided tailored support to interested country packages and facilitated thematic exchange in a total of ten WG meetings (seven in-person and three online) and numerous webinars. An international Community of Practice was established, which FAO still maintains via a digital platform.

#### Gender-sensitive mechanisation

- Cooperation with FAO with a focus on implementation in Benin
- Identification of business models in the rice, soya and cassava VC, which are particularly accessible to women
- Strengthening of 15 officially registered women's cooperatives through training and the provision of mechanisation solutions
- Technologies provided:
  - Cassava: manual press, cassava grater
  - Soya: manual press, two-stage mill
  - Rice: hulling and *parboiling* machines
- Results:
  - Increased productivity
  - Improved product quality
  - Reduced workload for women
- Raised awareness among public and private stakeholders of the importance of strengthening the participation of women in mechanisation
- Creation of various knowledge products on gender-sensitive mechanisation

#### Cross-border development partnerships

- Provision of technical support by CIMMYT for technology transfer
- Cooperation between Côte d'Ivoire and Malawi on cassava processing:
  - Provision of assembly instructions for the technology with different energy sources
  - Training of 32 women's groups in Côte d'Ivoire on the use of a hydraulic machine for cassava processing (Attieke)

- Cooperation between India and Benin on planters:
  - Collaboration under the framework of iDPPs between the GIC in Benin, *Rohit Krishi* (India) and *Techno Agro Industries* (Benin)
  - Testing of planters and tailoring to the soil conditions in Benin (import of six machines)
  - Market analysis conducted by CIMMYT

#### Mechanisation hubs and training centres

- Development of an e-learning course by FAO and CIMMYT on *Small-scale agricultural mechanisation hire services as a business enterprise*
- Provision of support to the pro dogbo training centre (Benin): preparation of manuals and didactic materials for the following occupations:
  - Tractor operator
  - Mechanic (maintenance and repair of agricultural machinery)
  - Manufacturing engineer (production of agricultural machinery)

#### Scaling up

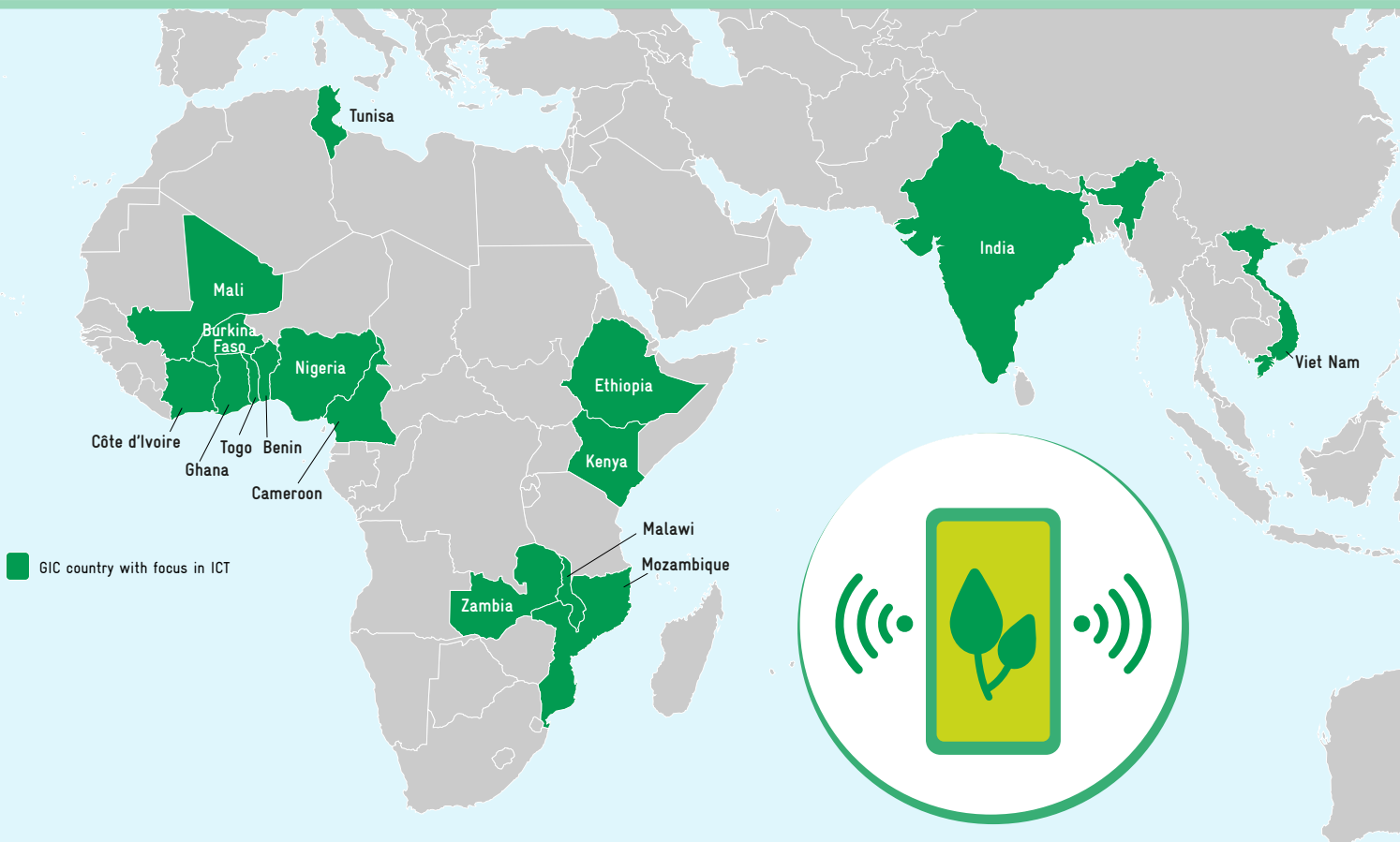
- Further development of the Scaling Scan method for assessing the potential for innovations to be scaled up using ten criteria ('scaling ingredients')
- Training of trainers on the method in various partner countries
- Analysis of 23 mechanisation innovations



### 11.1.6 Information and Communication Technologies (ICT)

ICT is increasingly being used in agriculture to provide farmers with information and knowledge. The sector has undergone rapid development in recent decades, and the number of internet and mobile phone users is constantly rising worldwide, especially in Africa. The potential for ICT in

agriculture is evident in its impact on almost all aspects of agricultural activity, from the provision of extension services on cultivation methods to access to market information. ICT can stimulate economic development and connect farmers from developing countries with global VC.





### ICT Working Group

The GIC aimed to harness the potential of digital solutions for improving agricultural VC and for scaling up successful approaches. Overall, the project was involved in developing 81 ICT instruments in the 16 partner countries. Against this background, the ICT WG was launched during the GIC regional conference held in Berlin in 2018. It served as a platform for the exchange of experience, the pooling of expertise and the joint development of strategies for driving digital transformation in agriculture.



### Objectives:

**Orientation and information:** Improvement in understanding of ICT solutions in the agri-food sector and dissemination of information about existing solutions and new trends.

**Innovation and development:** Exchange of experience on the development of new ICT instruments and identification of sustainable business models.

**Knowledge sharing and networking:** Promotion of a network with stakeholders within and outside GIZ.



### Activities:

The ICT WG pursued a combined strategy focusing on online formats, in-person meetings and cooperation on specific ICT approaches to promote exchange and the scaling up of innovations. Online meetings and thematic webinars were held on a monthly basis. In addition, the group organised at least one or two in-person meetings each year, such as workshops, conferences and study trips. It also conducted studies on the impacts of selected ICT instruments. Furthermore, the group worked in various partner countries on the dissemination of information via radio (with *Farm Radio International*), innovative agricultural extension services (with *Access Agriculture*) and digital farm management (with *Agro Innova*).

### Radio programmes for disseminating innovations (Farm Radio International)

- Implementation of interactive radio shows in seven countries for providing practical information on agriculture, entrepreneurship, food and nutrition, hygiene and gender issues
- Integration of a digital platform that enabled listeners to ask questions, take part in surveys and be called back by experts
- A total of 17.8 million potential listeners reached

### Provision of innovative agricultural extension services using smart projectors (Access Agriculture)

- Translation of 87 training videos on agroecological innovations into local languages and distribution of 75 smart projectors (incl. mini-computer, hard drive, video projector, speaker and solar panel) for use in six countries in areas with poor digital infrastructure
- Accompanying training, coaching workshops and a competition for young entrepreneurs to promote independent use of smart projectors.

### Digital farm management with the FBS Innova app (Agro Innova)

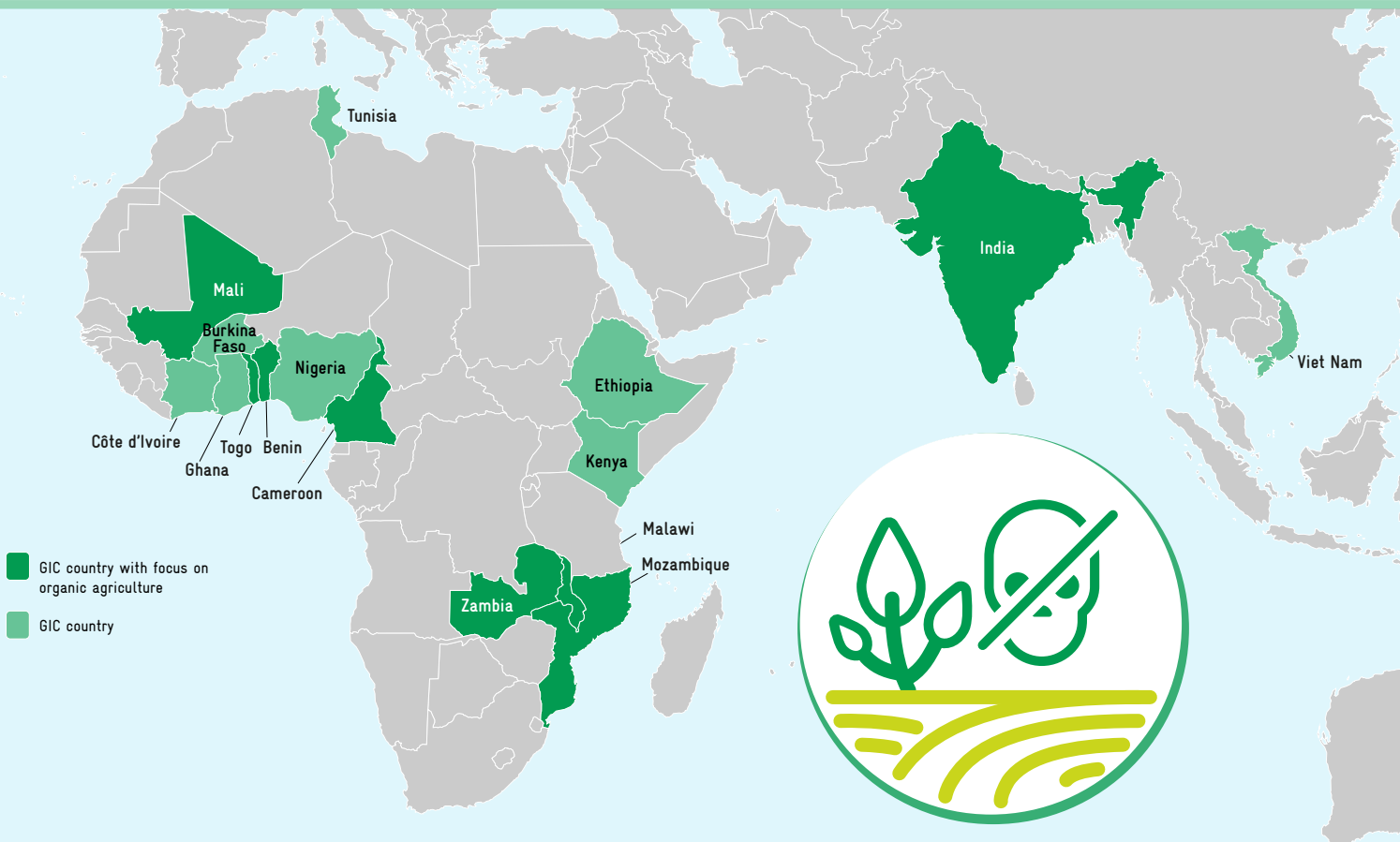
- Development of a mobile app for smallholder farmers with Ghanaian start-up Agro Innova with various features, e.g. a planting calendar, a tool for managing finances and a library with helpful resources
- Translation of the content into four languages and tailoring to over 20 crops



### 11.1.7 Organic agriculture

The intention behind the cross-border WG on organic agriculture was to highlight and boost the benefits of organic agriculture for smallholder farmers and MSME. The WG on organic agriculture aimed to inform and advise its members on organic practices and standards, help them access national and international markets and facilitate cross-border

exchange between them. It was made up of committed institutions and individuals from eight countries – Benin, Mali, Cameroon, Togo, Malawi, India, Mozambique and Zambia. GIC also worked with three partners: Organics International (IFOAM), *Naturland – Verband für ökologischen Landbau* and the Research Institute of Organic Agriculture (FiBL).



## Division of tasks

The aim of the cooperation between the GIC, IFOAM, FiBL and *Naturland* was to promote the implementation of organic approaches and methods.

As part of the partnership, IFOAM took responsibility for coordination within the consortium and supplied expertise in the area of participatory guarantee systems (PGSs), leadership in organic farming and the development of sectoral action plans. For example, IFOAM supported an initiative in Togo advising the Government on developing a national organic agriculture strategy and held webinars on fair trade and PGSs. To promote exchange and learning, IFOAM also established links with global platforms and other programmes.

*Naturland – Verband für ökologischen Landbau* helped farms transition to organic agriculture, including providing support for certification processes, strengthening internal control systems (ICS) and accessing international markets. In this context, *Naturland* supported the establishment of public-private partnerships in Mali and Cameroon in the field of organic mango and cocoa production. In addition, *Naturland* supported local ICS structures in Mali, Cameroon and Mozambique and conducted market studies on soya, groundnuts, cashews and spices to assess the export potential of the supported VC in the partner countries.

FiBL developed training materials for farmers and set up information channels. It also offered local training courses for partners and fostered exchanges between the research community and practitioners. In India, for example, FiBL provided training on organic and biodynamic farming concepts, soil fertility management and composting technology. In addition, FiBL published a brochure on producing premium organic mangoes in Mali.



## Objectives:

### Raising awareness of and strengthening organic agriculture

- Highlighting and reinforcement of the benefits of organic agriculture for smallholder farmers and MSME
- Promotion of organic farming as a sustainable alternative in the agricultural sector

### Knowledge transfer and extension services

- Provision of information and extension services to members on organic practices and standards
- Development of training material and provision of practical training courses for farmers and partner organisations
- Promotion of exchanges between the research community and practitioners in the organic farming sector

### Market integration and value creation

- Provision of support with regard to access to national and international markets
- Provision of support for transition and certification processes (e.g. Initiative for Compliance and Sustainability (ICS) and participatory guarantee systems)
- Implementation of market studies to assess the export potential of organic products

### Cross-border exchange and networking

- Promotion of exchange between members from different countries
- Establishment of links to global platforms, programmes and cooperation partners
- Holding of country workshops for joint development of strategies and projects

### Partnerships and institutional strengthening

- Cooperation with international partners (IFOAM, *Naturland*, FiBL) to promote organic methods
- Development and implementation of sectoral action plans in partner countries
- Provision of support to governments on developing national organic agriculture strategies

### Mobilisation of resources and investment

- Mobilisation of private funding in addition to public funds to promote investment in sustainable agriculture
- Ensuring that investments bring tangible benefits for smallholder farmers and help to fight hunger



Activities:

#### IFOAM – Organics International

- Coordination within the consortium
- Provision of expertise on PGS, leadership approaches in organic agriculture and action plans
- Provision of support to the Togolese Government on a national organic agriculture strategy
- Holding of webinars on fair trade and PGS
- Networking with global platforms and programmes

#### Naturland

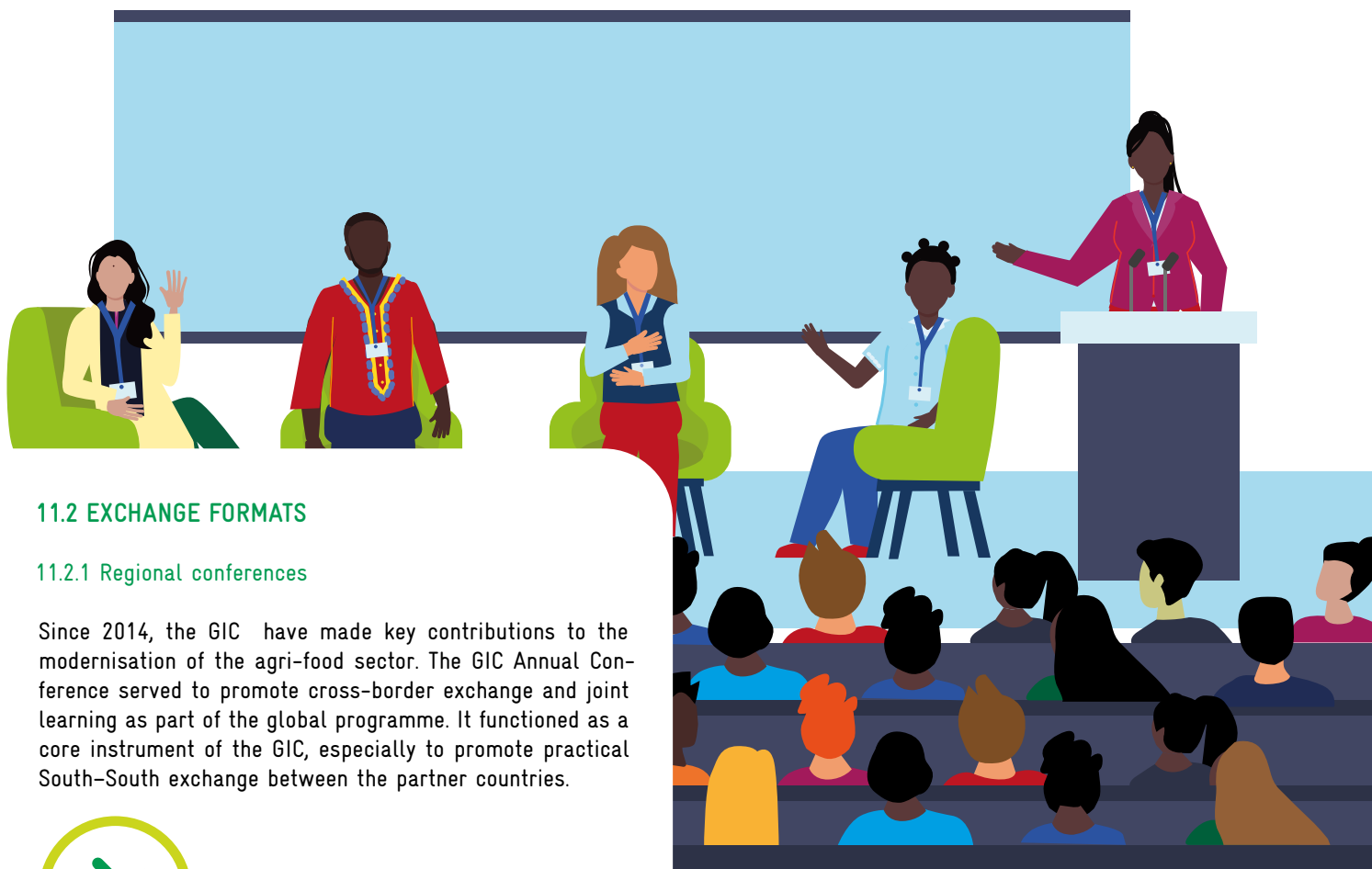
- Provision of support for the transition to organic farming and certification
- Strengthening of internal control systems (ICS)
- Promotion of access to international markets
- Implementation of public–private partnerships in Mali and Cameroon (organic mangoes and cocoa)
- Provision of support for local ICS structures (Mali, Cameroon, Mozambique)
- Conducting of market studies on soya, groundnuts, cashews and spices (export potential)

#### FiBL – Research Institute of organic agriculture

- Development of training material and establishment of information channels
- Implementation of local training courses and promotion of exchange between the research community and practitioners
- Implementation of training courses in India on organic and biodynamic farming, soil fertility and composting technology
- Publication of a brochure on producing premium organic mangoes in Mali

#### Role of GIC:

- Promotion of cross-border cooperation
- Implementation of country workshops on approaches and projects
- Development of strategies for increasing yields, reducing harvest losses and improving quality
- Integration of smallholder farmers, the private sector, extension firms and institutions
- Mobilisation of private investment through public funds
- Selection of two to three VC per country with market potential and contribution to food and nutrition security



## 11.2 EXCHANGE FORMATS

### 11.2.1 Regional conferences

Since 2014, the GIC have made key contributions to the modernisation of the agri-food sector. The GIC Annual Conference served to promote cross-border exchange and joint learning as part of the global programme. It functioned as a core instrument of the GIC, especially to promote practical South-South exchange between the partner countries.



#### Objectives:

The global programme's conferences aimed to use the project's results and impacts and were part of the knowledge continuity strategy. The conferences offered a platform for the country packages to exchange information on success stories and tried-and-tested practices, develop solutions together and share selected innovations and formats. The participants took a critical look at their experiences and questioned how the project's results and impacts up to that point in time could drive the transformation of agricultural and food systems in the future too.

#### Participants:

The conferences were attended by up to 200 participants of the country packages, mainly implementation partners and employees of the GIC from the country packages and the steering unit in Germany. The delegations were made up of an equal number of male and female representatives and there was a particular emphasis on diversity and representation of the country packages.

#### Structure and content:

The conference had a particular theme each year and was always held in a region of implementation for a country package. During the bilingual (English and French) conference, the participants exchanged information on the specific experiences in their country within various formats and interactive programme elements. These included a World Café, theme hubs, fishbowl discussions, real-time questions via smartphone/tablet/laptop, idea pitching, a results walk, video messages, film screenings and booths. Here they reflected on opportunities and challenges for rural areas and shared tried-and-tested practices from their specific day-to-day project work.

Local project visits were another integral part of the conference. Selected project activities were presented during these visits, including both targeted innovations and successful measures for transversal topics, such as strengthening farmers' organisations, employment promotion for women and young people, and climate change adaptation. This prompted in-depth sharing of experiences between the country delegations on the approaches and impacts.

### Conference overview

2016	<i>Sharing innovations</i> (Tunisia)	2021	<i>Proving resilience and sustainability in the face of COVID-19</i> (Ethiopia/online)
2017	<i>Vision 2022: the future of the GIC and the sustainable scaling up of interventions</i> (Kenya)	2022	<i>Green innovations for better climate resilience</i> (Zambia)
2018	<i>Green innovation centres 2.0 – thinking beyond value chains</i> (Benin)	2023	<i>FIT – from innovation to transformation</i> (Germany)
2019	<i>Perspectives for transformation</i> (Malawi)	2024	<i>Sustainable innovations – resilient systems</i> (Côte d'Ivoire)



#### 11.2.2 Global partners and trilateral cooperation

The emerging economies Brazil, China, India, Indonesia, Mexico, Peru, South Africa and Viet Nam are among BMZ's global partners. Despite their differences, they have key features in common that are of particular importance for German development cooperation:

- **Regional relevance and performance capacity:** due to large territories, high population numbers and economic strength
- **Wealth of resources:** including tropical forests, biodiversity and valuable raw materials
- **Engagement in development cooperation:** as stakeholders and increasingly as donors too

These factors offer great potential for close cooperation in the protection of global public goods, such as the climate, environment, peace and security.

**Trilateral cooperation** is a key instrument in this context. This form of cooperation enables institutions from three countries to work together to achieve an objective.

### Pluralistic extension system – cooperation between Brazil, Ethiopia and Germany

Since 2021, agricultural extension services in Ethiopia have been under reform as part of a trilateral cooperation arrangement between Brazil, Ethiopia and Germany. This is necessary due to the limited effectiveness of state-led extension services. The Ministry of Agriculture (MoA) showed particular interest in the Brazilian model with its impressive pluralistic approach involving the private sector, NGOs and development partners.

The MoA, the Brazilian Ministry of Agriculture (MAPA), GIC in Ethiopia and GIZ in Brazil are responsible for the Pluralistic Extension System for Sustainable Agricultural Productivity project (2021–2024). The aim is to adapt experiences from Brazil to the Ethiopian context, thereby improving the quality of the extension services provided, strengthening the role of the private sector and developing climate resilience.

Strategies were developed through online exchanges and meetings in Ethiopia and Brazil, culminating in a draft proclamation for a pluralistic extension system. This was adopted by the MoA and forms the basis for nationwide mainstreaming.

A second project phase starting from 2024 provides for the establishment of the necessary institutional structures and legal frameworks. The bilateral programme for VC development in Ethiopia will assume overall responsibility.

### Fund for Triangular Cooperation with Asia

To promote such partnerships, BMZ has put in place a **Fund for Triangular Cooperation with Asia**. The aim is to initiate pilot projects and gain experience with this cooperation approach.

GIZ takes on the role of intermediary in this context: it works with a partner from an Asian emerging economy to jointly support a developing country. Knowledge, experience and resources are mobilised, while the projects are jointly developed and implemented based on a **bottom-up approach**.

#### Pilot projects of the GIC in India

Within the context of the fund, the **GIC in India** submitted three pilot measures:











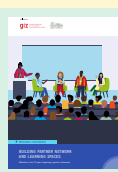

- **India – Germany – Cameroon:** Dissemination of the rooted apical cutting technology in the potato VC in Cameroon
- **India – Germany – Benin:** Strengthening of tailored mechanisation in Benin
- **India – Germany – Malawi:** Development of an incubator structure in the area of gender to support future entrepreneurs in Malawi

Indian expertise was specifically used for these measures in the areas of **gender, tailored mechanisation, start-up promotion and potato cultivation**. Plans for continuing the pilot measures within the framework of **bilateral projects** are already in place.

FURTHER INFORMATION



LINKBOX 10: Global Cooperation

- |  |  |   |   |  |
|--|--|---|---|--|
|   | <p>IDA – Thematic Working Groups</p> <p>IDA Website</p>  |  |  <p>South-South-Exchanges in a Global Programme</p> <p>GIZ Report, 2024, English</p> |   |
|   | <p>Transregional Working Group Multi-Actor Partnership for Rice (MAP4Rice)</p> <p>GIZ Factsheet, 2025, English</p> |  |    | <p>Transregional Working Group Information and Communication Technologies (ICT)</p> <p>GIZ Factsheet, 2024, English</p>  |
|   | <p>ICT4Ag: Programme Sustainable Agricultural Chains and Standards</p> <p>GIZ Presentation, English</p>            |  |   | <p>Green Innovation Centres - Information and Communication Technologies (ICT) for the Agri-Food Sector</p> <p>Green Innovation Centres Video, 3 min 05 sec, English</p> |
|  | <p>GIZ Regional Conferences</p> <p>GIZ Factsheet 2025, English</p>   |  |   |  |

Sources marked with the GIZ logo are internal and can only be accessed by GIZ employees.

# Part 2

## 16 Country Packages of the Global Programme

# BENIN

Further information:



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## AGRICULTURAL POLICY CONTEXT AT OUTSET

The agriculture and food sector plays a vital role in Benin, as it employs around 70 per cent of the workforce and accounts for approximately 30 per cent of the gross domestic product (GDP). Despite its significance, the sector is dominated by subsistence farming, which is characterised by low productivity and high dependence on exporting unprocessed produce. These factors reduce the sector's resilience, particularly in the context of climate change.

In order to address these challenges, the **Benin country package** supported the value chains for rice, soya and poultry. These priority value chains offer potential for increased productivity and higher incomes, both for the producers and for small and medium-sized processing enterprises. The *Swiss Agency for Development and Cooperation* provided additional support for the integration of MSME into other value chains, including maize, cassava, yams and vegetable production. This has encouraged a diversified, more resilient agricultural sector.

## INNOVATIONS INTRODUCED

**Innovations in the country package aimed at smallholder farmers:**

- *Good Agricultural Practices* (GAP) in soya production, using soybean inoculation
- *System of rice intensification* (SRI) with neem-coated urea fertiliser
- Good practices in poultry farming with basket farming
- Promotion of access to financing for cooperatives (*Crédit Achat Intrants Groupés*, CAIG)
- *Farmer Business School* (FBS)
- Excellent farmers' organisations (*organisations professionnelles agricoles d'excellence*, OPA d'Excellence)

**Innovations in the country package aimed at MSME:**

- *SME Business Training and Coaching Loop* (SME Loop)
- Quality standards and good hygiene practices
- Bio-safety and standards in poultry farming
- Solidarity-based service companies and rural organisations (*entreprises solidaires de services aux ruraux*, ESSORs)

**In addition, the country package included two major investments to promote mechanisation:**

- Silo system for processing and storing paddy rice
- A mobile unit for cleaning seeds

## VALUE CHAINS



## PROJECT TERM

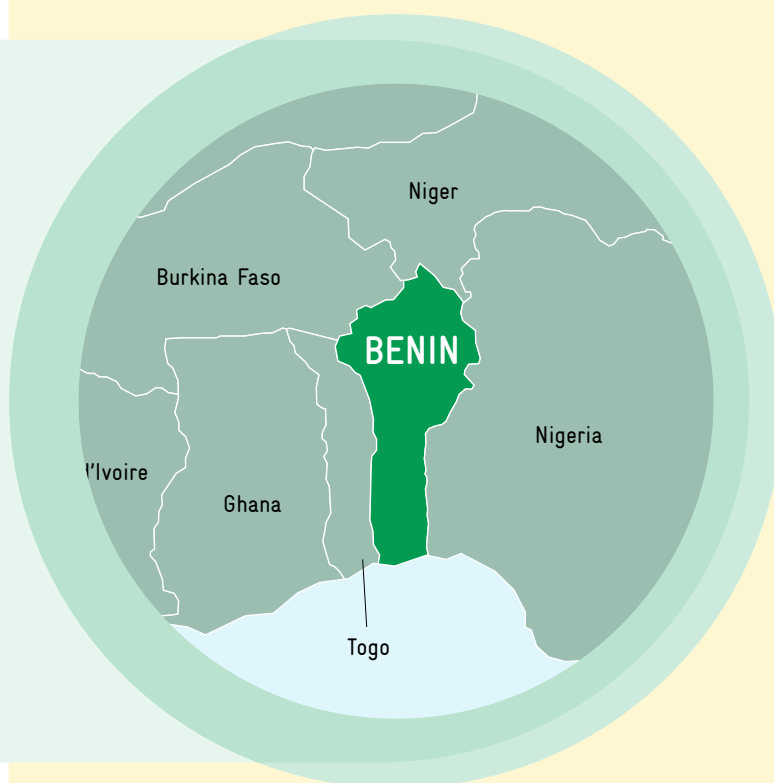
November 2014 to March 2025

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture, Livestock and Fisheries (Ministère de l'Agriculture, de l'Élevage et de la Pêche, MAEP)

## BUDGET

EUR 32.89 million



# BENIN

Further information:



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## KEY RESULTS\*

A total of **103,706 farms** received support through the Benin country package:

- **43 per cent in the rice sector** (including good agricultural practices for intensive rice cultivation, farmer business school)
- **48 per cent in the soya sector** (including neem oil-coated urea, soybean inoculation, etc.)
- **9 per cent in the poultry sector** (*Mammy Poule* approach, Basket Farming)
- Of these farms, **95 per cent have taken up climate-resilient innovations, 97 per cent sustainable agricultural production innovations, and 99 per cent business-related innovations.**
- Of the **5,986 MSME that received support, 3,106 took part in the SME Loop**, an approach that uses training and personalised coaching to promote the management skills within existing MSME.
- Creation of a total of **3,222 jobs, 88 per cent** of which are **for young people** and **79 per cent for women.**

\*more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

### Handmade natural cosmetics under the QUESIAH brand

The company **BENIN BENI** was founded in 2018 by **Rébéca Sohizoun**. Under the **QUESIAH** brand, it produces handmade natural cosmetics, including soaps, shower gel and shampoo. The products are made entirely of natural ingredients and come in environmentally friendly packaging. By participating in the **SME Loop**, Rébéca was able to deepen her understanding of social business management and gained valuable know-how on calculating production costs.

**QUESIAH** specifically empowers women in **Abomey Calavi**, who are actively involved in manufacturing the products. Not only do they receive training on health-related topics, they also work with locally sourced ingredients – an important contribution to self-reliance and sustainable local development.



# BURKINA FASO

Further information:



ATINGI



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## AGRICULTURAL POLICY CONTEXT AT OUTSET

Agriculture underpins the livelihoods of the great majority of people in Burkina Faso, with around 80 per cent of the population dependent on it. However, poverty pervades the country. Almost every second person is living below the poverty line. Rapid population growth is exacerbating the competition for scarce arable land. Added to this is an increasingly tense security situation that renders numerous farming areas inaccessible, with dramatic consequences for the nutrition and livelihoods of many families.

The Burkina Faso country package focused on support for the rice and sesame value chains. Rice is one of the country's most important staple foods, yet some of it needs to be imported. Burkinabe production suffers from limited access to farming inputs, inefficient cultivation methods and shortcomings in storage and marketing.

There is great export potential for sesame, but smallholder farmers often lack good-quality seed, financing and market infrastructure. The absence of quality standards also hampers access to international markets.

## INNOVATIONS INTRODUCED

### Innovations in the country package aimed at smallholder farmers:

- Good *Agricultural Practices* for rice and sesame
- *System of Rice Intensification* (SRI)
- *Contract Farming* (CF)
- Improved management of valleys
- Training for farmers as entrepreneurs
- Integrated training for farmers
- *Gender Action Learning System, Gender Makes Business Sense* (GALS/GMBS)
- School for agricultural entrepreneurs
- Portable radios for remote regions
- Production of improved seeds (Orylux and IR 481)
- *Rice Advice* (free Android app that provides farm-specific recommendations for rice cultivation)
- Meteorological forecast service IGNITIA
- Urea fertiliser with added neem oil
- *Farmer Business School* (FBS)

### Innovations in the country package aimed at MSME:

- Rice hulling machine
- Rice husk production (a by-product of rice processing, usually waste, that is processed into briquettes)
- Certification of the national seed system in line with OECD standards
- Solar-powered cooling and germination chambers
- Contract farming
- Measures to increase the productivity, health and general well-being of farm animals
- Mechanisation services offered by agricultural cooperatives (e.g. renting out agricultural machines)
- SME Loop
- Seed cleaning and sorting facilities
- Processing plant for white rice (e.g. parboiling facility)

## VALUE CHAINS



## PROJECT TERM

November 2014 to March 2024

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture, Livestock and Fisheries (Ministère de l'Agriculture et des Ressources Animales et Halieutiques, MARAH)

## BUDGET

EUR 39.45 million



# BURKINA FASO

Further information:



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## KEY RESULTS\*

- **Training provided for a total of 148,125 smallholders** in the regions Sud-Ouest, Hauts-Bassins, Boucle du Mouhoun and Cascades
- **Training of 4,833 employees and entrepreneurs in a total of 1,332 MSME**, including 41 per cent women and 14 per cent young people
- Collaboration with the *Rural Youth Employment Promotion Project (ProEmploi)* and the project on *Sustainability and Value Added in Agricultural Supply Chains | Cotton (ProCoton)* – cooperation that aimed to mainstream the SME Loop training approach in the *House of Enterprise of Burkina Faso (Maison d'Entreprise du Burkina Faso, MEBF)*
- **Access to suitable financing products improved** for the GIC target group in cooperation with the global programme on *Promotion of Agricultural Financing for Rural Enterprises (ProFinA)*
- **Bilateral cooperation** in areas such as agricultural strategy, further training (e.g. at the FBS) and on the policy dialogue with the Ministry of Agriculture
- **Coordination of interventions in the rice value chain** with the regional *MOVE project* (which focuses on vocational training and job creation)

\* more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

**Success story: Seed revolution – cutting-edge technologies are transforming agriculture**

In Burkina Faso, where agriculture forms the economic backbone of the country, the sector had a long-standing problem with low productivity and outdated cultivation methods. Working with the company Petkus and local partners, an important step towards modernisation was achieved by introducing new machines for cleaning and calibrating seeds. The success was tangible. The germination rate rose from less than 80 per cent to over 95 per cent, leading directly to higher yields and better living conditions.

The project was implemented in six regions as part of the GIC global programme. In addition to having the technology installed, the local operators received dedicated training to ensure that it is used correctly. Not only did this improve the quality of the seed, it also created new jobs and prompted the interest of private seed companies to invest.



# CAMEROON

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

More than 40 per cent of the Cameroonian population are employed in the agricultural sector. The sector forms the central pillar of the food supply to the country's 26.5 million inhabitants and is a key driver of economic growth in rural regions.

Cameroonian agriculture enjoys numerous advantages, including a high demand for food and animal products, both domestically and internationally, as well as favourable agro-ecological conditions and considerable potential to increase its productivity.

The **country package** in Cameroon focused on the economically important value chains for cocoa, potatoes and poultry. As the country's fourth most important export product, cocoa accounted for around 16.2 per cent of export revenue in 2021. For potatoes, which are mainly grown at higher altitudes, the government aims to triple production between 2023 and 2030. On traditional and modern farms alike, poultry farming is not only a source of animal protein, but also a guaranteed source of income for many rural households.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers:

- *Good Agricultural Practices* (GAP; cocoa, potatoes)
- *Good Post-harvest Management* practices
- Good livestock practices
- Organic certification
- *Farmer Business School* (FBS)

Innovations in the country package aimed at MSME:

- Good administration of the cooperatives
- Milling and mixing machines
- Secondary veterinary practices
- Incubators for chicken eggs
- Solar-powered irrigation
- Potato warehouses
- Mechanisation of potato production
- Improved potato seeds
- *SME Business Training and Coaching Loop* (SME Loop)
- Post-harvest processing facilities for cocoa beans
- Cocoa processing facilities

## VALUE CHAINS



## PROJECT TERM

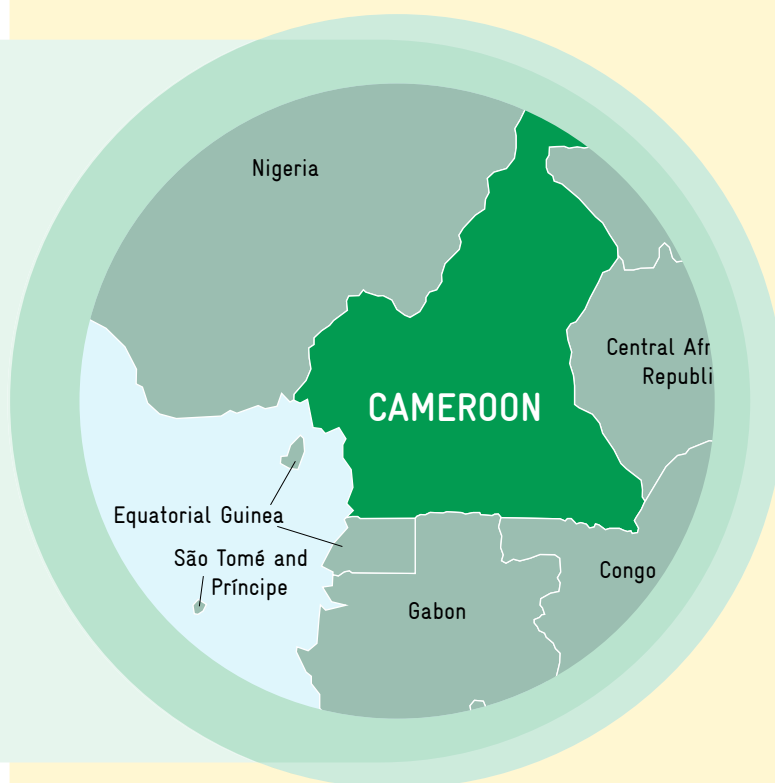
November 2014 to March 2024

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture and Rural Development (MINADER)

## BUDGET

EUR 30.8 million



## CAMEROON

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Survival rate of chicks in the poultry value chain increased from 50 per cent to 80 per cent, exceeding the 60 per cent target
- 42 per cent increase in productivity of the cocoa value chain in the Central Region
- 63,084 agricultural businesses are using the promoted climate-smart innovations
- Creation of a total of 909 jobs, 53 per cent of which are for young people and 12 per cent for women
- Training of 126,549 producers in GAP and FBS
- Support for the installation of 15 tree nurseries, four hectares of seed pre-cultivation, 16 fermentation plants and 21 solar dryers
- Training on cocoa processing provided to ten women's groups
- Support for six cooperatives in switching to organic cocoa cultivation
- Support for the seed sector with innovations such as apical rooted cuttings and a multi-actor platform
- Inclusion of eight new potato varieties in the national catalogue
- More than 30 smaller warehouses and nine bigger warehouses built to reduce post-harvest losses
- Training provided to more than 26,000 women producers in the poultry sector; 30 veterinary centres established

\*more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

When it comes to chocolate production, more and more women are achieving success

Under the global programme on GIC, 200 enthusiastic women benefited from training in the production of chocolate, tea, cocoa powder and cocoa butter. With their newly acquired expertise, and using a specially developed production kit, they were able to expand their skills considerably, taking a decisive step towards economic independence. This initiative has already started to bear fruit: many of the participants have begun to develop their own products and to access local markets. Every day, they are proving that women are a driving force in the cocoa value chain.



