



Food and Agriculture  
Organization of the  
United Nations



**Building Competence and Confidence  
in Agricultural Innovation**

# STORIES OF CHANGE



## DISCLAIMER

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the authors and do not necessarily reflect the views of the European Union.

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of Agrinatura or the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by Agrinatura or FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of Agrinatura or FAO.



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO)

[www.creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode](http://www.creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that AGRINATURA or FAO endorses any specific organization, products or services. The use of Agrinatura and FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons license. If a translation of this work is created, it must include the following disclaimer along with the required citation: This translation was not created by Agrinatura and the Food and Agriculture Organization of the United Nations (FAO). Agrinatura and FAO is not responsible for the content or accuracy of this translation. The original language edition shall be authoritative edition.

Any mediation relating to disputes arising under the license shall be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL) as at present in force.

This publication may be freely quoted and reproduced provided the source is acknowledged. No use of this publication may be made for resale or other commercial purposes. All photographs are CDAIS unless credited otherwise.

## Citation

Pasiecznik, N., ed. 2018. *Building Competence and Confidence in Agricultural Innovation Systems. Stories of Change*. Agrinatura, Paris, France, and FAO, Rome, Italy. 196 pp.

ISBN: 978-2-35709-000-2

© Agrinatura and FAO, 2018

For further information, please contact:

## Agrinatura

The European Alliance on Agricultural Knowledge for Development  
European Economic Interest Grouping  
42 rue Scheffer, 75116 Paris, France  
secretariat@agrinatura-eu.eu  
[www.agrinatura-eu.eu](http://www.agrinatura-eu.eu)

**Building Competence and Confidence  
in Agricultural Innovation**

# **STORIES OF CHANGE**



# CONTENTS

**BURKINA FASO**  
PP 58

**GUATEMALA**  
PP 102

**HONDURAS**  
PP 122

**ANGOLA**  
PP 10

Preface	5
Foreword	7
Introduction	8
Stories of change	10
List of contributors	196
Acknowledgements	198

## **ANGOLA** 10

<b>01 From farm to agri-business</b>	12
do Nascimento M de F, Paulo O (Feb 2018)	
<b>02 From knowing needs to sowing seeds</b>	20
Konda Z, Paulo O (Mar 2018)	
<b>03 Growing hope from a new crop</b>	28
Sacamia J, Cabeto R, Konda Z (Apr 2018)	

## **BANGLADESH** 36

<b>04 From green to silver</b>	38
Wadud SF, Rahman MM (Dec 2017)	
<b>05 New markets for mangos</b>	46
Wahab R, Uddin MS (Nov 2017)	
<b>06 Pineapples – putting plans into action</b>	52
Wahab R, Uddin MJ (Sep 2018)	

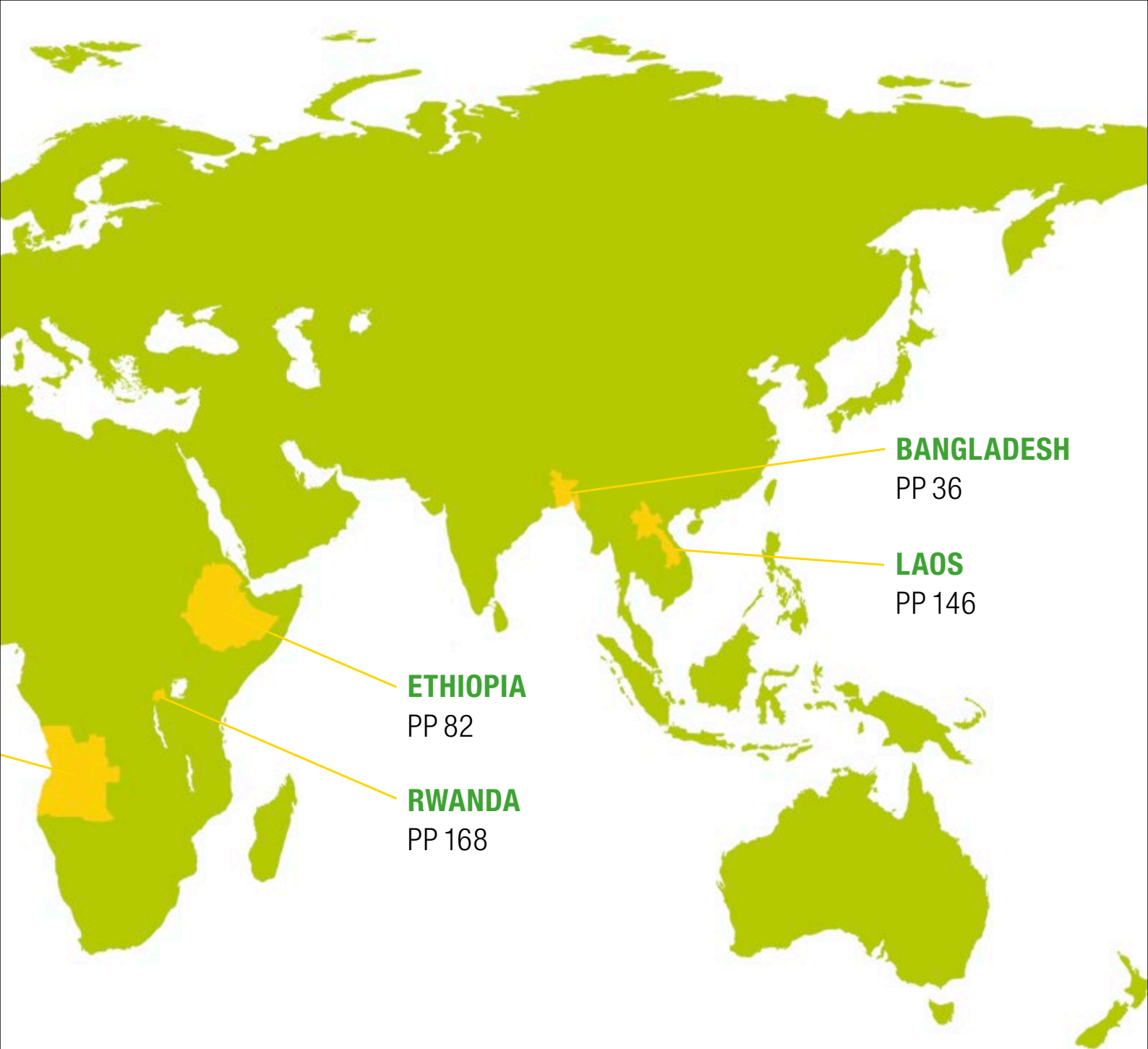
## **BURKINA FASO** 58

<b>07 A marketplace of innovative ideas</b>	60
Kola NP, Gnoumou M (Sep 2018)	
<b>08 Organic certification takes root</b>	66
Kola NP, Nikiema L (Jan 2018)	
<b>09 Women lead the way in rural enterprises</b>	74
Hien A, Kiogo R (Jun 2018)	

## **ETHIOPIA** 82

<b>10 Feed Safety – change through learning</b>	84
Asmare G (Sep 2017)	
<b>11 The need for seed – subtle changes</b>	90
Wakoya T, Ergano K (Dec 2017)	
<b>12 Innovating with chickpea cluster farming</b>	96
Warkineh T, Abie E, Yasabu S (Sep 2018)	





## BANGLADESH

PP 36

## LAOS

PP 146

## ETHIOPIA

PP 82

## RWANDA

PP 168

## GUATEMALA

102

- 13 Better beans mean better nutrition** 104  
Escobar J, Palma F (Apr 2018)
- 14 Avocados – from annual to tree crops** 110  
Escobar J, Coroxón S, López Y (Jun 2018)
- 15 Moving to modern beekeeping** 116  
Escobar J, Miranda C (Aug 2018)

## HONDURAS

122

- 16 From potato pests to policy processes** 124  
Villeda M, García H (Apr 2018)
- 17 Improving coffee by collaboration** 132  
Villeda M, Mejía R (Jun 2018)
- 18 New markets for cacao producers** 138  
Villeda M, Ordoñez E (Jun 2018)

## LAOS

146

- 19 Seeds of an organic future** 148  
Sihanath D, Phommalin K, Lorsavanh K  
(Dec 2017)
- 20 Pig farmers building bridges to success** 156  
Sengphaxaiyalath K, Kaensombath L (Jun 2018)
- 21 Cattle producers blazing new trails** 162  
Thammachak K, Kaensombath L (Jun 2018)

## RWANDA

168

- 22 Cooperation in cassava production** 170  
Ntakirutimana G, Bizimana JP (Sep 2018)
- 23 Challenges in the milk chain** 178  
Mutesi A, Kayitare G (Sep 2018)
- 24 Resolving conflicts in water use** 186  
Habumugisha S, Mushumba D (Sep 2018)







# PREFACE

This book tells stories. Stories from very many people. Stories of change – triggered by this complex project, Capacity Development for Agricultural Innovation Systems (CDAIS). The stories relate to changes. Personal change. Organizational change. Changes in attitudes. Changes in practice. They tell of improvements in livelihoods. But more importantly, they tell of positive and appreciated changes in individual and organizational approaches – in how people see things and do things. They give some examples of the rich learning experiences stimulated by the CDAIS project, but of course don't show them all. Also, each is only a 'snapshot' – having been written and published on [www.cdais.net](http://www.cdais.net) at different times over the past 12 months, though some have been updated, others show where people were at that point in time.

But they all show how competence – but perhaps more importantly – confidence – amongst those involved has changed. Though the main aim of the CDAIS project was to test how and in what ways the approach used worked (or didn't work), how it could be improved, and in what ways the results could help donors when deciding on the design of future projects. But this is not the purpose of this book. Other publications will explain that in detail. This book just tells stories, with images and testimonies from the field. The 'end users', 'beneficiaries' or whatever other impersonal terms some in 'development' want to call them – the people – here, they air their views. In context. Honestly. Frankly. And, as it seems, positively.

But this would not have been possible without the great efforts of very many people. First and foremost are the 40 contributors we have supported – almost all 'national innovation facilitators' trained by CDAIS to implement innovation in agricultural systems, to collect these stories. And we are so very proud of their achievements, and the help provided by many others within Agrinatura, national partner organisations, and others in the partnerships concerned. And even after working in rural development for 30 years, some of these experiences have moved us deeply. We are seeing real change. Of that there is no doubt.

"Other projects bring us machines, but CDAIS brings us knowledge and a new way of working together" was a common thread to many of the conversations. "And thanks to that it has helped us so much. Thank you." I visited six of the eight pilot countries during the preparation of this work, so can vouch personally, for many of the testimonies. And as for seeing the faces of those as they spoke the words that are included in the book, the photographs can't do them justice. I saw the impacts. And now you can see them too. Enjoy!

Nick Pasiecznik, *editor*

“This is only a pilot project, but I see the momentum that has already been created, and that the process is being handled with reflection. You can only grasp so much from reports, whereas we now hear directly about the cross-cutting experiences between the different countries.”

**Pierre Fabre** European Commission/DG DEVCO, during the 3rd CDAIS Global Consultation held at the National Agricultural and Forestry Research Institute (NAFRI), Lao PDR, 18-19 September 2017









# FOREWORD

Improving rural livelihoods through agricultural innovation has made recent advances, for example through the introduction of new technologies, the development of novel seed varieties, and through a broader availability of micro-financing. Yet progress is still limited. It seems that irrespective of which new technologies are made available, farmers do not always adopt them. Why? One hypothesis is that 'soft skills', those that are necessary for the process of change, could be improved. Such skills include the capacity for collaboration with others, negotiation expertise, and the capacity for influential engagement in political processes.