# CÔTE D'IVOIRE

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Agriculture in Côte d'Ivoire is a central pillar of the economy and provides employment for a large part of the population. It mainly consists of smallholder farmers that produce for their own needs and for the market. Factors such as climate change, inadequate infrastructure and limited market access are a major constraint on the sector's development, however.

The **Côte d'Ivoire country package** focused on the cocoa, plantain and cassava value chains. Côte d'Ivoire is the world's largest cocoa producer and supplies 41 per cent of the global market with this raw material. Cassava is a starchy food that is often used in both the food and textile industries, like the plantain. The *International Dialogue for Sustainable Cocoa* component managed from Germany additionally supported the sharing of experience and transfer of innovations between the Côte d'Ivoire and Cameroon country packages, the actors in the cocoa sector in Germany and the other cocoa-producing countries in West Africa as well as communication with German consumers.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers and MSME:

- Cocoa bean quality management (e.g. promoting understanding of the quality criteria for cocoa beans)
- Production of seedlings from banana stem fragments (*plants issus de fragments*, PIF)
- Climate-smart cocoa (*Cacao Climato-Intelligent*, CCI) – cocoa production practices that aim to boost productivity sustainably and increase resilience to climate risks
- Processing of agricultural byproducts (e.g. cocoa butter in the cosmetics industry)
- *Farm Service Centres* (FSCs) – centres providing access to agricultural inputs, training and technical extension services
- Technical and economic reference system (*Référentiel Technico-Economique*, RTE) – manual developed for farm production and management for the cassava and plantain value chains
- Processing of cassava

## VALUE CHAINS



## PROJECT TERM

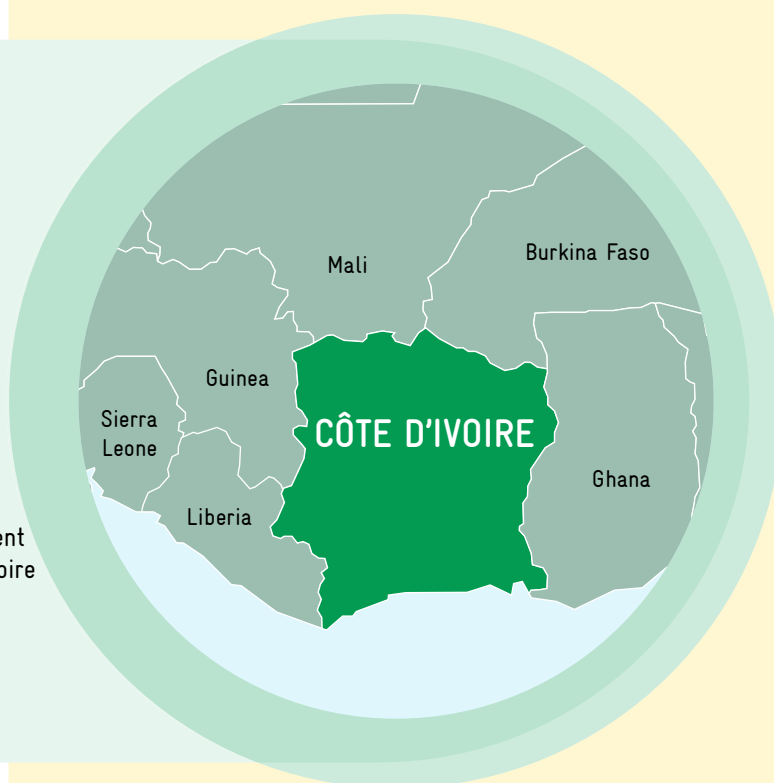
October 2018 to March 2026

## POLITICAL/IMPLEMENTING AGENCY

Ministry of State for Agriculture, Rural Development and Food Production (MEMINADERPV) of Côte d'Ivoire

## BUDGET

EUR 40.96 million including the component "International Dialogue"



## CÔTE D'IVOIRE

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Climate-smart innovations used by 46,860 of the supported smallholder farms
- Creation of a total of 972 jobs in upstream and downstream companies, 48 per cent of which are for young people and 51 per cent for women
- Training provided for 188,687 people from smallholder farms (36 per cent of them women and 25 per cent young people) through ATVET measures (e.g. initial and continuing training, on-the-job coaching) in which previously identified innovations were taught
- **Supra-regional dialogue events** (South-South, North-South) attended by **694 decision-makers, managers and experts** (30 per cent of them women and 7 per cent young people) from Côte d'Ivoire with representatives of the agricultural industry and institutions of research, teaching, administration, and initial and continuing training

\* more detailed data in the country fact sheets in the appendix



© Gael Gellé



## SUCCESS STORY

## Success story: Transformation of cocoa producers in Côte d'Ivoire

Ms Koné is President of the Entreprise Coopérative des Agriculteurs de Méagui cooperative. Although around 68 per cent of workers in cocoa farming are women, they only own a quarter of the cocoa farms. This disparity did not discourage Ms Koné.

As part of the collaboration with the GIC programme, the cooperative received training on climate-resilient seeds, agroforestry systems, sustainable cultivation practices and further processing of cocoa production byproducts. Ms Koné also took part in a leadership training course in Germany and applied the knowledge she acquired there effectively within the cooperative's organisational and steering structure.



# ETHIOPIA

Further information:



ATICI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Agriculture plays a key role in Ethiopia's economy. It provides a livelihood for 79 per cent of the population and accounts for 32 per cent of gross domestic product. Despite economic development, productivity remains low by international standards and basic food-stuffs are therefore imported. Ethiopia has fertile soils and great potential for sustainable agriculture. Around 90 per cent of arable land is cultivated by smallholder farmers, whose traditional knowledge provides the foundations for food production and opens up important opportunities for sustainable agriculture.

The **Ethiopia country package** focused on the wheat, faba bean and honey value chains. Wheat is a staple food, but many smallholder farmers have no access to quality seeds or mechanisation solutions that could boost their yields. Faba beans are crucial for food and nutrition security and as a rotational crop, but face challenges such as climatic changes and pests. Honey has cultural and economic significance but is suffering from the progressive decline of bee habitats.

## INNOVATIONS INTRODUCED

**Innovations in the country package aimed at smallholder farmers:**

- *Good Agricultural Practices (GAPs)* for the wheat and faba bean value chains
- Good beekeeping practices
- *Contract Farming (CF)*
- Seed processing
- Development of Agricultural Technical Vocational Education and Training (ATVET) curricula: improving training in the agricultural extension service and introducing a client-centred approach there
- *Alemayehu Row-Seeding Technology (ART)*: technology for planting seeds in precise rows that allows for more efficient use of land and optimal plant growth
- Promotion of the durum wheat variety
- *Farmer Business School (FBS)*

**Innovations in the country package aimed at MSME:**

- Innovative start-ups
- Bee forage seedlings
- Improved, adapted, climate-resilient seeds
- *Farm Service Centres (FSCs)*: centres offering various services and products for farmers
- *Ethiopian Agribusiness Acceleration Platform (EAAP)* – initiative that aims to promote the development of agribusinesses
- Improved post-harvest practices: production of metal silos

## VALUE CHAINS



## PROJECT TERM

November 2014 to March 2026

## POLITICAL/IMPLEMENTING AGENCY

Ethiopian Ministry of Agriculture (MoA)

## BUDGET

EUR 47,24 million



## ETHIOPIA

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Climate-smart innovations used by 244,909 of the supported smallholder farms
- An additional 2,806 jobs created in the supported businesses, 2,322 (83 per cent) of these for young people and 691 (25 per cent) for women
- Training provided for 356,774 people from smallholder farms (27 per cent of them women and 29 per cent young people) on good cultivation practices and other innovations designed to improve productivity and incomes
- Eight regional, national or supra-regional innovation partnerships established between actors in the wheat, broad bean and honey value chains for dissemination and further development of the innovations

\* more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

Success story: Biogas for a better future –  
Hiwot Abayneh Ayele and her work in rural Ethiopia

Hiwot Abayneh Ayele received a scholarship for a five-month course on renewable energy in agriculture. She found the topic of biogas especially fascinating and this led to a groundbreaking project: she implemented biogas plants in rural regions of Ethiopia that are giving 42 households access to clean energy. In addition to reducing the burden on women and girls, the project is above all strengthening agriculture – through nutrient-dense fertiliser from the biogas residue, improved soil fertility and new income opportunities. By linking energy provision with agriculture, Hiwot's work is creating sustainable prospects.



## GHANA

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Agriculture in Ghana is very fragmented in structure, with over 80 per cent of farmers farming less than two hectares of land. The agricultural sector accounts for around 23 per cent of gross domestic product. Despite its wealth of resources, including gold and cocoa, the country has significant potential for agricultural modernisation – especially regarding access to inputs and infrastructure expansion.

The **Ghana country package** focused on the value chains for rice and maize, two of the most important basic foodstuffs for the population. Around 90 per cent of agricultural production comes from smallholder farms, which offer considerable potential for development. Yet average productivity levels in maize and rice cultivation are very low. More than a third of the harvest is lost each year, mainly due to plant diseases and pests. Given the low yields, many farmers are forced to sell their entire harvest immediately after the season, often at unfavourable prices, which puts a strain on their income.

## INNOVATIONS INTRODUCED

**Innovations in the country package aimed at smallholder farmers:**

- Improved, climate-resilient maize and rice varieties with a high yield and drought tolerance
- Planting with spacing/in rows (maize value chain)
- Aflasafe – biological process that can be used to reduce aflatoxin contamination in agricultural products
- System of Rice Intensification (SRI)
- Germination testing (rice value chain) – method for determining the germination capacity of seeds
- Village savings and lending associations
- Farmer Business School (FBS)

**Innovations in the country package aimed at MSME:**

- SME Business Loop
- Mechanisation services: pest management and automated planters for maize
- Parboiling – a pretreatment method that involves soaking, steaming and drying paddy rice to make it more nutritious
- Strengthening and expansion of cooperation with farming producer groups

## VALUE CHAINS



## PROJECT TERM

November 2014 to March 2021

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Food and Agriculture (MoFA) of Ghana

## BUDGET

EUR 12.9 million



## GHANA

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Training provided for **362 intermediaries** – **60 (17 per cent) of them women** and **96 (27 per cent) young people** – as part of the Farmer Business Training Network Ghana and in the regional and district offices of the Ministry of Agriculture (MoFA)
- Training courses held for **71,727 smallholder farmers** – **29,363 (41 per cent) of them women** and **19,265 (27 per cent) young people**. Around **46 per cent of participants** stated that they **use innovative approaches**, which leads to an **average productivity increase of 18 per cent**.
- **26,670 smallholder farmers** are using **climate-smart innovations**
- At the MSME level, **training provided for 2,375 people** from upstream and downstream sectors, **763 (32 per cent) of them women** and **673 (28 per cent) young people**
- Training provided for **142 decision-makers** in South-South and North-South knowledge exchange formats, **32 (23 per cent) of them women** and **27 (19 per cent) young people**

\* more detailed data in the country fact sheets in the appendix

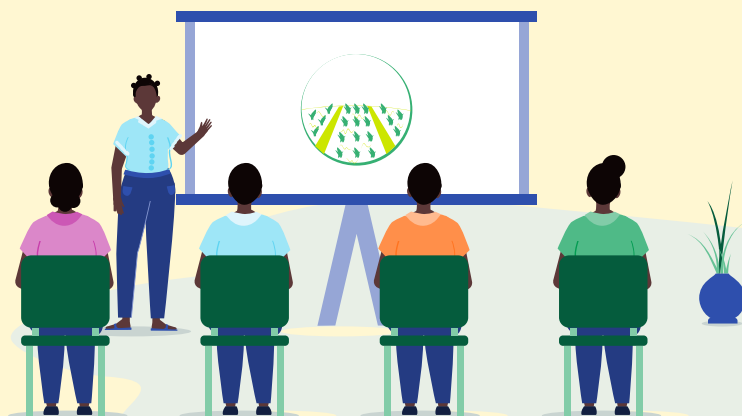


© Angelika Jakob

## SUCCESS STORY

## Greater self-determination for women in rice processing

**Janet Adade** is a dedicated entrepreneur who helps women in rice processing to achieve self-determination. As a result of her initiative, women have been able to form groups, expand their knowledge of rice processing and earn their own income. In recognition of her work, an international jury declared Janet a 2020 winner of the Game Changers – Women in Agriculture award, a competition launched by BMZ. Through her actions, she is playing a pivotal part in strengthening the role of women in agriculture.



## INDIA

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

India's agri-food industry is one of the largest worldwide and has the potential to provide food security for its almost 1.3 billion people in the long term. However, the sector also faces major challenges that are crucially important to sustainable development. The bulk of farming is done by smallholder farmers on highly fragmented land holdings that keep getting smaller through inheritance. These farmers are particularly vulnerable to price fluctuations, climate risks and poor access to markets. Women are mainly confined to auxiliary tasks and receive lower wages. As only a fraction of agricultural products is further processed, incomes and employment opportunities are limited.

The India country package focused on the tomato, potato and apple value chains. India is one of the largest apple producers globally (especially in its northern states) and the second-largest producer of tomatoes and potatoes. All three value chains offer potential for improving cultivation methods and increasing productivity.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers:

- Seed propagation in potato cultivation through rooted apical cuttings (RAC) technology
- Hygiene measures and improvements in tomato plant cultivation
- Modified planters
- *Good Agricultural Practices* (GAP) (e.g. fertilisers, efficient and integrated pesticide use, careful tillage)
- Solar-powered technologies (cold stores, drying rooms, water pumps, wildlife deterrence)
- Measures to promote ecosystem services
- Pollination
- Drip and root irrigation
- Promotion of soil fertility
- Measures to reduce post-harvest losses (drying, further processing, refrigeration, direct marketing, etc.)

Innovations in the country package aimed at MSME:

- Practical packages (e.g. training documents, market analyses, visitor programmes and webinars) for the tomato value chain
- Practical packages (see above) for the potato value chain
- Development of agri-environmental and entrepreneurial skills for the implementation of sustainable and profitable agricultural practices

## VALUE CHAINS



## PROJECT TERM

November 2014 to July 2025

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture and Farmers' Welfare (MoAFW) of India

Mission for Integrated Development of Horticulture (MIDH)

## BUDGET

EUR 34.2 million



## INDIA

Further information:



ATICI



IDA

## KEY RESULTS\*

- **Training provided for 140,001 smallholder farmers** in four Indian states, 33 per cent of them women and 31 per cent young adults
- Support also provided to **7,440 managers from MSME** across the different stages of the value chains
- **Establishment of networks** between the relevant interest groups in which **agricultural innovations are developed and learned**
- **Close relationships specifically fostered between farmers and model farms established**, greatly helping to build trust and disseminate innovative approaches
- **Innovations integrated into state support schemes** (grants for the implementation of innovations), significantly contributing to institutional mainstreaming and scalability
- Training, exposure seminars, South-South(-North) collaboration, topic-specific working groups and other measures

carried out, leading to **proven success in cross-border and trilateral cooperation**

- **Development of practical, needs-based innovations** facilitated by the project's ability to respond flexibly to the changing needs of the target groups, especially along the apple value chain

\* more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

## Success story: Potato seedlings from Kodihalli

Manjegowda from Kodihalli has made an important contribution to cost-effective potato seed production with his nursery. As part of the support provided, he received four tissue culture bottles – special containers that can be used to propagate plants under sterile conditions. This yielded around 16,000 potato plants, which he then passed on to farmers. His seedlings are less vulnerable to disease and produce higher yields. Local farmers now specifically turn to him to benefit from his seedlings.



## KENYA

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Agriculture is the backbone of Kenya's rural economy and accounts for around 33 per cent of gross domestic product. Over 40 per cent of the population works in the agricultural sector, which supplies more than 70 per cent of rural households with food. Notwithstanding its central importance, Kenya's agricultural sector faces major challenges: only around 20 per cent of the country's land area is suitable for growing arable crops. Access to agricultural finance remains unaffordable for many smallholder farmers.

The **Kenya country package** focused on the dairy and sweet potato value chains. Dairy plays a central role in Kenyan society, both in terms of food and the economy. Dairy sales are a significant source of income for many farmers. The sweet potato is an important, nutrient-dense, easy-to-grow staple. Despite its importance, challenges remain, such as diseases, inadequate access to markets and a lack of technical support.

## INNOVATIONS INTRODUCED

## Innovations in the country package aimed at smallholder farmers and MSME:

- Forage production and conservation
- Improvement of the service focus of dairy cooperatives with the NGO Cooperative Alliance of Kenya and the innovative *DigiFarm* (ICT) app from mobile network operator Safaricom
- Provision of high-quality planting material
- Provision of practical advice from selected farming innovators, specialist consultants and digital applications
- *Farmer Business Organisation* (FBO) – a structure offering organisational support to smallholder farmers to improve the economic efficiency of their agricultural activities
- Development of *Good Agricultural Practices* (GAP) in cooperation with the Kenya Agricultural & Livestock Research Organization (KALRO)
- Training for instructors on GAP and participatory training methods
- Training for producers on GAP and FBO
- Introduction of the lead farmer approach (extension service)
- Solar irrigation pilot project to support year-round production of planting material
- Networking for farmers and traders
- Coaching for producers and marketing groups
- Promotion of the sweet potato value chain at national level through *National Potato Councils*
- Strengthening of local stakeholders through participatory advocacy and dialogue formats with public and private partners (in cooperation with the *Andreas Hermes Academy*)

## VALUE CHAINS



## PROJECT TERM

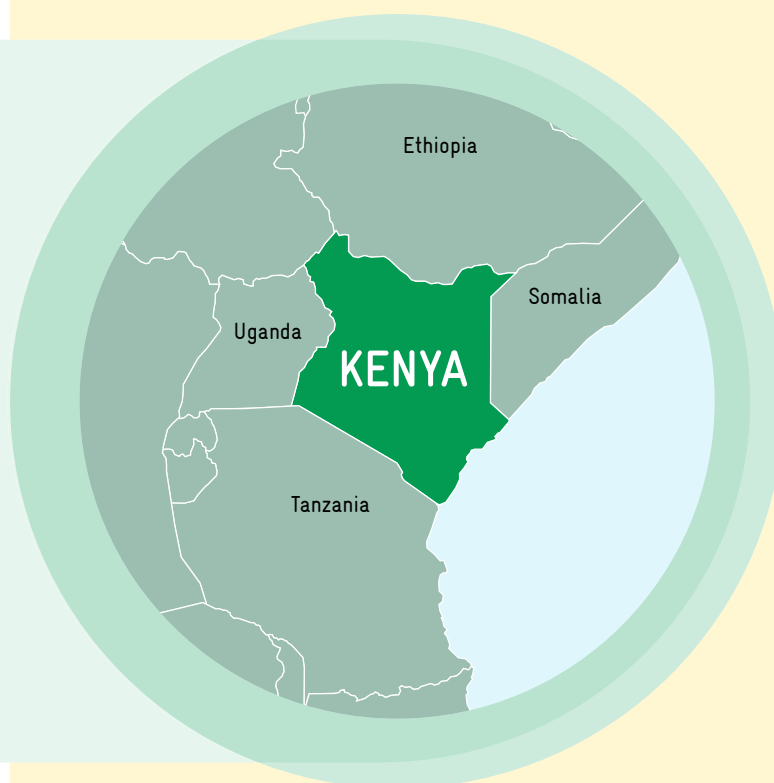
October 2014 to March 2023

## POLITICAL/IMPLEMENTING AGENCY

Kenya's Ministry of Agriculture, Livestock and Fisheries (MoALF)

## BUDGET

EUR 25.62 million



## KENYA

Further information:



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## KEY RESULTS\*

- Training provided for 102,391 smallholder farmers, 68,171 of them women and 26,653 young people
- Training of a total of 56,851 smallholder farmers in dairy cow husbandry and raw milk production
- Training of a total of 3,414 employees and entrepreneurs in a total of 2,000 MSME in the sweet potato and milk sectors
- 918 additional jobs created, 278 (30 per cent) of them for young people and 375 (41 per cent) for women

\* more detailed data in the country fact sheets in the appendix



© Jörg Böhling



## SUCCESS STORY

## Success story: Kevin Kimutai – agriculture in focus

Kevin Kimutai, a student at Bukura Agricultural College in Western Kenya, took part in a participatory film workshop run by GIC in 2024. He and his fellow students produced documentary films about agricultural topics that highlighted local challenges and young perspectives. The workshop was a turning point for Kevin: he learned how film can be used as a medium to share agricultural knowledge in a creative way and generate enthusiasm for sustainable solutions among young people.



## MALAWI

Further information:



ATICI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Agriculture plays a central role in Malawi's economic development. It accounts for around 26 per cent of gross domestic product (GDP), employs 83 per cent of the population and generates up to 80 per cent of export earnings. The most important agricultural products include cash crops such as tobacco and sugar as well as staple foods, including maize and rice. However, the sector is highly susceptible to climate-related shocks and external crises, such as rising prices of farming inputs. The country's natural resources are under increasing pressure, not least from the 19 million inhabitants, most of whom live in rural areas. Other challenges include inadequate early warning systems, low crop diversity and a lack of mechanisation in agriculture.

The **Malawi country package** focused on the value chains for soya, groundnuts and cassava. These crops were chosen because of their importance for food security as well as their market potential. There was a particular emphasis on the economic empowerment of women, with advisory services that aimed to improve access for women along the entire value chain, up to and including the marketing of produce, thus enabling them to manage their own income.

## INNOVATIONS INTRODUCED

## Innovations in the country package aimed at smallholder farmers:

- *Farmer Business Schools* (FBS)
- *Good Agricultural Practices* (GAP) for soya, groundnuts and cassava
- Aflatoxins management
- Improved cassava varieties
- Vaccine against Newcastle disease
- Natural resource management
- Access to financial services and agricultural inputs improved through structured relationships within the value chain

## Innovations in the country package aimed at MSME:

- Integrated business skills training and coaching for MSME
- Propagation of high-quality seeds
- Coordinated partnerships in the value chain supporting access to markets
- Micro, small and medium-sized enterprises in the coaching loop (SME Loop)

## VALUE CHAINS



## PROJECT TERM

October 2014 to March 2025

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Trade and Industry (MoTI)

## BUDGET

EUR 34.9 million (including EUR 8 million from the EU KULIMA programme)



## MALAWI

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Training provided for around 247,789 smallholder farms and 1,609 employees of MSME, with a particular focus on topics such as agricultural expertise and entrepreneurship
- Approximately 1,040 new jobs created through the activities; business performance indicators of 680 enterprises improved
- Climate-smart innovations used by 95,175 smallholder farms across the network

\* more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

**Successful cooperation – how smallholder farmers in Mzimba district are improving their living conditions**

In Mzimba district, where around 70 per cent of farmers previously had no access to farming inputs such as seeds, local initiatives and support from the GIC global programme have produced a success story.

Elvin Mula remembers the difficult times when many farmers had to fend for themselves. Today, farmers are joining forces and cooperating with local service providers such as the Chikwendeni General Dealers to secure credit agreements as a means of accessing soya seed and farming inputs. 'It's easier to get hold of inputs now,' confirms Peter Mafuleka. This collaboration is bringing results. Aaron Mafuleka now harvests up to 15 sacks of soybeans per hectare, which is having a noticeable impact on the incomes and quality of life of the families involved.



## MALI

Further information:



ATICI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

In Mali, agriculture employs 80 per cent of the workforce and contributes 35 per cent to gross domestic product. The annual population growth of 3.6 per cent is raising the demand for production, but the productivity of the land remains low. Extremist violence, cross-border crime and local conflicts have increased over the last ten years, with terrorist attacks and military operations adding to the suffering of the population. Particularly hard hit are the country's north and centre and the area around the capital Bamako. The August 2020 coup underscored the fragility of the state.

The **Mali country package** focused on the value chains for rice, potatoes and mangoes, as these offer potential for increased productivity and income generation. In the rice value chain, limited conservation and marketing capacities result in considerable post-harvest losses. Inefficient storage of mangoes and potatoes as well as outdated processing technology further reduce yields and jeopardise food security.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers:

- *Contract Farming* (CF)
- *Good Agricultural Practices* (GAP) in fruit tree cultivation and mango production
- *System of Rice Intensification* (SRI)
- *Farmer Business Schools* (FBS)
- *REFLECT approach* (a method based on the principle of learning enhanced with targeted reflection and regular assessment; in the context of the Mali country package, it was used specifically to strengthen the farmer target groups and promote their self-reliance)
- Warehouses with solar-powered ventilation
- Integrated management of potato production
- Integrated control of the mango fruit fly
- Agroecological production

Innovations in the country package aimed at MSME:

- Warehouses with solar-powered ventilation
- Good agricultural practices: harvest and post-harvest
- SME business training and coaching loop (SME Loop) for MSME
- Quality assurance in MSME
- *Parboiling* equipment (rice kit) for 180 kg of rice with improved processing quality
- Propagation of seeds
- Training to strengthen farmers' organisations

## VALUE CHAINS



## PROJECT TERM

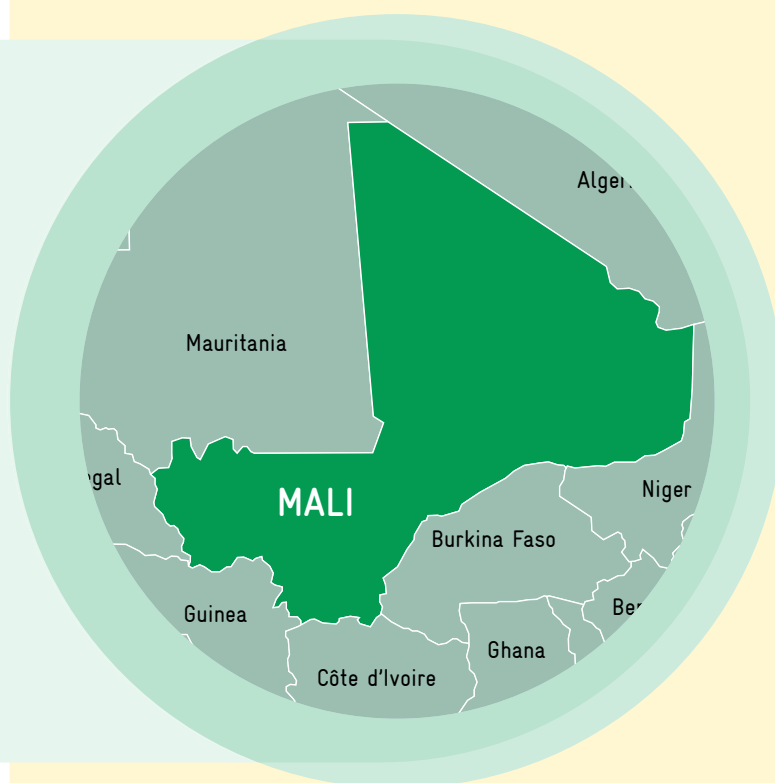
November 2014 to May 2025

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture  
(Ministère de l'Agriculture du Mali)

## BUDGET

EUR 52.15 million  
(including EUR 5 million of EU co-financing)



## MALI

Further information:



ATINGI



IDA

## KEY RESULTS\*

- 173,462 smallholder farmers trained in the regions Kayes, Sikasso, Koulikoro, Mopti and Segou
- Training for a total of 10,833 mediators, including 3,381 women and 5,604 young people in a total of 12 partner institutions
- A total of 643,639 people were reached via digital media.
- A total of 23,364 employees and entrepreneurs from a total of 1,209 SME took part in training and further education courses, 41 per cent of whom were women and 48 per cent young people.

\* more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

## From the dream of becoming a farmer to starting a business

The 30-year-old entrepreneur Binta Coulibaly lives in Kayes, around 595 km west of Bamako. In 2018, she completed a six-month course in agro-pastoral management at the CFAP training centre in Kayes. Just a year later she set up her own enterprise, *La Ferme Bio la Kayesienne*, and took part in the SME Loop programme, benefiting from its targeted support. Among other things, Binta acquired business and HR management skills. This has increased her monthly turnover from FCFA 240,000 to FCFA 300,000. She created ten jobs and is well on the way to establishing an integrated agro-pastoral farm. Today, she is pursuing further training in online entrepreneurship and has achieved financial independence.



# MOZAMBIQUE

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Mozambique is one of the least prosperous countries in the world, ranking 180th in the Human Development Index (HDI). Although the country achieves high growth rates, some 70 per cent of its population have not benefited from this in recent years; more than half live below the national poverty threshold. Of the 36 million hectares of arable land available, only six million are in full use. The agricultural sector is characterised by smallholdings, with 98 per cent of the country's 4.2 million subsistence farms smaller than two hectares. Despite the fact that 5.7 million people are working in the agricultural sector, which accounts for 28 per cent of the gross national product, many foodstuffs are imported.

The **Mozambican country package** promoted the value chains of pigeon peas and the baobab fruit. Pigeon peas are rich in protein and beneficial to soil health. They generate income and can adapt to different conditions, which underscores their importance for agriculture in Mozambique. Baobab fruits are rich in nutrients and open up economic opportunities through the sale of products.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers:

- Farming as a business
- Supply systems using pre-processing at municipal level
- Organisation of women collectors in a cooperative
- *Good Agricultural Practices* (GAP)
- *Farmer Business School* (FBS)

Innovations in the country package aimed at MSME:

- Development of innovative products and new markets
- Integrated agricultural services
- Local processing and consumption of pigeon peas
- Market information system
- Value chain platform for stakeholders

## VALUE CHAINS



## PROJECT TERM

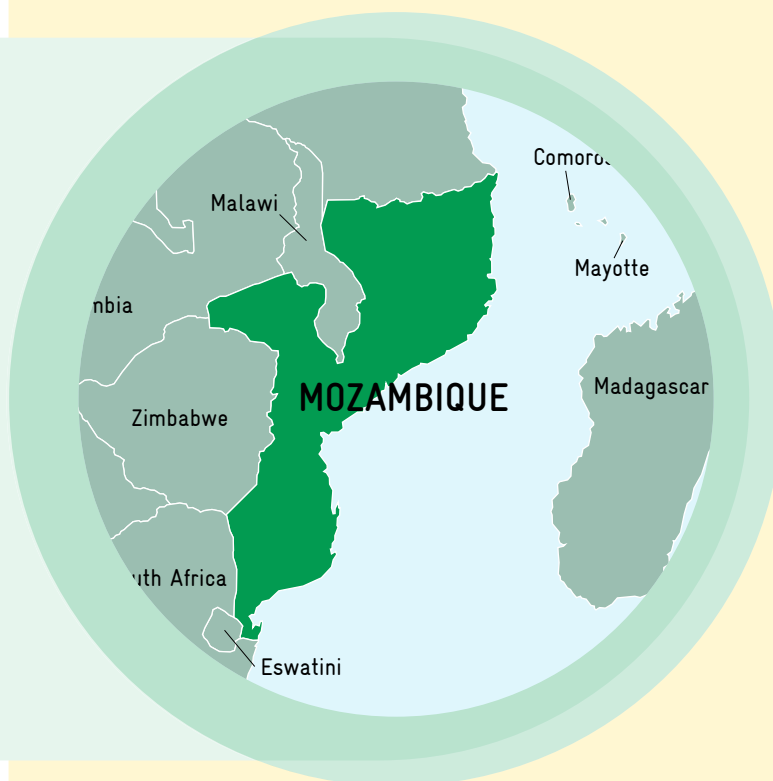
October 2017 to March 2024

## POLITICAL/IMPLEMENTING AGENCY

Ministry for Industry and Commerce (MIC)

## BUDGET

EUR 11.71 million



# MOZAMBIQUE

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Training provided for 89 mediators in the partner institutions (21 women, 56 young people)
- A total of 51,519 smallholder farmers took part in training courses, including 24,250 women and 25,179 young people.
- 23,324 smallholder farmers are using climate-smart innovations
- 474 people from six small and medium-sized enterprises trained, including 341 women (72 per cent) and 241 young people (51 per cent)
- 65 decision-makers participated in South-South and North-South events, including 37 per cent women and 28 per cent young people.
- Two of the three beneficiary companies have improved at least three of the five key indicators.
- 149 additional jobs created

\* more detailed data in the country fact sheets in the appendix



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## SUCCESS STORY

### Women's empowerment and baobab fruit

Maria is a single mother with three children. She lives in a small house in a rural community where people do not easily accept her status as an unmarried woman. As vice-president of the *Women Baobab Fruit Collection Association*, she teaches other women how to harvest and sell the fruit, which enables them to be financially independent. Maria has gained recognition, which has helped her to improve her life. That includes expanding her herd of goats and building a new house.



# NIGERIA

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

With more than 223 million inhabitants, Nigeria is Africa's most populous country and has the continent's largest domestic market and strongest economy. Nonetheless, agricultural productivity lags well behind the international average. The country offers potential through integrated business models and modern market information systems that strengthen value chains and make markets more transparent. The situation is exacerbated by the impacts of climate change and by increasing conflict between crop and livestock farmers.

The **Nigeria country package** focused on the potato, maize, rice and cassava value chains. Nigeria is one of Africa's largest rice importers. At the same time, demand for basic foodstuffs such as rice and cassava and for potatoes, maize and other products continues to grow. The *Integrated Approach to Climate Change in Rice Production* (InACC) project was also a key component of the country package, concentrating on promoting the rice value chain and on conflict mediation in livestock farming.

## INNOVATIONS INTRODUCED

**Innovations in the country package aimed at smallholder farmers:**

- *Good Agricultural Practices* (GAP)
- *Farmer Business School* (FBS)
- *Viamo's 3-2-1 service* – a platform for people with a mobile phone but no internet access
- Photovoltaic systems for domestic use
- Interactive radio show, extension service on GAP, live advice
- Food safety and pre-/post-harvest management (aflatoxins)
- *Integrated pest management* (IPM), fall armyworm (FAW) control
- *IGNITIA* weather forecasting service

**Innovations in the country package aimed at MSME:**

- *Mobile Cassava Processing Innovation* (MOCAPI)
- Organisational development
- *SME Business Training and Coaching Loop* (SME Loop)
- *Processor Business School* (PBS) for rice parboiling
- Entrepreneurship in the seed sector (cassava, potato)
- *Cooperative Business School*
- *Contract Farming* (CF)
- Local agricultural extension services

**Additional innovations in the InACC component:**

- Agroforestry systems, demonstration plots, tillage, organic fertilisers, cropping calendar, seed extension services and irrigation for rice cultivation
- Record-keeping and improvement of key business figures, animal welfare, transport of livestock, artificial insemination, hygiene in livestock farming, manure management
- Animal feed: feeding management, cultivation, processing, silage, storage

## VALUE CHAINS



## PROJECT TERM

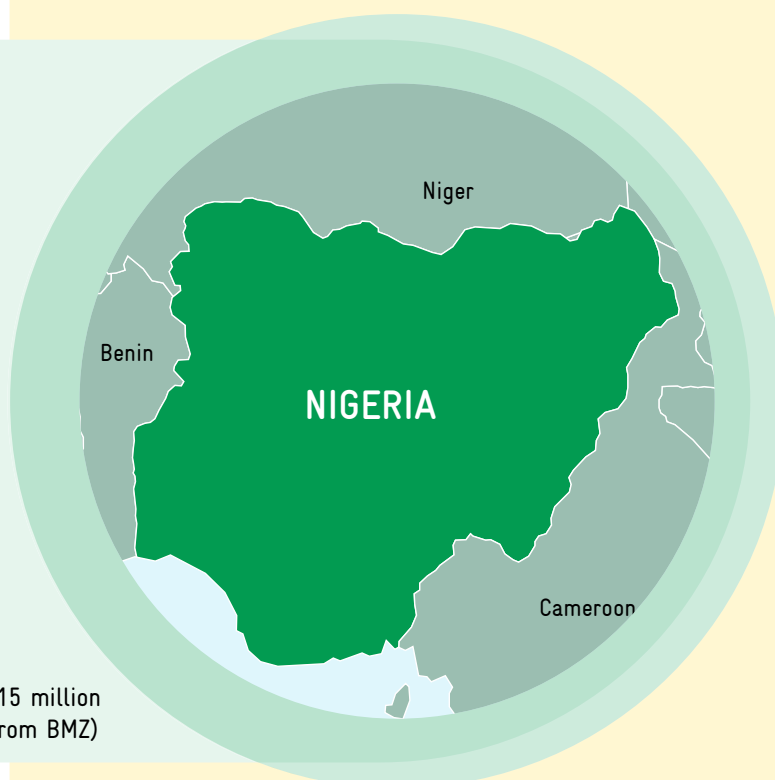
11/2014 – 03/2025

## POLITICAL/IMPLEMENTING AGENCY

Nigerian Federal Ministry of Budget and Economic Planning (FMBNP)

## BUDGET

EUR 40.26 million including co-financing of EUR 5.15 million (EUR 4.15 million from the EU and EUR 1 million from BMZ)



# NIGERIA

Further information:



ATINGI



IDA

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## KEY RESULTS\*

- **Training of a total of 264,191 smallholder farmers**, 34 per cent of whom are women and 51 per cent young people
- **Training of a total of 6,523 employees and entrepreneurs**, including 57 per cent women and 2,906 young people in a total of 954 MSME
- **Multi-actor platforms (MAP) strengthened** to improve coordination in the respective value chains
- **National strategy adopted** for the potato sector
- **Conflict resolution mechanisms piloted** in clashes between livestock herders and rice farmers over key resources

\* more detailed data in the country fact sheets in the appendix



## SUCCESS STORY

### Juliet Tsebo – a pioneer of sustainable agriculture and community building in Benue

Through training in specific areas, **Juliet Tsebo** was able to acquire practical skills facilitating visible and sustainable changes in farming communities. In the Yelewata and Daudu communities in the state of Benue, she trained over 500 smallholder farmers (70 per cent of them women and young people) in sustainable rice cultivation methods, set up demonstration plots and led dialogue on peacebuilding and conflict resolution. She has also been invited to speak about agriculture and food security opportunities on radio programmes and talk shows. Her professional network has grown tremendously because of this.