A turning point on international commitment to strengthen rural livelihoods occurred at the 2011 meeting of Ministers of Agriculture from the G20 countries. The Tropical Agriculture Platform (TAP) was then established to address these and other issues. In 2015, the Capacity Development for Agricultural Innovations Systems (CDAIS) was founded and participants from eight countries in Africa, Asia and Central America, along with their global partners, took on the challenging task of putting a new approach into practice. Towards this end, CDAIS supported a global consultation through the TAP Global Taskforce. The Taskforce developed a common methodology called 'the framework on capacity development for agricultural innovation systems'. The eight CDAIS pilot countries, in turn, use this conceptual framework to guide their activities.

Three years later, we are at the end of this first section of the road. Farmers and many others involved in the 32 innovation partnerships across the eight countries have shared their views with us. We here share a selection of them with you. They 'speak' about the changes, but also of the challenges, and as such, they offer us signals, road signs, and indications of which are the best directions to take from here. These we also share with you. The road never ends, and there are always crossroads. However, from where we stand, it seems that certain choices are clear. So onward we go, but never forgetting where we have come from...

Carolyn Glynn

A handwritten signature in white ink that reads "Carolyn Glynn". The signature is fluid and cursive, matching the printed name above it.

# INTRODUCTION

In 2015, participants from eight countries in Africa, Asia and Central America, along with many global partners, were given the challenging task of putting into practice a new concept. Improving rural livelihoods through agricultural innovation had seemed easy. Technologies have been introduced, new seed varieties, micro-finance, and much more. But progress is still limited. Why? Farmers and those who work with them still lack the 'functional capacities', or what some call 'soft skills'. These are needed for change to happen, like the ability to link with others, negotiate, and engage in political processes.

In response to this capacity gap, the G20 Agriculture Ministers in their meeting in June 2011, had requested the Food and Agriculture Organization of the United Nations (FAO) to take the lead in developing the Tropical Agriculture Platform (TAP), along with the G20 countries and institutional partners. TAP partners in 2015 developed a methodology called 'The Common Framework on Capacity Development for Agricultural Innovation Systems'.

Concepts and principles of the TAP Common Framework are being tested in eight countries in Africa (Angola, Burkina Faso, Ethiopia, Rwanda), Asia (Bangladesh, Laos) and Central America (Guatemala, Honduras), as part of an initiative called CDAIS, or Capacity Development for Agricultural Innovation Systems, funded by the European Commission and implemented by Agrinatura, a consortium of European universities and research institutes, in partnership with FAO and national partners.

But would it work? There was only one way to find out, with CDAIS engaging with national partners in eight pilot countries, with national partners in each country. The aim? To increase the functional capacities of those involved in agricultural innovation systems. Or in other words, to strengthen the ability and capability of such 'actors' to make new things happen in complex and unpredictable situations. And this has been taking place through facilitating interaction between diverse stakeholders, training, and reflection and learning events, and on three levels (individual, organisational and national systems level). Most work so far has been on the individual levels, through local innovation partnerships and that what these stories describe. Other work has started and will continue, at the level of organisations involved in agricultural innovation, and at the national policy and regulatory level.



“The project has helped me to produce more. But I see now that if we organise ourselves we can achieve even better profits.”

**João Feliciano** smallholder farmer, Kwanza Sul

At all three levels of intervention, the CDAIS approach appeals because it opens spaces for reflection and learning regarding how individuals and organisations can work better together to achieve better outcomes. Such issues are not unique to agricultural innovation but are found throughout all aspects of 'development'. As a result, many CDAIS activities have had and will continue to have immediate effects on building individual capacities, by giving people opportunities of seeing what can be achieved by organising themselves, exchanging with new people, and participating in collective and reflective exercises.

However, such learning can only be sustainably acquired and remobilised if the professional context in which these individuals evolve allows them to do so. Thus, the issue of capacity building of the organisations involved is crucial. If organisations can develop the ability to innovate, openly and responsibly in multi-stakeholder situations, then this will de facto address the need to build individual functional capacities. The CDAIS project will thus focus efforts on organizational capacity developing in 2018 to ensure medium and long-term impacts. Furthermore, the development of policy and regulatory frameworks is also a key issue for creating incentives for organisational transformation and open and accountable innovation.





The stories shared in this book capture the early outcomes of the work conducted by CDAIS, from each of the eight countries during 2017 and 2018. They provide insights and perspective of different actors engaged in the different processes, mostly at the level of the different innovation partnership. But the changes and CDAIS efforts at this and other levels do not end in these stories. A further set of stories will be captured during the final documentation of the project in 2019, and that will also describe interventions and impact at organizational and policy level. In the end, the stories will tell a bigger picture, of the impacts of using an integrated approach to strengthening capacities to innovate in agriculture.

In writing these stories, the experience of individuals and organisations engaged in innovation partnerships are shared. But it is not easy to transmit a thorough understanding of the complex processes, involved. But the CDAIS team can only hope that these stories encourage and inspire others to be part of these change process.

“ I have a dream, to see a new production model develop – a mixed system of rice, crops and aquatic animals that uses natural cycles and needs no chemicals or fertilizers.”

**Syphachanh ‘Tou Lee’ Vannasy** National Innovation Facilitator, Lao PDR

“ With the help of CDAIS, we realized that we can work together to strengthen capacities so that producers can become more innovative and generate more income.”

**Wilson Inestroza** regional technician of the Ministry of Agriculture and Livestock’s Directorate of DICTA in Juticalpa, Olancho











**ANGOLA**



ANGOLA

# FROM FARM TO AGRI-BUSINESS

**Maria de Fátima do Nascimento** CDAIS Angola Country Project Manager

**Oliveira Paulo** Lead National Innovation Facilitator for CDAIS Angola

February 2018

01



“Of course we have problems, but we have learnt to see them as *positive* problems.”

“When I first heard about the CDAIS project two years ago, I knew immediately that it was just what our group of farmers was looking for,” explained Edgar Somacumbi. “We have land, seeds, tractors and all the equipment we want, and a processing plant. But moving from being farmers to agro-entrepreneurs is a complex process and requires new skills. And this is where we needed help.” CDAIS is now supporting a group of farmers to improve how they organise themselves and to help them find solutions to their problems.

It is 5:30 as the sun rises through the mists in the uplands of Kwanza Sul. The leader farmer of the Terra do Futuro project Edgar Somacumbi takes his usual walk, today with fellow farmer Jorge Chicale, and they discuss the day’s activities and share their hopes for the future. “But to go forward, we need to change our behaviour, change the way we see and do things,” they agreed.



One of the new young farmers shows the results of his labours. “We are farmers now, yes, but we are aiming to become agri-businesses in our own right.”

“The old ways just don’t work anymore, the whole system needs changing. Only we can do it, though we must first change within ourselves.”

**Edgar Somacumbi** leader farmer in the Terra do Futuro project, Kwanza Sul

## Terra do Futuro – land of the future

This pilot project was established in 2009 with US\$1.4 million of financing from the Angolan Development Bank (Banco de Desenvolvimento Angolano, BDA), to scale up ideas to bring new land into cultivation and attract young farmers. The area chosen was far from other villages to avoid land conflicts, and each of the 60 farmers was allotted a 250-hectare plot (their *fazenda*), in which they chose where to build a house, and are supported in obtaining a tractor and pick-up truck. All other agricultural equipment is communal, held in central store yards, and they must discuss and agree who will use what, and when. Not all farmers are fully committed, however, and some have yet to get their ‘entitlements’. Others, though, are proud to show their successes.

Employment is a big benefit. But environmental concerns are also at the heart of the project. Ildio Pinto explained, “Each of us has 250 hectares, but we are obliged to retain at least 50 hectares of natural forest, though most of us have much more forest than that. I started with 50 hectares of farmland, and am growing my area step by step as my resources allow.” And he explained that what would help him the most is to have the skills to become a ‘real farmer-businessman’. “Of course we have problems,” said Somacumbi, “but we have learnt to see them as *positive* problems, as we work together to find appropriate solutions.



< From small seeds... Flavio Gomes shows what can be achieved with a little support – and a lot of energy...

## Spreading the word

But at the other end of the scale are smallholder farmers, a few of who have been involved with the CDAIS project since the very beginning, participating in the capacity needs assessment and all other workshops. João Feliciano told his story: “Thanks to the Terra do Futuro project, I learnt how to better sow and grow maize from other farmers, and get much better results now. And I pass on this new knowledge to my neighbours, family and friends so they too can benefit.” But this is not enough, he observes. The next stage that CDAIS will implement is to support Feliciano and others like him to form an association so they can negotiate the buying of inputs more cheaply, get better prices for their crops, and learn more from each other’s experiences.

## Advancing on the road to progress

Angola has so much potential as an agricultural country, with up to 50 million hectares that could be cultivated. But why is it not being cultivated now? “It is simply a case of lack of will – political will in strengthening sectorial strategies and providing resources for those who live from this activity,” said Somacumbi. “Government policy is to help farmers, but little is actually done.” He hopes that through the policy dialogue that CDAIS is facilitating in 2018, the views of farmers like himself and his fellow fazendeiros will be heard loud and clear at a higher political level.

At the farmer level, access to finance and markets are recurrent problems. So CDAIS is supporting farmers to identify and hire trainers who can teach them agri-business skills, how to prepare individual farm business plans, and how to establish and manage associations such as a maize producers group, as well as advanced farming techniques.

At the end of a long walk around the main compound, Somacumbi explained with pride that the Terra do Futuro project has seen 9000 hectares of land brought into cultivation over a five-year period, creating hundreds of jobs and supporting the local and national economy with increased agricultural output. “And with new skills, we can only grow.”

And CDAIS is helping us in this process, building our skills in this way.” And Jorge Chicale chipped in: “we can see a change in some of us already, in how we see things, and how we work with each other.”

“I have seen change in myself,” said farmer Flavio Gomes. “Before I used to buy things without much care, but now I keep all my receipts and calculate my costs. I pay more attention, I talk more with others, share experiences. Through CDAIS I have also had opportunities to share with the other innovation partnerships – and I learnt a lot especially from the seed cooperative, for example.”

## A question of scale

This Terra do Futuro project had an aim of mass production, with a target of 97,000 tonnes of cereals and beans per year, so it also installed a central industrial area to dry and store the harvest, mill flour, and prepare different types of value-added animal feeds. They have also invested in advanced production lines, such as one that produces extruded breakfast-cereal-like ‘corn pops’ as fish food for aquaculture.



## From assessments to action

A capacity needs assessment workshop was held at the site of the Terra do Futuro project at the end of 2016. Edgar Somacumbi explained: “This was a very interactive event, with breakout groups and lots of discussions over the three days, between farmers, smallholders, traders and traditional leaders. The tools used helped them to articulate their needs, and this provided a strong basis for what is now following. It was really excellent.”

This led to the development of actions plans in 2017 that were continually adapted as activities started. And though implementation was hampered by the loss of key CDAIS staff, “some results can be seen already, and they are spreading,” added Somacumbi. Other farmers shared these views in the most recent meeting. Mario Ferreira said, “I am looking forward to the new opportunities that CDAIS will bring this year.” And Cudienga Matucumona added, “Before, we were lost in all our problems, but now we see a way forward and we are ready to learn!”



*A meeting in February 2018 where farmers discussed the timetable for implementing the CDAIS action plan with Facilitator Juliana Sacamia and CDAIS Country Programme Manager Maria Fátima do Nascimento.*

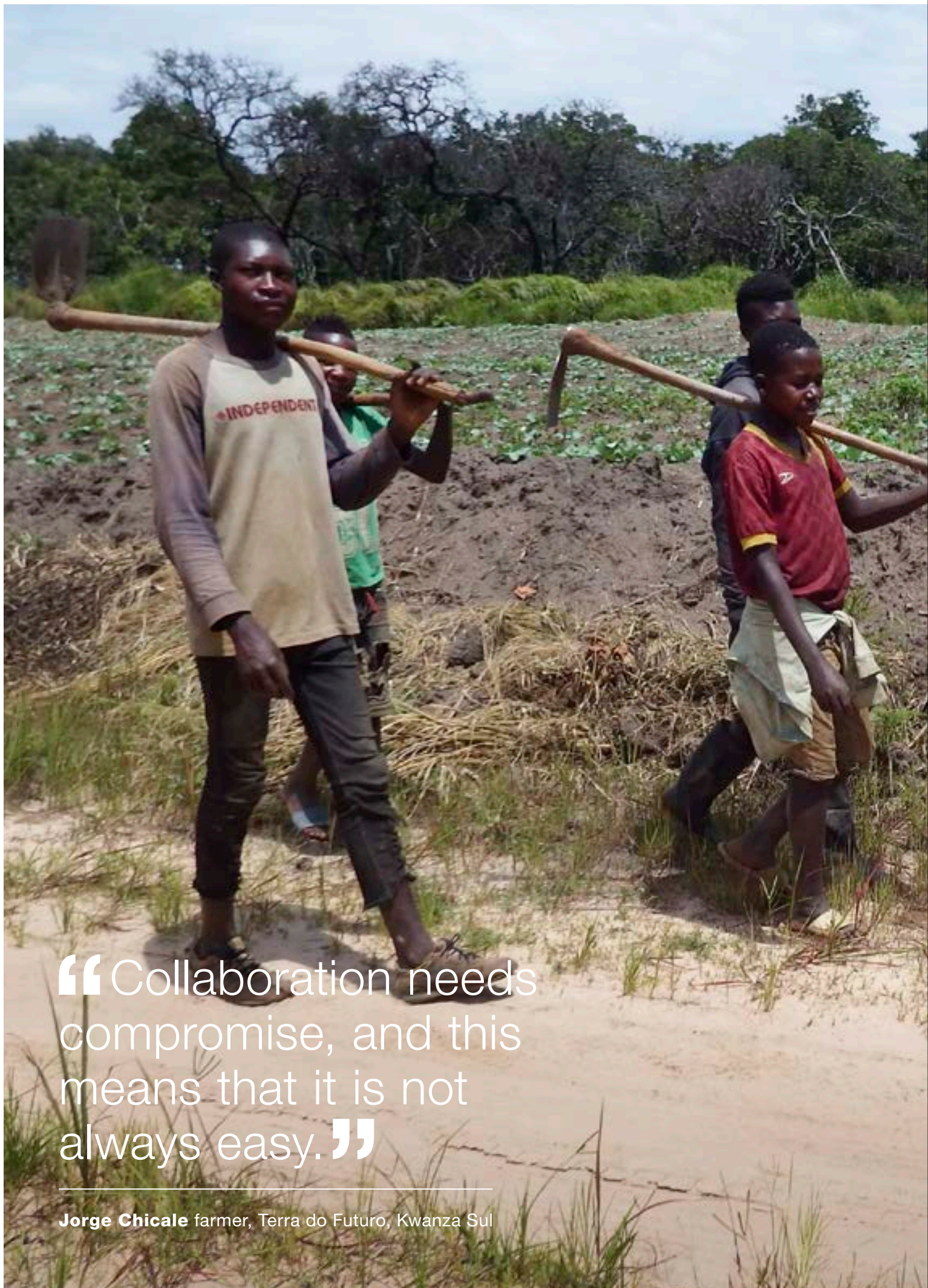


*Jorge Chicale leads initiatives to experiment on a small scale to diversify production, such as on his own farm with aubergines, onions and pineapples.*

“Learning is not a sprint, it is a marathon. It needs stamina, concentration, and patience!”

**Edgar Somacumbi** leader farmer in the Terra do Futuro project, Kwanza Sul





“ Collaboration needs compromise, and this means that it is not always easy. ”

---

**Jorge Chicale** farmer, Terra do Futuro, Kwanza Sul





*Some of Ildio Pinto's nine full-time workers, who receive housing, food, cooking oil and all they need to live, and a regular monthly salary that they are very happy with.*





*Ilidio Pinto in one of his cabbage fields: "Later this year I will invest some of my profits to clear more land over there."*

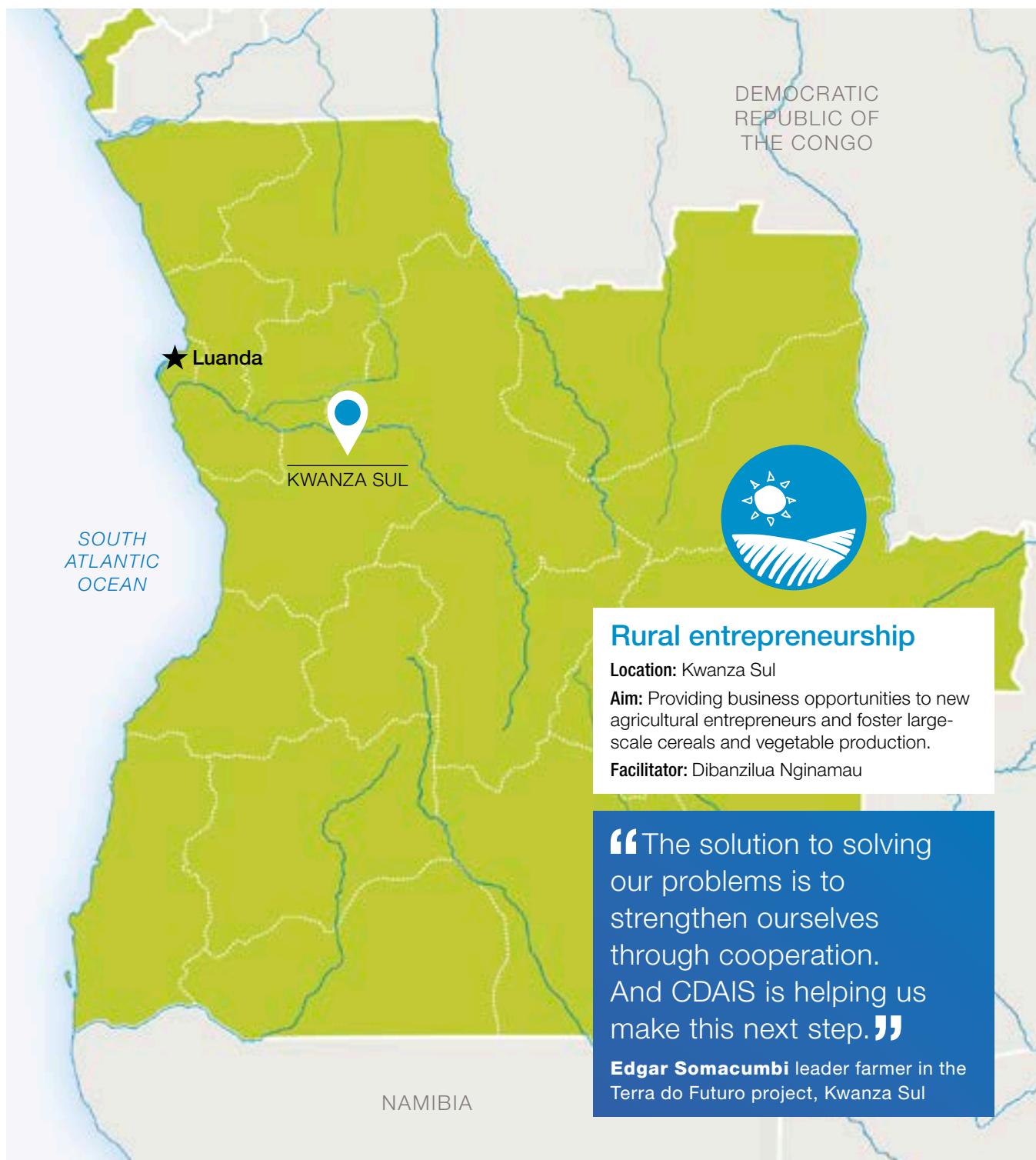
“Each of us has 250 hectares but we are obliged to retain at least 50 hectares of natural forest. Though most of us have much more forest than that.”

**Ilidio Pinto** farmer in the Terra do Futuro project, Kwanza Sul

#### Prepared by

Maria de Fátima do Nascimento, CDAIS Angola Country Project Manager ([maria.donascimento@fao.org](mailto:maria.donascimento@fao.org), +244 938552069), and Oliveira Paulo, Lead National Innovation Facilitator for CDAIS Angola ([olivito7angola@yahoo.com.br](mailto:olivito7angola@yahoo.com.br), +244 925856832).

Rural enterprise is one of three innovation partnerships in Angola being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/angola](http://www.cdais.net/home/pilots-countries/angola). CDAIS is implemented in Angola by Agrinatura (represented by the Instituto Superior de Agronomia, ISA, Portugal), FAO Angola and the national Instituto de Investigação Agronómica, IIA.



## Rural entrepreneurship

**Location:** Kwanza Sul

**Aim:** Providing business opportunities to new agricultural entrepreneurs and foster large-scale cereals and vegetable production.

**Facilitator:** Dibanzilua Nginamau

“The solution to solving our problems is to strengthen ourselves through cooperation. And CDAIS is helping us make this next step.”

**Edgar Somacumbi** leader farmer in the Terra do Futuro project, Kwanza Sul



ANGOLA

# FROM KNOWING NEEDS TO SOWING SEEDS

**Zeferino Konda** National Innovation Facilitator for the seed cooperative partnership

**Oliveira Paulo** Lead National Innovation Facilitator for the seed cooperative partnership

March 2018





“CDAIS doesn’t give us money. But better than that, it teaches us ways to increase our production and profit so we can make more money ourselves.”

“CDAIS is interesting for us because it is improving how we operate,” explained Francisco Venda, President of the Sementes do Planalto seed cooperative based in Bailundo. “We work with many partners, and the new skills have proved invaluable.” Since 2016, CDAIS has been working with this group, helping them to identify and agree their priority needs, and take steps to overcoming them. Though much is yet to be done, the high levels of energy and enthusiasm will ensure that progress will continue long after the project has ended.



Cooperative members sharing experiences on growing maize for seed, and the pests and diseases that affect production and seed quality, during a visit to one of the farmer’s fields.

“CDAIS is like a blacksmith’s furnace. We put in a hard problem, like a metal bar, but afterwards we can work it into another shape, a tool that we need.”

**Francisco Venda** President of the Sementes do Planalto seed cooperative, Bailundo.

## Sementes do Planalto – seeds of the uplands

A group of farmers began to work together to produce quality seed in 2012, starting slowly, with the original aim of building up a seed bank for their own use. Then in 2015 they established the Sementes do Planalto seed cooperative, with the support of the non-governmental organisation (NGO) CODESPA, in part to enable them to access credit. The lack of funds was a serious constraint to development. But then, with credit, they began to produce much more and started to seed, and grew... Based in Bailundo, there are now 200 active members spread across seven municipalities in the provinces of Huambo and Bie. All members demarcate a certain area that they dedicate to the production of selected varieties, mostly of maize and beans, with the benefit that the cooperative guarantees to buy all seed they produce at an agreed price.



The group multiply selected improved seed varieties on special plots



A key problem was that farmer-members lacked the technical agricultural skills to ensure that yields were adequate and, more importantly, that seed quality met the strict standards of the national seed service (Serviço Nacional de Sementes, SENSE). Yet Sementes do Planalto showed that they were able to produce certified seed in quantities that would earn all members

a good income, and increase the availability of quality seed on the local market. The cooperative now produces ample seed of improved varieties that were not available locally before, which are shared informally between members and to others through sales. But, as was highlighted by members, much more still needs to be done.