# TOGO

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Togo has great potential in agricultural production. Most farms operate on less than four hectares. The agricultural sector employs around two thirds of the working population. Yet a significant section of the population lives in poverty: 51 per cent are considered poor, and 38.8 per cent live below the international poverty line of USD 1.25 per day. The main challenges include the limited value addition in agricultural production to date, restricted processing and marketing capacities, and in some cases organisational shortcomings.

The **Togo country package** focused on promoting the soya, groundnut and cashew value chains. These three value chains have high development potential for incomes, food and nutrition security and rural value creation. Closer links and greater cooperation between the relevant stakeholders are needed to fully harness this potential. There are particular opportunities in the further development of training and extension services and in the intensification of research, private involvement and civil society participation.

## INNOVATIONS INTRODUCED

**Innovations in the country package aimed at smallholder farmers:**

- *Good Agricultural Practices (GAP)* for cashews, groundnuts and (organic) soya
- Collective buying and selling – several parties coming together to secure better prices through grouped procurement
- Integration of beekeeping into cashew plantations
- Innovative test fields – managed plots for trialling new agricultural approaches
- Integrated fertiliser package – efficient use of fertilisers while simultaneously minimising environmental impacts
- Certified seed
- Farmer Business School
- Aflatoxin management
- *Agricultural information system (AIS)*

**Innovations in the country package aimed at MSME:**

- Professionalisation and steering of rural agri-food businesses
- Solar pumps and dryers
- Production and marketing of certified groundnut and soya seed as well as seedlings for cashew trees
- Quality standards and good hygiene practice in the production and manufacture of agricultural products
- *SME Business Training and Coaching Loop (SME Loop)*
- Organic compliance – adherence to legal standards for organic products and processes
- Optimised value creation processes through soya, cashew nut and cashew apple processing

## VALUE CHAINS



## PROJECT TERM

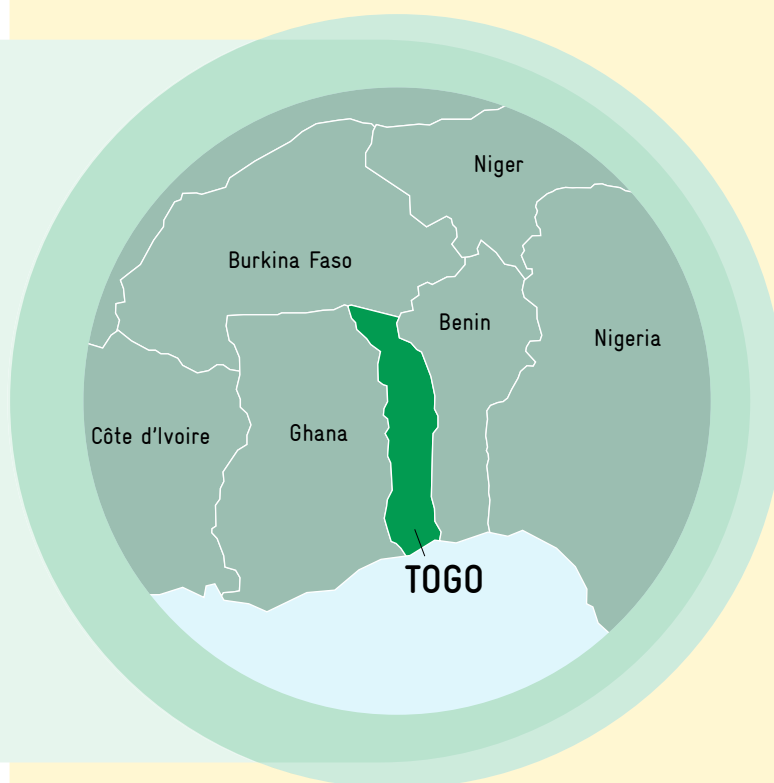
November 2014 to March 2024

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture, Livestock and Rural Development (MAEDR) of Togo

## BUDGET

EUR 21.5 million



## TOGO

Further information:



ATINGI



IDA

## KEY RESULTS\*

- **Training provided for 82,907 smallholder farmers**, 26 per cent of them women and 29 per cent young adults in the Maritime, Plateaux, Centrale, Kara and Savanes regions
- **Climate-smart innovations used by 64,858 smallholder farmers**
- **Training completed by 3,408 business representatives** on topics such as improved management and further processing, reaching a total of 335 MSME across different stages of the value chain, with more than half of women (51 per cent) and young adults (38 per cent)
- **Entrepreneurship promoted through the SME Loop**, which connects entrepreneurs with financial institutions
- **Training of actors in the Cashew VC** to strengthen the VC against foreign seed imports and in the export of high-quality cashew nuts
- **In the area of digitalisation, information on GAP available to more than 5,000 users through the e-AgriConseil+ app**

\* more detailed data in the country fact sheets in the appendix



© Angelika Jakob

## SUCCESS STORY

**Juliette Pyalo Sebou – a pioneer in the cashew sector**

Juliette Pyalo Sebou leads a cashew nut processing workshop. With a great deal of pioneering spirit, she has not only set up her own business but also created a platform encouraging other women to pursue entrepreneurial ventures. In addition to processing cashew nuts, Juliette also offers training, thus making a key contribution to promoting female entrepreneurship.

Her efforts are already having a big impact: more than 800 producers are now benefiting from the stable local market she has opened up with her business model. Juliette is therefore an inspiration to many other women.



# TUNISIA

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

The Tunisian agricultural sector accounts for around 10 per cent of gross domestic product and employs 14 per cent of the working population, making it of central importance to the national economy. Its high import dependency, especially in the cereals sector, is further exacerbating the budget deficit situation, with budgets already under strain from periods of drought and high production costs. Russia's war of aggression in Ukraine has led to significant increases in the prices of many imported goods. While agriculture makes a considerable contribution to food and nutrition security, the sector is also facing major climate challenges – chief among them water scarcity.

The Tunisia country package focused on the dairy and potato value chains. Both sectors are of strategic importance for food and nutrition security, employment and value creation. The dairy sector has considerable potential for development, especially through innovations in feeding, processing and marketing, which may strengthen its competitiveness on regional and international markets. Potato production is also key to ensuring local food availability and offers opportunities for greater productivity, more efficient irrigation technologies and the improved use of high-quality seed potatoes.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers and MSME:

- Farmer Business School (FBS)
- Innovative training on the dairy value chain (*Formation Innovante Lait*, FIL) and Good Agricultural Practices (GAP) in potato cultivation (*Formation Innovante Pomme de Terre*, FIP)
- Installation of photovoltaic systems for on-farm milk cooling
- Smart irrigation systems (solar and drip irrigation)
- *Fifth season* for potatoes, a new cultivation method that enables cultivation in an additional season
- Professionalisation of occupations in the dairy sector

## VALUE CHAINS



## PROJECT TERM

November 2014 to March 2025

## POLITICAL/IMPLEMENTING AGENCY

Agricultural Investment Promotion Agency (APIA) run by the Ministry of Agriculture, Water Resources and Fisheries (MARHP) of Tunisia

## BUDGET

EUR 26.78 million



# TUNISIA

Further information:



ATINGI



IDA

## KEY RESULTS\*

- Training provided for 15,195 smallholder farmers (47 per cent of them women and 50 per cent young people) in seven governorates
- Support given to 365 entrepreneurs and workers in 158 supported MSME
- A total of 5,343 smallholder farms are using climate-smart innovations
- A total of 294 jobs were created in upstream and downstream MSME, 54 per cent of which were for young people and 41 per cent for women
- CLEANED (tool used to analyse the climate impacts of the dairy industry in Tunisia)

\* more detailed data in the country fact sheets in the appendix



© Thomas Trutschel



## SUCCESS STORY

### Innovation on the farm – Mr Abdeljalil sets new standards in Sbeitla

Mr Abdeljalil has modernised his farm in Sbeitla with everything from automatic drinkers to a photovoltaic cooling system. The livestock farmer regularly attends training courses and applies the innovations in a focused way: his cows have free access to water and therefore produce more milk. He has also installed a milk cooling system powered by solar panels. Furthermore, he has diversified his feed resources and reduced his usage of chemical fertilisers by using manure. Today, he shares what he has learned and facilitates training units in his region.



## VIET NAM

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

Viet Nam aims to transform its agricultural sector to achieve greater sustainability and to diversify production. However, its outreach services are limited. While cooperatives could play a key role, their capacity to deliver services, quality management and marketing functions is often insufficient.

The Viet Nam country package promoted the rice and mango value chains. Rice production in the Mekong Delta plays a decisive role in food security. The country produces around 45 million tonnes of rice each year, of which around 7.4 million tonnes are exported. This makes the country the world's fifth largest rice producer and second largest exporter. Another strategically important value chain in Viet Nam is for mangoes, in which the level of productivity and value is high. Nevertheless, the rice and mango sectors both face challenges such as climate change, excessive use of chemicals and fragmented production, which jeopardise a sustainable supply. To overcome these problems, there is a need for innovative approaches to promote more efficient and sustainable agricultural practices.

## INNOVATIONS INTRODUCED

Innovations in the country package aimed at smallholder farmers:

- Alternating the irrigation and drainage of rice fields
- Sustainability standards for rice cultivation (*Sustainable Rice Platform, SRP*)
- Management of rice straw
- Ecologically certified rice/shrimp production system
- *Farmer Business School (FBS)*
- Improved management of soil fertility in mango cultivation
- Pruning in mango cultivation
- Irrigation technology in mango cultivation
- Integrated pest management to comply with maximum permitted levels of pesticide residues

Innovations in the country package aimed at MSME:

- *Contract Farming (CF)* for rice cultivation
- Improved delivery of services by rice cooperatives, e.g. mechanised harvesting and drone-assisted pest management service
- Branding of organically produced rice
- Management of post-harvest losses in the mango value chain
- Improved business management and business plan development for cooperatives and MSME

## VALUE CHAINS



## PROJECT TERM

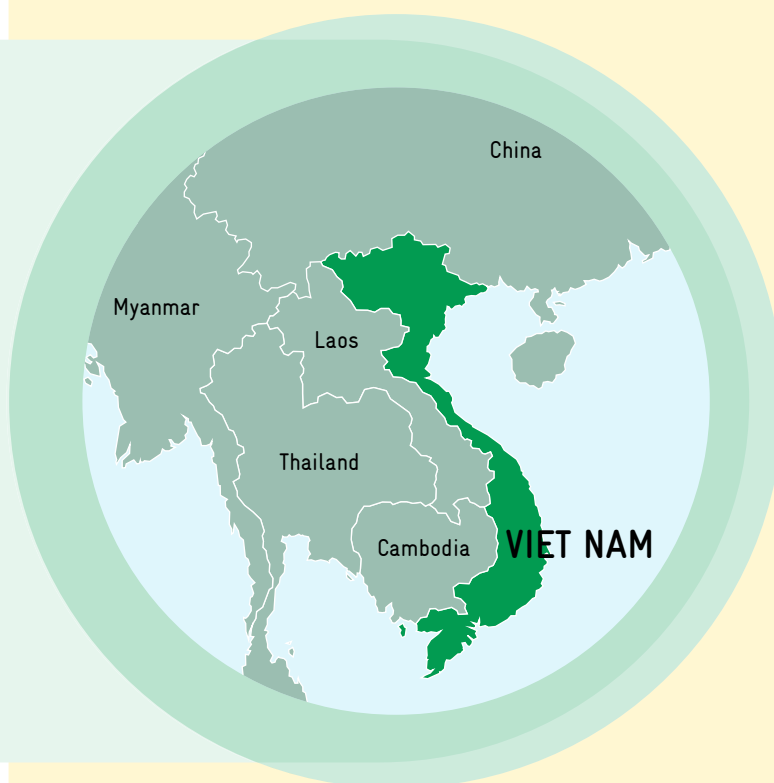
November 2019 to March 2025

## POLITICAL/IMPLEMENTING AGENCY

Vietnamese Ministry of Agriculture and Rural Development (MARD)

## BUDGET

EUR 9.03 million



## VIET NAM

Further information:



ATINGI



IDA

## KEY RESULTS\*

- **24,062 smallholder households** (27 per cent women and 10 per cent young people) **in the rice and mango value chains** benefited from the interventions of the GIC global programme.
- **Climate-smart innovations that were supported now used by 59 per cent** of the smallholdings involved with a view to coping with the predicted effects of climate change more effectively
- **28 per cent reduction in water consumption for rice cultivation**
- **63 per cent reduction in greenhouse gas emissions from rice production** 20 out of 40 MSME surveyed attested to 8.6 per cent
- **Reduction in chemical fertiliser use for rice cultivation and 25 per cent for mango cultivation**
- **The shelf life of mangoes grown by trained smallholder farmers has increased from seven days to 35 days.**
- **3,128 operations managers and employees in a total of 130 SME received further training.** Of those trained, 87 per cent are employed in the rice sector and 13 per cent in the mango sector.
- **34 of the 40 SME surveyed were able to improve in three out of five business areas** (turnover, number of customers, formalised business relationships, production costs, investment costs).
- **Creation of a total of 307 jobs in upstream and downstream MSME** in the rice and mango VC, including 58 per cent for young people and 57 per cent for women

\* more detailed data in the country fact sheets in the appendix



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© Phung Tu



© Thomas Imo

## SUCCESS STORY

### Straw as a source of income – Tran Thi Kim Huyen's path to diversification

For many years, Tran Thi Kim Huyen used to depend on rice cultivation alone. After a four-day training course at the FBS, she found the confidence to make changes. Recognising the potential of **straw as a by-product**, she began to harness this potential by using rice straw to make organic fertiliser. Some of this is used to grow flowers for the Tet festival, while the rest is sold to local vegetable farmers. She has thus transformed a previously unused by-product into a sustainable source of income.



# ZAMBIA

Further information:



ATINGI



IDA

## AGRICULTURAL POLICY CONTEXT AT OUTSET

The agriculture sector is an important part of the Zambian economy, employing over 60 per cent of the population, mainly in rural areas. Smallholder farming forms the backbone of agriculture and is crucial for food security and poverty reduction. However, the effects of climatic change, such as droughts and floods, are putting harvests at risk and rendering the economy vulnerable to crises.

The **Zambia country package** addressed the value chains of groundnuts, soya beans and milk, which each face a variety of challenges. While many farmers are familiar with the management of aflatoxins, they seldom practise it, partly because of the extensive resources required and partly due to a lack of interest. Mulching is also a rare practice, since few people are aware of its benefits and they often use alternative methods. Although milk producers are showing a growing interest in keeping records of production and sales, feed and inputs are often not comprehensively documented, largely due to a lack of knowledge. There is also a shortage of space dedicated to growing fodder crops.

## INNOVATIONS INTRODUCED

**Innovations in the country package aimed at smallholder farmers:**

- *Better Life Book* (BLB) and *It's Farm Talk* radio show
- Soil-conserving agriculture
- Community-led agroforestry extension services
- Certified organic groundnuts
- Aflatoxins management
- Dairy farm management
- Farm hygiene
- Herd health plan
- Climate-smart breeding
- Climate-smart feeding
- Access to financial services

**Innovations in the country package aimed at MSME:**

- Certified seed production and distribution
- Development of cooperative services
- Cooperative services and good management
- Commercial feed production
- Access to cooperative financial services in savings and credit cooperatives (SACCOs)
- Local processing and value addition

## VALUE CHAINS



## PROJECT TERM

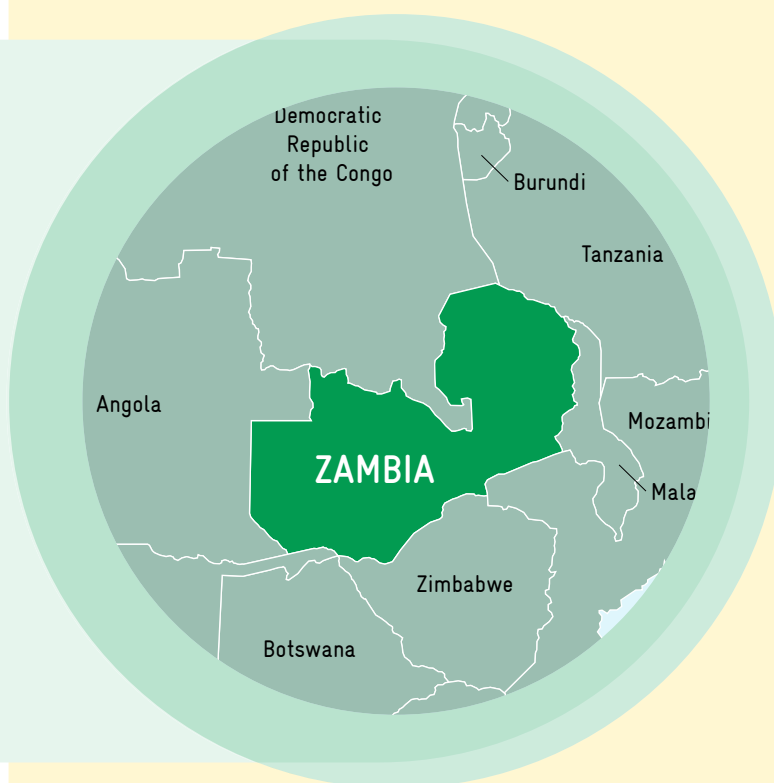
November 2014 to September 2025

## POLITICAL/IMPLEMENTING AGENCY

Ministry of Agriculture (MoA)

## BUDGET

EUR 27.8 million



# ZAMBIA

Further information:



ATINGI



IDA

## KEY RESULTS\*

### Groundnut/soya value chains

- **Development of the lead farmer network** to identify, evaluate and adapt innovations
- **Training of a total of 148,559 smallholder farmers in climate-smart farming methods**, of whom 50 per cent are women and 53 per cent are young people
  - › 71 per cent apply the principles of conservation agriculture
  - › 67 per cent have successfully introduced agroforestry on their fields
- **Producers were able to increase their average productivity** by 91 per cent in the groundnut VC, 50 per cent in the soybean VC and 48 per cent in the dairy VC over the course of the project.
- **Creation of a total of 528 jobs**, including 46 per cent for young people and 27 per cent for women **in upstream and downstream MSMEs**
- **972 employees and entrepreneurs took part in training and further education courses**, including 274 women and 254 young people.

### Dairy value chain

- **More than 14,000 smallholder farmers trained in dairy farming and animal feed production**
- Increase in **milk production on small-scale dairy farms** throughout the project term; target exceeded by **almost 50 per cent**
- **Annual volume of milk** (aggregated and processed) **doubled at cooperative level** from the start of the project
- **Production and broadcast of 52 radio shows on dairy and livestock topics**, reaching more than 300,000 people in the Southern Province
- **Development of innovative cooperative approaches** leading to the creation of new services, e.g. farm shops, rental of milk churns
- **Four practical dairy learning farms (PDLF) set up** as part of the project and handed over to dairy cooperatives to improve their advisory services

\* more detailed data in the country fact sheets in the appendix



© Jan Böthling

## SUCCESS STORY

### Success story: Elinat and Elizabeth Daka – using knowledge to achieve success

For a long time, Elinat and Elizabeth Daka used to struggle with expensive fertilisers and poor soils. Training offered by GIC led them to a new approach. Since 2021, they have been successfully growing certified organic groundnuts, which provides them with a good income. This has also enabled them to invest in poultry farming, vegetable growing and beekeeping. As a result of her success, Elinat was elected as **chair of the Kuchweni Multipurpose Cooperative**, sending out a strong signal for women involved in agriculture.



# Appendix

# GLOBAL IMPACT – GREEN INNOVATION CENTRES

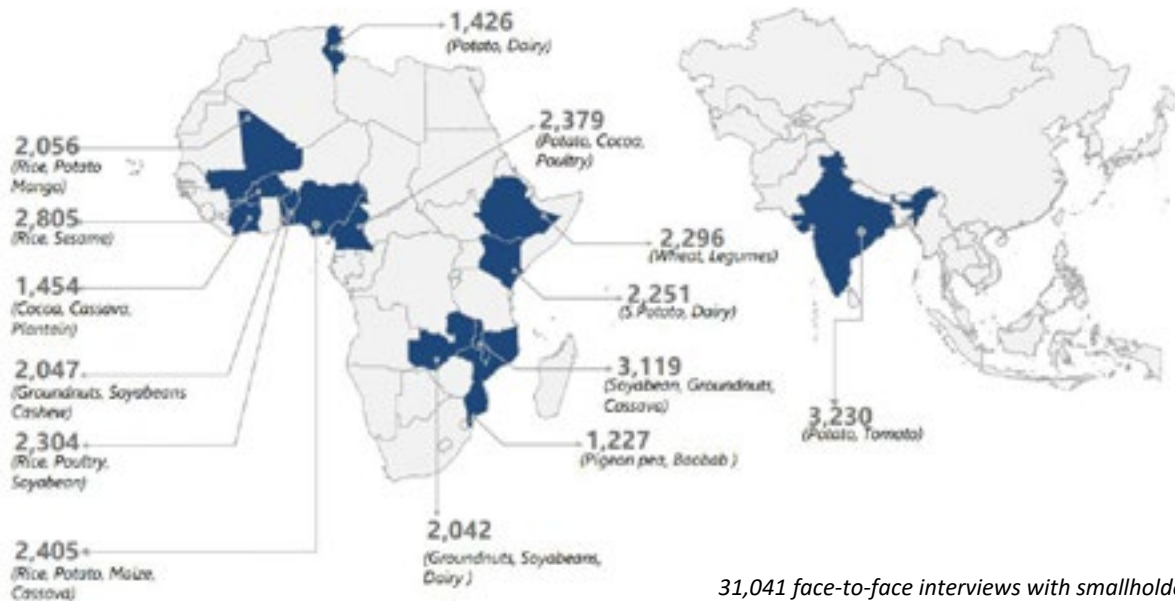
Results from 12 years and 16 country projects



Published by



## INTERVIEWS WITH SMALLHOLDER FARMERS (2016-2025)



31,041 face-to-face interviews with smallholder farmers over the entire project period.

The **Green Innovation Centres in the Agriculture and Food Sector (GIC)** was launched in 2014 as a global programme, commissioned by the German Ministry for Economic Cooperation and Development, to work with local partners to promote agricultural innovations adapted to the respective country contexts. In doing so, the programme promotes productivity, income, and the targeted application of innovations in country projects among **smallholder producers**. Similarly, **micro, small and medium-sized enterprises (MSME)** were supported by the country projects in applying promoted innovations to create new jobs, sustain existing jobs and thus drive forward their business development.

After more than **12 years of cooperation with partners in 16 countries**, we would like to present the **key findings from the monitoring and evaluation** of the programme activities based on the following three questions:

- ❖ **Change over time:** How have key outcomes evolved from programme start to end?
- ❖ **Impact:** What is the impact of the programme activities on the outcomes of smallholder farmers?
- ❖ **Transformation of Agriculture and Food Systems (AFS):** To what extent does the global programme GIC contribute to broader transformative change in respective AFS?

A detailed presentation of the results can be found in the study **GIC Global Endline Study**.



# GLOBAL IMPACT – GREEN INNOVATION CENTRES

## Results for smallholder farmers

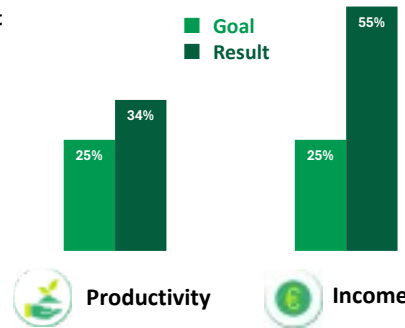
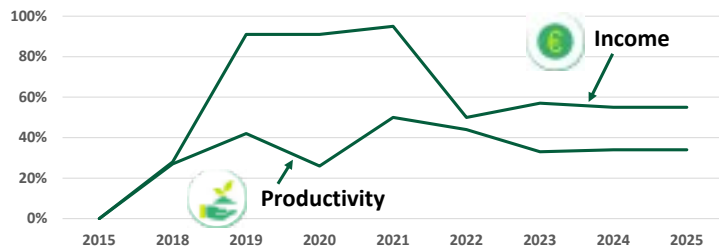


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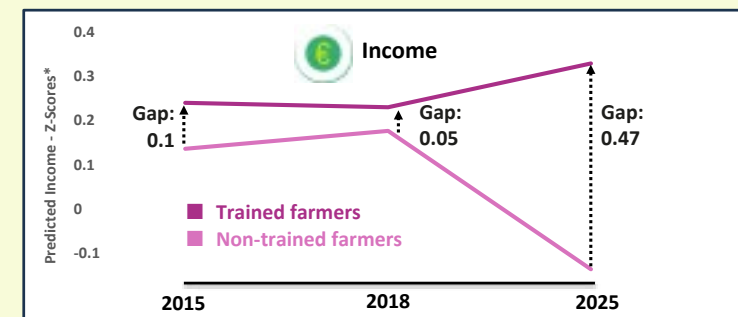
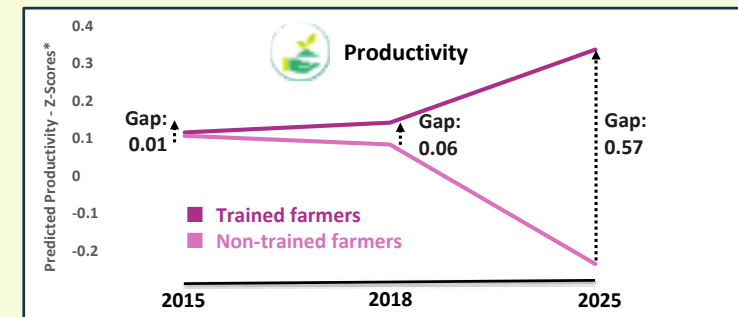


### DEVELOPMENT OF PRODUCTIVITY & INCOME

Change in percent 2015-2025



### IMPACT ANALYSIS OF PRODUCTIVITY & INCOME



\* Z-Scores are calculated by subtracting the mean and dividing by the standard deviation within each subgroup. The resulting standardized values express each farmer's outcome as the number of standard deviations above or below the typical outcome in their country and value chain (GIC Global Endline report, p. 87).



**Successes:** By the end of the GICs programme duration, productivity and income rose by 34% and 55%, respectively, **overachieving the goal** of 25%. The **impact analysis** further shows that, on average, smallholder **farmers who participated** in the programme activities were able to **significantly improve** their income and productivity over time, whereas farmers who did not receive programme training were more **strongly affected by external shocks** and experienced a decline in performance. Even though there were **substantial variations** across households of both groups, the impact analysis suggests, that the **true average impact** of the global programme is a 175% **increase in yields** and a 108% **increase income**.



**Challenges:** After a strong **initial increase**, the years between 2020 and 2022 were characterized by **fluctuating productivity** levels and a **sharp decrease in income**. This correlates to the restrictions followed by the global **COVID pandemic**, which affected the **import of agricultural inputs** in partner countries, and the ongoing **Russian war against Ukraine**, which had and still has major influences on the global **costs and trade dynamics of oil-based fertilizers**.

**Yearly fluctuations** of productivity and income within a region or specific crops of a partner country are often driven by the **effects of climate change**. Examples for **climate shocks** include prolonged **drought periods** in Zambia and Malawi, heavy **rainfalls** in West Africa or shifting **climate patterns** in India.

# GLOBAL IMPACT – GREEN INNOVATION CENTRES

## Results for smallholder farmers



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### DEVELOPMENT OF FOOD SECURITY

The **Food Insecurity Experience Scale (FIES)** developed by the FAO is used to measure the **perceived food (in)security** of households with the scale ranging from 0 (food secure) to 8 (severely food insecure).

While there is significant variation between the specific developments in the GIC projects, the **cross-country trend** shows an **increase of food security** among trained farmers in **partner countries**. Smallholder farmers in Ethiopia, Burkina Faso and Mali were able to continuously and significantly increase their food security. Similar developments can be observed among households in Kenya and Malawi, reporting notable progress in food security despite a very low starting point.

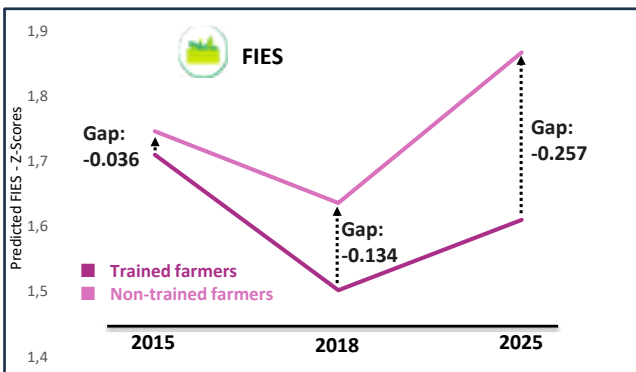
While households in other country projects experienced a mixed development, smallholder farmers from Zambia and Mozambique faced continuous and even **increasing food insecurity**. This can be explained with the extreme droughts experienced in Zambia and parts of Mozambique in 2023/24. Although other project countries were not impacted to the same extent, significant effects of climate change remained a **common challenge**, which influenced the achievement of project goals.

### IMPACT ANALYSIS OF FOOD SECURITY

**Shared Macro-Trends:** Both trained and non-trained farmers experienced a similar trajectory – food security rose until 2018 and declined towards the project end in 2025. This suggests **shared macro-level influences**, such as the effects of Covid-19, climate change and regional economic developments.

**Widening Gap:** Despite the shared direction, the **magnitude** of the development **differed significantly**, leading to a continuously increasing gap in food security between trained and non-trained farmers.

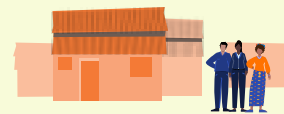
**Improved resilience:** The impact analysis confirms that the training helped farmers improve their resilience to various FIES related challenges, explaining the above observations.



### TRAINING AND ADOPTION OF FARMERS AND MSMES



**2,254,806** smallholder farmers were trained of which 40% were women and 38% young people. **72%** of the trained smallholder farmers apply the promoted practices.



**78,011** people from micro-, small- and medium-sized enterprises (MSME) were trained, of which 43% were women and 41% young people. **72%** of the trained employees and entrepreneurs apply the promoted practices.

### ADOPTION OF CLIMATE SMART INNOVATIONS

Goal: 1,000,000 farmers

Result: 1,321,365 farmers

# GLOBAL IMPACT – GREEN INNOVATION CENTRES

Results for micro-, small and medium enterprises (MSME)

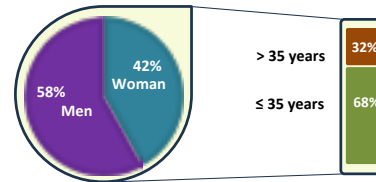


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## EMPLOYMENT measured in full-time equivalents (225 workdays = 1 FTE)

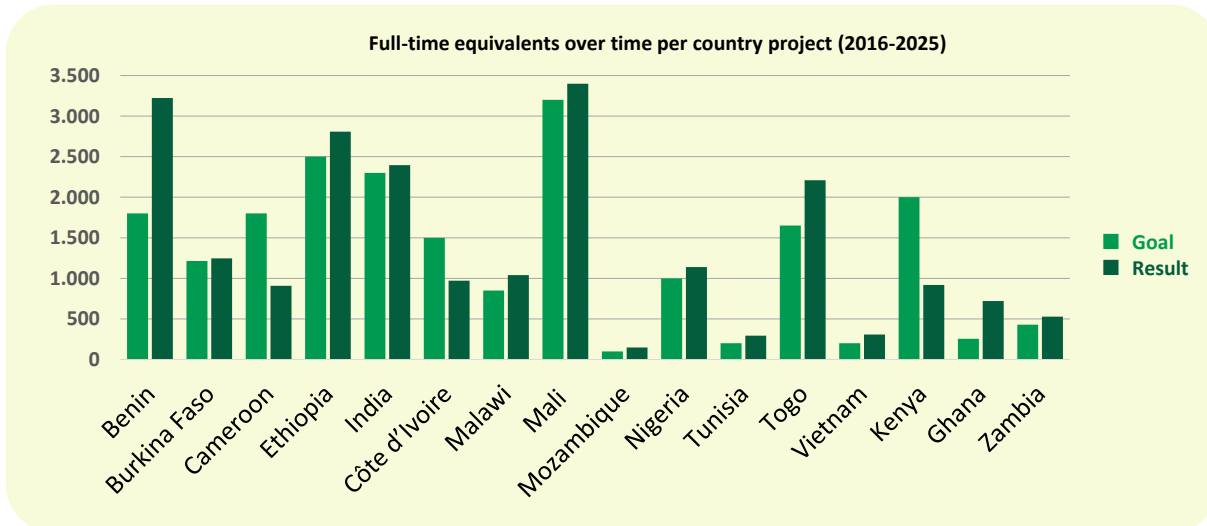
Employment equalling **22,225** jobs was promoted across all country projects in a total of **10,794** micro-, small and medium enterprises working in up- and downstream segments in various value chains.



## BUSINESS DEVELOPMENT OVER TIME

The global trend across all country projects shows that MSME have been able to expand their **customer base and yearly turnover**, thereby **improving their existing access to markets** or even gaining access to new local, regional or international markets.

Interviewed MSME report **rising production costs** over the project period. This development is linked, among other aspects, to the effects of the **COVID-19 pandemic** and the associated **increase in costs and shortage** of transport options for goods, personnel and inputs.



Average improvement in three out of five business metrics (sales, number of customers, business relationships, production costs, investment costs)

# GLOBAL IMPACT – GREEN INNOVATION CENTRES

## Contributions to the Transformation of Agricultural and Food Systems



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### FROM INNOVATIONS

### TO TRANSFORMATIVE PRACTICES

GIC INNOVATIONS

Good Agricultural Practices	▶ Diversification of production and revenue basis
Natural Resource Management	▶ Reducing dependence on agro-industrial production inputs
Improved Seeds	▶ Integration of circular economy principles
Agro-ecological practices	▶ Development of decentralized, farmer-based seed and tuber production
Pest and disease management	
...	
Farmer Business School	▶ Improvement of input supply and product sales efficiency for producers (collective/group purchases and sales)
Financing	▶ Institutionalization of value chain capacities and support structures
Cooperative Development	▶ Development of market and price information dissemination
Mechanization	
...	
Contract Farming	▶ Training and coaching on entrepreneurial skills, particularly for women, young people and vulnerable groups
SME Loop	▶ Improving processing capacity for raw products and boosting added value
Start-up training and coaching	
...	

### THE ROLE OF INNOVATIONS FOR TRANSFORMATION

#### Narratives

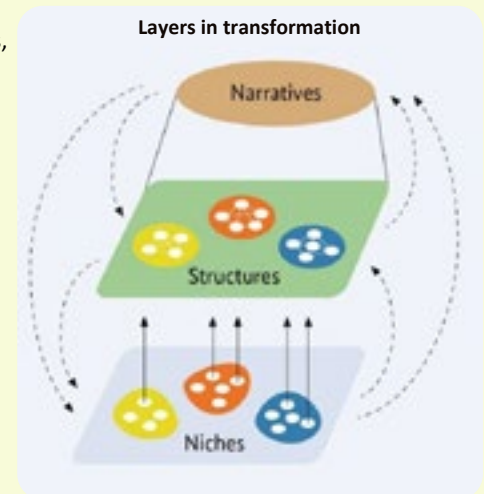
GIC cooperated closely with partner governments, private and public organisations, research institutions, and non-governmental organisations to ultimately combat poverty and hunger.

#### Structures

GIC fostered the collaboration and among diverse actors in the value chains based on the promoted innovations in thematic areas such as organic farming, digitalization, gender equality.

#### (Niches) Innovations

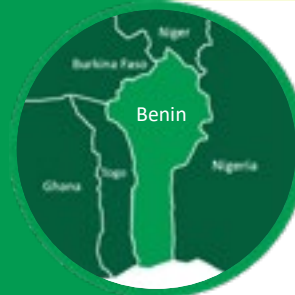
By cooperating with partner institutions in countries, GIC innovations enabled experimentation, learning and adoption of diverse agricultural practices which meet the expectations and needs of smallholder farmers and MSME along the value chains.



The multi-layer model of transformation (GIZ Global Programme Sustainable Agricultural System and Policies (AgSys), 2025)

# IMPACT GREEN INNOVATION CENTRE BENIN

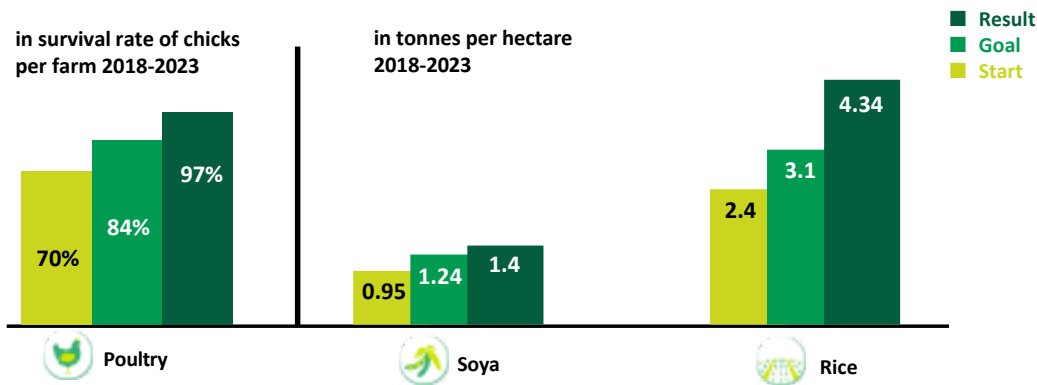
Results for smallholder farmers



Published by



## DEVELOPMENT OF PRODUCTIVITY



How did innovations promoted by the Green Innovation Centre impact the productivity of smallholder farmers in Benin?



A **variety of innovations** were offered to **rice, soy, and poultry farmers** as part of the project's training activities to enhance their **knowledge and practices**, thereby improving their **productivity and income**.

The **Farmer Business School** trainings allowed farmers to build up operational, strategic and financial **knowledge and skills**. But it was especially the **Good Agricultural Practices** including the training on **Systems of Rice Intensification** and **Neem oil-coated urea** for the rice cultivation and the use of the **organic inoculum fertilizer** in the cultivation of soya which helped farmers exceed the productivity goals. Within the poultry value chain, it was the innovation **Mammy Poule** which provided training on **improved breeding techniques** combined with basket rearing and hence significantly **increased the survival rates of chicks**.