## Strengthening the seed sector

A capacity needs assessment undertaken in November 2016 indicated the key needs of the seed cooperative. These revolved around the lack of technical assistance, unavailability of credit, and poor links between the farmers and agricultural research and extension organisations, input suppliers and potential markets. In 2017, CDAIS worked with the group to begin to address these issues, but was itself faced with problems as the project facilitators found other

employment. Nonetheless, by the start of 2018 the action plan was validated and a clear plan for implementation of activities was put in place. These include support so that the cooperative can find and hire an agronomist to provide appropriate technical assistance, to collate a list of all the potential input suppliers and purchasers of seed in the area, to train members in how to prepare business plans so they can access credit and better manage their affairs, and to assist in the provision of capacity building in internal management and organisation.



*The innovation partnership has the full support of the municipal government, where the initial capacity needs assessment was held, and the seed cooperative meets regularly at their main office.*

## 02 FROM KNOWING NEEDS TO SOWING SEEDS

### Making steps in the right direction

The innovation partnership is forging ever-stronger links with many and varied partners: NGOs, service providers, other development projects and – importantly – with local government. Victorino de Alexandre Moma, Vice-Administrator, Municipality of Bailundo, has no doubt: “the state has provided tools, equipment and seeds to so many groups, but because of the lack of capacity, many of these resources remain unused or are wasted. CDAIS offers just the support we need, to help people make the most of the opportunities available, and in accompanying us all. And a few benefits can help to build many more.”

At a meeting in February 2018 that brought together more members who had not been part of the project until then, one of them, Jorge Mario, was quite vocal: “I don’t know what this C-D-A-I-S project is, but I do know what we want. We need to open doors, or we have to break them down. And we can only do that by improving our own capacity to do things.” The need and the mandate for CDAIS activities was made clear, if needed, yet again: “Agriculture is the basis of our rural economy,” Augusto Samati reminded everyone. “Since childhood I have loved farming, and have seen many changes since my parents’ days... But we can make many more improvements still, if we prepare better and dedicate ourselves.”



*“The benefit is to learn how to select the best seeds and practices that will help us to increase our yields,” said cooperative members Paulo Cale (above) and Augusto Samati (next page).*

After this meeting that reconfirmed the outstanding needs, the president of the cooperative finalised a timetable of activities with the CDAIS team, the country programme manager, national innovation facilitators, and the Agrinatura focal person. The revised action plan was validated, and implementation would continue in earnest.

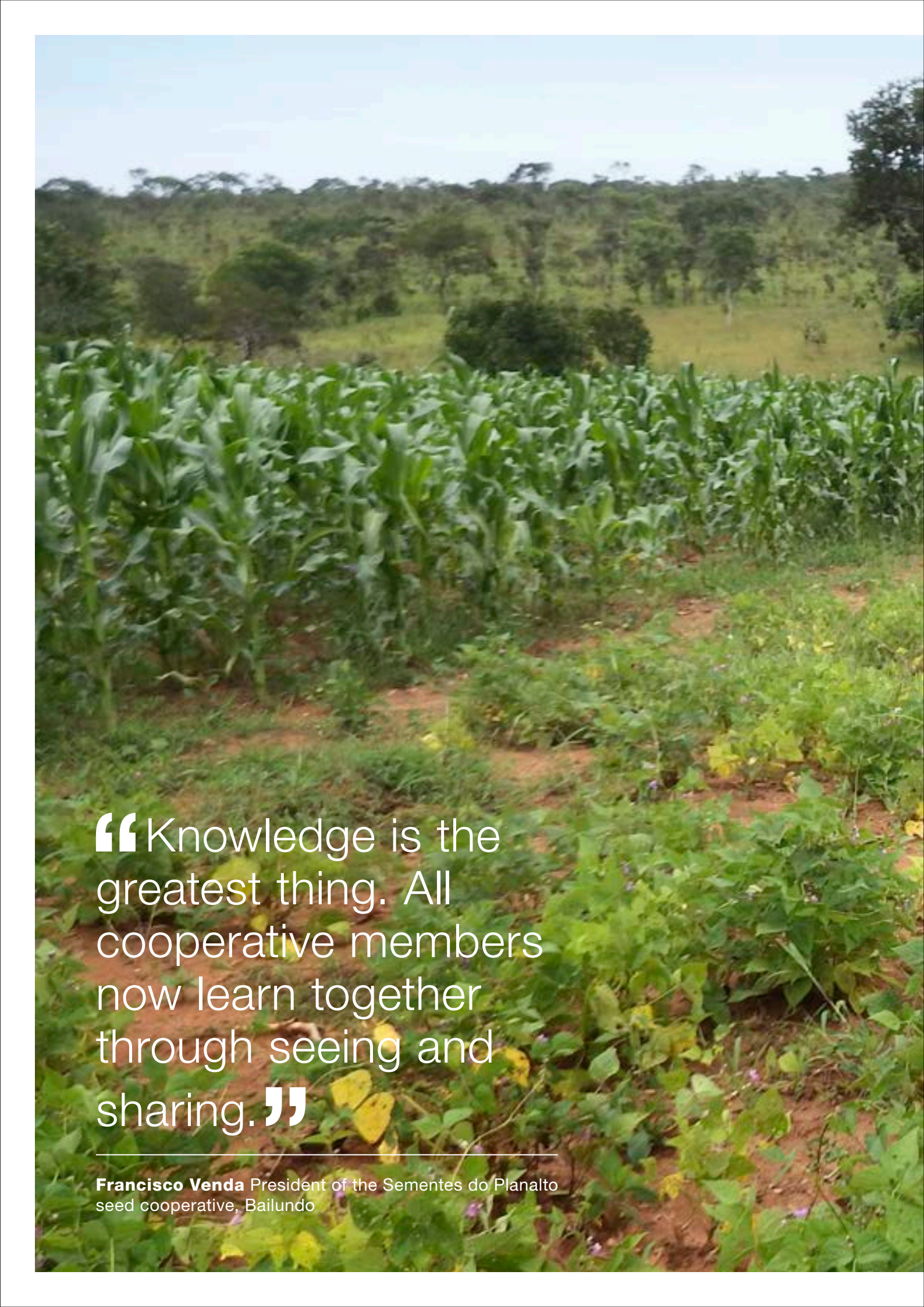


*Francisco Venda, President of the Sementes do Planalto seed cooperative, Bailundo*

### And one good thing leads to another...

Julia Nanguêve spoke highly about the changes she has seen, “CDAIS brings us a lot. It has helped to bring us new ideas and knowledge on how to work. For example, we now separate our parcels of land better and have applied improved practices.” Natalia Jambe, Secretary of the seed cooperative, said how they have learnt to work in a group, and all see how this is better than working as individuals. Together they said “what we learn from our involvement in the seed cooperative we pass on to our women friends. They are all farmers like us, so we now learn together how to produce and select quality seed for our own use, and – for those of us who are cooperative members – we earn extra income.”





“ Knowledge is the greatest thing. All cooperative members now learn together through seeing and sharing. ”

---

**Francisco Venda** President of the Sementes do Planalto seed cooperative, Bailundo





CULTURA - feijão  
ÁREA TOTAL - 160 M.²  
VARIEDADE - PRETO  
COMPASSO - 25x40  
Q. DE SEMENTE - 340g  
Q. DE ADUBO - 4kg  
DATA DA SEMENT. - 15-12-012

Cooperative member  
Augusto Samati





*^ Natalia Jambe (right) and Julia Nanguve (left), two of six members of the seed cooperative who are also members of the Bailundo women's organisation, in front of one of Julia's excellent maize crops.*

## Growing hope

"In the future we want to link in better ways with our input suppliers and our clients and markets, and CDAIS is helping us in this process," noted Francisco Venda. "We must also help our youth, and encourage them to invest their time and energy as the future is theirs alone."

And he concluded with the cooperative's vision, "to expand until we have 1000 hectares from which we produce the highest quality seed for the benefit of our members and all the farmers who will sow them." And CDAIS is accompanying them in 2018 to help them realise this dream.

“CDAIS helps us to think differently, helps us to analyse our problems, and better organise ourselves so we can find solutions.”

**Francisco Venda** President of the Sementes do Planalto seed cooperative, Bailundo

---

### Prepared by

Zeferino Konda, National Innovation Facilitator for the seed cooperative partnership (zeferinovida@gmail.com, +244 923138034), and Oliveira Paulo, Lead National Innovation Facilitator (olivito7angola@yahoo.com.br, +244 925856832)

The seed cooperative is one of three innovation partnerships in Angola being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/angola](http://www.cdais.net/home/pilots-countries/angola). CDAIS is implemented in Angola by Agrinatura (represented by the Instituto Superior de Agronomia, ISA, Portugal), FAO Angola and the national Instituto de Investigação Aronómica, IIA.

## 02 FROM KNOWING NEEDS TO SOWING SEEDS





ANGOLA

# GROWING HOPE FROM A NEW CROP

**Juliana Sacamia** National Innovation Facilitator for the rice partnership

**Romão Cabeto** National Innovation Facilitator for monitoring, evaluation and learning

**Zeferino Konda** National Innovation Facilitator for the seed cooperative partnership

April 2018





“We could have all the credit in the world,  
but if we don’t have the skills to use the money wisely,  
it would all be wasted.”

Rice is produced in other parts of Angola, but not in the area around Bailundo, though conditions there are favourable and there is much local demand. Building on the provision of technical expertise from other organisations, CDAIS is adding capacity development of another sort, of the ‘soft skills’ required to collaborate, learn, engage and adapt. “Now we will grow rice forever,” said Marcos Satuala. “This innovation has given us a great thing – a new crop for us. And with CDAIS we can learn more, and grow more, for our families and to sell.”

“Our group produced 2.5 tonnes of rice last year, when before we produced no rice at all.”

**Zacarias Cassinda** group member

Others added that it is not financial support they need, but technical help, and that they are grateful that CDAIS is helping them to source this, and teaching them how to make the necessary connections. But they know full well that they have to ask – the local saying, “if a baby doesn’t cry, it doesn’t get its mother’s milk.”

## The rice school

With 183 members from four village areas, the Associação Alimuat was formed in 2010 by farmers who saw the advantages that working together could bring to everyone. Then in 2015 they took an initiative. As with so many farmers in the area they mainly grow maize and beans, but they also eat rice at home, but had never it. Having no idea how to grow it, they made contact with the local agricultural extension agency, the Estação de Desenvolvimento Agrário (EDA) local unit of Instituto de Desenvolvimento Agrário (IDA), which in turn made contact with the national Instituto de Investigação Aronómica (IIA), and an idea was born.

The final piece of the puzzle was to link up with the Japan International Cooperation Agency (JICA), which agreed to offer material and technical assistance for a two-year period. And one of the innovations was the creation of ‘rice schools’.



*Association members happy with their work during a visit by the CDAIS team to their rice school (left).*

In 2016, this rice partnership was selected to be one of the CDAIS innovation partnerships. Farmers were receiving seeds, other inputs and technical training, but still lacked adequate functional capacities to make the most of the support. CDAIS could help to fill that gap. The work goes on, with farmers now preparing for their second harvest, and they are learning all the time.

IIA and IDA have established several sites for the innovative rice schools, where association members come and work each Monday, to learn basic skills, and where they are also testing new varieties and cultivation techniques. But some farmers are also trying different methods on their own land, for example by looking at the impacts on time and cost of transplanting seedlings rather than direct sowing. One farmer, Julino Paulo, explained, “I use fewer seed when transplanting but it takes more time. Now I wait to see which will produce more.”