## ROLE OF WOMEN IN AGRICULTURE



© Klaus Wohlmann (2016)

The role of women in the value chains	Rice	Soya	Poultry
Proportion of households that have at least one woman working for them	93,1%	93,0%	87,8%
Proportion of women working in the value chain	46,6%	46,4%	23,3%
Proportion of days worked by women in the context of paid employment	44,8%	38,5%	32,8%

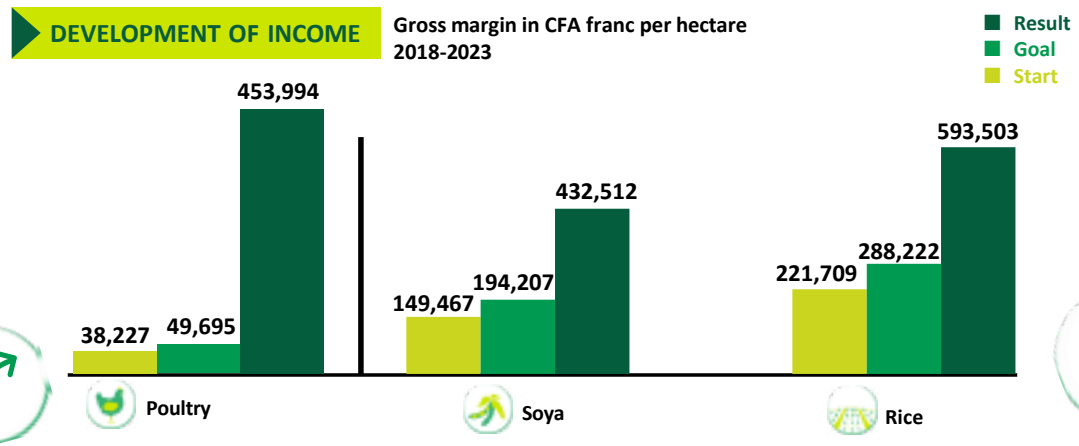
The presence of women in agricultural activities in Benin is often significant. This is confirmed by the results above, which show that across all three value chains, there is a woman working in at least **88%** of the households. As for the share of women working in each of the value chains, they represent almost half of the workforce in the **rice and soybean sectors with 46%** but are only **23% in poultry**. This is partly explained by the fact that poultry farming also falls under the **sovereign/essential nature** (or "**régalien**" character) of women's roles in household maintenance. In terms of daily working volume, women worked for about **45%** of the total number of days in the rice sector and **39%** in the soybean sector. In the poultry sector, this proportion represents **33%** of days worked.

# IMPACT GREEN INNOVATION CENTRE BENIN

Results for smallholder farmers



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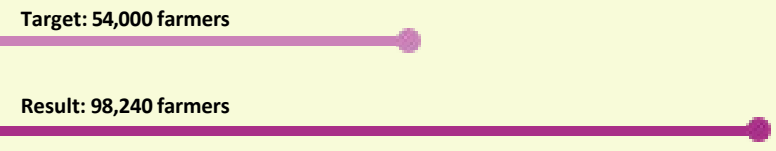


Between 2018 and 2023, smallholder farmers in all three value chains were able to **strongly increase** their **income** by more than twofold withstanding adverse effects resulting from Covid-19 and the Russian invasion in Ukraine. The income increases even significantly **exceeded** the relative **productivity gains**.

**Climate-smart innovations and number of adopters**  
**Biofertilizer Inoculum** (39,535 adopters)  
**Urea fertilizer with neem coating** (24,916 adopters)  
**System of Rice Intensification (SRI)** (42,523 adopters)  
**Mammy Poule** (6,176 adopters)

**+3.7 Mio** Smallholder farmers were reached through **(digital) media** such as various radio reports, virtual congresses and short-film events on the innovations and agricultural techniques

## ADOPTION OF CLIMATE SMART INNOVATIONS



## TRAINING AND ADOPTION OF FARMERS AND MSMES



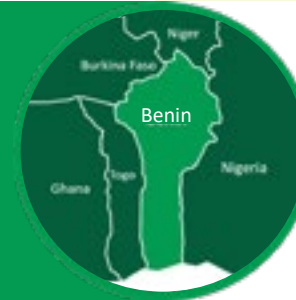
**103,706** small scale farmers were trained (43% in the rice, 48% in the soya and 9% in the poultry value chain) of which 42% were women and 50% young people. The overall **adoption rate** is 97%.



**5,986** people from 5,986 micro-, small- and medium-sized enterprises (MSME) were trained (20% in the rice, 64% in the soya and 16% in the poultry value chain), of which 75% were women and 58% young people. The overall **adoption rate** is 99%.

# IMPACT GREEN INNOVATION CENTRE BENIN

## Results for enterprises



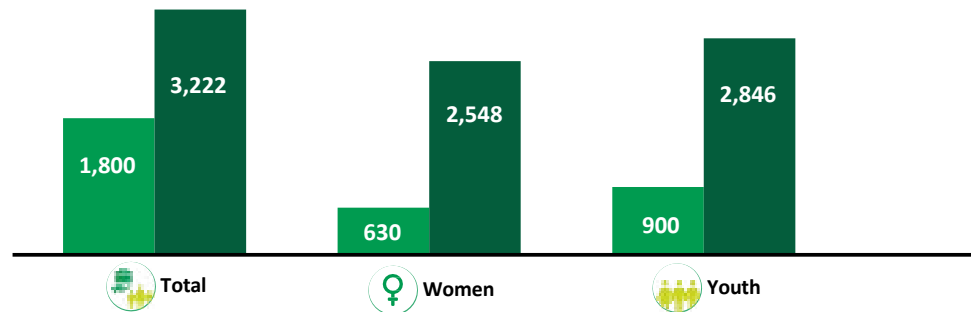
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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2015-2023

■ Result  
■ Goal

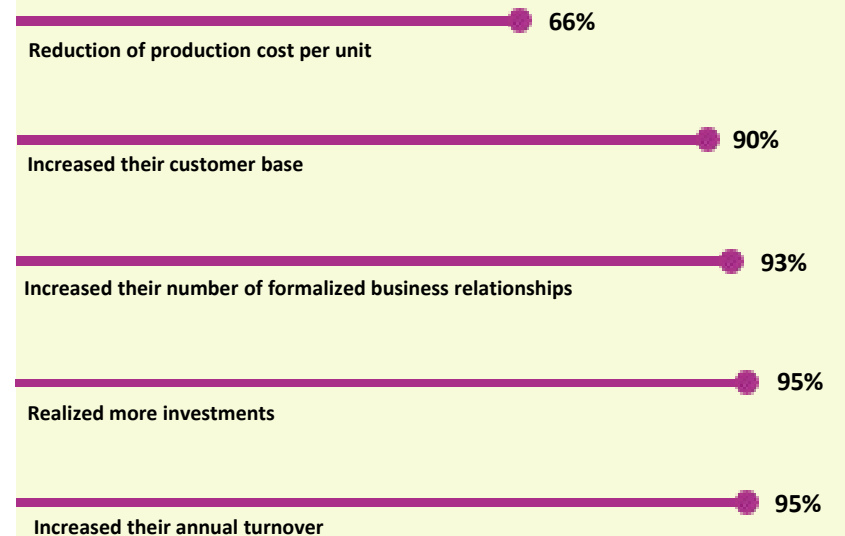


Of the 5,871 supported micro, small and medium enterprises, **3,129 participated in the SME Business Training and Coaching Loop (SME Loop)**, an approach to boost management skills of existing MSME through training and personalised coaching. The adoption of the SME Loop is one of the key reasons that has led to the strong increase in additional employment. In addition, the participating MSME reported:

- 97%** of the enterprises have improved their quality standards and hygiene practices
- 99%** of the enterprises applied practices based on the SME Loop Training and Coaching
- 100%** of the enterprises adopted:
  - Improved rice parboiling techniques
  - Improved soybean processing techniques
  - Improved stoves

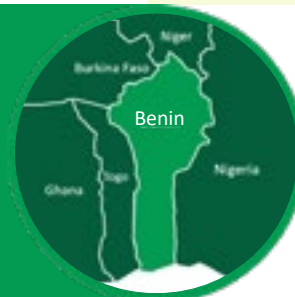
### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured using **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. A total of 5,871 companies were able to improve at least 3 out of 5 of the following key business figures.



## IMPACT GREEN INNOVATION CENTRE BENIN

What do farmers and entrepreneurs say?



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### WOMEN'S PERSPECTIVES

**Farmer Business School Training (FBS):** Women in Bantè, Bembèrèkè, and Savalou praised the FBS Training as a "*bonne formation*" that helped them track expenses, profits, and losses.

**Soy Inoculation:** This was a clear success. Women in Bembèrèkè reported yields increasing to 12 bags/ha (from 6-9), and women in Savalou saw increases from 6 bags/ha to 15-20 bags/ha.

**Improved Stoves:** the application of practices was mixed and highly dependent on access. Women in Malanville reported that the modernised stoves work more efficiently and offer greater safety. However, women in Bantè, Bembèrèkè, and Savalou did not use them because they were not available locally, were too expensive, or they preferred to make their own traditional clay stoves.

**Credit:** Women producers often lack financial means and are therefore highly dependent on credit, with one group in Savalou stating "*sans le prêt, elles ne peuvent démarrer aucune activité*" (without the loan, they cannot start any activity). While the CAIG<sup>1</sup> credit was seen as a good product, women in Bembèrèkè complained of delays and being ineligible due to age limits or lack of money for paperwork.

### CHALLENGES

**High need for equipment:** The lack of access to equipment (tractors, pumps, processing equipment, even boots) was a recurring complaint from both producers and MSMEs.

**Delays in CAIG credit:** Among soy producers who were eligible for the CAIG credit, a common complaint was that it arrived late ("*crédit en retard*"), often after planting had already begun, which reduced its effectiveness.

<sup>1</sup>Credit Achat Intrants Groupé

### ADOPTION OF INNOVATIONS

A group of entrepreneurs in the **Alibori region** especially valued the **improvement in product quality** and consequently the customer trust resulting from the adoption of practices as part of the MSME trainings.

*"my soy cheese is now called meat without bones (...) and its shelf-life has increased"*

Some participants reported that the adoption of innovations was hindered by high costs or limited access. Producers often knew about climate-smart innovations (such as neem urea, organic farming, or improved stoves) but did not adopt them. The reasons were consistently **financial** (too expensive) or **logistical** (not available locally).

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# IMPACT GREEN INNOVATION CENTRE BURKINA FASO

## Results for smallholder farmers

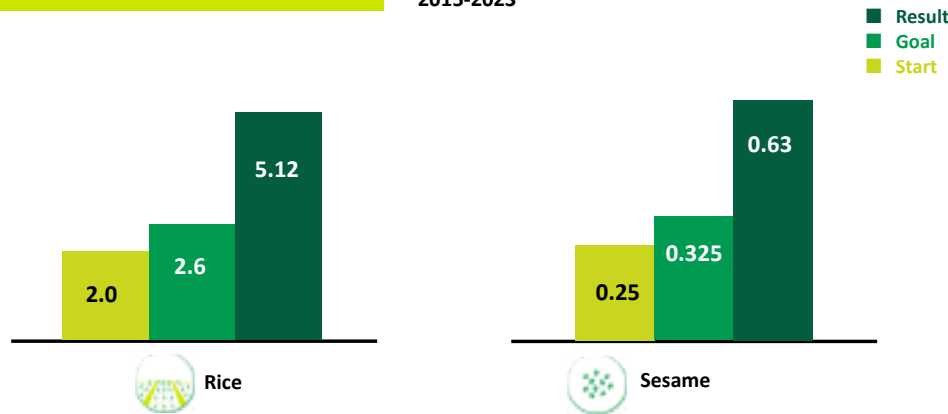


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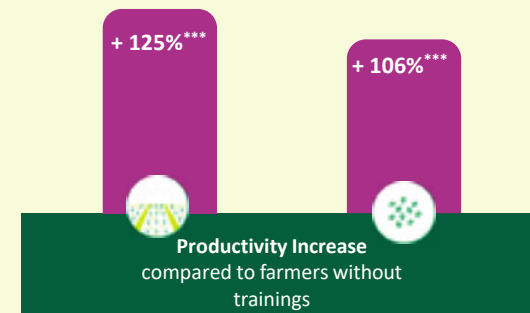
### DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare  
2015-2023



How did innovations promoted by the Green Innovation Centre impact the productivity of smallholder farmers in Burkina Faso?

- Rice farmers that participated in the promoted trainings on **Good Agricultural Practices (GAP)** and **Farmer Business School (FBS)** achieved yields that were on average **1.4 tonnes per hectare** higher than farmers who did not participate in such trainings.
- Farmers in the **sesame value chain** were able to increase their **yields** per hectare by more than **150%** compared to the reference value in 2015 and by **90%** compared to farmers who did not participate in trainings.
- The significant differences in productivity achieved between beneficiaries and non-beneficiaries can be partly attributed to the **application of climate-smart practices**, which strengthened farmers' **resilience to key climate-related challenges** (e.g. periods of drought, floodings)



Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional baseline (2015) and endline data (2023) of the gross margin for beneficiary and non-beneficiary households. In total, the group of beneficiaries consisted of 908 people, the control group of 909 (Endline Study Burkina Faso (2025), p. 115). Significance levels:  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### TRAINING AND ADOPTION OF FARMERS AND MSMES



**148,125** small scale farmers were trained (30% in the rice and 70% in the sesame value chain) of which 36% were women and 38% young people. The overall **adoption rate is 99%**.



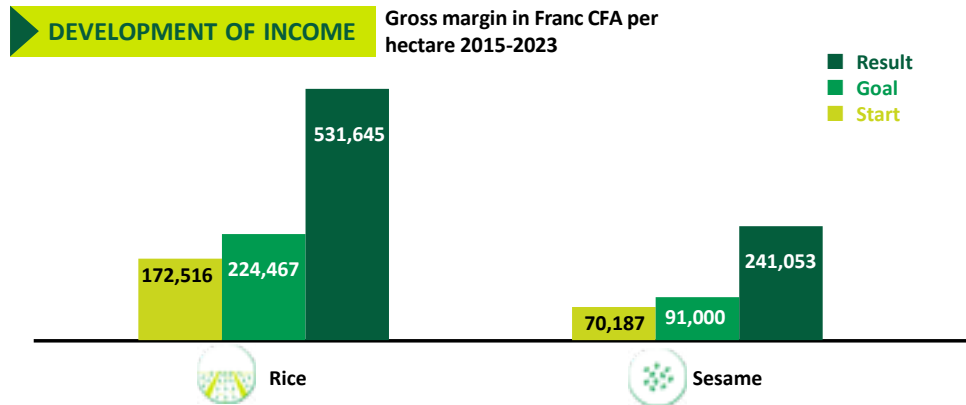
**4,833** people from 1,332 micro-, small- and medium-sized enterprises (MSME) were trained (53% in the rice and 47% in the sesame value chain), of which 41% were women and 14% young people. The overall **adoption rate is 100%**.

# IMPACT GREEN INNOVATION CENTRE BURKINA FASO

## Results for smallholder farmers



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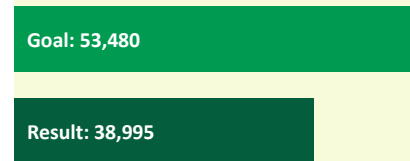


Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional baseline (2015) and endline data (2023) of the gross margin for beneficiary and non-beneficiary households. In total, the group of beneficiaries consisted of 908 people, the control group of 909 (Endline Study Burkina Faso (2025), p. 115). Significance levels: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Despite the difficult **security situation** in Burkina Faso which influenced the successful implementation of trainings, the average incomes have **more than tripled** in both value chains since the project start in 2015. **However**, it is important to note that some of the increase is due to state and NGO subsidies and the risen market price of rice because of the problematic security situation. Still, the increase has not only developed in absolute numbers, but the **impact analysis** shows that farmers who cultivate **rice or sesame** and participated in **trainings on Farmer Business School (FBS) or Good Agricultural Practices (GAP)** show a **significantly higher increase of their income** compared to farmers who were not enrolled in the project's training activities on FBS and GAP. Given that climate change poses considerable challenges for rice and sesame producers, the application of GAP, Sustainable Rice Intensification and other **climate-friendly practices have considerably mitigated** the negative effects of climate change.

The project goal for the adoption of climate-smart innovations was **not achieved** as some training activities were **limited** in their implementation. SRI could only be applied to irrigated lands, which represented only a small part of the intervention areas. In addition, the climate-adapted rice variety Orylux was disadopted by a large number of farmers as it underperformed compared to other varieties.

## ADOPTION OF CLIMATE SMART INNOVATIONS



# IMPACT GREEN INNOVATION CENTRE BURKINA FASO

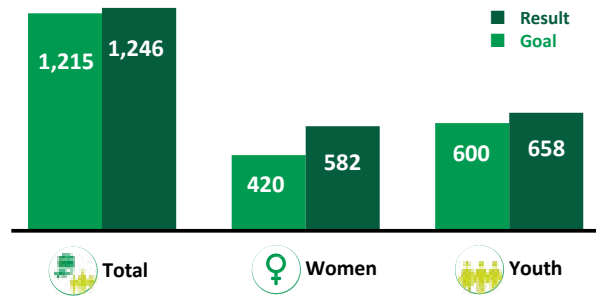
## Results for enterprises



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### ADDITIONAL EMPLOYMENT in full-time equivalents 2015-2022



**100%**

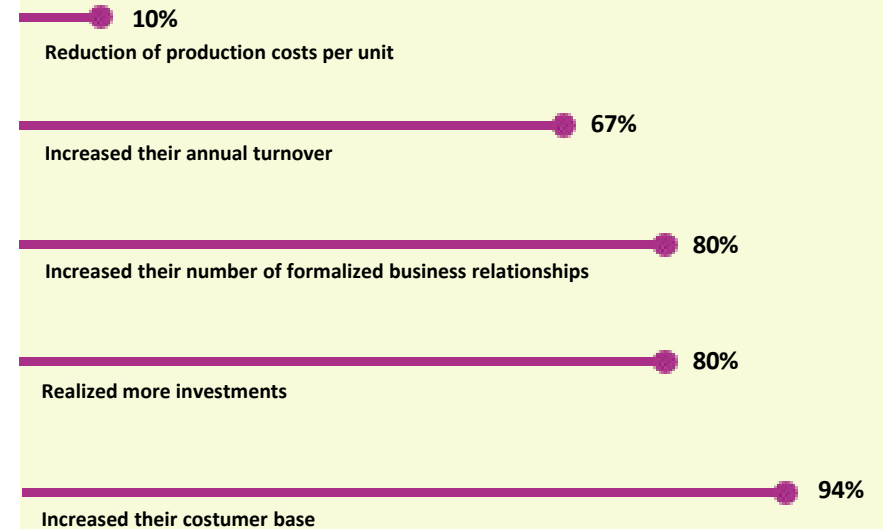
of the micro-, small and medium enterprises (MSME) that participated in the business training and coaching as part of the **SME Business Training and Coaching Loop (SME Loop)** also adopted the trained business practices. This includes, for example, the development of a business plan, the full-time employment and fair remuneration of staff, building formalized business relationships and investing in their business.

**100%**

of the four supported enterprises engaged in the model of the **contract farming** including formal contract arrangements and collaborations with 1.328 rice and sesame farmers.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured using **five key performance indicators**. For each of these, the diagram below shows the percentage of MSMEs that were able to improve them. A total of 304 companies – equivalent to **80% of all supported enterprises** – were able to improve at least 3 out of the 5 key business indicators.



## IMPACT GREEN INNOVATION CENTRE BURKINA FASO

What do farmers and entrepreneurs say?



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### WOMEN'S AND YOUNG PEOPLE'S PERSPECTIVES

The effects of key innovations like **GAP** and **FBS** on the smallholder farmers situations were reflected by producers during the **focus group discussions**. The following statement was expressed by a member of a rice cooperative of **young farmers**:

*"We have adopted (the promoted) innovations and the benefits we have gained are numerous. Among them, we can cite the preservation of our health as we handle chemical inputs more intelligently; a significant reduction in post-harvest losses; we achieve better turnover and manage our income better. Our daily well-being has improved."*

Additionally, the increased productivity and income led to a consistent surplus of food meaning that even **during off-harvest** season there was **sufficient food** for a healthy diet, as mentioned by a **women's cooperative in the sesame sector**:

*"(...) we used to buy food products during the lean period; now (applying) GAP and FBS (practices), we rarely buy them."*

**Women were key addressees** of the **SME Business Loop** and contract farming innovation enabling them to **improve** their position and roles within participating businesses. As businesses improved their key performance figures by adopting the trained practices, this also had an immediate effect on the employed women's economic situation and autonomy.

### CLIMATE SMART FARMING

The interviewed producers all noted that there was a difference between the time they started applying climate-smart innovations and their previous situation in terms of controlling hazards:

*"Farms are more resilient to pockets of drought and to floods, which means that from one year to the next, field productivity remains steady. We rarely experience major losses due to bad weather, and this allows us to avoid serious financial problems throughout the year." - Group of rice producers from Bama/Houet*

### ADOPTION OF INNOVATIONS

Young people benefitting from Farmer Business School and Good Agricultural Practices innovations in the rice value chain concluded that the adoption of those approaches enabled them to **save money on the purchase of costly inputs, increase their yields on the same cultivated areas, and earn more income from the sale of agricultural products**. While women working in the same value chain agree with those key benefits, they also highlight challenges in the adoption of innovations. Main factors hindering the full application of innovations are the **lack of agricultural equipment** due to **limited purchasing power**, and the **strong dependence on men** for key farming operations such as **plowing, weeding, and fertilizer application**.



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# IMPACT GREEN INNOVATION CENTRE CAMEROON

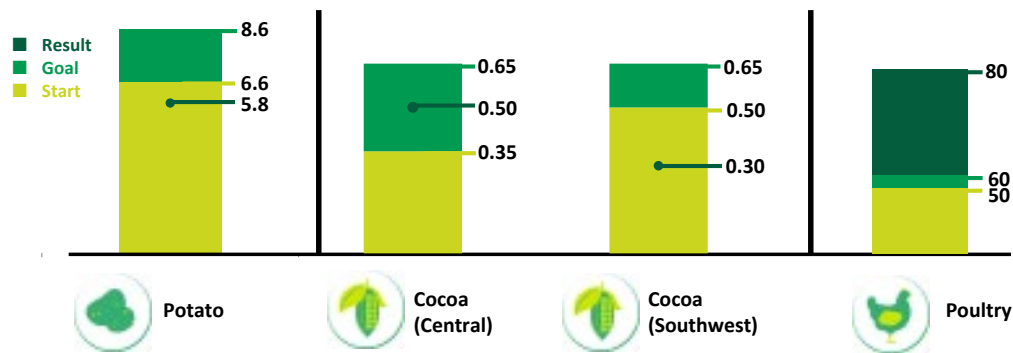
## Results for smallholder farmers



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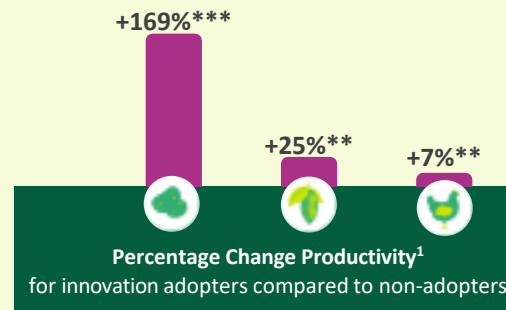


### DEVELOPMENT OF PRODUCTIVITY in tonnes per hectare per year (potato and cocoa) and survival rate in percent (poultry) 2015-2024



Regarding indicator achievement, the results for the project are mixed. This is due to various reasons:

- Initial baseline values in the potato value chain were based on **imported seeds**. The project deliberately focused on the **production and use of local seed varieties** with the aim of reducing dependence on imported seed, lowering production costs and strengthening **local resilience in the long term**. However, production from local seeds was not yet able to achieve the target yield at the end of the project.
- In the cocoa value chain, particularly in the south-western region, **both droughts and extreme rainfall have considerably reduced cocoa yields in recent years**, meaning that the target value could not be achieved. In addition, violent conflicts in the south-western region had an influence on the project's outcomes.
- However, the **impact analysis** (see results on the right) shows that the project activities had a positive effect on most outcomes. This shows that the promoted training activities have a significant impact on target group level and can help to counteract the mentioned challenges.

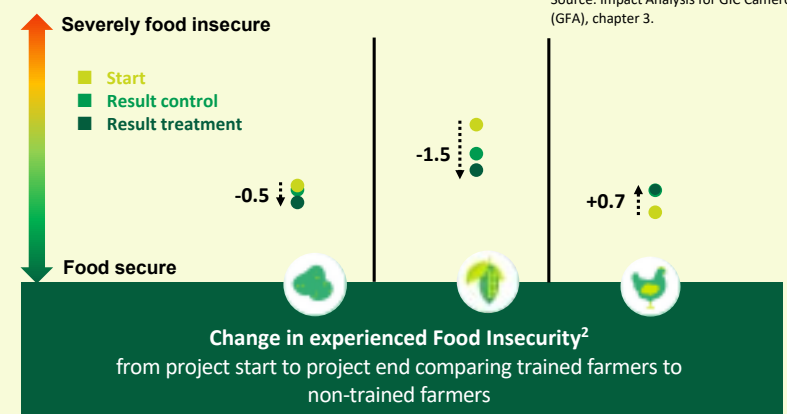


<sup>1</sup>Figures correspond to the average treatment effect on the treated (ATT), which estimates the change in outcomes for adopters of GIC innovations comparing midterm (2018) and endline data (2023), in percent. It quantifies the productivity increase in percent for adopters of GIC innovations compared to non-adopters. Overall sample size: 1.276 (sample sizes per value chain are lower).

<sup>2</sup>Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional midterm (2018) and endline data (2023) of the Household Food Insecurity Experience Score (HFIES) for beneficiary and non-beneficiary households. A total number of 921 households were interviewed. Significance levels: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Impact Analysis for GIC Cameroon (GFA), chapter 3.

### FOOD SECURITY



# IMPACT GREEN INNOVATION CENTRE CAMEROON

## Results for smallholder farmers

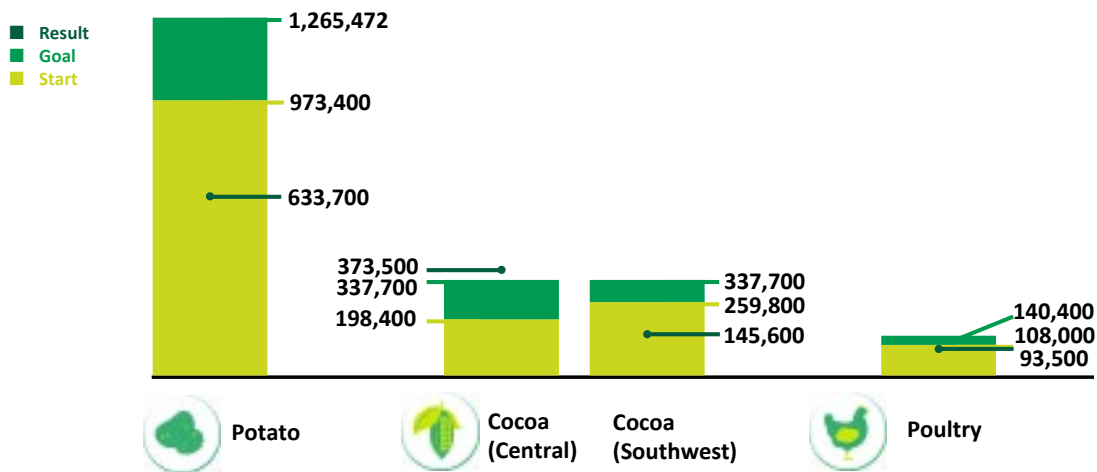


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### DEVELOPMENT OF INCOME

Gross margin in Franc CFA per hectare (poultry: per farm)  
2018-2024



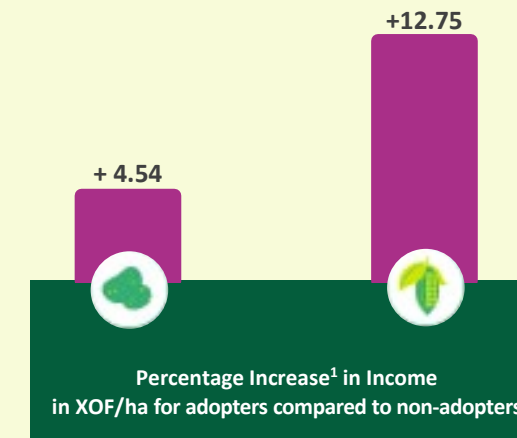
The aspects mentioned in the productivity chapter also had an impact on producers' average gross margins. The **target values (goal) could thus not be met**. An additional factor that strongly influences the income situation of producers is the increase in input prices due to the Russian war against Ukraine.

The **impact analysis** shows that these external factors had a negative effect on both the target and the control group. This is shown by a **statistically significant negative time trend** for both producer groups. The estimated **project impact** on the gross margin of target group farmers is **positive** (see results on the right side) but **not statistically significant**.

### ADOPTION OF CLIMATE SMART INNOVATIONS

Project end: 63,084

Goal: 85,000



<sup>1</sup> The presented values correspond to the average treatment effect on the treated (ATT) in percent, which estimates the change in outcomes for adopters of GIC innovations. In this case, it can be interpreted as the percentual income increase thanks to adopting GIC innovations.

Overall sample size: 1.276 (sample sizes per value chain are lower).

Source: Impact Analysis for CP Cameroon (GFA), chapter 3.

Significance levels:  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# IMPACT GREEN INNOVATION CENTRE CAMEROON

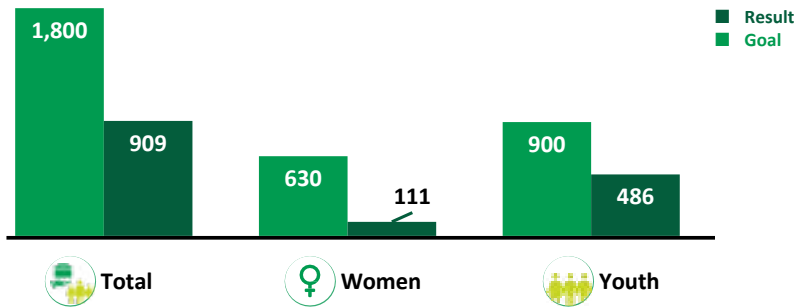
## Results for enterprises



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### ADDITIONAL EMPLOYMENT in full-time equivalents 2015-2024



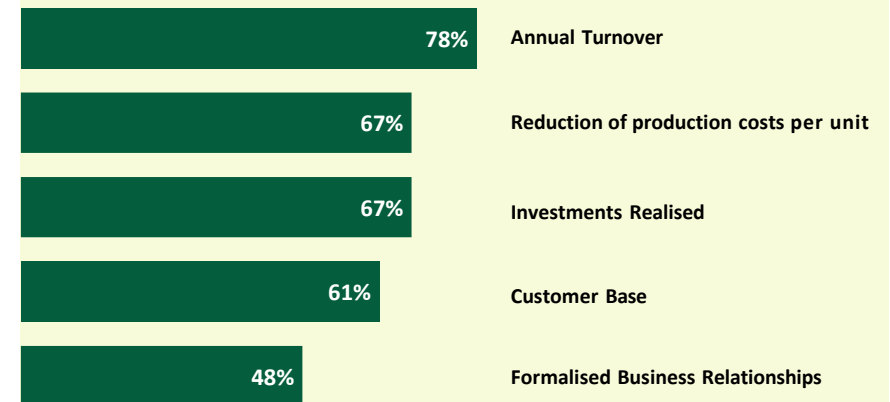
Generally, the promoted innovations are widely adopted and applied by the target group of smallholder farmers, especially in value chains cocoa and poultry .

Overall, more than **4 out of 5** cooperatives have taken up the techniques promoted through the trainings.

- 69%** of trained cooperatives in value chain potato use solar pumps for seed production or offer solar pumps or production machinery to their members.
- 94%** of trained cooperatives in value chain cocoa are using post-harvest processing facilities for cocoa or have been supported to install improved cocoa processing units.
- 93%** of supported producer groups in value chain poultry are using incubators to increase the hatching rate or shredders for feed production.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured by **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. Overall, **53%** of the 130 supported enterprises could improve at least 3 out of the 5 key business figures.



## IMPACT GREEN INNOVATION CENTRE CAMEROON

What do farmers and entrepreneurs say?



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### ▶ IMPACT AND DURABILITY OF THE TRAININGS

During the **focus group interviews**, it was widely mentioned that the offered innovations - such as Good Agricultural Practices or Good Husbandry Practices – have had a **positive impact on smallholder farmers' and MSME revenues**, respectively, and will **be further applied in the future**.

### ▶ CLIMATE SMART FARMING

In value chain poultry, **climate change is causing a faster proliferation of diseases** among chicken. This is addressed by the project by support of veterinary offices, ensuring certain hygiene standards, and promoting a good ventilation of poultry sheds. During the focus group interviews, all participants have confirmed that the trainings help to mitigate climate change consequences.

The **planting calendar** introduced as part of the training on Good Agricultural Practice, which ensures that planting does not take place in hot/dry months, is seen by the target group as helpful in coping better with climate change. The project has also promoted the use of solar irrigation.

### ▶ VOICES FROM TRAINED PRODUCERS

« The training on **Good Agricultural Practices** has enabled us to increase our yields, which in turn has increased our income, because it is thanks to this increase in income that our daily needs are met, such as food, clothing, school fees for our children and medical expenses. »

- **Potato farmer from Ngaoundere**

« **Good Animal Husbandry** practices acquired during the training have been applied especially in with regard to hygiene in the henhouse.

This has prevented diseases from attacking the chicken and reduced the mortality rate, which was high before the training. These good practices have led to an increased production of healthy chicken and higher incomes. »

- **Poultry farmer from Tompaloumla**



# IMPACT GREEN INNOVATION CENTRE CÔTE D'IVOIRE

Results for smallholder farmers

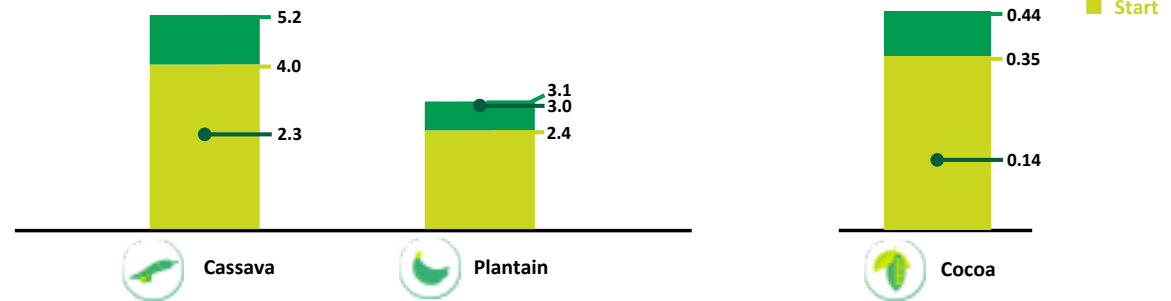


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## DEVELOPMENT OF PRODUCTIVITY

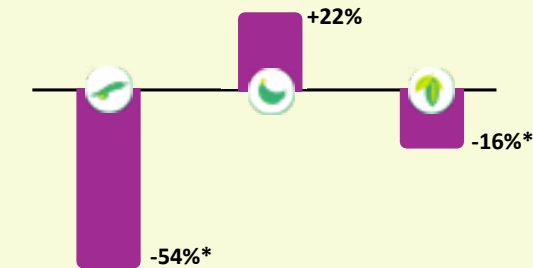
in tonnes per hectare per year  
2018-2025



The GIC training courses enabled **116,620 cocoa producers** to adopt more **sustainable and climate-smart agricultural practices**. **85%** of them stated to make use of the promoted practices, contributing to the stabilization of productivity despite difficult climatic conditions. **68%** of the trained producers reported that **climate hazards** have reduced their yields, and **43%** reported increased losses due to diseases like the **Swollen Shoot Virus**. The results of the **impact analysis** show that the **decline in cocoa harvests** is pronounced in both the target and control groups. However, producers who participated in project trainings (target group) are even more strongly affected by the above-mentioned effects (see figure at the top right). Over the project's duration, the productivity target of **440 kg of cocoa per hectare (0.44 t/ha)** could not be achieved.

Regarding the promotion of **plantain** cultivation, the project's objective of **3.12 tonnes per hectare** was almost achieved (result: **3.0 t/ha**). Plantain cultivation was also encouraged as an **intercrop** in cocoa plantations, as it grows faster and provides beneficial **natural shade** for young cocoa trees, while generating **complementary income** for the farmers.

In **cassava** cultivation, only **44%** of the targeted productivity of **5.2 t/ha** was achieved during the project's duration. The results of the impact analysis also show a decrease in yields per hectare of **-54%** for trained producers compared to non-trained producers. Although these results show a sharp drop in productivity in cassava production, the producers highlighted during group interviews that **crop diversification**, for example by growing cassava in addition to cocoa, offered opportunities for **additional income**.



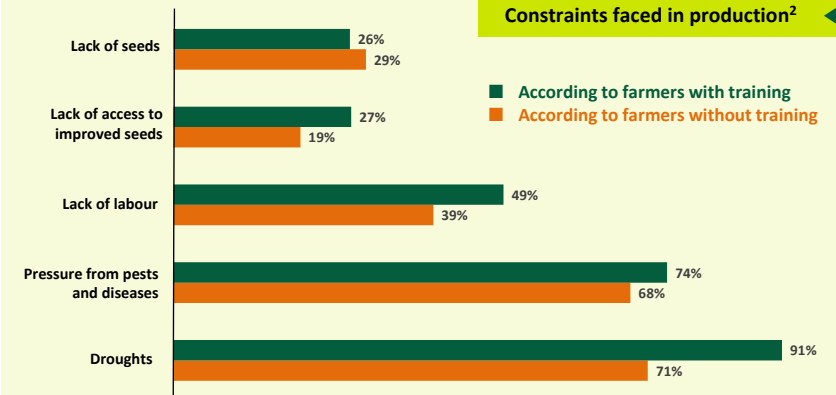
Change in productivity<sup>1</sup>  
comparing farmers with and without training

<sup>1</sup> Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional baseline (2018) and endline data (2024) for beneficiary and non-beneficiary households. In total, the group of beneficiaries consisted of 425 people, the control group of 427 (Endline Study Côte d'Ivoire (2025), pp. 89-91).

Significance levels:  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>2</sup> Survey with 852 producers.