## Making change happen

Following selection of this partnership by the Angolan CDAIS technical working group, a capacity needs assessment workshop was held over three days in early October 2016. The partnership includes the Alimuat farmer association, the national agricultural research institute (IIA) and the provincial agricultural extension unit, among others. Vuvu Nzambi from the national research institute explains that in other provinces rice growing is the domain of large-scale farmers, and what is additionally innovative here is the passing of rice growing skills on to smallholders. Since this initial workshop, group members have had five training courses, and the head

of the association, Marcos Satuala, speaks highly about what they have learnt and passed on to others. And the work goes on. But, as many of the farmers accept and respect, change can only happen slowly.

“He who goes quickly catches only one rabbit, but he who goes slowly and carefully will catch two.”

Partnership member





### Making steps in the right direction

Elias Tiago, member of the association, explained how he has learnt technical aspects such as what products he needs, but CDAIS has helped him to think about how he can best source these, and to find experts who can teach him how he can use them most effectively and efficiently.

### But outstanding needs remain

“We welcome you here where so few come,” said Solino Kalalika, the soba, traditional village head. “But we need more tools, seeds and transport” – a view expressed by many. However, privately, Maria Fátima do Nascimento, CDAIS Country Programme Manager for Angola, explained this

< *“All this rice is mine!” said Julino Paulo proudly as he shows off his crop. “Last year I produced my first 40 kilograms, this year I expect much more. And since the start CDAIS has helped me grow day by day, as my rice grows.”*

reasoning: “we see issues of dependency here so clearly, and that still needs to be overcome.

After the civil war, the government helped a lot in rebuilding a renewed agricultural base, by providing seeds, fertilizers, tools – everything – all for free. So most people still expect the same, and find it hard to accept that this can no longer be the case. But as CDAIS is showing, if they work together and learn to link with others, they can lose this dependency and stand proud in the knowledge that have built something themselves.”

In one of the meetings, farmers said again that they still need a rice dehusker. So the question was asked, again, “how will you get one?... You think, you decide.” And then they thought... and one could hear the whispers – “we can’t just ask for one” – and they discussed among themselves, and one replied, “if we become a formalised group, we can ask for a loan and buy one that everyone can use.” And that process is CDAIS in practice.

““But we still need to convince the government that to support us in our efforts is good for the national economy, as it will reduce rice imports.””

**Zacarias Cassinda** group member

And this is a point that will surely be taken up to the national level for the policy dialogue that CDAIS is in the process of organising.

Although the association has a charter and has elected members into positions of chair, secretary, treasurer and others, they are still not formalised. CDAIS will now help them go through the legal process of registering their association, which will empower them when they choose to approach banks for loans, or others for additional support.





“ We like the help from CDAIS, and it encourages us so much to have visits to our fields. I hope it can continue.”

---

**Manuel Kapungo** Member of the Alimuat farmer association, Bailundo





*Alice Chitula (foreground) with other group members, weeding in one of the fields of their 'rice school'.*





“We have learnt the benefits of working in a group, but now need to learn how to calculate our costs.”

**Manuel Kapongo** Treasurer of the group

*^ The rice growers of the Alimaut farmer association, Bailundo. Not all are currently part of the rice-growing initiative, but following the good early results, many more are interested in taking up the innovation.*

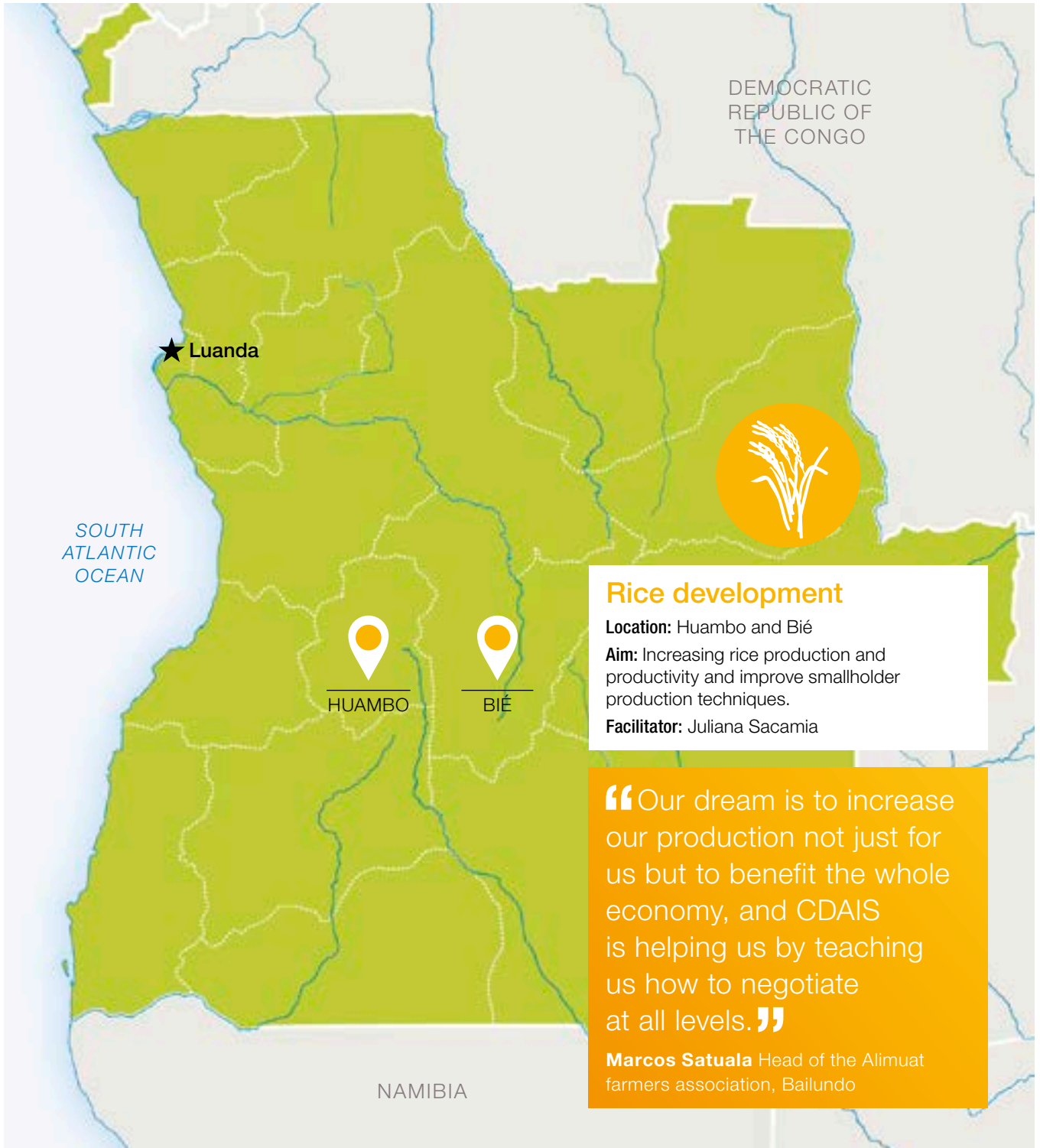
*< Maria Fátima do Nascimento, CDAIS Country Programme Manager for Angola, explaining the need to find solutions together to a group of rice farmers of the Alimaut association.*

---

#### **Prepared by**

Juliana Sacamia, National Innovation Facilitator for the rice partnership, (juliananene20@gmail.com, +244 927326137), Romão Cabeto, National Innovation Facilitator for monitoring, evaluation and learning (romaohossi@gmail.com, +244 926927844), and Zeferino Konda, National Innovation Facilitator for the seed cooperative partnership (zeferinovida@gmail.com, +244 923138034).

The rice partnership is one of three innovation niche partnerships in Angola being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/angola](http://www.cdais.net/home/pilots-countries/angola). CDAIS is implemented in Angola by Agrinatura (represented by the Instituto Superior de Agronomia, ISA, Portugal), FAO Angola and the national Instituto de Investigação Agronómica, IIA.



DEMOCRATIC  
REPUBLIC OF  
THE CONGO

★ Luanda

SOUTH  
ATLANTIC  
OCEAN

HUAMBO

BIÉ

### Rice development

**Location:** Huambo and Bié

**Aim:** Increasing rice production and productivity and improve smallholder production techniques.

**Facilitator:** Juliana Sacamia

“Our dream is to increase our production not just for us but to benefit the whole economy, and CDAIS is helping us by teaching us how to negotiate at all levels.”

**Marcos Satuala** Head of the Alimuat farmers association, Bailundo

NAMIBIA









**BANGLADESH**



BANGLADESH

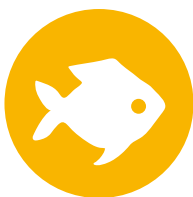
# FROM GREEN TO SILVER

**Shila Fatema Wadud** National Innovation Facilitator for the fish partnership

**Mohammed Moshir Rahman** National Innovation Facilitator for the fish partnership

December 2017





“The CDAIS approach provides opportunities to participate, learn together and formulate joint solutions.”

Today, entering Trishal, Mymensingh on the road from Dhaka, one sees rows of fish ponds. One after the other, they show the massive diversification in recent years from traditional rice cultivation into investment in aquaculture and the intensification of fish production. And the trade-offs between green crops and silver fish appear to be increasingly clear to smallholders and family farmers, as they move to become family fish farmers. They see the benefits in terms of profits and returns, and are increasingly making the move into fish farming.



*Fish farming is becoming a family affair, and a mainstay of local livelihoods and the national economy.*

“The CDAIS approach provides opportunities to participate, learn together and formulate joint solutions,” explained Ritish Pandit of Ukilbari, Boilor, Trishal, after attending the capacity needs assessment workshop in February 2017. “And this will usher in new horizons for fish farmers, working with stakeholders, and will surely help in successful implementation and achievement of the desired results.”

Pandit started his fish farming and hatchery business in 1982, called Reliance Aqua Farms, and thanks to his forward-thinking approach, supported by training and access to credit, he quickly expanded. In 2016–17, he sold almost 50 tonnes of fish, mostly tilapia and panga (catfish), making a profit of 1.5 million Bangladeshi taka (US\$18,000) including sales of fish fry and spawn. “And my business now employs four permanent staff and 16 temporary workers,” he added.

“I was impressed with the innovative approach of CDAIS in bringing together fish farmers and organisations that support us, to find ways to overcome challenges we face in producing quality fish for local and overseas markets.”

**Ritish Pandit** fish farmer, Trishal, Mymensingh

## Great advances and glass ceilings

Bangladesh is proud of its achievements in achieving self-sufficiency in food production, and is now the fourth largest producer of fish in the world, but only contributes 4% to gross domestic product (GDP). In recent decades there have been major advances in fish culture in ponds and tanks, rather than from rivers and natural open water. This was made possible by new knowledge and technology transfer from international projects, conducive government policies, and support from the Department of Fisheries, the Bangladesh Fish Research Institute and the Bangladesh Agricultural University Faculty of Fisheries. And, now, through new CDAIS participatory approaches.



# BANGLADESH

In Trishal and Mymensingh, the potential of fish farming arose in the 1990s with the introduction of tilapia and panga that proved easy to raise, fetched a high price and for which there was high export demand. Mymensingh is the source of more than half of national panga production, and one-twelfth of all tilapias. But this emerging sector faces difficulties in fully realising expected profits due to the complex nature of fish value chains, poor availability of much-needed inputs, low-quality feedstuffs and challenges with market access.