## Constraints faced in production<sup>2</sup>



# IMPACT GREEN INNOVATION CENTRE CÔTE D'IVOIRE

## Results for smallholder farmers

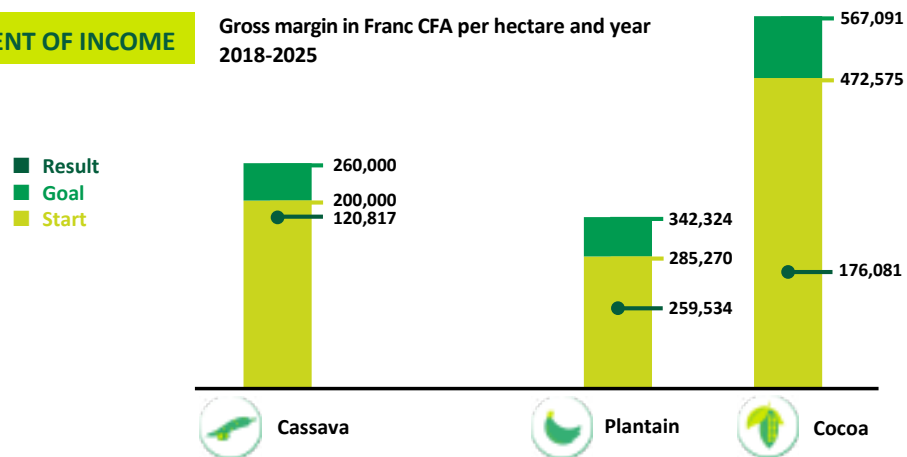


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### DEVELOPMENT OF INCOME

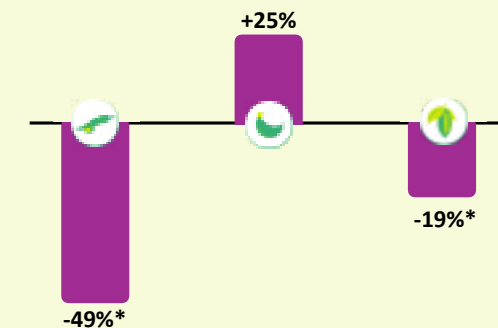
Gross margin in Franc CFA per hectare and year 2018-2025



### ADOPTION OF CLIMATE-SMART INNOVATIONS



### Change in income<sup>3</sup> comparing farmers with and without training



Even though the price of cocoa rose steadily during the project period (2018–2024) and reached its highest level in five years in 2024, cocoa producers were not able to achieve the target income of **567,091 CFA francs per hectare**. Incomes from cocoa production, measured as gross margin per hectare, experienced **sharp annual fluctuations**, ranging between 170,000 and 370,000 CFA francs/ha. These variations are primarily explained by two factors: the cocoa sector's **dependence on global prices** and the **rising costs of inputs and agricultural labour**, linked to inflation.

Furthermore, the majority of cocoa producers interviewed in the Endline study indicated that the **consequences of climate change** had led to a **decrease in harvests** in recent years, and consequently, the higher cocoa prices could not be fully capitalized due to the harvest deficit.

Although the project's objectives regarding the average incomes generated by **cassava and plantain crops** could not be met, the cocoa producers confirmed in the evaluation of the project measures that the training on **agroforestry practices** and **climate-adapted cocoa production** through intercropping, notably with plantain and cassava, generates **additional income**.

<sup>3</sup> Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional baseline (2018) and endline data (2024) for beneficiary and non-beneficiary households. In total, the group of beneficiaries consisted of 425 people, the control group of 427 (Endline Study Côte d'Ivoire (2025), pp. 89-91).

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# IMPACT GREEN INNOVATION CENTRE CÔTE D'IVOIRE

Results for enterprises

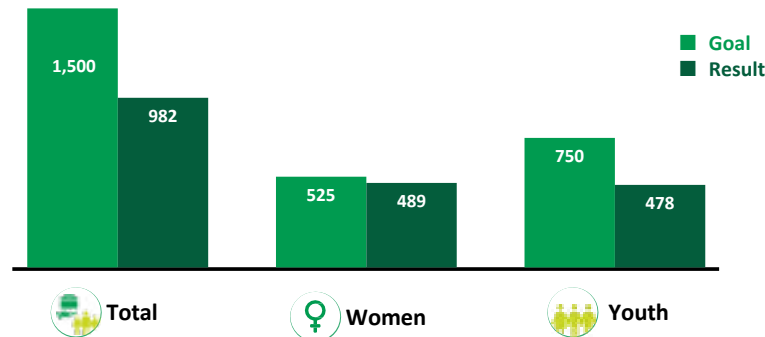


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## ADDITIONAL EMPLOYMENT

in full-time equivalents  
2016-2025



The project collaborated with a total of **160 micro, small, and medium-sized enterprises (MSMEs)** across the three value chains (cocoa, cassava, plantain). Over the course of the project, **982 full-time equivalent jobs** were created, with **50% for women** and **49% for youth**.

**90%** **Agricultural Service Centre**  
90% adoption of **shared mechanization, collective management of equipment, and digital planning** of agricultural services.

90% adoption of **motorized presses, improved drying techniques, and residue valorisation** to reduce post-harvest losses.

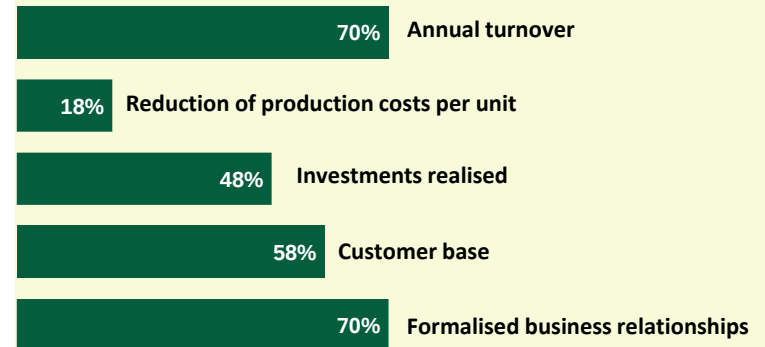
**90%** **Transformation of Cassava**

**Transformation of agricultural by-products**  
85% adoption of **new production lines** (oils, flours, compost) and **quality and traceability procedures**.

**85%**

## ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

The performance of enterprises is measured by **five key performance indicators**. For each of these, the diagram below shows the percentage of MSMEs that succeeded in improving them. Overall, **65% of the 63 enterprises** surveyed were able to improve at least 3 of the 5 key indicators.<sup>4</sup>



<sup>4</sup> Results of a survey conducted in September 2025 with 66 micro, small, and medium-sized enterprises (MSMEs) in the cocoa, cassava, and plantain value chains.

## IMPACT GREEN INNOVATION CENTRE CÔTE D'IVOIRE

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### CHALLENGES IN COCOA PRODUCTION



During the focus group discussions, cocoa producers reported a constant decrease in harvests over the past years. This decline is mainly the result of climate change—rising temperatures, excessive rainfall causing pod rot, the appearance of insects and diseases (swollen shoot, brown rot)—as well as soil degradation. Added to these factors are economic constraints: the high cost of fertilizer, the scarcity and high cost of labour, and a cocoa price that is insufficient to cover the expenses of production and plantation maintenance. As a producer from Sud-Comoé summarized:

*'(..) for lack of resources, the trees are dying. In truth, it is due to a lack of resources, because in the last 2 years, we haven't earned the product [i.e., enough revenue], because a person who is not well-fed cannot buy the product [the necessary inputs]. I last applied fertilizer 3 to 5 years ago. What has died in my field is equivalent to 1 hectare. So, production is decreasing.'*

*(Interview with a cocoa producer in the Sud-Comoé region, Endline 2025).*

A female producer from the Centre-Ouest region confirmed this trend:

*' (...) the transport of a bag of cocoa now costs 2,000 CFA, and daily labour reaches 3,000 CFA. Even though the price of cocoa has increased to 1,800 CFA/kg, it no longer covers the production costs.'*

*(Interview with a cocoa producer in the Centre-Ouest region, Endline 2025).*

These findings demonstrate the growing vulnerability of small producers and the need to strengthen financial and technical support mechanisms for the sustainable adoption of agricultural innovations.

Cocoa producers emphasize that the regular **application of good agricultural practices**—controlled use of fertilizers, plot maintenance, and adequate pod storage—significantly improves the quality and yield of cocoa.

Furthermore, **crop diversification** through the integration of shade trees and associated crops (cola, orange, cassava, plantain) constitutes a complementary source of income and enhances the health of the plantations.

*' (...) when I applied what they told me, my harvest was good (...) when we plant trees and bananas, the cocoa doesn't die quickly; the shade watches over the cocoa trees. Also, with the plantain, when you put it together with the cocoa, the water from the plantain gives strength to the cocoa and helps it to grow.'*

*(Interview with a female cocoa producer in the South-West region, Endline 2025).*

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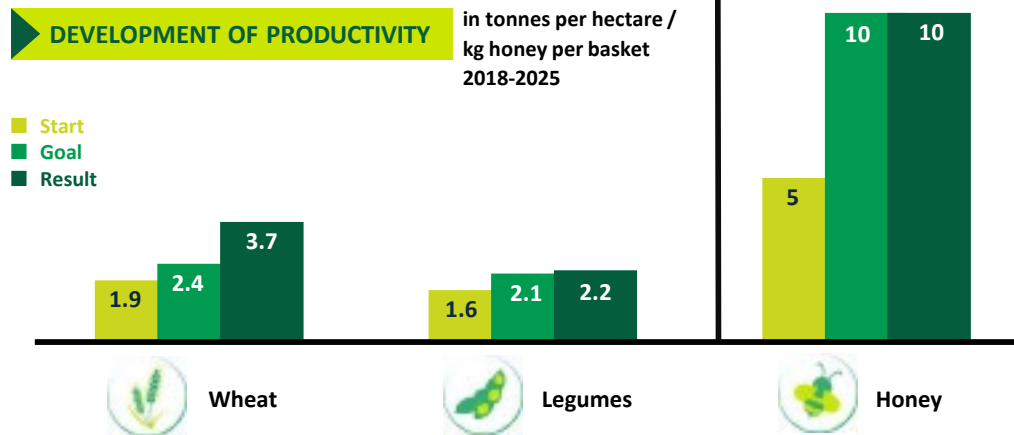


# IMPACT GREEN INNOVATION CENTRE ETHIOPIA

Results for smallholder farmers



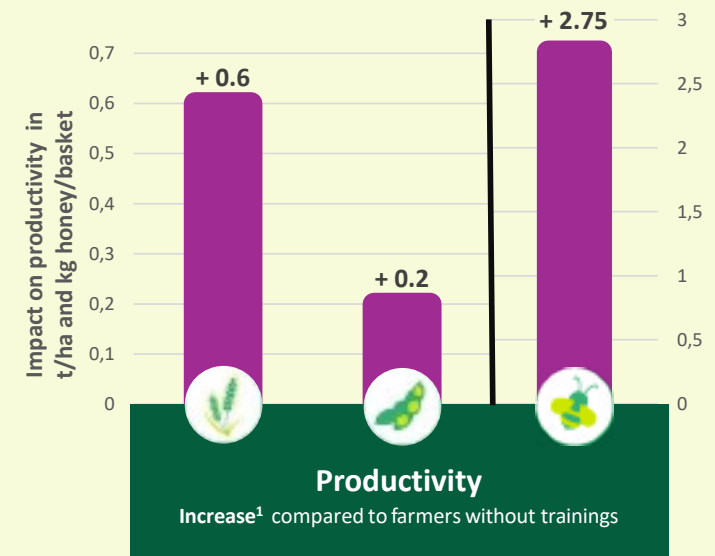
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The Project **Green Innovation Centre (GIC) - Ethiopia** has been enhancing **smallholder farmers' productivity and incomes** by promoting **sustainable agricultural innovations** since **2014 in Oromia** and since **2020 in Amhara**. Although implementation in **Amhara** has been challenged by **internal conflicts, security issues, and inflation**, the project continues to foster **resilient and sustainable farming practices**.



The overall **productivity increase** is remarkable, particularly within the **honey value chain**, which demonstrated **substantial growth**. This outcome highlights the **effective adoption of promoted innovations by trained farmers**. Farmers have implemented innovations such as **Ecological Good Agricultural Practices (Eco-GAP)** and **Good Beekeeping Practices (GBP)**, which have contributed significantly to the observed **productivity improvements**, both over **time** and in comparison with the **control group**.



<sup>1</sup>The presented figures correspond to the difference-in-difference analysis, which indicates the additional outcome for the target group thanks to the intervention. It is calculated as the difference between the target group and the control group in Oromia region, considering the time effect from start to end of the project. In this case, it can be interpreted as the relative change in productivity from project start to project end between both, target and control group. Sample size: 983. Source: Endline study report Ethiopia (2025), table 120.

# IMPACT GREEN INNOVATION CENTRE ETHIOPIA

Results for smallholder farmers



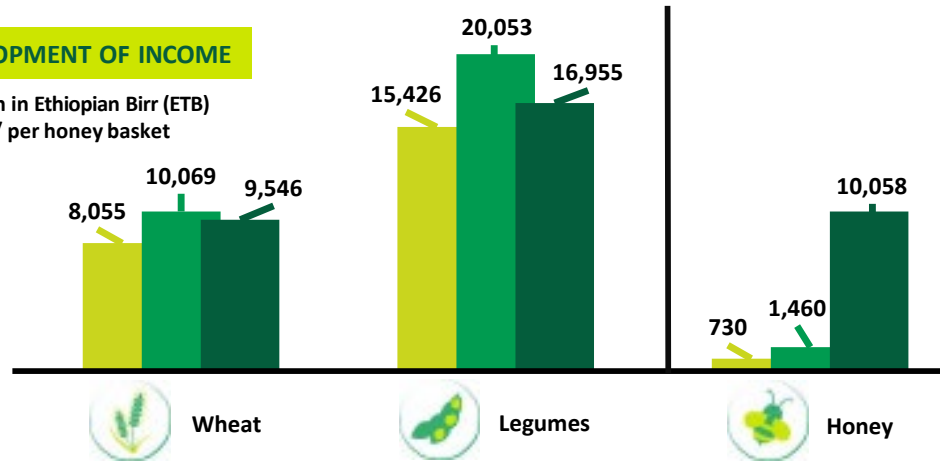
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## DEVELOPMENT OF INCOME

Gross Margin in Ethiopian Birr (ETB) per hectare / per honey basket 2018-2025

Start  
Goal  
Result



The average income from honey **increased substantially**, driven by higher market value and more effective bee management following the **adoption of project-promoted innovations**. This demonstrates the **value of GBP** for both productivity and profitability. In contrast, the income in the **wheat and legumes** value chains showed only **small to moderate increases** since the project's start, mainly due to higher post-harvest handling costs as well as increased input and marketing expenses. Overall, farmers adopting these innovations achieved more stable and improved returns, particularly in the honey value chain.

GIC-beneficiaries have **significantly higher income** compared to non-beneficiaries across all value chains, particularly in the legumes and honey production. **Despite the impact of inflation**, GIC beneficiaries maintain a substantial advantage in real income. It is important to note, that the impact (comparison with control group) could only be calculated for the Oromia-region due to security-related restrictions during the endline evaluation in the Amhara.



<sup>1</sup>The presented figures correspond to the difference-in-difference analysis, which indicates the additional outcome for the target group thanks to the intervention. It is calculated as the difference between the target group and the control group in Oromia region, considering the time effect from start to end of the project. . In this case, it can be interpreted as the relative change in productivity from project start to project end between both, target and control group. Sample size: 983. Source: Endline study report Ethiopia (2025), table 117.

# IMPACT GREEN INNOVATION CENTRE ETHIOPIA

## Results for enterprises



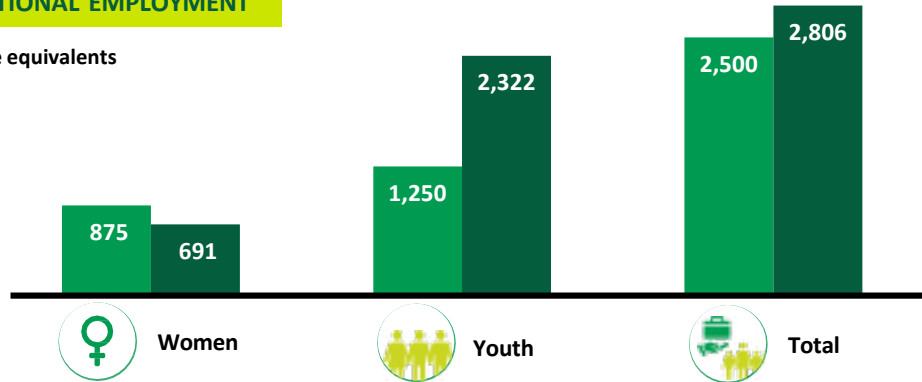
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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2014-2025

■ Goal  
■ Result



Generally, the offered innovations are widely accepted and applied by the target group. Overall, almost 70% of the supported enterprises have taken up the techniques conveyed during the trainings.

**44%** of all **new jobs** created by the project came from honey businesses. These enterprises also boosted their sales, gained more customers, and expanded their services through the project's **market linkage support**.

**70%** of **Seed Producer Cooperatives** supported with training and equipment reported higher sales, and **74% gained more customers**. This approach also proved effective in addressing the **shortage of improved crop varieties**.

### TRAINING AND ADOPTION OF FARMERS AND MSMES



**356,774** trained small-scale farmers (84% in the wheat and legumes value chain & 16% in the honey value chain), of which 27% were women and 29% young people. The overall **adoption rate is 70%**.



**4,938** trained people from 351 micro-, small- and medium-sized enterprises (MSME) (63% in the wheat and legumes value chain & 37% in the honey value chain), of which 33% were women and 60% young people. The overall **adoption rate is 69%**.

### ADOPTION OF CLIMATE-SMART INNOVATIONS

Target: 192,500 farmers

Result: 244,909 farmers



## IMPACT GREEN INNOVATION CENTRE ETHIOPIA

### What do farmers and entrepreneurs say?



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#### USEFUL TRAINING APPROACHES AND CHALLENGES

During the **focus group discussions**, smallholder farmers highlighted that the training introduced them to new practices like **intercropping, crop rotation, and proper use of improved seeds and fertilizers**. These skills helped them increase wheat yields per hectare and significantly improve their productivity.

Limited and inconsistent access to agricultural **input** remains a major challenge, hindering the wider adoption of improved farming practices and innovations.

The involvement of **women and youth** in project activities was viewed positively by participants. Women now hold key positions in farmer groups and organizations, though some felt their efforts deserve greater recognition. Participants also noted that the project has **boosted youth participation** in wheat, legume and honey value chains through innovation, training, and new income opportunities, enabling previously unemployed youth to engage in productive agriculture.

#### INNOVATION DISSEMINATION

Through **radio programs** supported by the project, millions of **smallholder farmers** in both project regions gained access to vital **agricultural information**, especially in areas where **extension services** are limited. The programs helped increase awareness and knowledge of improved farming techniques and **innovations** promoted by the project in the legumes and wheat value chains.

Farmers who participated in the **focus group discussions** confirmed that the **radio programs** were highly useful in helping them **understand and apply these innovations**. In addition, **field days** organized by the project enabled farmers to observe best practices, exchange experiences, and **learn** directly from **successful peers**. The combination of interactive radio, Information and Communication Technology (ICT) tools, and face-to-face engagement **effectively strengthened** awareness, knowledge sharing, and adoption of **improved agricultural practices**.

#### ADOPTION OF TRAININGS

Participants of the Focus Group Discussions from Oromia and Amhara regions noted that the project introduced practical innovations, such as **Eco-GAP** and **GBP**, which improved farming skills, productivity, and environmental sustainability. Training on **crop rotation, clustering, compost use, and modern beekeeping**, supported by **field demonstrations and experience-sharing**, made learning practical and enhanced adoption for **better results**.

*“The training was aligned with our farming activity, and we learned valuable skills including how to apply row planting, use fertilizer and pesticides effectively, and how to establish market linkages.”*

Respondent during a Focus Group Discussion in Ethiopia



# IMPACT GREEN INNOVATION CENTRE GHANA

## Results for smallholder farmers



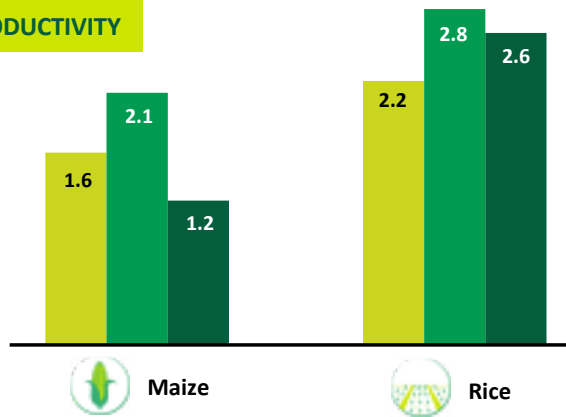
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### DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare per year  
2018-2021

■ Result  
■ Goal  
■ Start



**Project distinction:** The project duration of the GIC Ghana was comparatively short, as agriculture was no longer included in the BMZ country strategy from 2021 onward. Therefore, the project was not prolonged, and the duration even shortened by 12 months.



**Unmet targets:** During the Covid-19 pandemic, the ongoing closure of national borders and the severely restricted cargo flights caused substantial delivery delays and shortages of essential agricultural production inputs, particularly fertilizers and pesticides, which are critical for the main growing season. As a result, overall productivity levels for both maize and rice declined noticeably during this period, reflecting the broader disruptions in supply chains and reduced availability of farm inputs brought about by the pandemic. This also impacted the experienced food security in the country.



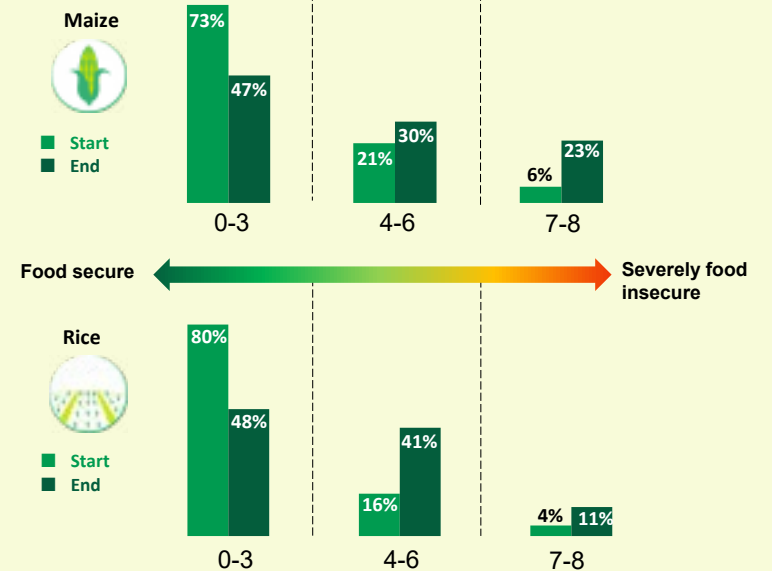
**Successes:** Both maize and rice productivity figures collected annually are subject to significant fluctuations. In the years 2018 and 2019, the years before the Covid-19 pandemic, the productivity of maize and rice went up to 2.0 and 3.3 tonnes per hectare, respectively. And even after the restrictions, the trained farmers in the rice value chain achieved a 20% increase in the productivity compared to the baseline.

### FOOD SECURITY

Change in experienced Food Insecurity (FIES)

FIES Scale (0 - Food secure, 8 - Severely food insecure)

Food secure ←————→ Severely food insecure



# IMPACT GREEN INNOVATION CENTRE GHANA

## Results for smallholder farmers



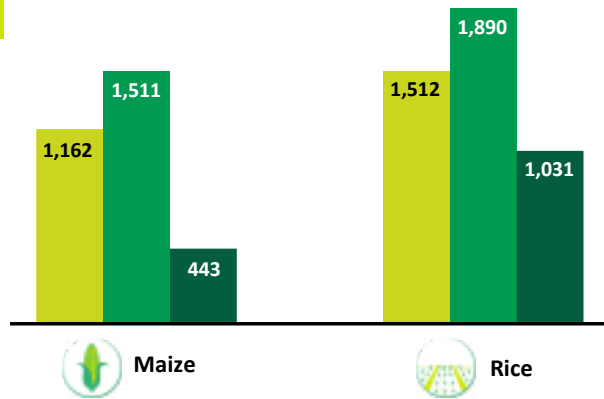
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### DEVELOPMENT OF INCOME

Gross margin in Ghana Cedis (GHS) per hectare 2018-2021

■ Result  
■ Goal  
■ Start



Like the values for productivity, the income data for smallholder farms in both value chains show **considerable fluctuations** over time. After an **initial increase**, reported incomes experienced a marked **decline throughout the reporting period**. Earnings from maize and rice production both decreased significantly compared to earlier years. The **Covid-19 pandemic** had a severe **impact** on trade due to prolonged travel restrictions and the continued closure of land borders. As a result, traders faced major challenges in reaching farms, often with delays or great difficulty, while **many local markets were temporarily suspended**.

**Adoption** of GIC-promoted innovations was **generally high** in both maize and rice value chains. Planting techniques for maize showed the highest uptake (75% of men, 71% of women), followed by rice planting (53% and 36%) and the System of Rice Intensification (33% and 25%). Soil management practices had low but equal adoption (9% each), while farm-level mechanization was least adopted (7% and 5%). Overall, men adopted more innovations than women, and limited access to mechanization remains a key constraint.



### TRAINING AND ADOPTION OF FARMERS AND MSMEs



**71,727** trained small-scale farmers (67% in maize and 33% in rice value chain) of which 41% were women and 27% young people. The overall **adoption rate** is 41%.

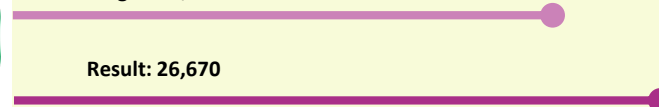


**2,375** trained people from micro-, small- and medium-sized enterprises (MSME) (61% in the maize and 29% in the rice value chain), of which 32% were women and 28% young people. The overall **adoption rate** is 100%.

### ADOPTION OF CLIMATE SMART INNOVATIONS

Target: 35,000

Result: 26,670



# IMPACT GREEN INNOVATION CENTRE GHANA

## Results for enterprises



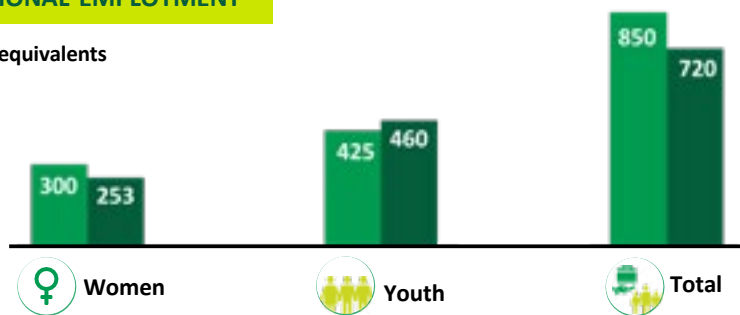
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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2018-2021

■ Result  
■ Goal



While the project created a substantial number of additional jobs, especially for young people, the target was not entirely reached, mainly due to the economic slowdown caused by COVID-19 and increasing business costs, which prevented MSMEs from expanding their workforce.

Even though job creation stalled, innovation adoption strongly improved business practices, financial literacy, and customer growth — strengthening MSME resilience during the pandemic.

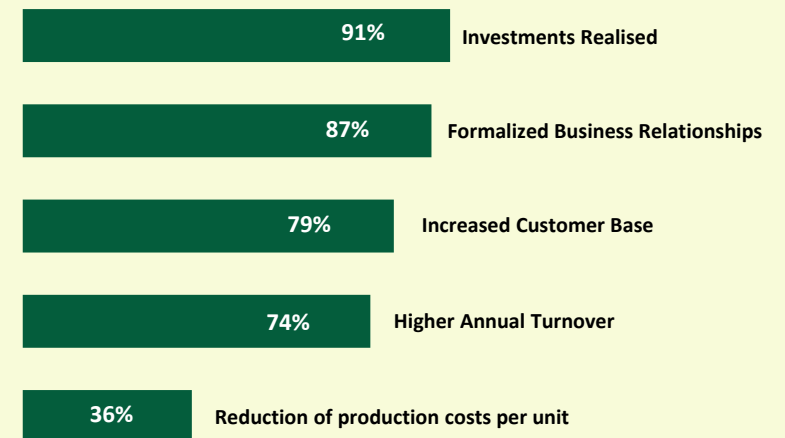
**91%** of MSMEs who received the **SME Business Loop training**, reported adopting **5 or more** of the trained innovations. These include innovations on business management, improving financial planning and access to finance, as well as expanding customer relationships.

**100%** of all interviewed entrepreneurs engaged in **business formalization and record keeping**, strengthening their **legal standing** and **financial planning**.

**94%** of the entrepreneurs **expressed concerns** about the Covid-19 pandemic. 51% of the MSMEs indicated that they were not able to get raw materials, goods or services when they needed them, while 71% were concerned about higher costs for raw materials compared to the year before.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured using **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. Overall, **82%** of the 125 supported enterprises could improve at least 3 out of 5 key business figures.



## IMPACT GREEN INNOVATION CENTRE GHANA

What do farmers say? – some insights from the Focus Group Discussions (FGD)



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### GENDER EQUALITY AND INCLUSION

**Women** in rural communities manage household chores while actively participating in **all stages of farming**, from planting and harvesting to processing and marketing.

The GIC has trained farmers, women included, by **introducing innovations** such as planting in lines, conservation farming, proper fertilizer use, and record keeping, which have improved yields and financial independence.

However, **challenges remain**, including limited access to funds, farm inputs, mechanization, and markets, as well as household responsibilities and labour shortages. While women have gained useful skills, further capacity building trainings would be an asset.

The FGDs revealed that **most of the women have applied the innovations** learned during the GIC training especially planting in rows; seed testing; fertilizer, insecticides, and fungicides application; group purchasing of inputs and collective selling of produce; and the use of the financial calendar.

The adoption of these innovations has led to **improvements in yields and household incomes**. The training has also equipped women with the knowledge to go into large scale farming. However, they could not adopt all the innovations, especially use of mechanization services, rice seed nursing and transplanting, and record keeping. Reasons for non-adoption of these innovations include perceived high cost of mechanization services, labour-intensiveness, time requirement and limited education of the farmers.

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### PRODUCTIVITY AND MARKET CONDITIONS

Farmers across the communities have observed **improvements** in productivity and farming practices, particularly from GIC training, with techniques like row planting, better fertilizer use, and improved land preparation, increasing maize and rice yields.

Some areas, such as Kramokrom, have **benefited** from tractor access and animal grazing, while fertilizer subsidies in places like Akuse Zongo have supported production. However, mechanization and agricultural services remain limited, and market systems show little improvement.

**Opportunities** exist in crop diversification, use of mechanized tools, better farm management practices, and direct sales to buyers, which can reduce costs and increase returns.

**Challenges** include labour scarcity and high costs, limited access to inputs, erratic rainfall, market inefficiencies, inadequate mechanization, and pest infestations.

Overall, farmers recognize gains in productivity and management but remain constrained by structural and environmental challenges. Expanding mechanization, improving input supply, strengthening market access, and continued training offer potential to enhance yields and profitability.



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# IMPACT GREEN INNOVATION CENTRE INDIA

## Results for smallholder farmers



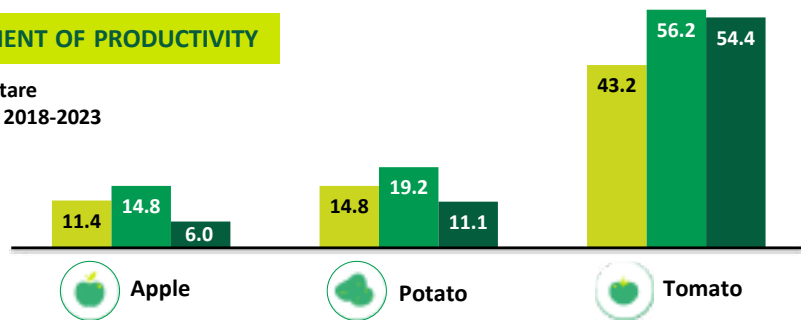
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### DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare  
Potato & tomato: 2018-2023  
Apple: 2020-2024

■ Start  
■ Goal  
■ Result



### TRAINING AND ADOPTION OF FARMERS AND MSMEs



**140,001** trained small-scale farmers (10% in the apple value chain and 90% in the potato and tomato value chains), of which 33% were women and 31% young people. The overall **adoption rate is 61%**.



**7,440** trained people from 4,568 micro-, small- and medium-sized enterprises (3% in the potato value chain, 37% in the tomato value chain & 60% in multiple value chains), of which 39% were women and 51% young people. The overall **adoption rate is 69%**.



**Project distinction:** The Project Green Innovation Centres (GIC) - India can be separated into two project areas and durations. While the **potato and tomato** value chains (VC) were supported in **Maharashtra, Karnataka & Andhra Pradesh** (southwest India) **between 2014 and 2023**, farmers and enterprises of the **apple** VC were trained **between 2020 and 2025** in the region of **Himachal Pradesh** (north India).



**Successes:** The trainings **reached a very high number of farmers and employees** of micro-, small- and medium-sized enterprises (MSME), with substantial portion being **women and young people**. Furthermore, the adoption rate was generally high, so that trainings (e.g. for the apple VC) were taken up by governmental organisations to implement **wide-range trainings on state-level**.



**Unmet targets:** In the apple VC, **climate-related challenges**, such as irregular rainfall, reduced chilling hours, and frequent pest outbreaks, led to declining yields during the project period. While tomato and potato productivity increased significantly between 2014 and 2018, it declined again by 2023 due to **erratic weather, soil degradation and limited access to quality seeds**. Moreover, in 2018 the **baseline figures** for the potato and tomato VCs were **updated**, due to the **project extension** to Andhra Pradesh. As 2018 had **unusual high productivity and income** values, the target of 30% increase **could not be reached** at the end of the project. Nevertheless, a comparison between the target and control groups proved, that **trained farmers were more resilient** and, despite the overall yield drop, achieved higher productivity and income levels than farmers who have not been trained by the project.

# IMPACT GREEN INNOVATION CENTRE INDIA

## Results for smallholder farmers



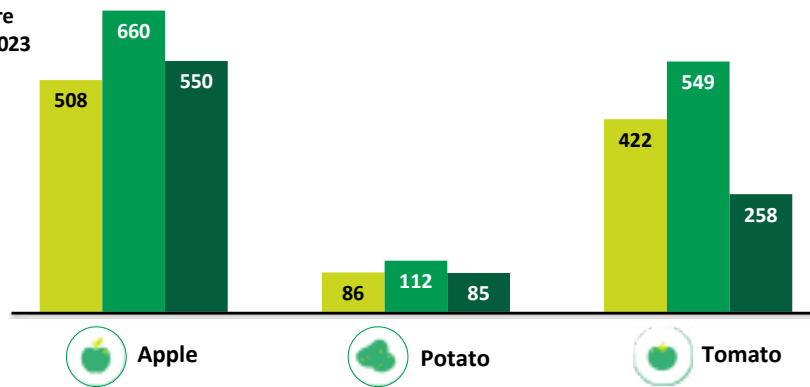
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### DEVELOPMENT OF INCOME

in thsd. Rupies per hectare  
Potato & tomato: 2018-2023  
Apple: 2020-2024

- Start
- Goal
- Result



In regard to income, the value chains follow a **similar trend as the productivity** which is not only caused by the lower yields but also by **rising input costs and market volatility**. Therefore, the project could not achieve its targets of 30% increase in gross margin. However, the **high adoption of trainings** like Good Agricultural Practices (GAP) and climate-smart innovations **prevented sharper declines** in yields and gross margin under worsening climatic conditions.

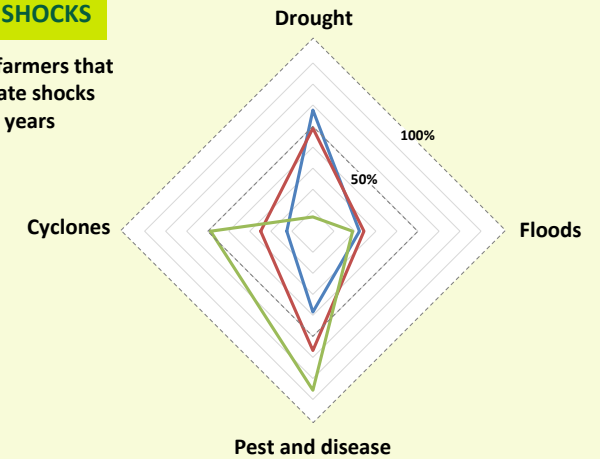
Farmers across all value chains reported **increasing climate-related shocks**. Many perceived these changes as more severe than in previous years, directly **affecting crop health and profitability**. However, trained farmers demonstrated greater adaptive capacity in managing these risks. Through practices such as mulching, drip irrigation, integrated pest management, and diversified cropping, they were able to **stabilize yields and reduce losses**. This suggests that the adoption of climate-smart innovations enhanced farmers' overall **resilience to climate variability**.



### CLIMATE SHOCKS

Percentage of farmers that perceived climate shocks in the past five years

- Apple
- Potato
- Tomato



### ADOPTION OF CLIMATE SMART INNOVATIONS

Target: 48,650 farmers

Result: 48,975 farmers



# IMPACT GREEN INNOVATION CENTRE INDIA

## Results for enterprises



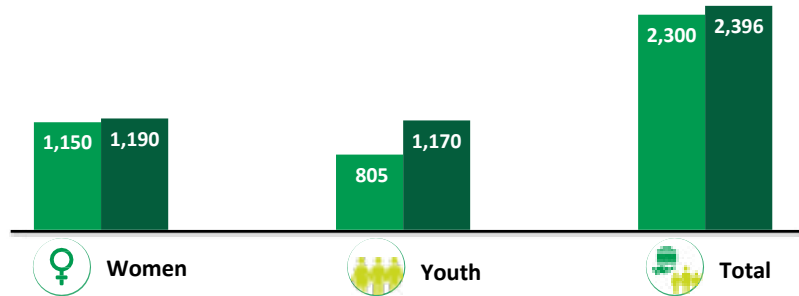
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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2015-2024

■ Goal  
■ Result



Generally, the offered innovations are widely accepted and applied by the trained staff of MSMEs. Overall, almost 70% of the supported enterprises have taken up the techniques conveyed during the trainings

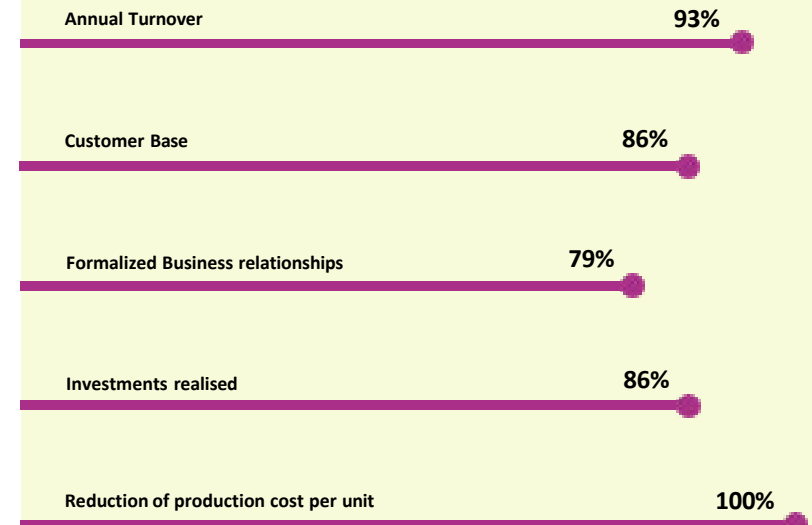
**79%** of all targeted entrepreneurs engaged in **Cooperative Business School** trainings. However, MSME staff reported barriers such as lack of finance and too little follow-up support.