“ I look forward to working with CDAIS, building functional capacities – soft skills such as the ability to collaborate, navigate difficulties, reflect and learn, and be a part of strategic processes. ”

**Golum Hossain** Chair of the Tilapia Foundation

## CDAIS, building a base in Bangladesh

Work began in 2015 after a scoping study to identify the most innovative approaches, and fish farming was one of the innovation partnerships selected. Appointed to each is a dynamic and specially trained ‘national innovation facilitator’ who delivers quality coaching and advisory services to farmers and other value-chain stakeholders. The fish cluster in Mymensingh, like others, is further supported by the CDAIS Country Project Manager, Agrinatura and Food and Agriculture Organization of the United Nations Bangladesh. The approach is based on the Tropical Agriculture Platform Common Framework on Capacity Development for Agricultural Innovation Systems, galvanising commitment, visioning, assessing capacity needs, and developing and implementing strategy.

This partnership chose to focus on the tilapia and panga culture due to demand and export potential. Initial visits involved discussions with fish farmers and those working in and around the value chain, learning about existing issues, platforms and potentials. Following further discussions with



*Mr Pandit's fish farm, Trisal, Mymensingh*

government officials and other experts, key stakeholder groups were identified, with gender balance emphasised. The capacity needs assessment workshop was then organised with four main aims – to review the status of fish farming, problem analysis, strategic action planning, and policy recommendations for win-win solutions for smallholder producers.

## Unexpected benefits

Participants discovered that the Department of Fisheries is developing a mobile-phone app to provide all kinds of information relevant to fish farmers. Also, during the workshop, participants became aware of the existence of a recently formed association working towards



similar goals – the Tilapia Foundation – comprising of 15 farmers, 8 hatchery owners, and the National Hatcheries Association. The chair, Golum Hossain, former director general of the Fisheries Research Institute, told participants that he helped to establish the foundation after a visit to a tilapia foundation in the Philippines, supported by the Katalyst project and WorldFish. The historical ‘timeline’ exercise showed that the development of fish farming in Mymensingh was due in part to there being many well-educated young entrepreneurs who took up fish cultivation. Also, government support and help from universities and other farmers, has facilitated growth, and increased consumer preferences for cheaper and tastier tilapia and panga. Also, a lot of interest was shown in a new variety of Vietnamese panga, and in the production of indigenous fish species that are on the verge of local extinction.

### Remaining challenges, and overcoming them

However, production is not rising fast enough to meet increased demand, because of high input costs for feed, fry, labour, loan interest, drugs, etc., lack of knowledge on modern fish-culture technology, lack of marketing support, and few opportunities for making and building partnerships. Workshop participants prepared a ‘capacity-development action plan’ to be adapted and implemented. Larger-scale farmers are accustomed to working with each other and with government officials, researchers, universities and extension services, but they are not representative of marginal smallholder farmer groups. To make this crucial link, developing partnerships is key – facilitating local market links and opportunities for processing for export.



## Meeting capacity needs

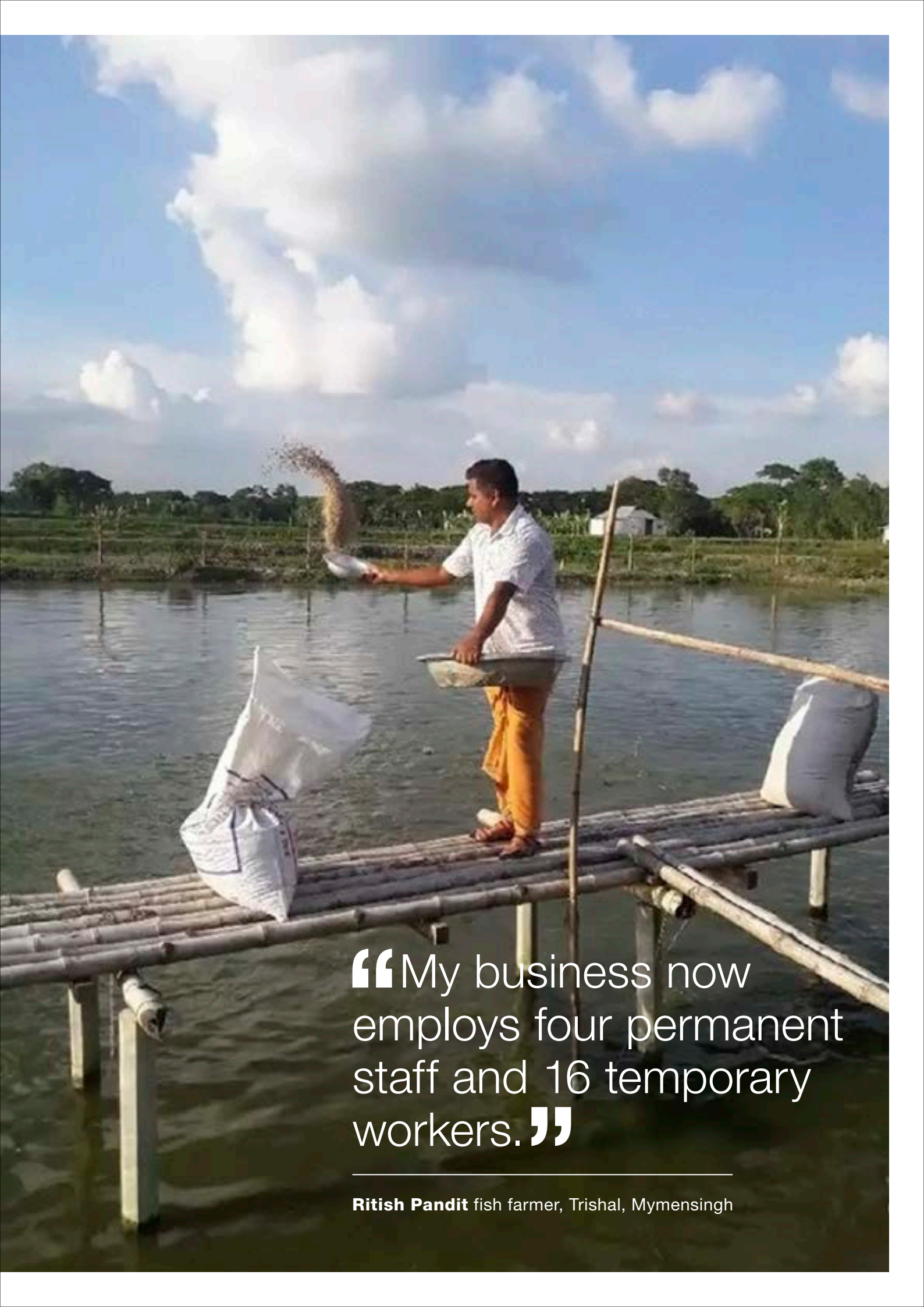
In February 2017, a CDAIS capacity need assessment workshop brought together different stakeholders, allowed many new contacts to be made, and led to new 'discoveries'. It was organised around a series of innovative tools to stimulate thinking and help to understand the complex interactions within the network of actors in fisheries in Mymensingh. These included timeline analysis, problem-and-solution trees, net mapping, combined visioning, and action planning. The aim? To identify a common vision for fish cultivation, capacity gaps, and innovative technical and functional capacity interventions. Half of the participants were fish farmers or hatchery owners from one of three unions in Trishal, Boilor and Balipara. Others included feed dealers and feed-mill owners, aquaculture drug and equipment dealers, fish-fry suppliers, input dealers, processors and retailers, and representatives of the government fisheries

and marketing departments, the Bangladesh Fisheries Research Institute, Bangladesh Agricultural University and several non-governmental organisations.

And after many intervening meetings, a two-day kick-off meeting of the Trishal Fish Innovation Platform was held in Mymensingh on 6–7 December 2017, to identify the key problems, find feasible solutions and develop a nine-month action plan to implement these. It was facilitated by Moshiur Rahman of the Bangladesh Fisheries Research Institute who was positive about the changes this had also had on himself: "I am a technical fisheries research officer working on fish breeding, but now also a CDAIS national innovation facilitator. In this role I am learning how to encourage actors in the fish value chain to work together to overcome the problems faced in their sector. And through this series of events organised by CDAIS, I have learnt about better ways to facilitate sessions, and how to validate and implement the coaching plan."



*CDAIS has helped to bring together fish farmers, fish processors, feed suppliers, hatchery owners, traders, government fisheries officers at district (Upazila) level, and professors from Bangladesh Agricultural University.*



“My business now employs four permanent staff and 16 temporary workers.”

---

**Ritish Pandit** fish farmer, Trishal, Mymensingh





*Ritish Pandit, fish farmer from Mymensingh, teaches others about his approach.*

However, as was seen at the workshop, the concepts of 'functional skills' and 'thinking in partnerships' were not fully understood. Smallholder farmers are not used to working in partnerships, thinking that they must first face up to more pressing challenges. But, experiences so far give the team confidence, and all participants saw that CDAIS facilitators and staff were involving them from the very beginning, which had a positive effect. The workshop also helped to forge links that will help to directly respond to the most immediate issues, with contacts made with hatcheries, input stockists, producers and processing plants.

The sharing of skills will go on. Pandit offers regular but informal training to an ever-increasing number of other smallholder fish farmers in the hope that they can replicate his success. He is happy to share his experiences to help other farmers through the CDAIS project. And, because demand is so huge, he has no fear of competition – rather, that additional production can only attract more buyers to the area.

“Through the CDAIS project we now work together and will find paths to solve our problems. CDAIS means motivation, CDAIS means ties, CDAIS means mutual cooperation, CDAIS means production... CDAIS means development.”

**Ritish Pandit** fish farmer, Trishal, Mymensingh



*Tilapia from Pandit's fish farm, Trishal, Mymensingh*

#### **Prepared by**

Shila Fatema Wadud, National Innovation Facilitator for the fish partnership (shilawadedgp@gmail.com, +88 1711527865), and Mohammed Moshir Rahman, National Innovation Facilitator for the fish partnership (riad242@gmail.com, +88 1717013264)

Fish is one of three innovation partnerships in Bangladesh, identified during the scoping study of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/bangladesh](http://www.cdais.net/home/pilots-countries/bangladesh). CDAIS is implemented in Bangladesh by Agrinatura (represented by NRI - the Natural Resources Institute, part of the University of Greenwich, UK), FAO Bangladesh and the Bangladesh Agricultural Research Council (BARC), in partnership with other institutions, depending on the innovation partnership.

## 04 FROM GREEN TO SILVER





BANGLADESH

# NEW MARKETS FOR MANGOES

**Rozana Wahab** Lead National Innovation Facilitator

**Mohammed Sorof Uddin** National Innovation Facilitator for the mango partnership

November 2017





## “We must work together to increase mango production”

“We realised that we need to work together, and are now seeing changes happen,” said Omar Ali, President of the newly formed Shibganj Mango Association. Farmers and orchard owners saw the need to change when interest in mango production grew after exports to the EU started in 2015. With technical assistance from several initiatives, the first 12 registered farmers began to follow ‘good agricultural practices’. They formed an association now with more than 50 members, and CDAIS is supporting them to strengthen their organisation and to achieve their goals by building functional capacities.



*Ismail Khan proudly showing off his mangoes.*

“Even with a new market and increased demand for our mangoes, we were not able to capitalise on this opportunity,” explained Ismail Khan, a young farmer who is pioneering mango exports in Bangladesh. “But thanks to CDAIS, we realised that we needed to learn how to engage in strategic and political processes.” He added, “and the capacity needs assessment workshop helped us to see the bigger picture and understand that stakeholder partnerships are very important in addressing our production and marketing constraints.”

There was also a lack of collaboration among various government departments and other actors in the mango value chain that added to the difficulties faced by farmers. Together, they decided that to increase exports, they must work together to solve the issues. And CDAIS arrived at the right time, and is offering just the right sort of support that they need.

“After the CDAIS workshop, we understood that technical skills are not enough to sustain our business. We also need to build our functional skills to do well in farming.”