**89%** of entrepreneurs received **innovation training**, often focusing on logistics, services, goods, manufacturing methods and pricing. Challenges included, again, limited financing, insufficient capacity, and fear of risk when adopting innovations.

**64%** of the entrepreneurs participated in **matching activities** e.g., matching cooperation or business partners. In the focus group discussions, participants stated that the project has helped to establish linkages between producers and retailers, ensuring a steady market for the produce. This has significantly improved income and market access.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured by **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. A total of **47 companies** in the potato and tomato value chains were able to improve in at least 3 out of 5 key performance indicators.



## IMPACT GREEN INNOVATION CENTRE INDIA

What do farmers and entrepreneurs say?



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### WOMEN'S AND YOUNG PEOPLE'S PERSPECTIVES

Across the apple, tomato, and potato value chains, women and young participants viewed the GIAE trainings as **highly beneficial and empowering**. Women farmers particularly valued **practical modules** on post-harvest management, food processing, and safe pesticide use, which enhanced their **income opportunities and decision-making** roles. Young farmers and MSME staff appreciated the exposure to modern, climate-smart, and digital farming practices, seeing them as pathways to **innovation and employment in rural areas**. Both groups emphasized that the trainings increased their confidence, technical knowledge, and economic resilience and called for more follow-up sessions. However, they also emphasized a lack of access to finance and wished for greater inclusion in leadership roles within Farmer Producer Organisations and MSMEs.

*"There was initial scepticism about women managing these organizations, but we've proven our capability. With continuous training and support, we've taken on leadership roles within our FPOs, contributing to their success."*

Respondent during a Focus Group Discussion in southwest India

### CLIMATE SMART FARMING

Farmers trained in **climate-smart practices** introduced through GIAE noted visible benefits in **water efficiency, pest control, and crop resilience**. In the apple regions of Himachal Pradesh, farmers highlighted that innovations like **solar dryers, bio-fermenters, and solar-powered cold storage** helped mitigate post-harvest losses and improved product quality. Many reported feeling **better prepared for irregular rainfall and pest outbreaks**, though some still faced barriers such as **high investment costs** and desire more **technical follow-up**.

*"To cope with the changes, we've had to adjust our practices. We now plant earlier in the season to avoid heat stress, use drip irrigation to conserve water, and rely more on climate resistant varieties."*

Farmer during Focus Group Discussion in Maharashtra

### ADOPTION OF INNOVATIONS

In the focus group discussion, both farmers and MSME representatives expressed a **positive attitude** towards the trainings, especially those with visible short-term benefits such as higher yields, reduced labour, or better market prices. Farmers emphasized that **peer learning and field demonstrations encouraged wider uptake** within communities, while entrepreneurs pointed out, that new or improved technologies expand their market opportunities. Therefore, the beneficiaries expressed that the GIAE-promoted capacity buildings and innovations were relevant and impactful and thus reported high adoption of the trainings.

*"The project's interventions have positively impacted our farming practices. Improved seed quality and better pest and disease management have increased our productivity while reducing labour. Mechanization has made our work more efficient. We hope these innovations continue to be supported and upscaled by the government to benefit more farmers like us."*

Farmer in Focus Group Discussion on technical innovation in potato in southwest India



# IMPACT GREEN INNOVATION CENTRE KENYA

## Results for smallholder farmers

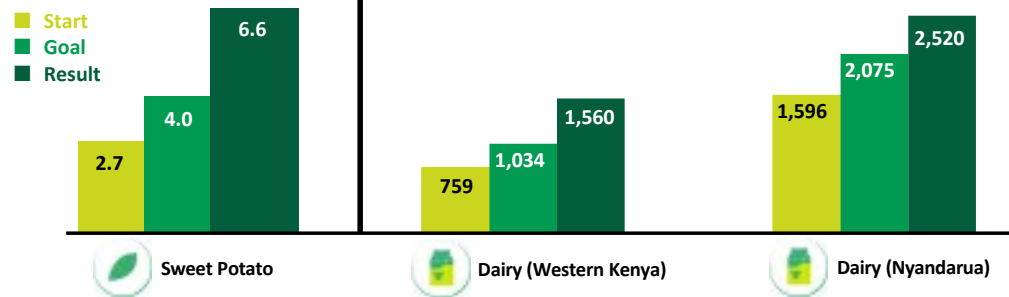


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### DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare per year (sweet potato) and milk in litres per cow per year (dairy)  
2015-2021



How did innovations promoted by the Green Innovation Centre impact the productivity of smallholder farmers in Kenya?



Farmers in the sweet potato value chain as well as the dairy value chain in both Western Kenya and Nyandarua region have **significantly increased their productivity** and overachieved the targets set by the programme. Also, in comparison to the control group, trained sweet potato and dairy farmers have accomplished a 41% and 14% productivity increase, respectively.

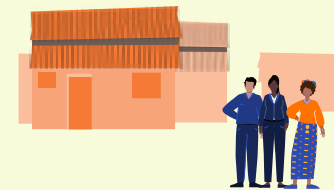


While productivity increases were very high among farmers in the sweet potato and dairy value chains between 2015 and 2021, there has been **considerable fluctuation** in productivity across years and regions. The particularly strong and positive results in productivity were mainly driven by the **adoption of Good Agricultural Practices** and improved sweet potato value chain, as well as **Good Animal Husbandry Practices** and improved fodder production and conservation techniques in the dairy value chain.

### TRAINING AND ADOPTION OF FARMERS AND MSMES



**102,391** small scale farmers were trained (44% in sweet potato and 56% in dairy value chain) of which 67% were women and 26% young people. The overall **adoption rate** is 68%.



**3,414** people from 2,000 micro-, small- and medium-sized enterprises (MSME) were trained (49% in the sweet potato and 51% in the dairy value chain), of which 53% were women and 39% young people. The overall **adoption rate** is 90%.

### ADOPTION OF CLIMATE SMART INNOVATIONS

Target: 50,000 farmers

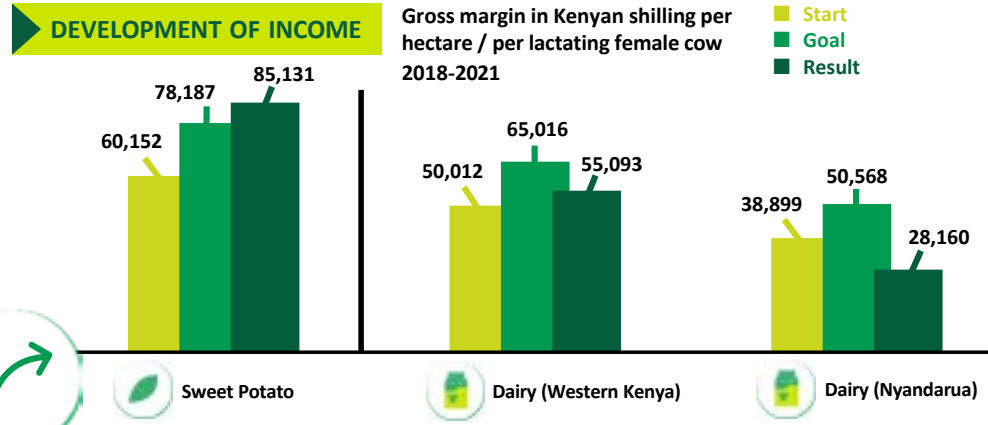
Result: 78,841 farmers

# IMPACT GREEN INNOVATION CENTRE KENYA

## Results for smallholder farmers



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Sweet potato farmers who adopted Good Agricultural Practices and planted improved sweet potato varieties were able to **significantly increase their gross margins**, exceeding the set target. Dairy farmers in Western Kenya managed to slightly increase their income per hectare, but the result remained well below the target. In contrast, dairy farmers in Nyandarua even experienced a **decrease in their income** per hectare. The poor performance in the dairy value chain is due various reasons, including the loss of tax subsidies, inflation, and higher feed costs.

While both value chains experienced significant increases in productivity, the **results** regarding farmers' incomes are **mixed** due to **various factors**, including the Covid-19 pandemic and its restrictions, as well as the aggression war by Russia against Ukraine. These events exacerbated **market volatility** and contributed to rising production costs, particularly in the dairy value chain. Furthermore, farmers reported **impacts of climate change**, like erratic weather, and increased influence of pests and diseases as main constraints to their value chains. The income increase of sweet potato farmers can be explained as it has evolved from a food to a cash crop, meaning the additional produce was sold rather than used for home consumption.

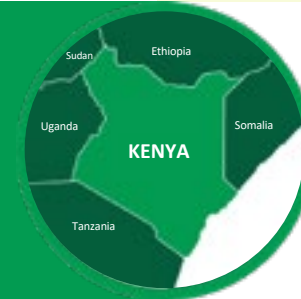
### CONSTRAINTS OF FARMERS

Main constraints reported by farmers across both value chains and all regions in mean percentages. Significant differences exist between value chains and regions.

- 52%** Erratic weather conditions e.g. drought
- 49%** Pests or disease pressure
- 26%** Lack of market access
- 26%** Lack of credit / financial services / money

# IMPACT GREEN INNOVATION CENTRE KENYA

## Results for enterprises



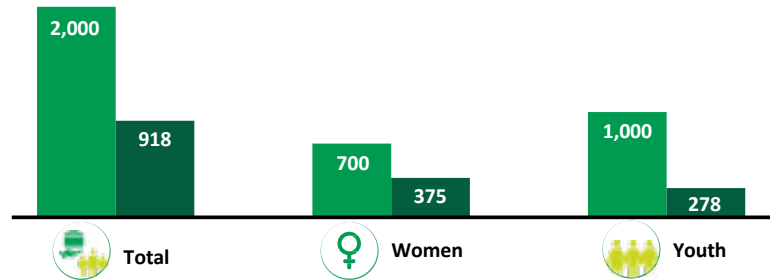
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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2018-2021

■ Goal  
■ Result



The set-out goal in **job creation was not achieved**, as the scope for creating additional employment opportunities in the selected value chains was **limited** from the beginning. And while most jobs were generated in the early years of the project, progress subsequently stagnated due to the **negative economic impacts** of the COVID-19 pandemic and the aggression war by Russia against Ukraine. The majority of entrepreneurs **adopted** the practices promoted by the project's innovations:

**95%**

of the 103 **commercial vine multipliers** adopted techniques which were specifically designed for their work field. Apart from specific techniques to effectively multiply improved, healthy and adapted vines, they adopted the skills and strategies learned in business development and further established market links and networks.

**96%**

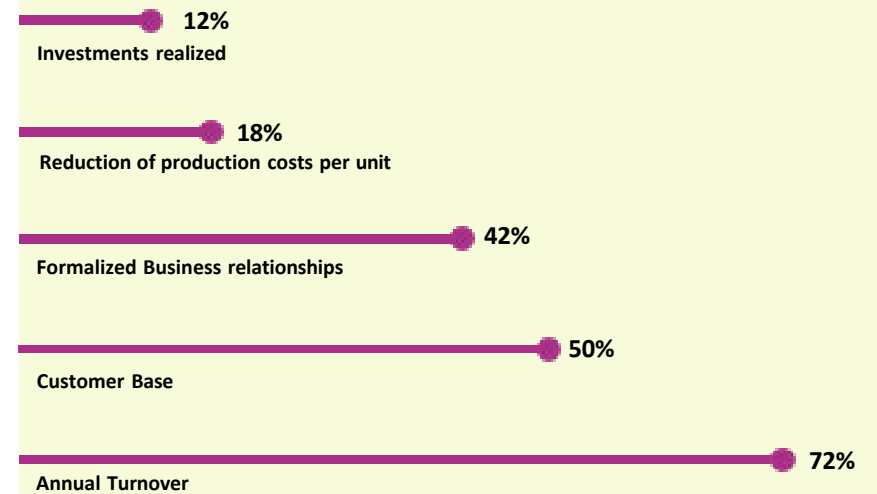
of the 93 **commercial fodder producers** adopted the innovations' techniques which were specifically developed for them. The training covered not only contents on the specific plants and agricultural techniques, but also post-harvest management, conservation of the produce and sales strategies.

**100%**

of the 15 **dairy cooperatives** adopted the techniques promoted, such as the application of skills in milk processing, quality standards and handling, but also the processing steps which lead to value addition and the skills in management of dairy cooperatives and business development strategies.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured by **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. A total of 211 companies were able to improve in least 3 out of 5 of the following key performance indicators.



## IMPACT GREEN INNOVATION CENTRE KENYA

What do farmers and entrepreneurs say?



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### WOMEN'S PERSPECTIVES

The Focus Group Discussions highlighted that it was especially **women that benefitted** from the innovation fodder production and conservation. Previously it was necessary to take the cattle to graze or pay a man to do it which was **not feasible for women**, meaning they were excluded from independently participating in this value chain. The innovation allows people to plant, care and harvest fodder within the confines of their own home, **encouraging women** to get active in this field of agriculture.

The sweet potato being traditionally a food crop, rather than a cash crop was **majorly cultivated by women**, meaning that it was especially women that profited from the **Good Agricultural Practices innovation** and the introduction of improved varieties. The strong and profitable sales of sweet potatoes allowed the participating women to earn their **own income** and boost their independence and **recognition among their communities**.

### CLIMATE SMART FARMING

In the Focus Group Discussions, **fodder production and conservation** were repeatedly highlighted as the most useful innovations.

Considering that many farmers across all regions struggle with the **consequences of climate change**—such as erratic weather patterns and limited fertile land—dairy farmers were able to produce and store their own nutrient-rich fodder.

This **significantly increased milk yields**, as the cattle received quality feed throughout the year rather than depending on the climate, seasons, or the availability of grasslands.

On the other hand, some farmers perceived it as a **dilemma** to produce their own fodder on the little fertile land they owned, since it could no longer be used to grow other crops for home consumption.

In the sweet potato value chain, besides the adoption of Good Agricultural Practices, it was the improved, adapted, high-yielding, and fast-growing varieties that enabled farmers to significantly increase their productivity despite climatic challenges.

### ADOPTION OF INNOVATIONS

Participants of both value chains in the Kakamega region shared their views on the innovations and their effects during **Focus Group Discussions**. Key factors that led to the adoption of the innovations in the sweet potato value chain were the **significantly increased productivity** among lead farmers and the **shorter growing period** of the improved varieties. Some farmers did mention that the quickly established innovations led to **overproduction** and hence **lower selling prices** on the markets.

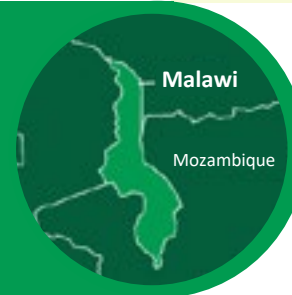
On one hand, the **strong increase in milk yields** led to farmers adopting innovations in the dairy value chain, such as the **fodder production and conservation** as well as **zero grazing**. On the other hand the **volatile markets, climatic challenges** and **high implementation costs** of some of the innovations and also **limited fertile land** were mentioned as reasons for non-adoption.



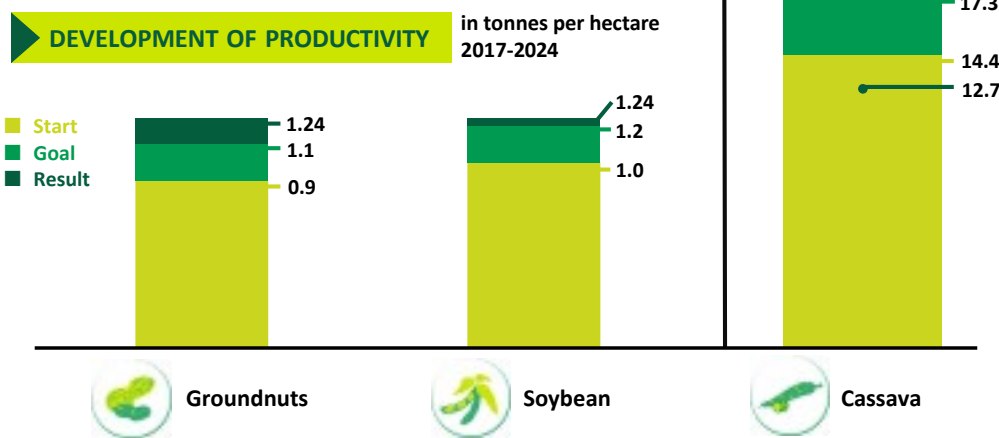
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# IMPACT GREEN INNOVATION CENTRE MALAWI

Results for smallholder farmers



Published by



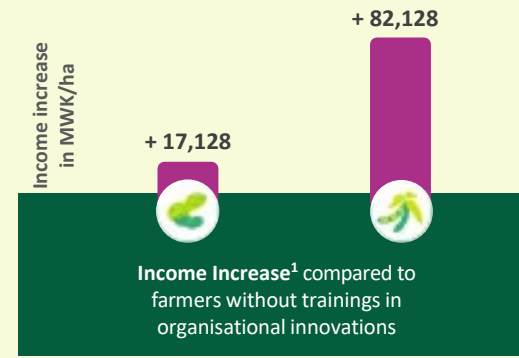
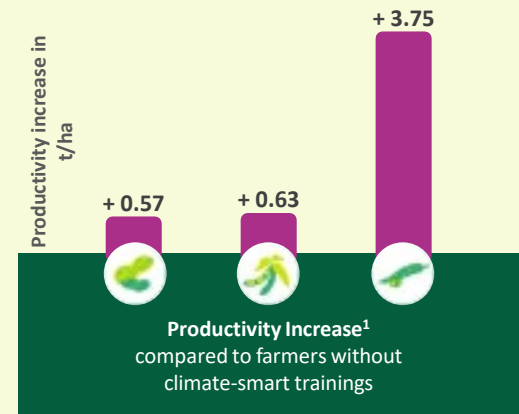
## How do the trainings offered by the project impact the productivity and income of smallholder farmers in Malawi?



The project has offered a wide range of trainings to **increase farmers' resilience against climate change**. These trainings include Good Agricultural Practices, the use of inoculants, quality seeds, the management of aflatoxin in value chain groundnuts, and natural resource management, resulting in **higher productivity and income** compared to non-trained farmers.



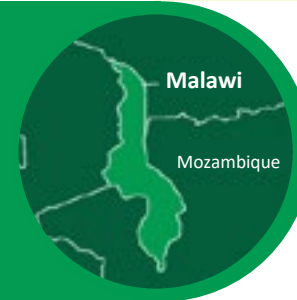
While the project successfully achieved the targeted productivity levels for groundnuts and soy, **cassava productivity fell below baseline values**. According to farmers, this decline may be attributed to **climate shocks or pest and disease outbreaks** - despite specific training provided on **pest and disease management**. Notably, a Difference-in-Difference analysis revealed that cassava productivity among untrained farmers was nearly 4 tons per hectare lower than that of trained farmers, highlighting the **positive impact of the training interventions**.



<sup>1</sup>The presented figures correspond to the coefficients derived from a Difference-in-Difference analysis combined with Propensity Score Matching. They capture the effect of the training on productivity (above) and productivity (below) of target group farmers, controlling for external and constant factors. Organisational innovations weren't offered in the value chain cassava. Sample size: 2,071. Source: Endline study report Malawi, tables 40 and 36.

# IMPACT GREEN INNOVATION CENTRE MALAWI

## Results for smallholder farmers

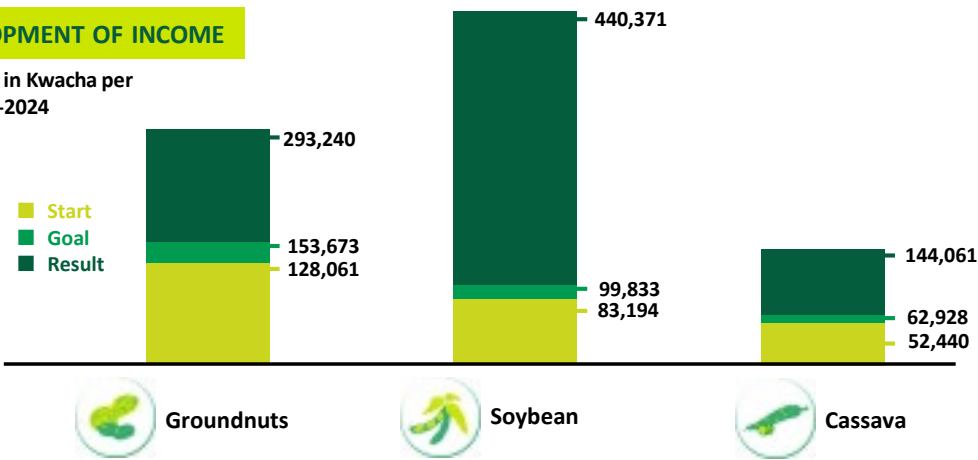


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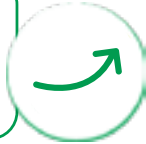
### DEVELOPMENT OF INCOME

Gross margin in Kwacha per hectare 2015-2024



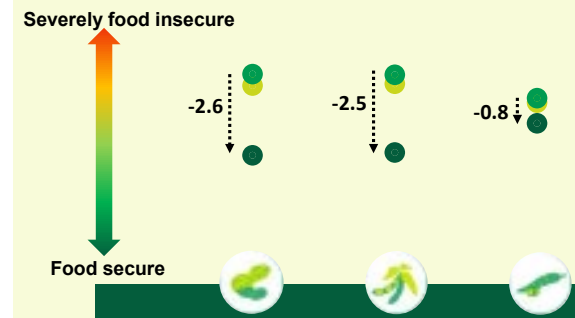
In regard to income, the project could achieve and even surpass their targets in all value chains. The overall **improvement in income** - particularly in the groundnut and soybean value chains - has led to a significant and statistically relevant **increase in food security** among trained farmers, while **non-trained farmers remained** at the same food security levels as before the project intervention began.

Evidence from the endline study shows the **positive impact of the bio-fertilizer** rhizobium inoculant and **other climate-smart innovations** on groundnut, soybean and cassava yields. The DiD analysis on productivity quantifies these effects. Overall, **almost 100,000 of the trained farmers apply these innovations** in Malawi. Next to the productivity, climate-smart innovations help farmers to **better cope with adverse weather conditions** - such as the severe drought in the agricultural season 2024/2025.



### FOOD SECURITY

Legend: Start (yellow), Result control (green), Result treatment (dark green)



<sup>1</sup> Results refer to regression outputs from a Difference-in-Difference analysis (DiD) combined with propensity score matching, indicating by how many points the Food Insecurity Experience Score (FIES) has decreased for the target group compared to the non-trained farmers. A total number of 1,964 household were interviewed. The DiD for groundnuts and Soy are statistically significant at the 1% level.

**Change in experienced Food Insecurity<sup>1</sup>**  
from project start to project end comparing trained farmers to non-trained farmers

### ADOPTION OF CLIMATE-SMART INNOVATIONS

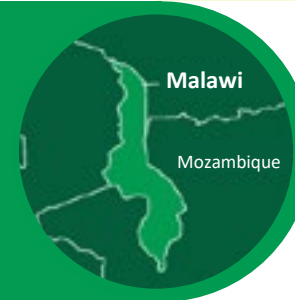
Target: 72,000 farmers

Result: 95,275 farmers



# IMPACT GREEN INNOVATION CENTRE MALAWI

## Results for enterprises

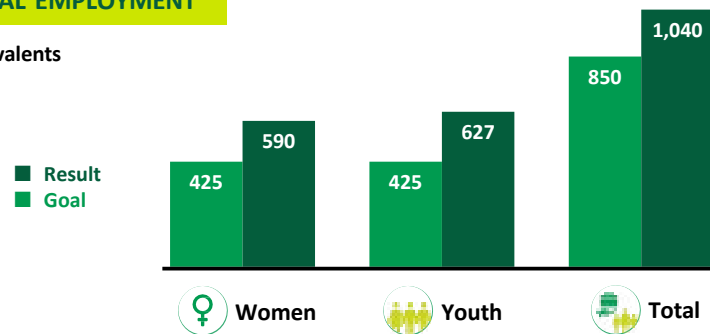


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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2015-2024



Generally, the offered innovations are widely accepted and applied by the target group. Overall, almost 50% of the supported enterprises have taken up the techniques conveyed during the trainings.

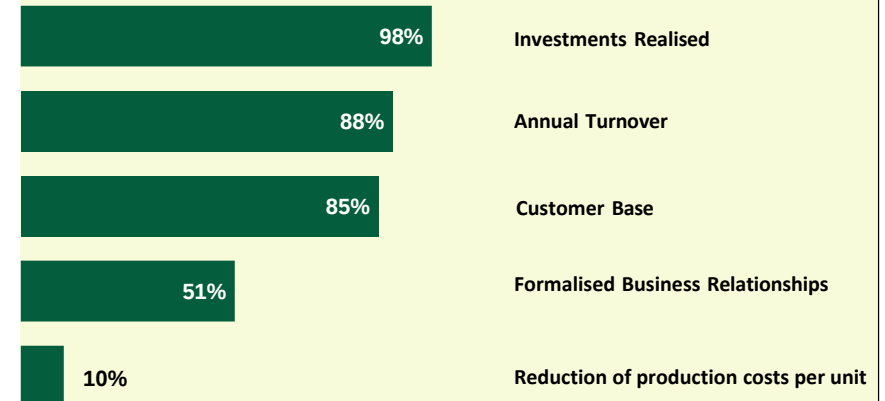
**58%** of trained MSME representatives apply the strategies promoted by the *Integrated business competency training*. The training is derived from the *SME Loop* and, among others, **enhances managerial capacities and supports the formalisation of MSMEs**.

**40%** of supported agrodealers offer **inoculants**. This benefits farmers by increasing their yields, but also **creates jobs and increases agrodealers' turnover**.

**41%** of supported MSMEs **multiply improved cassava and soybean seeds**, allowing farmers to access clean and certified seeds which ensure high yields and resilience against climate change.

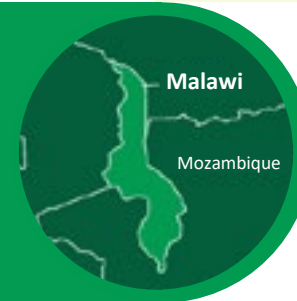
### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

MSME performance is measured by **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. Overall, **67% of the 1,015 supported enterprises** could improve at least **3 out of the 5 key business figures**.



## IMPACT GREEN INNOVATION CENTRE MALAWI

### What do farmers and entrepreneurs say?



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#### USEFUL TRAINING APPROACHES AND CHALLENGES

During the **focus group discussions**, smallholder farmers highlighted the benefits of **keeping records** about farming which helps them to increase their revenues from farming. Additionally, this helps them to select the crops and varieties for planting which allow them the highest returns.

Both a **lack of capital to purchase inputs** (e.g. the most suited seeds), a **lack of land** and a limited access to good markets to sell their produce were mentioned as challenges.

The **involvement of women and youth** during the project activities was seen as widely positive by the interviewees. In many farmer groups and organisations, women hold high positions. In some cases, women criticised a lack of respect and valuation of their work. For youth, the incentives to engage in farming activities is often discouraging due to low market prices and thus bleak prospects for a good income.

#### INNOVATION DISSEMINATION

Through **radio programs** whose broadcasting was supported by the project, farmers did get access to important agricultural information, which is especially of relevance if extension workers' availability is limited in remote areas. The programmes covered topics related to Good Agricultural Practices, Farmer Business Schools, adaptation to climate change, and natural resource management.

Generally, **the farmers interviewed during the FGDs** have found the **radio programmes very useful**, even though sometimes **limited availability** of radios and not being able to ask **clarification questions** posed **challenges for the target group** to fully benefit from the programmes.

**Road shows** presented the agricultural KULIMA movie and showcased various GIC innovations. They were assessed as a **useful opportunity** to learn and get into exchange about agricultural topics for farmers in remote areas.

#### ADOPTION OF TRAININGS

Anecdote evidence from Focus Group Discussions with farmers established that it has strengthened their market access, enhanced their food security, and positioned them to thrive in the face of agricultural challenges.

Especially the **marketing trainings** have equipped group members with management skill to properly run their farmer organisations.

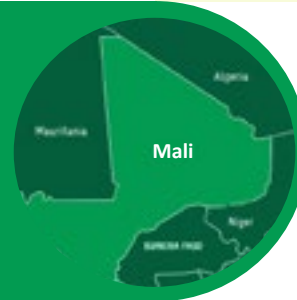
*"The trainings were very relevant since the time the interventions were coming, we were in big trouble with our leadership at our group. Funds were mismanaged, there was no transparency and accountability, but after the training everything was sorted and things started going on well"*

Respondent during a Focus Group Discussion in Malawi



# IMPACT GREEN INNOVATION CENTRE MALI

## Results for smallholder farmers

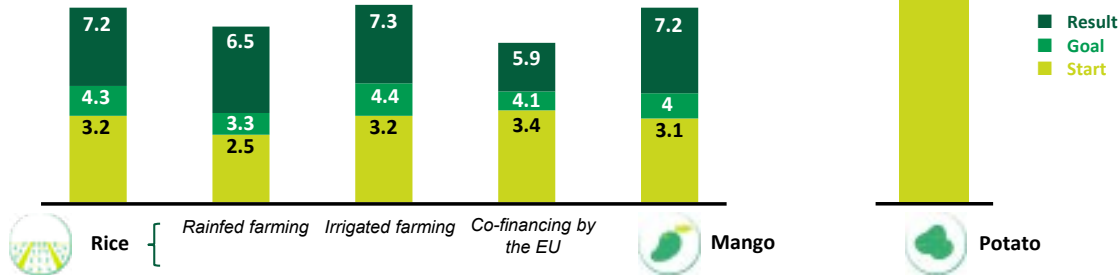


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### DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare and year  
2018-2023

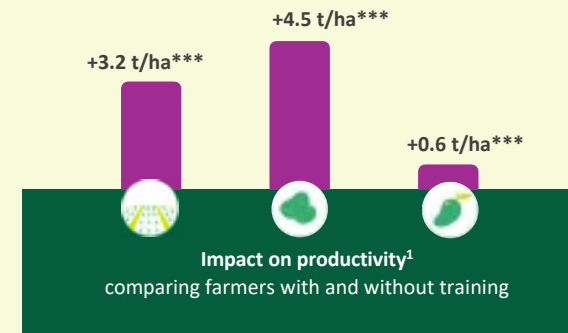


**Rice** { Rainfed farming Irrigated farming Co-financing by the EU } **Mango** **Potato**

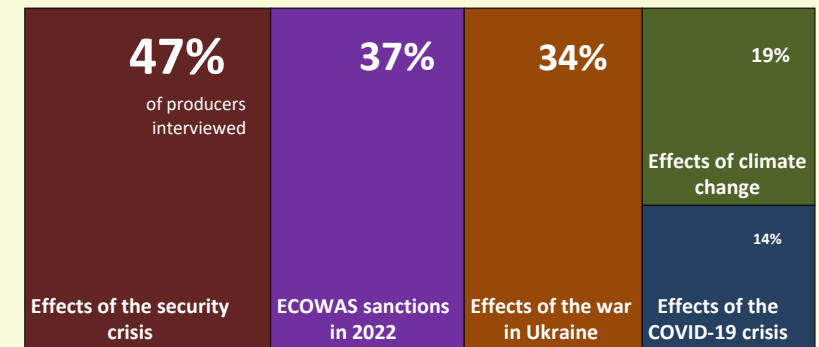
The average productivity achieved by **rice producers** exceed the project's expected goals. However, the Endline study shows **regional differences** in the yields obtained, which vary, for example, from 4.7 t/ha (Sikasso region) to 7.5 t/ha (Ségou region). The lowest average productivity was obtained in the Kayes region (2.2 t/ha). These differences in productivity can be explained by **regional rainfall distribution**, which can vary considerably. However, the promotion of trainings on **Sustainable Rice Intensification (SRI)** has increased productivity in both production systems. Overall, the **SRI innovation has been adopted by 65% of the trained farmers**.

The average productivity of **mango cultivation** has developed positively throughout the project time. Up to the mid-term study of the project in 2018, the average productivity was 5 t/ha. Over the entire project period from 2014 to 2024, the **average productivity has more than doubled (from 3.2 to 7.3 t/ha)**. This is due, among other things, to the high rate of adoption of the innovations **Orchard maintenance and integrated fruit fly management**, which are **adopted by a total of 96% of the mango producers trained**.

At the end of the project, **potato producer** reported an **average productivity of 20 t/ha**, slightly below the **target of 22.5 t/ha**. However, the Endline study reveals that potato producers who participated in the project's trainings and adopted the practices taught achieved an **average yield that was 54% higher than that of the control group**.



<sup>1</sup> The results refer to the regression results of a difference-in-difference analysis combined with propensity score matching comparing cross-sectional data from Baseline (2016) and Endline (2023) for beneficiary and non-beneficiary households. A total of 684 beneficiary households and 349 non-beneficiary households were surveyed (Endline Study Mali (2023), pp. 82-91).  
<sup>2</sup> Endline study Mali (2023), pp. 93.



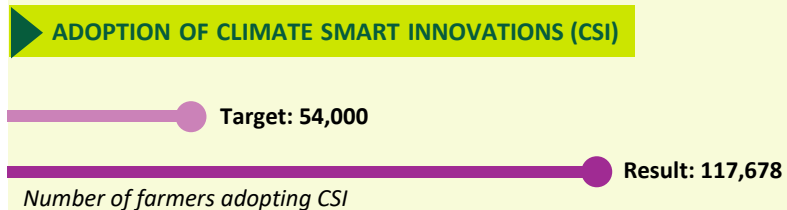
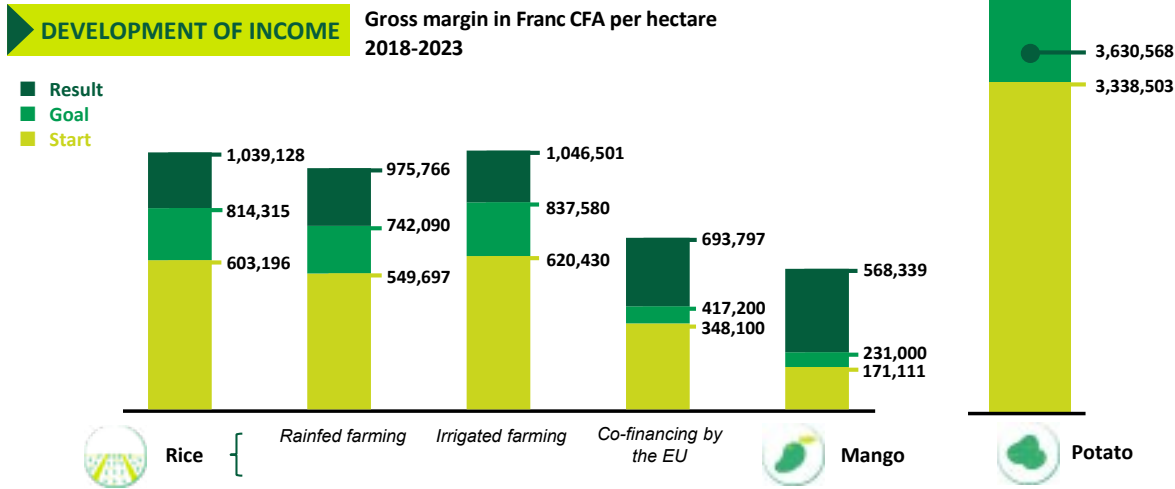
**Impact of multiple crises on producer productivity<sup>2</sup>**  
particularly due to increased input and production costs, lack of access to inputs, and increased transport costs

# IMPACT GREEN INNOVATION CENTRE MALI

## Results for smallholder farmers

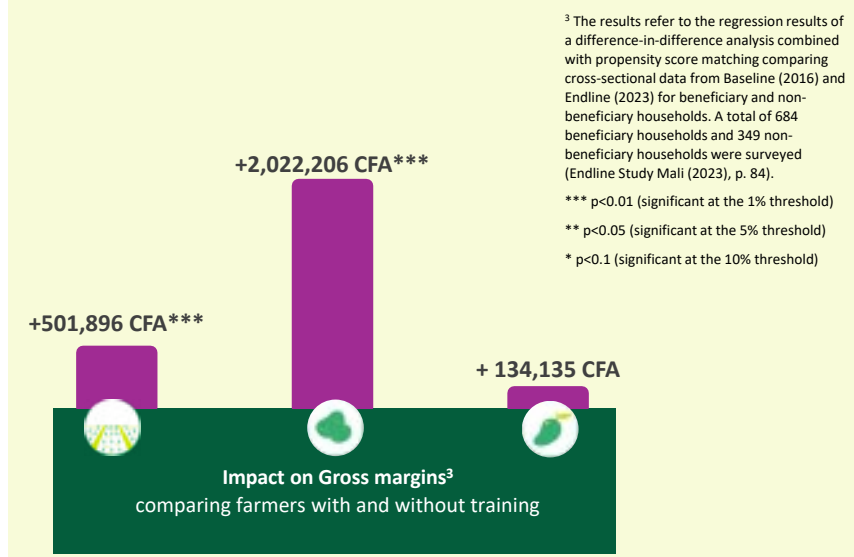


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The results of the **Endline study** show that rice growers who participated in trainings were able to increase their gross margin significantly over the course of the project time, compared to rice producers who did not take part in the project's training courses. **Producers who use irrigation systems** to grow rice have higher production costs, but they can also offset these by improving productivity and gross margin. On average, the gross margin is higher than in the production model with natural irrigation and higher than in the control group.

The results in the potato and mango value chains show that farmers who have taken part in the project's training activities on **integrated management** (potato) and **Good Agricultural Practices** (potato, mango), as well as **certification** and **midge control** (mango), achieve a significantly higher gross margin than farms that have not. There are also **significant regional differences**. The average gross margin for potato and mango growers **varies between 30% and 50%**. It appears that the average gross margin decreases as the **distance from large cities** (e.g. Bamako) increases, as **sales entail higher costs and expenses for producers** in terms of transporting and storing potatoes and mangoes.



<sup>3</sup> The results refer to the regression results of a difference-in-difference analysis combined with propensity score matching comparing cross-sectional data from Baseline (2016) and Endline (2023) for beneficiary and non-beneficiary households. A total of 684 beneficiary households and 349 non-beneficiary households were surveyed (Endline Study Mali (2023), p. 84).