**Ismail Khan** Farmer, Shibganj

### Mangoes in Shibganj

Bangladesh is the eighth largest mango-producing country in the world. In 2014–2015, 10 million tonnes of fruit was produced, of which 1.5 million tonnes were mangoes. Due to the nutritional value and their popularity, mangoes are considered as a high priority for national food security. They are also an important commodity crop, and production has increased considerably in recent years due to multi-cropping.

Production is concentrated in certain areas, and in the 2015–16 growing season almost half of all production came from just two districts, Rajshahi and Chapainawabganj. In the latter, mango is one of the most important cash crops, and in Shibganj sub-district (upazilla), most people are involved in mango production and trade, with 13,500 hectares producing 120,000 tonnes annually. The combination of many varieties means that there





*Mangoes are a very important cash crop for many Bangladeshi farmers.*

is supply throughout the whole season from mid-May to the end of September. Many orchards are more than 100 years old, but farmers had not organised themselves into groups to consider their interests.

## The CDAIS approach

CDAIS activities in the area began with the identification of producer organisations and their capabilities, along with other institutions supporting agricultural innovation. Implementation of CDAIS started with the training of national innovation facilitators in the importance of innovation and capacity development, how to use different capacity needs assessment tools and methodologies, and how to develop action plans with producer groups.

## Immediate impacts of the CDAIS workshop

Government officials at the capacity needs assessment workshop explained their responsibilities. Then one farmer reported that a trader had not been paying him for a year. The official who issues licences immediately called the trader, and the very next day the farmer received the first instalment. The benefits of a multi-stakeholder platform were instantly exemplified.

A second issue showed the added value from working together. The introduction of fruit bagging from 2012 had improved fruit quality and reduced pesticide use by preventing attacks from fruit flies and diseases that would otherwise damage the skin.

### Using the innovative tools of CDAIS

During the capacity needs assessment, exercises were used that helped farmers evaluate their position. These included the timeline tool, the problem-and-solution tree, net mapping, visioning and action planning, and CDAIS supported farmers in learning how to navigate complexity, developing their capacity to collaborate, and improving their ability to reflect and learn. The timeline tool provided information on historical events from 2000 to 2016 related to mango production and trade in the area. The problem-and-solution tree exercise drew out key problems faced by farmers, and possible solutions. Ongoing instabilities identified in the mango sector included low yields, pests and diseases, irrigation and transport problems, the high costs of fertilizers, pesticides and labour, lack of knowledge on modern cultivation technology, few processing plants, and poor marketing linkages.



*The exercises used in the capacity needs assessment workshop proved invaluable in helping farmers to identify their problems – and possible solutions.*

### Sharing stories: motivating farmers to set up a multi-stakeholder platform

To overcome some reticence on the part of farmers in Shibganj, CDAIS called representatives from another group that was already successful, and asked them to share their experiences. Mohammad Mojammel, Secretary General of the Bholahat Mango Foundation came and addressed farmers, unions, non-governmental organisations and agricultural extension and marketing officers. He told how the foundation had been formed, developed into a dynamic group and started to deliver visible benefits. The presentation had the desired effect, and inspired farmers and other stakeholders to create a ‘mango farmers platform’. “And after the workshop, we understood the need to work together, and gathered 300 farmers to form a platform so their voices can be heard,” said Omar Ali, President of the newly formed Shibganj Mango Association.

“After the workshop, we understood the need to work together, and gathered 300 farmers to form a platform so their voices can be heard.”

**Omar Ali** President of the Shibganj Mango Association

But, due to the high cost of bags and the extra time required to attach them, most farmers had not adopted the technology. Also, the prices farmers received for their bagged fruit even dropped in some cases due to false rumours that it negatively affected fruit quality.

The problem became more serious in 2017 when the national quarantine department restricted exports and farmers and registered firms faced heavy losses.

But hope was not lost thanks to the CDAIS workshop, which helped all the stakeholders to learn about how to manage such issues strategically and politically. And now, communications are opening up with the quarantine department to solve the problems preventing exports.

“And the Bangladesh mango value chain needs to be strengthened,” said Mr Shamim, General Secretary of the mango platform. “We need dedicated mango marketplaces





*The 'bagging' of mangoes before they mature improves quality and reduces the use of pesticides.*



*The local member of parliament showing he is proud to be involved in this initiative.*

in suitable locations, the replacement of traditional balances by digital scales to improve trust, and the building of new storage and packing facilities to reduce post-harvest losses. And after this was made clear during the workshop, we then went straight to the District Commissioner's Office to change the weighing system, and applied for land for a new marketplace."

## Ways forward

However, some of the key problems identified in the Shibganj mango workshop require longer-term efforts to ensure the development of sustainable production and marketing systems. Specific technical solutions include the introduction of new varieties, improved irrigation and pest and disease control, better administration and a more organised labour supply.

But it is acknowledged that achieving these technical solutions will require the development of new skills – soft skills, functional skills – that will allow stakeholders to build partnerships and take the necessary steps. With support from CDAIS, farmers have developed a coaching plan to help them achieve their aims of producing and selling more mangoes, to strengthen the mango multi-stakeholder platform, and to ensure the sustainable and diversified marketing of their produce. And, as Omar Ali, President of the new mango platform confirmed, "we are confident that what we have learnt through CDAIS will help us improve production, exports and farm incomes."

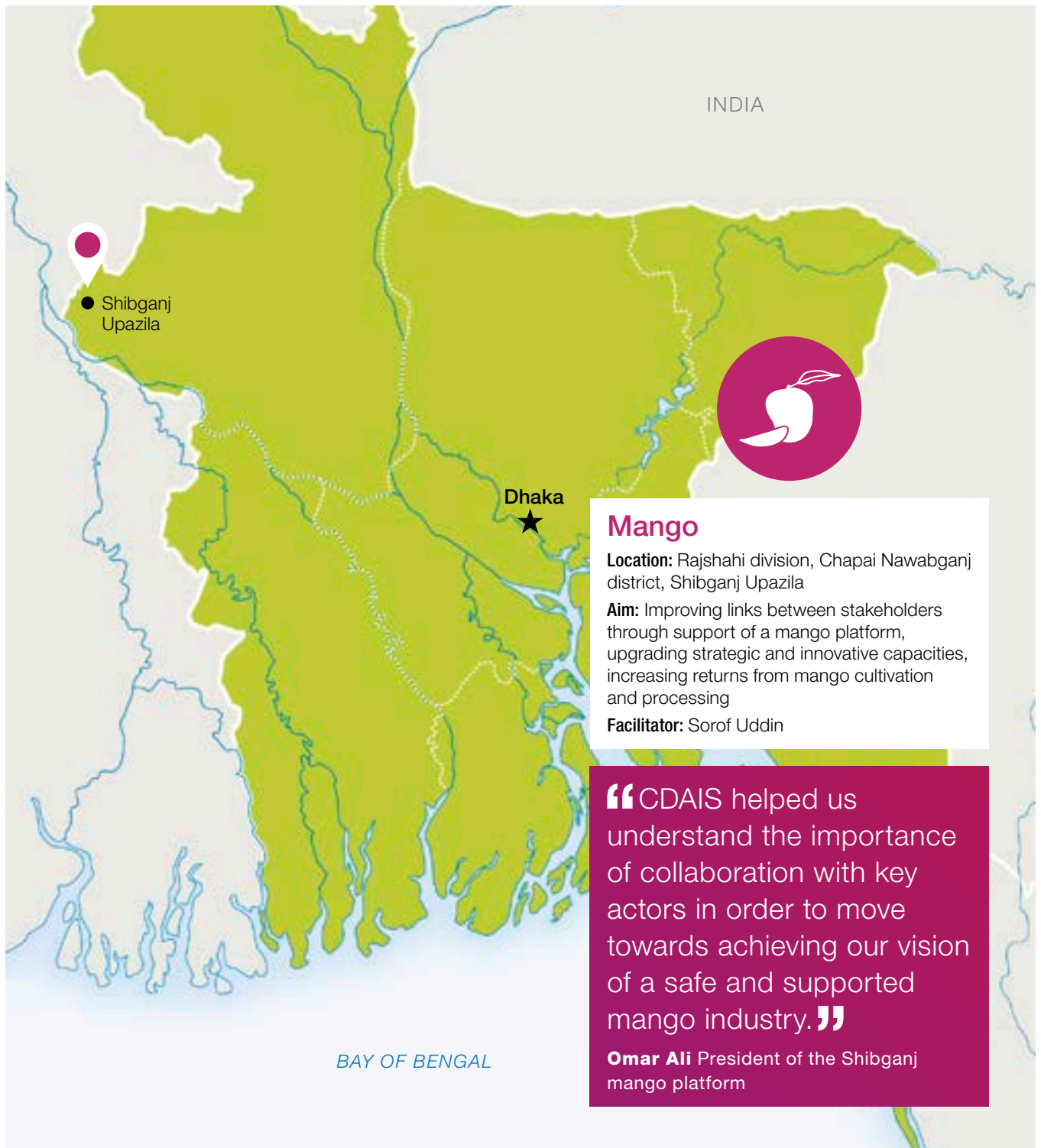
---

### Prepared by

Rozana Wahab, Lead National Innovation Facilitator (rozana.wahab@yahoo.com, +88 1971636666); and Mohammed Sorof Uddin, National Innovation Facilitator for the mango partnership (sorofu@yahoo.com, +88 1712157989)

Mango is one of five innovation partnerships in Bangladesh, identified during the scoping study of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/bangladesh-3](http://www.cdais.net/home/pilots-countries/bangladesh-3). CDAIS is implemented in Bangladesh by Agrinatura (represented by NRI), FAO Bangladesh and the Bangladesh Agricultural Research Council, in partnership with other institutions, depending on the innovation partnership.

## 05 NEW MARKETS FOR MANGOES





BANGLADESH

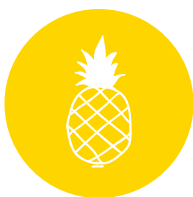
# PINEAPPLES – PUTTING PLANS INTO ACTION

**Mohammed Jamal Uddin** National Innovation Facilitator for the pineapple partnership

**Rozana Wahab** Lead National Innovation Facilitator

September 2018





## “Moving mindsets is like moving pineapples, it takes time and effort”

Individual farmers often receive low prices for their harvest, and pineapple producers in Bangladesh are no exception. To help them, CDAIS facilitated a series of meetings and coaching. Starting with a capacity needs assessment workshop in April 2017, a coaching plan was developed to meet capacity gaps identified by the partnership of pineapple producers, complete with an action plan. The partnership also participated in a ‘marketplace’ event in Dhaka, a regional policy dialogue and two phases of capacity-building training. The result? An effective new pineapple growers association with competent and confident leaders and better-off members.



*‘A pineapple a day keeps the worries away’ – pineapple is an important crop especially for marginalised tribal peoples in northern Bangladesh.*

“ I have learnt a lot, built up my own confidence, and realised my potential in sharing knowledge and ideas with others during CDAIS coaching sessions.”

**Jessi Chakma** Pineapple farmer, and Treasurer of the Bandarban Pineapple Growers’ Organisation

Pineapple is one of the most important commercial fruit crops in the world. In Bangladesh, it is ranked third in terms total production and area farmed, both of which are increasing continually. It is grown in all regions, but especially in the Chittagong Hill Tracts, where many marginalised tribal people became involved in pineapple farming and trade, contributing to both rural livelihoods and national gross domestic product (GDP). Here, the ‘Giant Kew’ variety, known locally as Bandarban, has proved well adapted to local environmental conditions and to local and export preferences, being larger, juicier and sweeter than those grown in other areas of the country. To reinforce this market advantage, the CDAIS pineapple partnership identified branding of Bandarban pineapples as the priority demand.