\*\*\* p<0.01 (significant at the 1% threshold)

\*\* p<0.05 (significant at the 5% threshold)

\* p<0.1 (significant at the 10% threshold)

# IMPACT GREEN INNOVATION CENTRE MALI

## Results for enterprises

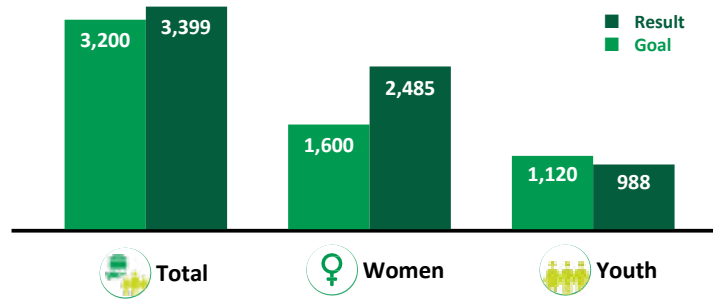


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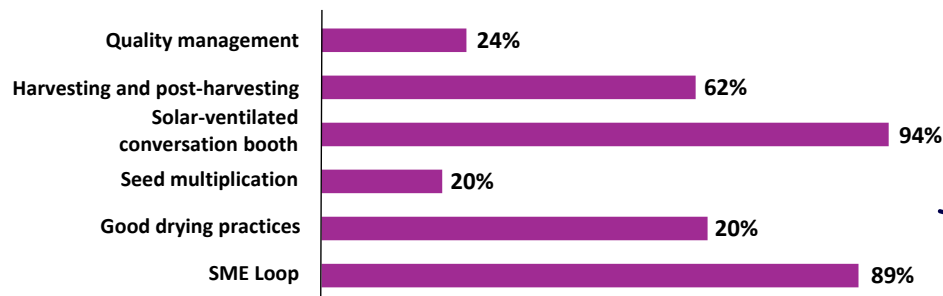
### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2015-2022



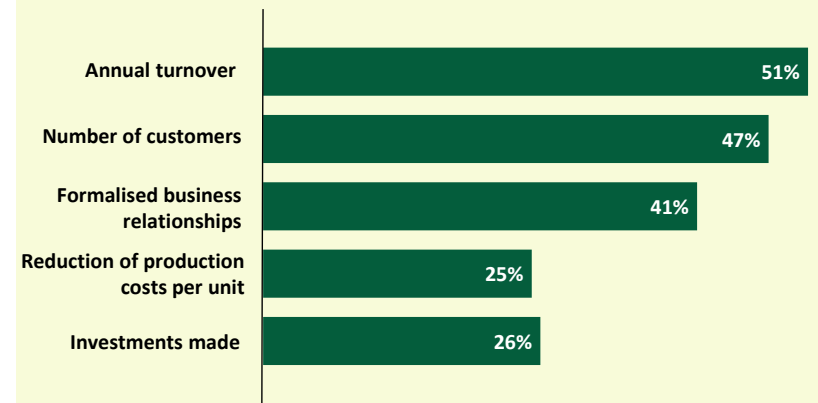
The project collaborated with a total of **940 micro-, small- and medium enterprises (MSME)** across the three value chains. On average, businesses were able to create five jobs in the rice value chain, four jobs in the potato value chain and ten jobs in the mango value chain per MSME.

The MSMEs that the Green Innovation Centre has collaborated with have implemented various innovative practices.



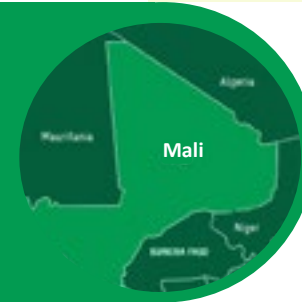
### ENTERPRISES THAT HAVE IMPROVED THEIR BUSINESS PERFORMANCE

Business performance is measured using five key performance indicators. For each indicator, the diagram below shows the percentage of MSMEs that have managed to improve them. Overall, 60% of the 396 businesses interviewed were able to improve at least 3 of the 5 key indicators.



## IMPACT GREEN INNOVATION CENTRE MALI

What do farmers and entrepreneurs say?



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### IMPACT AND SUSTAINABILITY OF TRAINING COURSES

**Potato producers emphasized** that **applying the promoted innovations** helps to improve their harvests and incomes. This applies in particular to the application of **Good Agricultural Practices** such as observing planting distances, pre-germinating seeds and introducing agroecological approaches to cultivation. Producers have particularly highlighted that **agroecological approaches** not only **increase yields but also reduce soil degradation and the use of chemicals**.



Rice producers particularly valued the contribution of trainings on the **System of Rice Intensification (SRI), disease management, quality seeds and mechanization** to improving their skills. These training courses enabled farmers to learn advanced agricultural practices and post-harvest management methods. Feedback from producers shows that innovations are helping to **improve rice cultivation standards through the integration of innovative practices**. In addition, discussions also highlighted that **climate change** and events such as **war, embargoes and the COVID-19 pandemic have a significant impact** on rice cultivation and sales. Furthermore, **women and young rice farmers** face greater challenges, largely due to a lack of access to materials and financial resources.

The **mango producers** who participated in the promoted training emphasized that measures to combat fruit flies are particularly effective, as they significantly **improve the quality of mangoes** and, consequently, their **selling price**. At the same time, many producers expressed frustration at the **lack of suitable transport and poor road conditions**, which limit their ability to sell their surplus production and demotivate them.



During group discussions, concerns about **security in border areas** were also raised on several occasions, particularly in the **Sikasso region (Yanfolila)**. The security situation hinders producers' ability to maintain their orchards, which has a negative impact on their yields.

© Klaus Wohlmann (2017)



# IMPACT GREEN INNOVATION CENTRE MOZAMBIQUE

Results for smallholder farmers



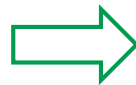
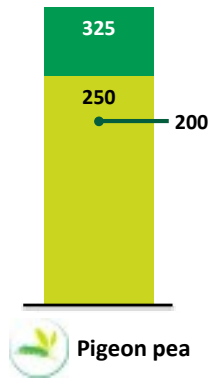
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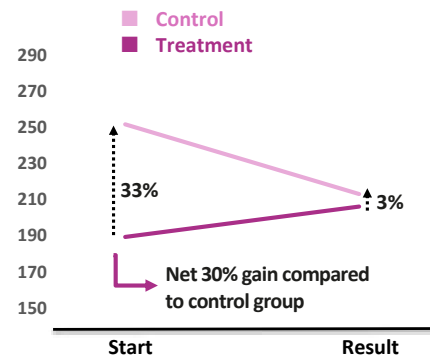
## DEVELOPMENT OF PRODUCTIVITY

in kilogram per hectare  
2017-2023

■ Result  
■ Goal  
■ Start



Compared to farmers without GAP and FBS training<sup>1</sup>



<sup>1</sup> Results refer to regression outputs from a Difference-In-Difference analysis combined with propensity score matching comparing cross-sectional midterm (2018) and endline data (2023) for beneficiary and non-beneficiary households. A total number of 760 households interviewed (Endline Study Mozambique, 2023, pp. 52-65).

## TRAINING AND ADOPTION OF FARMERS AND MSMEs



**51,519** trained small-scale farmers (93% in the pigeon pea value chain & 7% in the baobab value chain), of which 66% were women and 49% young people. The overall **adoption rate** is 47%.



**474** trained people from 6 micro-, small- and medium-sized enterprises (MSME) (9% in the pigeon pea value chain & 91% in the baobab value chain), of which 72% were women and 51% young people. The overall **adoption rate** is 94%.



**Unmet Targets:** The overall productivity of pigeon peas in Mozambique **declined** throughout the project duration. This can, to some extent, be explained by external factors, e.g., extreme weather events like the cyclone Freddy in March 2023. In addition, farmers were often unable or unwilling to invest in productivity-enhancing inputs—such as fertilizers or mechanization—due to increased input prices resulting from the lingering effects of the COVID-19 pandemic and the Russian war against Ukraine..



**Successes:** Even though the overall productivity decreased, the analysis showed a **positive impact** of the project's interventions. At baseline, the average productivity of beneficiary farmers was significantly lower than that of the control group (193 kg vs. 256 kg). By the endline, however, this gap had nearly closed (210 kg vs. 217 kg). This shows that the beneficiary groups improved their productivity by 30% more than the untrained control farmers.

# IMPACT GREEN INNOVATION CENTRE MOZAMBIQUE

## Results for smallholder farmers

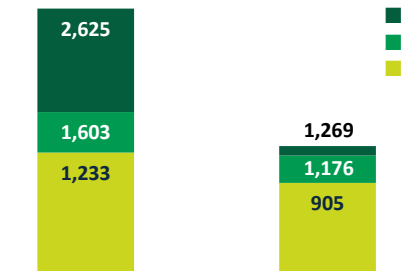


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### DEVELOPMENT OF INCOME

Gross margin in Metical per hectare 2017-2023



Pigeon pea Baobab



The targets for gross margin were **achieved for both value chains** and significantly exceeded in the case of pigeon pea farmers. Trained farmers reported **investing up to three times more** in fertilizers, certified seeds, and labour than non-trained farmers, and therefore faced considerably higher input costs. However, the study did not assess long-term benefits such as improvements in soil quality or increased climate resilience, which may result from the adopted practices.

The endline study shows that the **adoption rates** of Good Agricultural Practices (GAP), Farmer Business Schools (FBS), and other innovations provided by the project range between 50% and 100%. In contrast, only an average of 27% of non-trained farmers adopted these practices, underlining the effectiveness of the trainings. However, with a mean adoption rate of 73%, the project did not achieve its target. Key reasons include **financial restraints** of farmers, as well as limited exposure of new or late-phase farmers to the innovations. These groups would likely have benefited from more consistent follow-up training and support by the project.



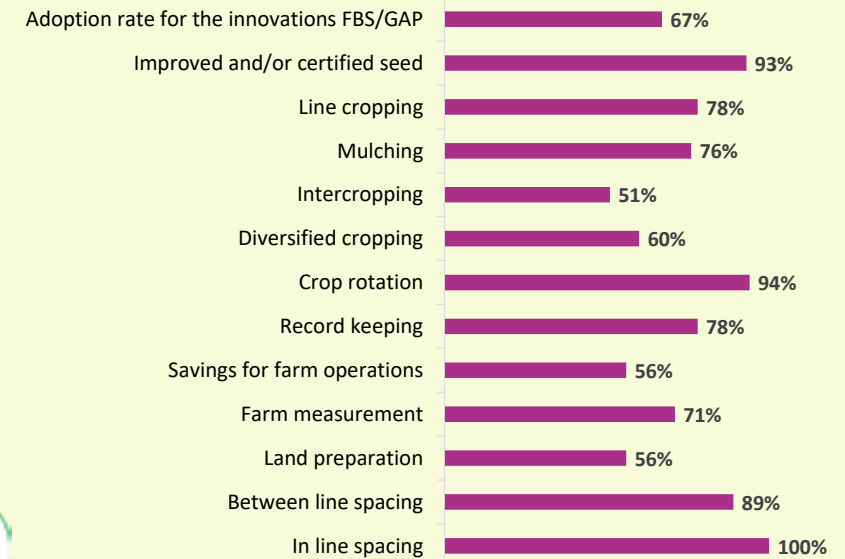
### ADOPTION OF CLIMATE SMART INNOVATIONS

Target: 30,000 farmers

Result: 23,324 farmers

### ADOPTION RATE

Adoption rate per innovation among the trained smallholder farmers



# IMPACT GREEN INNOVATION CENTRE MOZAMBIQUE

## Results for enterprises



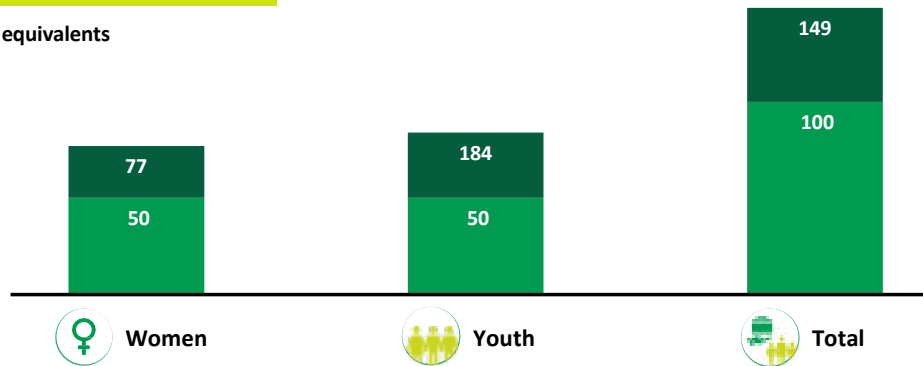
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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2018-2023

■ Result  
■ Goal



**Employment** in the pigeon pea value chain **increased** as companies expanded production and processing in response to higher demand. Enterprises that adopted efficient practices saw the greatest job growth, creating more employment in both farming and processing, and positively impacting the local economy.



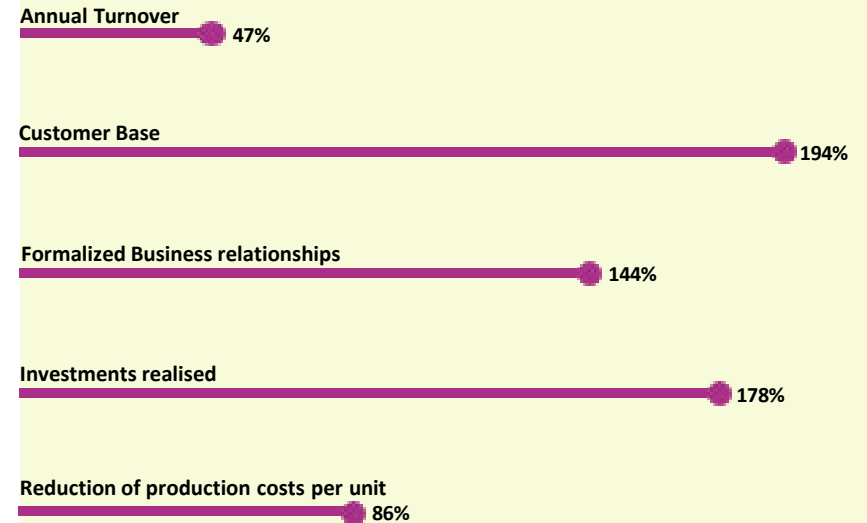
The **adoption** of improved agricultural and processing practices led to **increased product quality** in the pigeon pea value chain. Some companies diversified into other crops and products, expanded into export markets. These strategies helped meet rising demand, boost revenue, and enhance international visibility—particularly for pigeon pea and baobab products.



Enterprises face ongoing **challenges due to market price volatility** and limited access to high-quality inputs like certified seeds and fertilizers, which impacts their revenue and profit. Furthermore, pigeon pea production is vulnerable to shifts in seasonal export demand and changes in government regulations, like export licensing, which can disrupt business operations.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

MSME performance is measured by five key performance indicators. For each of those, the below diagram shows the increase over time of MSMEs that were able to improve them. Overall, the 3 supported enterprises could improve at least 3 out of the 5 key business figures.



## IMPACT GREEN INNOVATION CENTRE MOZAMBIQUE

### What do farmers and entrepreneurs say?



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#### WOMEN'S AND YOUNG PEOPLE'S PERSPECTIVES

Women and youth reported that participation in the project **improved their agricultural knowledge**, income opportunities, and self-confidence. Many emphasized the importance of training in both farming techniques and business skills, which allowed them to contribute more meaningfully to household income and decision-making.

*“For us here in our community, the training on farming as a business (FBS) in 2018 was a great benefit [...], because we are able to make savings that we haven't been able to make for a long time. And with these techniques that we learned [through GAP trainings], we are able to produce 15 to 20 bags of maize in one field; before we had 5 to 10 bags [...] on a very large farm.”*

Woman at Nharuchanga community, Nhamatanda

#### CLIMATE SMART FARMING

Participants highlighted the adoption of climate-smart practices such as intercropping pigeon pea with maize, mulching, and the use of drought-resistant seed varieties. These practices improved soil fertility, moisture retention, and resilience to irregular rainfall. Some farmers also noted **reduced erosion and better yields despite climate variability**. However, they stressed the need for greater access to inputs like high quality seeds to keep the good practices.

*“The intercropping practices are helping us cope with climate shocks, because in the farms where we plant maize together with pigeon pea, the pigeon pea leaves act as fertilizer, [...] and the crops are less attacked by plagues as the pests can infect certain crops but cannot survive on the other plants. [...] Thanks to the training, we women now have more time to do other things at home - we just need to spend a week sowing and the rest of the time we are just maintaining the fields”*

Young woman at Nharuchanga community, Nhamatanda

#### ADOPTION OF INNOVATIONS

Many farmers reported that innovations such as intercropping, improved seed varieties, Farmer Business School (FBS) methods, and post-harvest handling techniques had **clear benefits in productivity, income, and resilience**. Also, farmers noted that seeing neighbours succeed with innovations motivated them to try the same practices. The participants expressed that repeated exposure and practical demonstrations were crucial for full adoption. However, some farmers could only partially adopt the innovations or apply them to smaller plots as the availability of improved seeds, fertilizers, and other inputs was a major barrier for consistent adoption.

*“Now we can apply the techniques we learned from FBS and GAP. To be able to do these techniques well, we need improved seeds in the store close to us, so we don't need to spend money going to Nhamatanda to buy inputs.”*

Young woman at  
Nharuchanga community,  
Nhamatanda



# IMPACT GREEN INNOVATION CENTRE NIGERIA

Results for smallholder farmers

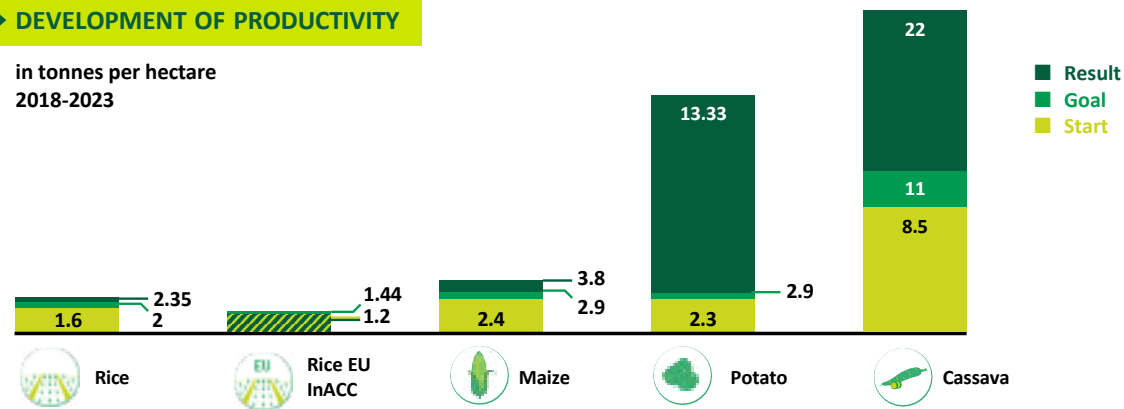


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## DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare  
2018-2023



### How do Farmers Business School trainings and Good Agricultural Practices impact the productivity of smallholder farmers in Nigeria?



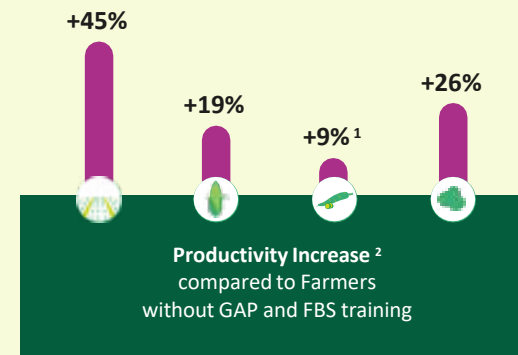
**Rice farmers** would have on average 1.5 tonnes per hectare less without having participated in the project's training activities on FBS and GAP.



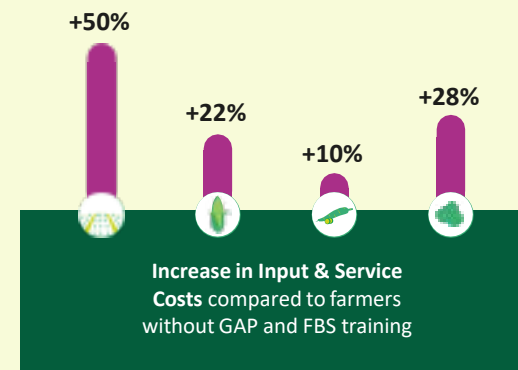
Farmers who are members of **Producer Organization** show a **significantly higher productivity on average** compared to Non-members.



Farmers who took part in FBS and GAP trainings **invested on average 10-50% more in inputs** such as **fertilizer, high-quality seeds and advisory service for their cultivation** than they would have done without the trainings, which in turn led to **productivity gains**.



<sup>1</sup>The result of the Difference-in-Difference analysis shows an increase in productivity of +9% for farmers producing cassava and who have participated in FBS and GAP training compared to farmers who have not participated in FBS and GAP training. However, the coefficient is not significant (p=0.190).



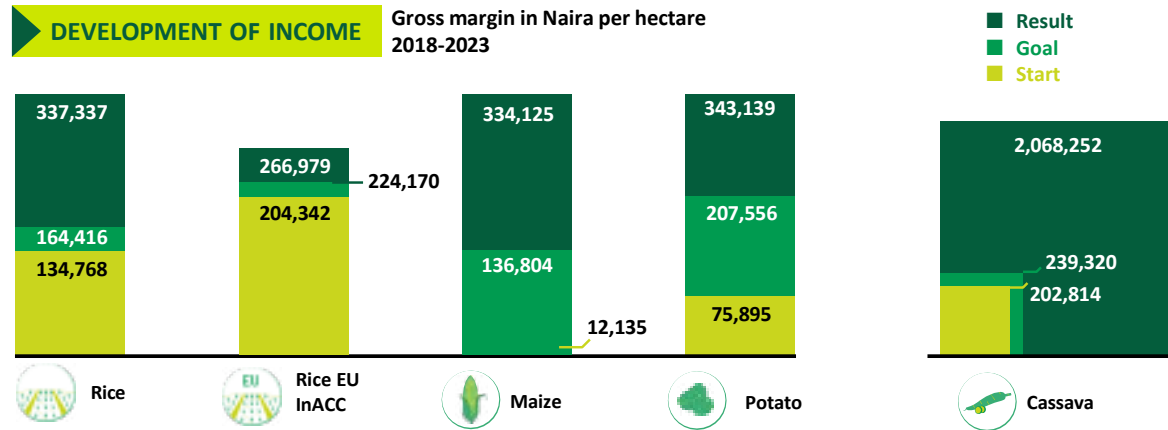
<sup>2</sup> Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional midterm (2018) and endline data (2023) for beneficiary and non-beneficiary households. A total number of 1,099 households interviewed (Endline Study Nigeria (2023), pp. 47-50).

# IMPACT GREEN INNOVATION CENTRE NIGERIA

## Results for smallholder farmers



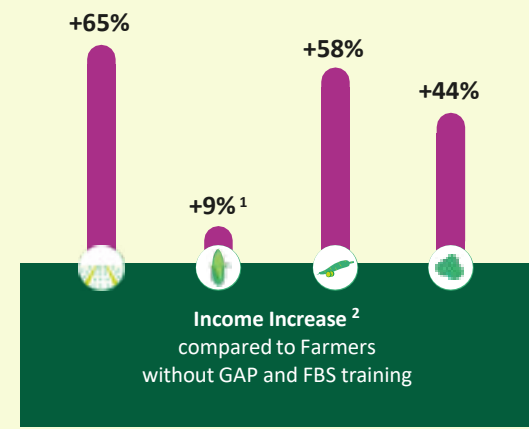
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Farmers who cultivate **cassava, rice and potato** and participated in **trainings on FBS and GAP** show **significant higher increase of their income (gross margin)** compared to farmers who were not enrolled in the project's training activities on FBS and GAP (control group).

Between 2018 and 2023, the overall food security of producers (target and control group) deteriorated in all value chains. The reasons for this include rampant **inflation** and **rising prices for food items and farm inputs**. **The volatile security situation** in some local government areas (LGA) (i.e. Kaduna, Plateau, Nasarawa) caused by **farmer-herder conflicts** as well as **armed conflicts** (i.e. Ogun, Oyo, Borno) and **extreme weather events** (e.g. flooding in rice-growing areas) are severely restricting the access to food and labour for the affected households. Still, the techniques promoted under the FBS and GAP show significant increases in productivity and higher and more diverse incomes, leading to **significantly improved food security among maize and rice producers** compared to the control group (improvement of 1.7 points on the Food Insecurity Experience Scale).

### ADOPTION OF CLIMATE SMART INNOVATIONS



<sup>1</sup> Results refer to regression outputs from a Difference-in-Difference analysis combined with propensity score matching comparing cross-sectional midterm (2018) and endline data (2023) for beneficiary and non-beneficiary households. A total number of 1,099 households interviewed (Endline Study Nigeria (2023), pp. 47-50).

<sup>2</sup> The result of the Difference-in-Difference analysis shows an increase in income of +9% for farmers producing maize and who have participated in FBS and GAP training compared to farmers who have not participated in FBS and GAP training. However, the coefficient is not significant (p=0.279).

# IMPACT GREEN INNOVATION CENTRE NIGERIA

## Results for enterprises

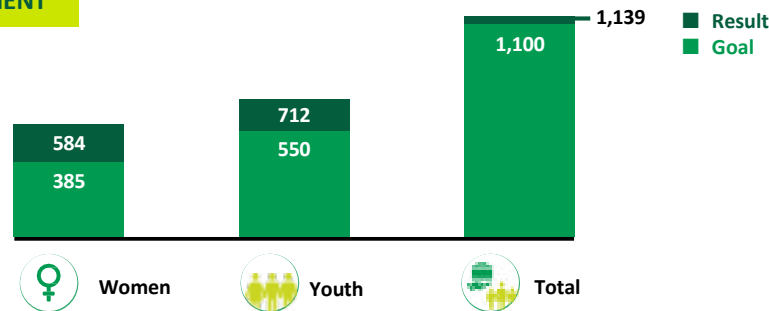


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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2018-2023<sup>1</sup>



The majority of entrepreneurs **adopted** the practices promoted by the project's innovations: **Cooperative Business School (CBS), SME Business Training and Coaching Loop (SME Loop) and Contract Farming.**

**95%** of the entrepreneurs adopted techniques promoted by **Cooperative Business School** trainings. Despite this, many entrepreneurs in the focus group discussions stated that there are still challenges due to a lack of accountability, a lack of resources and limited access to funding.

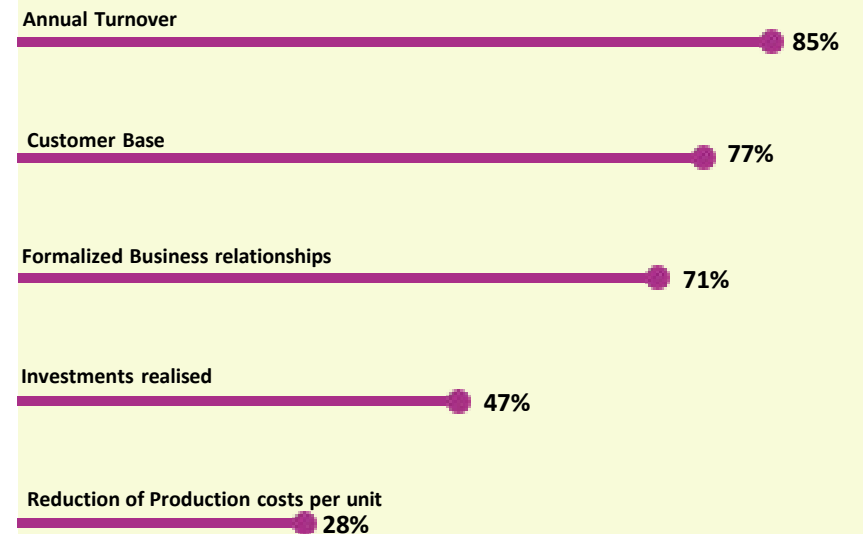
**87%** of the entrepreneurs adopted the techniques promoted by the **SME Loop**. However, the entrepreneurs mentioned that challenges remain such as the formalization and organizational development within the companies.

**100%** of the entrepreneurs adopted the techniques promoted by **Contract Farming trainings**. In the focus group discussions, the entrepreneurs stated that the agronomic changes caused by climate change are having a negative impact on agricultural cultivation and that this also has a direct influence on downstream business activities such as purchasing and processing in contract farming.

<sup>1</sup> One full-time equivalent corresponds to 225 days of work per year.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Enterprise performance is measured by **five key performance indicators**. For each of those, the below diagram shows which percentage of MSMEs was able to improve them. A total of 734 companies were able to improve in at least 3 out of 5 of the key performance indicators, including 47 companies that worked closely with the InACC project<sup>2</sup>.



<sup>2</sup> EU funded project. Integrated Approach to Climate Change in Rice Production System (InACC)

# IMPACT GREEN INNOVATION CENTRE NIGERIA

## What do farmers and entrepreneurs say?



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### WOMEN'S AND YOUNG PEOPLE'S PERSPECTIVES

- Both, young and female representatives in **focus group discussions** highlighted that the knowledge they received from **GAP and FBS trainings** has shown them the possibility of earning money from farming if they plan and budget properly and apply the recommended practices.
- **Women** in the interviewed groups emphasized that the projects interventions have strengthened their **financial independence**, giving them more decision-making power in the household. Female farmers also stated that they felt encouraged to actively participate in cooperatives and take on **leadership** roles.
- Still, the **Endline Study** made it as well clear that women and young people face considerable barriers due to **limited access to land and limited access to capital**.
- **Cassava farmers** claimed that the limited access to markets (i.e., due to security threats on the road) make it difficult to sell their products on markets and still limits their ability to generate income. Others mentioned that farmers felt discouraged to invest in their farms as they fear they might be forced to abandon their farms and loss their harvest.
- **In the maize and rice value chain**, farmers in affected communities stated they had to either temporary relocated or even migrate to more secure locations, leaving their farmland behind. All of this in addition leads to higher food prices, making it more challenging for smallholders to afford essential food items, therefore contributing to food insecurity.

### CLIMATE SMART FARMING

Farmers highlighted that the **use of improved varieties** as an innovation (e.g. drought-resistant, early maturing seeds) helped them to cope with long dry spells during the rainy season. They also pointed out that practices such as targeted site selection (i.e. designating plots with loamy soil) helped them cope with the effects of flooding, as their farms have a higher water storage capacity. Diversification of production was also mentioned as a way to help farmers cope with climate-related crop failures.

### ADOPTION OF INNOVATIONS

In the focus group discussion, farmers highlighted the benefits of working in producer organizations and networking activities promoted by the Green Innovation Centre:

- **Through producer organizations**, farmers have access to important services such as bulk purchasing of inputs and marketing of their produce through their producer organisations, which strengthens the collective bargaining power of smallholder farmers.
- Furthermore, farmers in the cassava, maize, potato and rice growing areas now have **access to additional services** such as seed multiplication, mechanisation (e.g. power tillers), spraying and processing (e.g. vegetable oil extraction, animal feed production).
- **Visits to demonstration plots and support from other farmers** are seen as supporting factors to adopt promoted innovations. Farmers confirmed that the opportunity to see the direct impact of **Good Agricultural Practices** encouraged them to implement it on their own farms.



© Christoph Mohr (2017)

# IMPACT GREEN INNOVATION CENTRE TOGO

Results for smallholder farmers

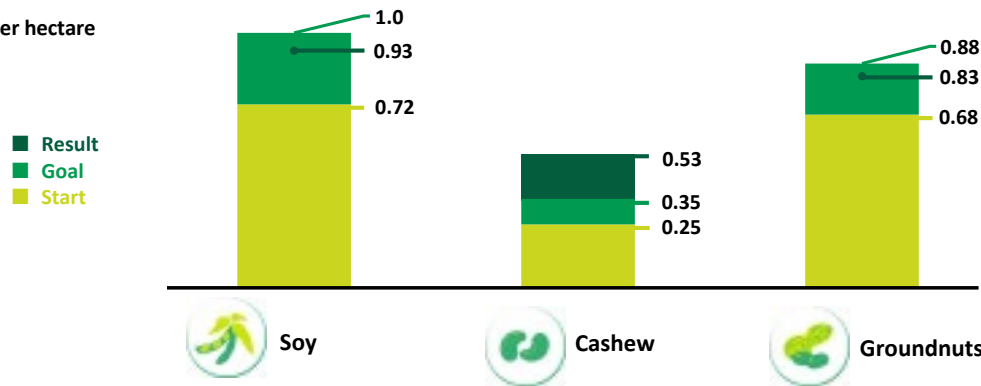


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## DEVELOPMENT OF PRODUCTIVITY

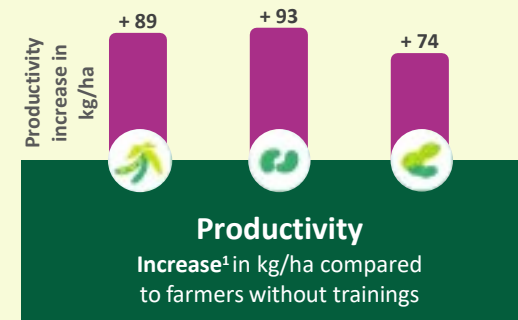
in tonnes per hectare  
2018-2023



The **positive contribution of the project's innovations** on productivity and income of smallholders could be confirmed (see diagrams on the right). While beneficiaries in value chains cashew and soyabean on average cultivate **smaller areas** than control group farmers, their average productivity per hectare is **higher**. The majority of beneficiaries have been trained in **Good Agricultural Practices**, with further trainings covering **business or technical aspects**.



Thanks to implementing apiculture on cashew fields, farmers can achieve **higher yields thanks to increased pollination** of cashew trees and consequently have higher incomes thanks to having **honey as secondary income source**. Analyses from the Endline study confirm these positive impacts: Cashew farmers applying apiculture have higher yields and earn a **gross margin lying 50% over the one from beneficiaries who did not apply the innovation**.



<sup>1</sup>The presented figures correspond to the average treatment effect on the treated (ATT), which indicates the additional outcome for the target group thanks to the intervention. It is calculated as the difference between the real outcome for the target group and the hypothetical outcome in the case they wouldn't have been treated. In this case, it can be interpreted as the productivity/income increase thanks to the GIC trainings compared to the scenario in which the target group wouldn't have received any trainings. Sample size: 976. Source: Endline study report Togo, tables 49 and 50.

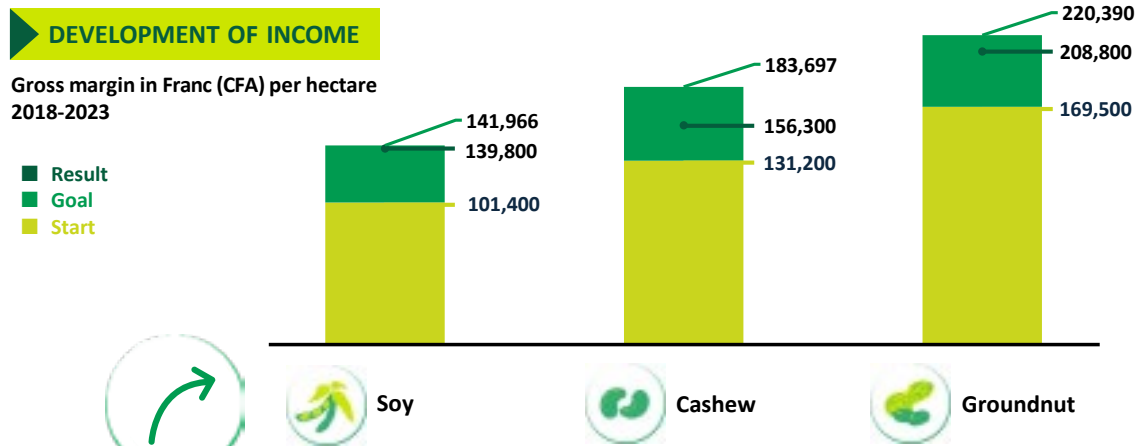
<sup>2</sup>All presented values are significant except for the income increase for groundnut.

# IMPACT GREEN INNOVATION CENTRE TOGO

## Results for smallholder farmers



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The improvement income in the soy value chain can be explained by the **boom in the soybean sector** in recent years with rising prices and good yields. Further, price increases of input costs such as fertilizers and pesticides have **not directly affected soy farming households**, due to the organic production of soy and the low use of imported synthetic inputs. However, the **income targets** in the cashew and groundnut value chains **could not be fully achieved**. Reasons for reduced profit margins vary from premature selling of the cashew harvest to high consumption of groundnuts in the own household.

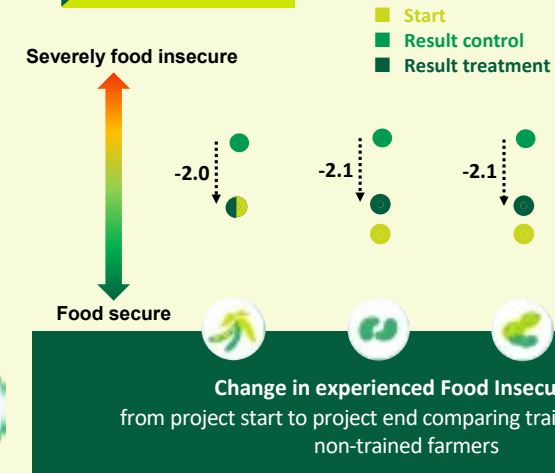
Generally, a **rise in food insecurity** was reported during the project's implementation period, caused by external shocks like the COVID19 Pandemic and the Ukraine crisis, which both **drove up food and input prices worldwide**. However, trained farmers from **all three value chains**: soy, cashew, and groundnut, experienced better food security than the non-trained farmers. These findings align with the **income increases** reported **among trained farmers** compared to non-beneficiaries, highlighting the link between income and food security.

### ADOPTION OF CLIMATE-SMART INNOVATIONS

Target: 48,000 farmers

Result: 64,858 farmers

### FOOD SECURITY



<sup>1</sup>Results refer to regression outputs from a Difference-in-Difference analysis (DiD) combined with propensity score matching, indicating by how many points the Food Insecurity Experience Score (FIES) has decreased for the target group compared to the non-trained farmers. A total number of 469 household were interviewed. The DiD for Soy is statistically significant at the 5% level.

# IMPACT GREEN INNOVATION CENTRE TOGO

## Results for enterprises

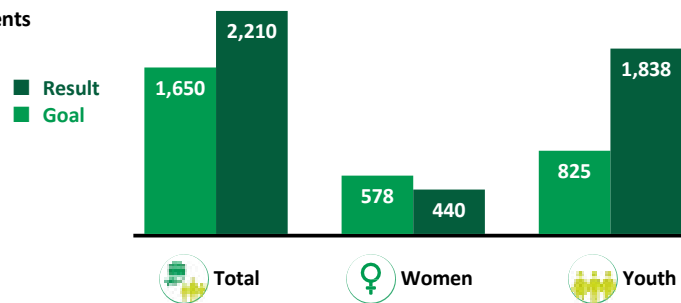


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### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2018-2023



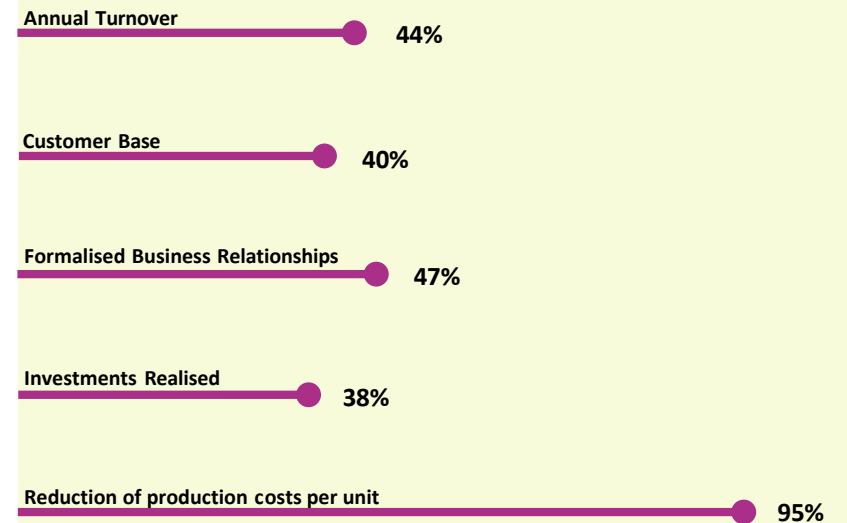
Generally, the offered innovations are widely accepted and applied by the target group. Overall, more than **4 out of 5 enterprises** have taken up the techniques conveyed during the trainings.

- 79%** of trained micro- small- and medium-sized enterprises (MSMEs) in VC **groundnut** apply innovations such as the production and marketing of improved seeds.
- 86%** of trained **soyabean** MSMEs adopted techniques such as the implementation of internal quality controls for biological soyabean.
- 86%** of supported MSMEs in VC **cashew** are making use of the trained innovations. Among other topics, those cover processing techniques – applying semi-artisanal methods to process raw fruits or producing juice from the cashew apple.

Further innovations, e.g. addressing quality and hygiene standards, or business trainings, are offered for MSMEs in all three value chains.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

MSME performance is measured by **five key performance indicators**. For each of those, the below diagram shows the share of MSMEs that were able to improve them. Overall, **57% of the 236 supported enterprises** could improve at least **3 out of the 5 key business figures**.



## IMPACT GREEN INNOVATION CENTRE TOGO

What do farmers and entrepreneurs say?



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### INSIGHTS FROM FOCUS GROUP DISCUSSIONS

- During focus group discussions, farmers confirmed that trainings have **changed their perception** of the work of a producers and allowed them to better **manage their agricultural seasons** by trying to predict their expenses and the activities to be carried out during the season.
- Further, they highlighted the benefit of **group sales and purchases**, allowing them to acquire their inputs cheaper, to save transport costs, and at the same time sale their harvest at **higher prices**. The organisation of selling groups has worked especially well in value chain soy.
- The training contents, especially on good agricultural practices, have not only benefitted the target group, but instead they have also been passed on to nearby non-beneficiary farmers in many cases, causing **spillover** effects. Further, farmers from the control group have also joined selling groups whose organisation had been promoted by the project, underlining the positive impact of the innovation on farmers' incomes.

### CLIMATE-SMART FARMING

Farmers interviewed in the endline study reported that they are **aware of the consequences of climate change** on their agricultural production. The most frequently mentioned factors affecting production are **intense heat, floods, and droughts**, which are also caused by deforestation. Producers often stated that their faith plays a key role in adapting to changing conditions.

Different innovations offered by the project, among them the usage of **improved plant material** (*matériel végétal amélioré*) for cashew farming or the use of **improved certified seeds** in value chains soyabean and groundnut, have helped farmers to increase their productivity and at the same time become **more resilient against climate change**.

### ADOPTION OF INNOVATIONS

During the focus group discussions, farmers highlighted the benefits of adopting the Good Agricultural Practices trained by the project. The participants observed **higher yields** and emphasized the **positive contribution of demonstration fields** which enable producers to learn and observe before applying the practices on their farms. Groundnut farmers and cooperatives confirmed the importance of using improved seeds:

*“Yields are better than with local seeds. Combined with GAP, the situation is even better. For instance, flat ploughing with a cropping pattern means you can have a large number of plants per square metre in the field, which in turn increases yields.”*

Respondent during a Focus Group Discussion in Togo

High cost of using certain innovations mentioned as **hindering factors** for adoption. This is the case e.g. for certified seeds at the individual level, or the lack of warehouses to store the harvest for groups sales at the cooperative level.

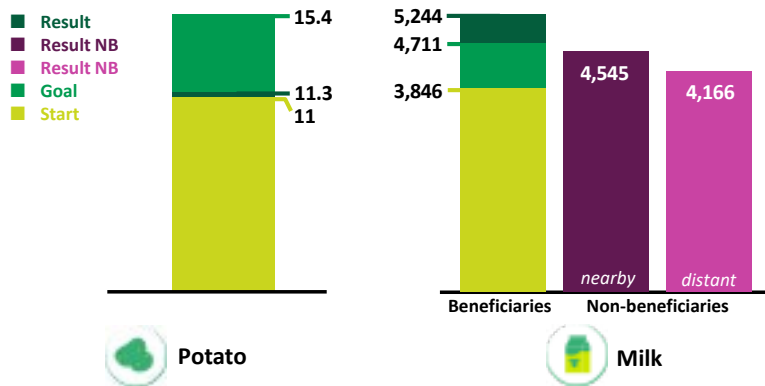


# IMPACT GREEN INNOVATION CENTRE TUNISIA

## Results for smallholder farmers

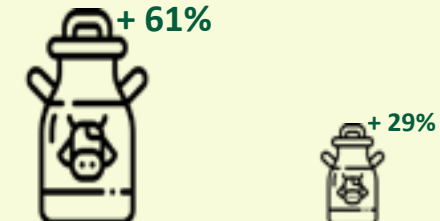


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### DEVELOPMENT OF PRODUCTIVITY

Productivity in tonnes per hectare for the potato value chain and in litres of milk per cow per year for the milk value chain (2016-2023)



**Increase in productivity<sup>2</sup> compared to milk producers without IMT training (non-beneficiaries)**

<sup>1</sup>Nearby non-beneficiaries are neighbours of the beneficiaries and members of their family or someone from their close circle (e.g., those they are in daily contact with). Producers from the same governorate but belonging to a more distant region are defined as distant non-beneficiaries.

<sup>2</sup>Regression results from a Difference-in-Difference analysis combined with propensity score matching comparing baseline data (2016), mid-term (2018), and end of the project (2024) for beneficiary and non-beneficiary producers. In total, 600 milk-producing households were surveyed (final study Tunisia, 2024).

### How do the combined approaches of the *Farmer Business School (FBS)* and the *Innovative Milk Training (IMT)* influence the performance of smallholder farmers in Tunisia?



The project **beneficiaries** show a **productivity of 5,244 litres per cow per year**, which is +699 L/VP/year, equivalent to **+15%** compared to **nearby non-beneficiaries**, and over 1,078 L/VP/year, equivalent to **+26%** compared to **distant non-beneficiaries**. This improvement is explained by the direct effects of the project and its diffuse impact on neighbouring unsupported farmers. The adoption rates of the promoted technical best practices are **83%** for the **IMT in the milk value chain** and **96%** for the **FBS training** among beneficiaries.



In 2023, the potato yield from the high plateaus reached 11.33 t/ha, slightly up from the reference year, but well below the average of the last eight years (**20.7 t/ha**), due to delayed planting and unfavourable weather conditions. The **Innovative Potato Training (IPT)** conducted within the potato value chain for both the main and off-season crops enabled beneficiaries to improve their productivity by **38% compared to non-beneficiaries**, thanks to the rigorous adoption of good agricultural practices. The adoption rate of Good Agricultural Practices for high plateau potatoes stands at **75%**, **87%** among IPT beneficiaries, and **60%** for those of the FBS.



- ❖ **The impact of IMT on productivity** was highest between the start of the project (2016) and the mid-term (2018). It decreased after the mid-term but remained generally positive.
- ❖ A higher **illiteracy** level is associated with a lower productivity of -11.5%.
- ❖ **Internet access** is associated with an increase in productivity of +12.6%.

# IMPACT GREEN INNOVATION CENTRE TUNISIA

## Results for smallholder farmers

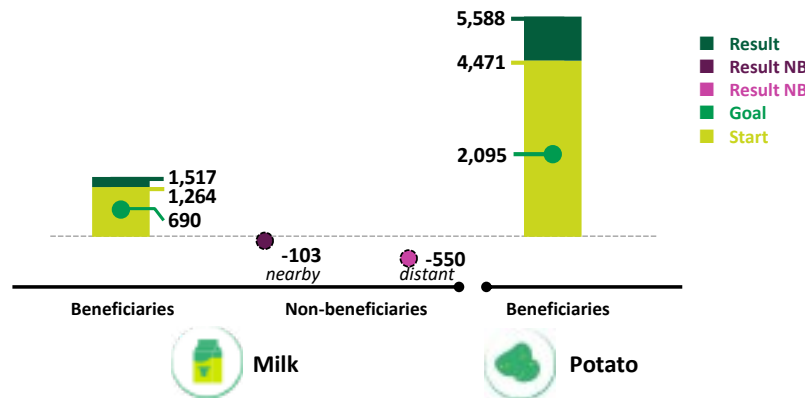


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### DEVELOPMENT OF INCOME

Gross margin in TND/ha for the potato value chain and in TND/l for the milk value chain (2016-2023)



#### The milk value chain: a marked decrease in gross margin but better resilience among beneficiaries

Between 2016 and 2024, the gross margin per cow decreased **due to the increase in production costs**, particularly those related to feed, while the state-set milk price remains insufficient to cover the expenses. Despite this unfavourable context, the farmers benefiting from the program stand out with a better ability to manage their costs, thus showing superior resilience compared to non-beneficiaries, with a gross margin that is significantly higher by **+1,463 TND**.

#### The potato value chain: General decline in margins, but significant improvement among trained producers

A decrease in gross margin was also observed among high plateau potato producers, affected by disruptions in distribution channels and the coincidence with the off-season harvest, causing a drop in prices. On the other hand, producers trained under the FIP program saw their margin increase by **more than 47%**. This progress reflects better cost management and effective adoption of good agricultural practices. Compared to non-beneficiaries of the project, beneficiaries recorded an increase of more than **6,000 TND/ha**.

### ADOPTION OF CLIMATE SMART INNOVATIONS



**Revenue<sup>1</sup>**  
Compared to producers without IMT and FBS training



**Cost of inputs<sup>1</sup>**  
Development from 2016 to 2024

<sup>1</sup>Regression results from a Difference-in-Difference analysis combined with propensity score matching comparing baseline data (2016), mid-term (2018), and end of the project (2024) for beneficiary and non-beneficiary producers. In total, 600 milk-producing households were surveyed (final study Tunisia, 2024).

# IMPACT GREEN INNOVATION CENTRE TUNISIA

## Results for enterprises

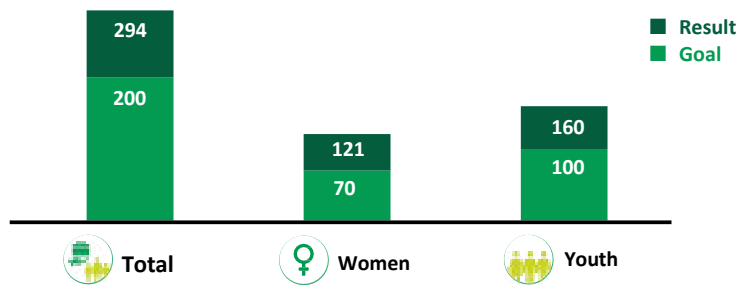


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### ADDITIONAL EMPLOYMENT

In full-time equivalents  
2018-2024



**62%** MSMEs improved 3 of their 5 key business figures

The training programs aimed at strengthening the technical skills of dairy producers had a significant, albeit indirect, impact on 13 SMEs in the milk value chain. The improvement in farming practices resulting from these trainings enabled these SMEs to achieve better quality and increased supply volume.

The results of the final survey revealed that these farmers adopted various good practices, such as contract farming, FIL, and FBS.

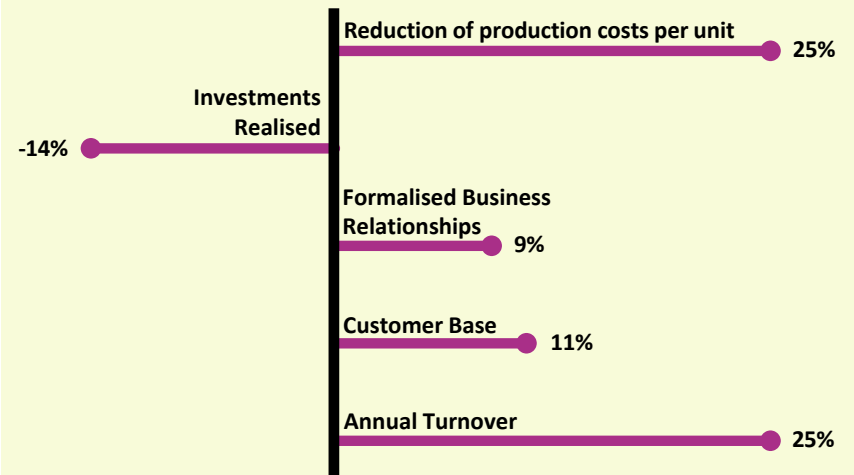
**77%** Beneficiaries who adopt contract farming

**72%** Beneficiaries who adopt FBS

**76%** Beneficiaries who adopt IMT

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

In general, the project supported a larger number of SMEs, but the results presented below specifically concern 13 SMEs in the milk value chain, which succeeded in improving 3 out of 5 key figures. The analysis of the key indicators of the companies shows that 76.9% of the surveyed companies improved three key indicators out of the five.



# IMPACT GREEN INNOVATION CENTRE TUNISIA

What do farmers and entrepreneurs say?



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## WOMEN AND YOUTH, DRIVERS OF CHANGE

The young people and women who participated in the group discussions highlighted that the innovative trainings (IMT, IPT) and FBS have enabled them to **improve their financial situation**. The adoption of the taught Good Agricultural Practices has notably allowed them to **reduce production costs, optimize the use of inputs, limit the use of chemical products, preserve natural resources, and increasingly rely on renewable energies**, thus reducing overall expenses.

The potato producers who benefited from the IMP trainings confirmed that they were able to adapt and increase their resilience to the effects of climate change, particularly to drought and the scarcity of rainfall, thanks to the additional skills acquired and the adoption of good environmental practices. The **use of quality seeds** was also cited as a key factor contributing to the improvement of productivity.

Finally, according to the discussions held during the focus groups, the dairy farmers benefiting from the project have adopted the **self-production of forage**, allowing them to meet their food needs without relying on market feeds and concentrates. This sustainable practice, encouraged through the FIL trainings, is recognized as an important lever to strengthen their autonomy and reduce their production costs for livestock feed.

## CLIMATE SMART AGRICULTURE

Farmers emphasised that using the **MABIA digital application** for water management had enabled them to optimize their irrigation practices, which is particularly valuable given the water shortages of recent years.

**The Good Agricultural Practices promoted** through the training sessions enabled them to manage natural resources more efficiently while contributing to environmental preservation. Additionally, the implementation of crop rotation not only favoured crop diversification but also contributed to improving soil fertility, which resulted in increased productivity.

## ADOPTION OF INNOVATIONS

In Tunisia, the project trained farmers to organize themselves in **cooperatives to better organize their business activities**. This form of cooperation provides them **more cost-effective and faster access to basic services** such as joint purchasing of operating resources and mechanization.

The quality of the training content promoted by the project, combined with interactive teaching methods and a strong practical component, greatly facilitated the adoption of good agricultural practices and the appropriation of innovations.

In this context, the Green Innovation Centre promoted the establishment of the **Centre of Competence for the Dairy Sector (CCFL) in Thibar**. The training centre has developed **nine training programmes** specifically tailored to professionals in the dairy value chain.

The MSMEs supported during the pilot phase were able to increase the quantity of their processed products, diversify their offerings, and improve the quality of their services, thereby contributing to the overall strengthening of the sector.

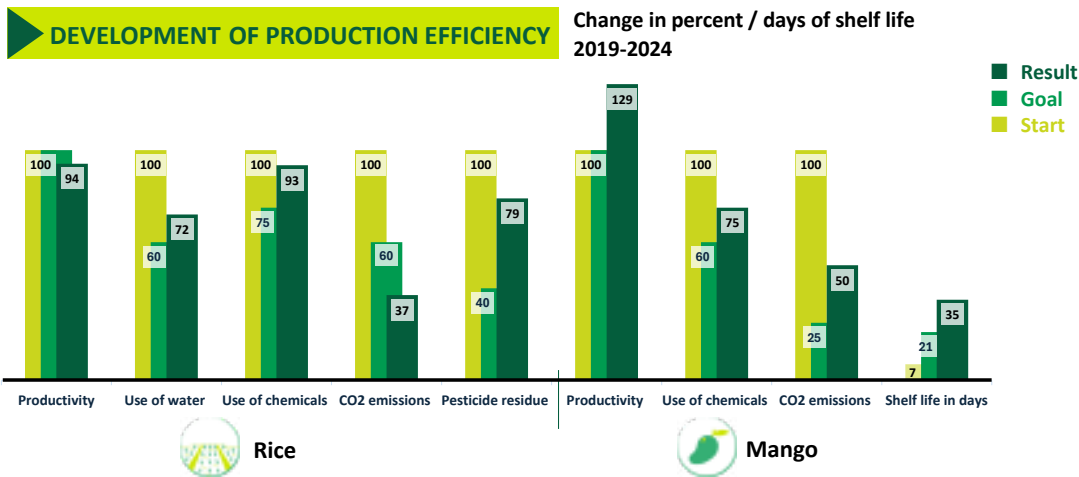


# IMPACT GREEN INNOVATION CENTRE VIETNAM

Results for smallholder farmers



Published by



## TRAINING AND ADOPTION OF FARMERS AND MSMEs



**24,062** trained small-scale farmers (96% in the rice value chain & 4% in the mango value chain), of which 27% were women and 10% young people. The overall **adoption rate** is 70%.



**3,128** trained people from 130 micro-small- and medium-sized enterprises (87% in the rice value chain & 13% in the mango value chain), of which 16% were women and 14% young people. The overall **adoption rate** is 50%.



**Project distinction:** Unlike many GIC country packages that emphasize productivity gains, the Vietnam project stands out for its focus on improving the quality and sustainability of agricultural production specifically by reducing harmful inputs and CO<sub>2</sub> emissions.



**Successes:** Almost all indicators were improved during the project duration, especially the reduction of CO<sub>2</sub> emissions in both the rice and the mango values chain (VC), as well as an increase in productivity and shelf life in the mango VC.



**Unmet targets:** Even though the indicators show significant success, some of the targets could not be reached, like the ambitious reduction of chemical fertilizer and pesticides in the rice VC. Reasons include the relatively short duration time of the project of only 5 years, whereas transitioning to climate-smart practices needs time for the farmers to adjust.

# IMPACT GREEN INNOVATION CENTRE VIETNAM

## Results for smallholder farmers

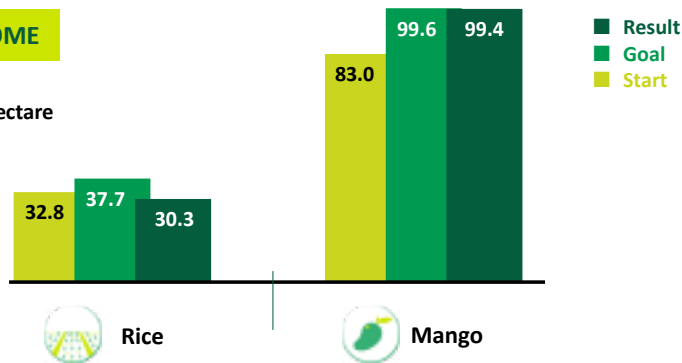


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### DEVELOPMENT OF INCOME

Gross margin in Million Vietnamese Dong per hectare 2019-2024



Although the gross margin of mango farmers has increased by almost 20%, rice farmers' **income decreased slightly** compared to the baseline. A **sharp increase in prices of production inputs** such as fertilizers is stated as a major factor. However, the gross margin of rice-shrimp households has **increased slightly**, showing the economic potential of this organic farming model. Generally, farmers who adopted the GIC trainings have a higher mean gross margin than their non-adopting colleagues (+10% in rice VC and +8% in mango VC compared to non-adopters).

**Adoption of innovations is generally high** in both the rice and mango value chains. Farmers reported improved product quality, higher selling prices, and a healthier living environment due to reduced use of fertilizers and chemicals. However, adoption remains low for two specific innovations:

- Organic-oriented rice cultivation (9% adoption) is hindered by the high complexity and strict compliance requirements, which are not compensated by sufficiently higher farm-gate prices.
- Irrigation innovations in mango farming were not adopted at all, mainly due to the high upfront investment needed for technologies such as drip or sprinkler systems.

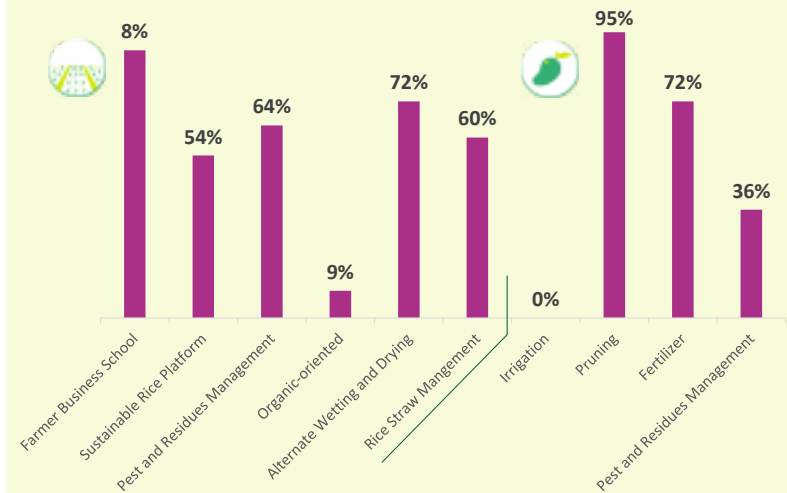


### ADOPTION OF CLIMATE SMART INNOVATIONS

Target: 12,000 farmers

Result: 14,257 farmers

Adoption rate per innovation amongst the target group

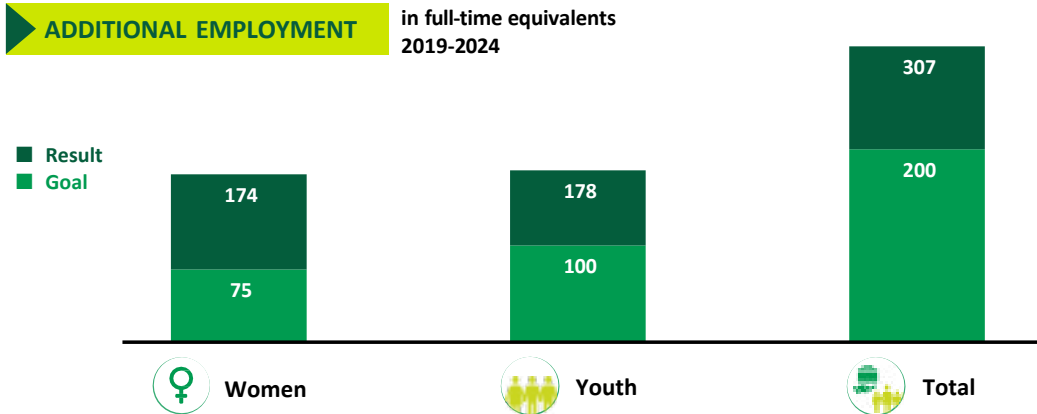


# IMPACT GREEN INNOVATION CENTRE VIETNAM

## Results for enterprises



Published by



In Vietnam, **micro- small- and medium-sized enterprises (MSMEs)** described notable improvements in their **business operations** following project support. Many reported stronger customer relationships, clearer business planning, and better understanding of cost structures.

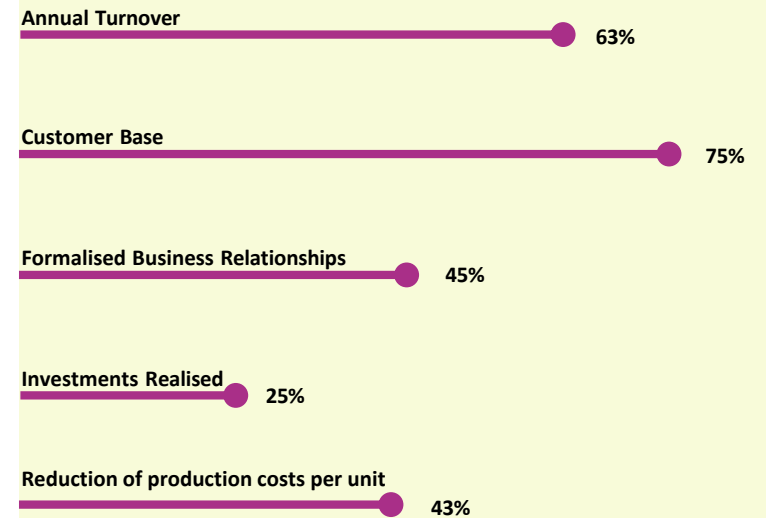
Training through the project helped MSMEs adopt **innovations that enhanced product quality and service offerings**, particularly in post-harvest handling. Entrepreneurs emphasized increased confidence in managing their enterprises and felt more equipped to respond to market demands.

**Youth and women** reported feeling more **empowered to participate in business activities**, with several MSMEs intentionally creating roles to support inclusive employment.

Despite these gains, many MSMEs continued to face challenges such as **limited access to finance, unstable market prices, and weak linkages with producers**. These constraints often hindered growth, but MSMEs viewed the project's capacity-building efforts as a foundation for future development.

### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

MSME performance is measured using **five key performance indicators**. For each of those, the below diagram shows the share of MSMEs that were able to improve them. A total of **85%** (34 companies) were able to improve at least **3 out of 5 key business figures**.



## IMPACT GREEN INNOVATION CENTRE VIETNAM

What do farmers and entrepreneurs say?



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### WOMEN'S AND YOUNG PEOPLE'S PERSPECTIVES

The GIC Vietnam project contributed significantly to **empowering women and youth** within the agricultural sector. Trainings such as **Farmer Business School (FBS)** and **Good Agricultural Practices (GAP)** offered practical, hands-on knowledge that allowed these groups to see farming not just as labour, but as a business with real income potential. Many women shared that the financial literacy and cost-management tools gained through FBS enhanced their **ability to make household financial decisions and participate more actively in cooperative activities**. Similarly, young participants noted that the trainings gave them purpose and motivation, shifting their perception of agriculture from a low-status job to an opportunity for independence and innovation. Despite these advances, structural barriers remain. Women and youth still face limitations in accessing productive resources such as land and capital. Nevertheless, many participants highlighted a strong sense of progress and expressed a desire to continue applying and sharing what they had learned.

*“Production planning, recording farming costs, and calculating farmer profits can be applied in practice. From there, it helps to effectively manage the money saved to invest in production tools or purchase family assets, and for children to study”*

Respondent during a focus group discussion on FBS

### CLIMATE SMART FARMING

The adoption of **climate smart innovations** such as alternate wetting and drying, integrated pest management, organic fertilization, and sustainable rice platform standards helped **reduce water use, emissions, and pesticide residues**. Farmers reported that these techniques not only lessened their environmental impact but also improved soil health and made their crops **more resilient to increasingly unreliable weather conditions**. In rice farming, farmers saw fewer pest outbreaks, stronger crops that withstood storms better, and significantly lower input costs. In the mango value chain, better soil analysis and tailored fertilization improved fruit quality and increased the share of high-grade produce.

### ADOPTION OF INNOVATIONS

The GIC Vietnam project achieved **strong rates of innovation adoption**, particularly for FBS, which reached 89% adoption among beneficiaries. Farmers repeatedly mentioned how the FBS training improved their ability to **manage costs and plan production**, while GAP helped them **enhance product quality and reduce inputs**. Beyond individual benefits, the innovations spread organically across communities. Farmers trained under the project often took the initiative to **share their new knowledge with neighbours and family members**, leading to wider replication even outside formal training sessions. This peer-to-peer spread reinforced the project's sustainability and contributed to broader behavioural change at the cooperative level.

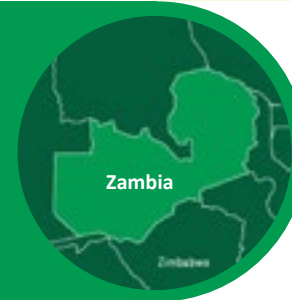
*“If our house applied the method effectively, then I show it off to other farmers [...]. Always share when having any good experiences so that other people can apply too”*

Respondent during a focus group discussion on GAP



# IMPACT GREEN INNOVATION CENTRE ZAMBIA

Results for smallholder farmers



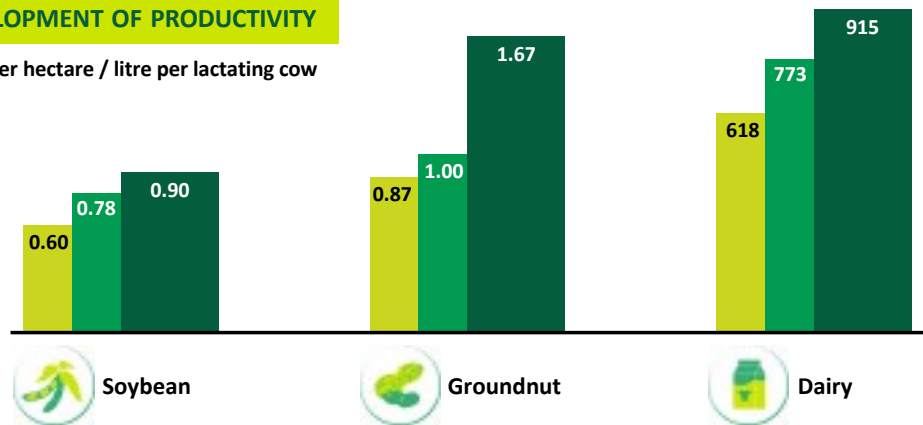
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## DEVELOPMENT OF PRODUCTIVITY

in tonnes per hectare / litre per lactating cow  
2018-2023

■ Result  
■ Goal  
■ Start



## TRAINING AND ADOPTION OF FARMERS AND MSMEs



**148,559** trained small-scale farmers (45% in the groundnut value chain, 45% in the Soybean value chain & 10% in the dairy value chain), of which 50% were women and 53% young people. The overall **adoption rate** is 58%.



**972** trained people from 82 micro-small- and medium-sized enterprises (22% in the groundnut value chain, 22% in the Soybean value chain & 56% in the milk value chain), of which 28% were women and 26% young people. The overall **adoption rate** is 72%.



The **high adoption rates** of farmer business schools, conservational agricultural practices and agroforestry, as well as climate-smart feeding have significantly **increased the productivity** in all three value chains.



**Soil fertility is improved** by rotating crops with legumes and using alley cropping with the leguminous tree species *Gliricidia Sepium*. Also, farmers experience less soil erosion through mulching and wind blocking trees. **Nutrients and water** from deeper soil layers are **brought closer to the surface** through the trees' root system.



**Furthermore, tree cuttings** can be used as **light construction material and firewood**, reducing the pressure on indigenous forests.

# IMPACT GREEN INNOVATION CENTRE ZAMBIA

## Results for smallholder farmers

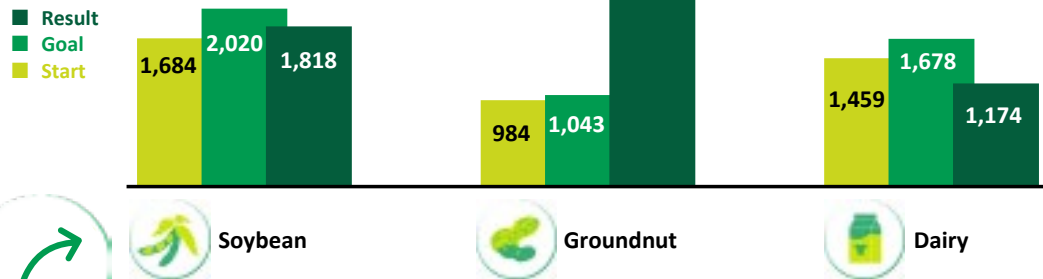


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### DEVELOPMENT OF INCOME

Gross margin in Zambian Kwacha per hectare / per lactating cow 2018-2023



While the total **milk sales increased significantly**, especially through the high adoption of climate-smart feeding techniques and business management, income gains were undermined by **rising input and operational costs**, which offset the benefits of increased milk yield. Farmers producing groundnuts could significantly exceed the income target due to premium prices paid for certified organic nuts. However, not all farmers engaged in certification.

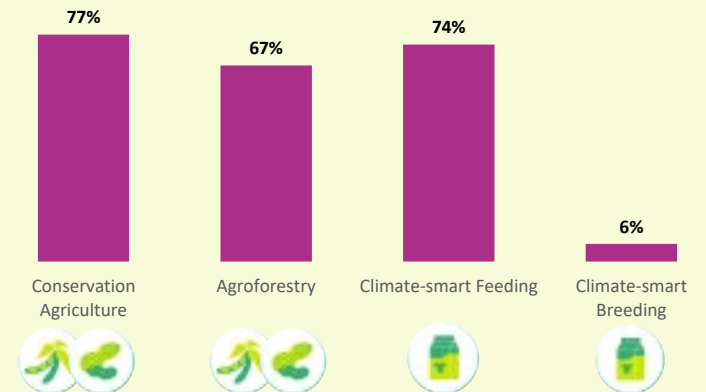
The **adoption** of the majority of innovations like conservation agriculture, agroforestry, and climate-smart feeding saw broad uptake and **delivered measurable benefits**, like improved productivity, resilience of farmers, and soil fertility. Yet, the adoption of climate-smart breeding remained low due to financial and operational constraints.

### ADOPTION OF CLIMATE SMART INNOVATIONS

Target: 96,000 farmers

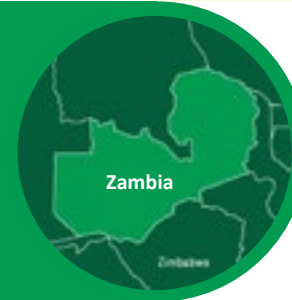
Result: 94,015 farmers

Adoption rate per innovation amongst the target group



# IMPACT GREEN INNOVATION CENTRE ZAMBIA

## Results for enterprises



Published by



### ADDITIONAL EMPLOYMENT

in full-time equivalents  
2014-2023

■ Result  
■ Goal



Almost all supported cooperatives adopted the innovation **Cooperative Service Development and Business Management**. The trainings on topics such as cooperative governance carry fruits: activities became more transparent, the participation of cooperative members increased and investments into new buildings, technology or to offer new services, such as opening agrovet shops or poultry rearing, were made.

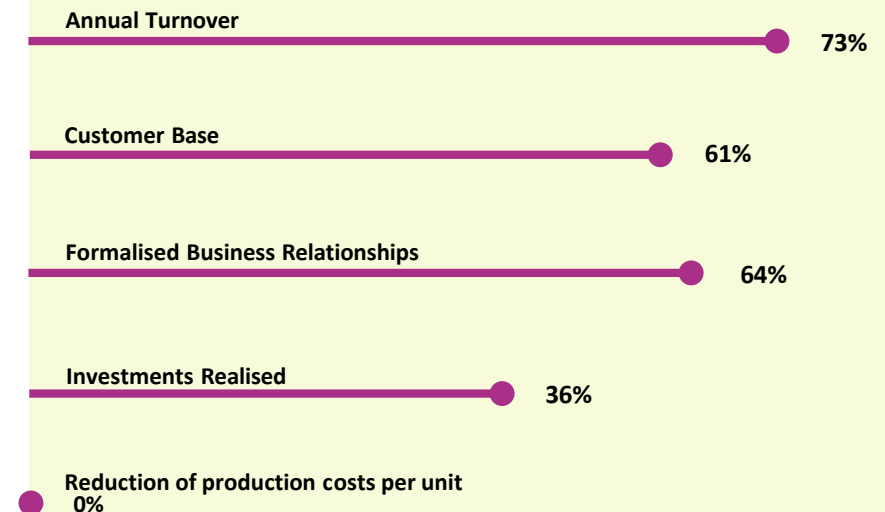
Improved capacity in running a viable business strengthened the position of the cooperatives against their off-takers, resulting in better prices for their members.

Through **Local Processing** raw milk can be processed into yoghurt or pasteurised milk on-site, ensuring that value addition stays in the region while keeping consumer prices low.

**Seed Multiplication and Community Seed banks** makes sure that the members of the cooperatives have improved access to high quality seeds, which is otherwise often a challenge in remote rural areas in Zambia.

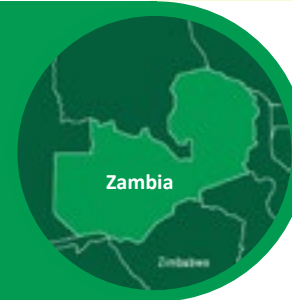
### ENTERPRISES WITH IMPROVED KEY BUSINESS FIGURES

Performance of micro- small- and medium-sized enterprises (MSMEs) is measured using **five key performance indicators**. For each of those, the below diagram shows the share of MSMEs that were able to improve them. A total of **51 companies** were able to improve in at least **3 out of 5 key performance indicators**.



## IMPACT GREEN INNOVATION CENTRE ZAMBIA

What do farmers and entrepreneurs say?



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### ▶ WOMEN'S AND YOUNG PEOPLE'S PERSPECTIVES

*You won't believe it; from our two acres portion of land, we managed to harvest 74 by 50 kg bags of maize without any expense on chemical fertilizer a sign that we are not turning back on our agroforestry farming journey using Gliricidia Sepium.*

Elizabeth and Elinat Daka, farmers, Eastern Province

*I was brought to Monze Dairy Cooperative Society by the Green Innovation Centres. My main role was to ensure that, as a graduate from Cooperative College, I helped the cooperative identify business opportunities beyond just dealing with milk. I also provided the necessary advisory services to ensure that Monze Dairy, at the end of the day, operates as a viable and sustainable business. During the internship, I worked with a consultant who was hired by GIZ to ensure that, before Monze Dairy started processing, we had a marketing plan and a distribution plan for the dairy products. We worked together, and we made it a success.*

Gift Kamwanga, participant of the student placement programme, Southern Province

### ▶ RADIO SHOWS

*I have been listening to the radio show for 3 years now. I did ripping in my garden and have seen the difference even with the drought that everyone is complaining about for me it's a thing of the past my crops did very well because I applied all the techniques of conservation farming, and I can't blame God for the drought this season.*

Respondent during a focus group discussion in Mambwe District, Eastern Province

### ▶ ADOPTION OF INNOVATIONS

*We will continue practising conservation farming because we have seen the benefits.*

*Before I joined COMACO I used to do conventional farming and I would get surprised that in October my crops would dry up now after learning and practising the COMACO lessons things have changed and I can even take 3days off without watering my garden and the crops will still be okay.*

*Long ago we used to have big farms but very small yields but now I can plant an acre of land and be able to harvest a lot even when the rains are not enough, we can get something because of applying the techniques of conservation farming.*

Respondent during a Focus Group Discussion in Katete and Mambwe District, Eastern Province







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