But farmers have not benefited as well as they could from their crop. Why? Low bargaining power resulting from not being associated with organised pineapple growers associations, and limited market access. Other identified issues include the lack of functional capacities for strengthening existing groups, the dominance of intermediaries, weak marketing channels, lack of central collection areas, storage facilities and marketplaces, high cost of transportation, lack of knowledge on pineapple processing, and limited access to credit.

### From identifying capacity needs...

In the initial workshop, capacity needs were identified using various ‘tools’. As Altaf Hossain, Deputy Director of the Department of Agriculture Extension, explained, “All participants learnt a lot through these new learning processes, including visioning, net mapping, participatory problem identification, timeline analysis, problem-and-solution tree analysis, and action-plan preparation. And how to draw a picture of the vision/dream for the partnership, how to identify root causes and probable solutions, and how to prepare an action plan were especially valuable for us all.” Jessi Chakma, pineapple farmer, and Treasurer of



# BANGLADESH



*Pineapples – part of the landscape  
in more ways than one.*



## 06 PINEAPPLES – PUTTING PLANS INTO ACTION

the Bandarban Pineapple Growers' Organisation, was clear about the benefits: "In the inaugural workshop in Bandarban, I was introduced to different stakeholders like government officials and non-governmental organisation and media personnel which will be helpful in future work. Participating in the marketplace event in Dhaka, I had the opportunity of meeting a range of different service providers, that was very helpful, to know their various roles and functions."

### ...to building new capacities

Once the problems and capacity gaps had been identified, a coaching plan was developed, and the first phase of capacity building proved very effective for pineapple growers and other stakeholders. Over two days, farmers learnt about the benefits of association, group dynamics and building cohesion and unity. In addition, there was a one-day coaching session at upazila (district) level for service providers and facilitators on understanding farmers' needs, listening skills, how to collect feedback from farmers, and problem solving, including the challenging area of building channels of communication between farmers, service providers and government officials. "In the first phase of CDAIS learning," said Hossain, "I learnt the roles of each stakeholder, and it was effective for sharing knowledge and ideas on farmer organisations, and the benefits of working together to achieve our common goal. In the second phase, I got to know the multi-stakeholder partnership concept. And when the facilitator involved each stakeholder through playing a networking game was excellent, with lessons learnt for all stakeholders."

The second phase of capacity building was also received enthusiastically, including sessions on leadership skills, building trust, effective communication, participatory decision making, and review and reflection. After that, issues were discussed with service providers, including how they could make changes to overcome challenges identified by farmers and how the platform could work better for the partnership. Chakma said, "training on monitoring, evaluation and learning helped me understand target-setting, identifying root problems, and achieving targeted goals within limited time frames. Coaching has also helped me prepare action plans and [in] sharing experiences with full participation through use of effective exercises.

In phase 1 training, I learnt how to work in a group, group formation, rules and regulations, networking, and benefits for getting fair prices and bargaining. There was an existing fruit growers organisation, but it was not working due to lack of functional capacity skills. After CDAIS coaching, we formed the 'Bandarban Pineapple Growers Organisation' and I was elected the treasurer based on my past record of honesty and commitment.

### Feeding into a national policy dialogue

A national policy dialogue was held in Dhaka on 19 September 2018, organised by national CDAIS partner the Bangladesh Agricultural Research Council. The aim was to draw the attention of government policy makers to the issues and potential solutions arising from CDAIS activities in the country's selected innovation partnerships that could not be resolved after regional-level dialogues. Jessi Chakma, representing pineapple producers, presented five main issues. The first was that there are no central collection points or marketplace for selling pineapples in Bandarban, and local administrations impose tolls/levies on pineapples, particularly during transportation. Second, there is no pineapple-processing facility, whereas countries such as Thailand, Vietnam and the Philippines have created ample opportunities for producing and marketing value-added products. Third, local communities urgently demand the establishment of a brand for locally produced 'Bandarban' pineapple based on its special characteristics. Fourth is the need to strengthen value-chain activities supported by local- and national-level institutions through multi-stakeholder platforms. And finally, noting the enormous potential for fruit production, Chakma said that Bandarban deserved to have its own agricultural research centre. The chief guest, Dr Mohammad Abdur Razzaque, Member of Parliament and Chairman of the Parliamentary Standing Committee, Ministry of Finance in Bangladesh, gave consent for solving the issues with the help of a multi-stakeholder partnership process including donor agencies.





*Members of the pineapple partnership meet regularly to reflect on progress and decide what further changes are needed*

CDAIS is a fulfilment of our desires to build our functional capacities, including networking, leadership development, building confidence, and participatory decision making processes.

In addition, a regional policy dialogue workshop on pineapple innovation partnership was organised by CDAIS in Bandarban and in the presence of Naba Bikram Tripura, Chairman of the Chittagong Hill Tracts Development Board, Rangamati, other government and non-governmental officials, the media, local leaders and others from the partnership. Important policy issues were raised, including the need to establish collection points and marketplaces, and a specialised source of credit for developing community-based entrepreneurs in agribusiness and agro-processing – and government support was offered. Hossain noted, “I learnt what issues could be solved at the regional level and what required national-level changes. The workshop was very fruitful with good interactions between farmers and high government officials.”

## Realising change

Since the CDAIS interventions, a marked change in the attitude of farmers and stakeholder has been observed. New learning processes introduced by CDAIS have been readily adopted by farmers and other stakeholders.

“CDAIS learning processes have proved to be very effective for achieving our goals through involving all stakeholders.”

**Altaf Hossain** Deputy Director, Department of Agriculture Extension, Bandarban, Ministry of Agriculture

As a result, their understanding about the benefits of group work, action-plan preparation, networking, leadership development and participatory decision making has improved considerably.

Key achievements include that, together, they have identified themselves as a group with common interests, common problems and common solutions, and policy issues at both local and national levels have been explored. They finalised a coaching plan and began to implement it, with a new pineapple growers association having been formed; and they communicate with relevant stakeholders including government and non-governmental officials and input dealers. Before CDAIS, stakeholders did not sit together, but now they work for the common good, and have become accustomed to preparing an action plan and taking decisions as a group. As a result, problems have been gradually solved, and people’s attitude are also becoming more positive.

---

### Prepared by

Mohammed Jamal Uddin, National Innovation Facilitator for the pineapple partnership (jamaluddin1971@yahoo.com, +88 1815425857), and Rozana Wahab, Lead National Innovation Facilitator (rozana.wahab@yahoo.com, +88 1971636666).

Pineapple is one of three innovation partnerships in Bangladesh, identified during the scoping study of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/bangladesh](http://www.cdais.net/home/pilots-countries/bangladesh). CDAIS is implemented in Bangladesh by Agrinatura (represented by NRI, the Natural Resources Institute, part of the University of Greenwich, UK), FAO Bangladesh and the Bangladesh Agricultural Research Council (BARC), in partnership with other institutions, depending on the innovation partnership.

## 06 PINEAPPLES – PUTTING PLANS INTO ACTION



### Pineapple

**Location:** Chittagong division, Bandarban district, Bandarban Sadar Upazila

**Aim:** Strengthening existing marketing and producer organisations for a sustained pineapple sector

**Facilitator:** Mohammed Jamal Uddin

“ I thank CDAIS for working with us and helping us realise the potential of our ‘Bandarban’ pineapple that is special in terms of its sweetness, juicy flavour, size and high market demand.”

**Altaf Hossain** Deputy Director,  
Department of Agriculture Extension,  
Bandarban, Ministry of Agriculture









**BURKINA FASO**



BURKINA FASO

# A MARKETPLACE OF INNOVATIVE IDEAS

**Nomandé Prosper Kola** Lead National Innovation Facilitator, Burkina Faso

**Marc Gnoumou** National Innovation Facilitator

September 2017





“Participation in this ‘marketplace’ made me realise how so many people involved in agricultural value chains are becoming more and more innovative.”

The CDAIS ‘marketplace’ to promote agricultural innovations in Burkina Faso took place on 6 July 2017 in Ouagadougou. It was a rich event involving more than 80 people who are working directly with, or interested in working with, different partnerships. The marketplace allowed stakeholders in the six selected partnerships to get to know and develop relationships with suppliers of agricultural support services. It also provided an opportunity for service suppliers and other participants to show their interest in accompanying the partnerships on their respective journeys.

“Before, I had a ‘traditional’ view of agriculture, as subsistence farming,” said Kaboré François, Agency Network Manager of Orobank. “But participation in this ‘marketplace’ made me realise how so many people involved in agricultural value chains are becoming more and more innovative, using new processing techniques to increase their incomes. And this attracts the interest of bankers.” He added that Orobank did not hesitate to accept the invitation to take part.



*The marketplace was recognised by all participants as an effective and valuable means of starting to work together.*

“Our company strategy places the agricultural sector in prime position regarding investment. As such, it was very useful to learn about existing agricultural innovations, increase our visibility, and to better position ourselves for the future.”

“My motivation for participating in the marketplace was to look for partners and attract donors,” said another participant, René Emmenegger of CNABio, the national council for organic agriculture in Burkina Faso. “I wanted to find innovative and appropriate approaches to promote our GSP organic agriculture label – and the marketplace allowed us to increase our visibility, make many new contacts, and gather a range of possible support.”

## The marketplace

This idea, developed and implemented by CDAIS, brought together 80 stakeholders, in addition to all those mobilised for the organisation of the day’s activities. They included representatives of civil society and non-governmental organisations, government services, education and research organisations, financial and micro-insurance institutions, support services, producer and processor organisations, bilateral organisations, international development agencies, and national projects, programmes and funding bodies. The media also covered the event.

“The marketplace helped to convince me that agriculture in Burkina Faso is undergoing a fundamental change.”

**François Kaboré** Agency Network Manager, Orobank



## Opening

The opening ceremony started after beneficial rain fell in Ouagadougou on the morning of 6 July 2017 – seen as symbolic for ‘watering’ the ideas that would grow throughout the day. Representatives from government ministries and international organisations heard speeches from the Ministry of Higher Education, Scientific Research and Innovation (MESRSI) and the Food and Agriculture Organization of the United Nations (FAO), which recognised the significant experiences already gathered by the CDAIS project in Burkina Faso. These were followed by presentations on CDAIS’s aims, activities, approaches and expected results. Then, the micro-enterprise innovation partnership was presented as an example of one of the six national partnerships, including an explanation of the need for strengthening capacities at this level. Then, everyone visited the stands of the various support services, which each had to make the most of a two-minute opportunity to present their ‘offer’.

“Agricultural production is clearly becoming more and more commercial, and of interest to the financial sector.”

**François Kaboré** Agency Network Manager, Orobank

## Innovation partnership world café

The innovation partnership world café comprised six ‘innovation partnership’ groups of about ten people, each associated with one of the innovation partnerships: micro-irrigation, organic labelling, producer-organisation services, sunflower production, micro-enterprise development, and land-tenure reform. Participants were invited to join those stands corresponding to an allotted group number, and an ‘expression of interest’ sheet was given to every participant, to collect the interests of partners to assist the different partnerships with what type of support they could supply. This took place in six rounds of about 20 minutes each. During each round, partnership leaders and facilitators had 15 minutes to present their needs for building functional capacities, followed by five minutes of exchanges.



*Some of the discussions in the partnership world café.*



*Part of the support services world café.*



*Finally the sheets were analysed by a specialised team.*



## Support services world café

In parallel with the partnership world café and organised in the same way, a dozen invited support services presented what they had to offer at the marketplace, during the 'support services world café'. Turns were taken, with five minutes to present and five minutes to answer questions. All participants were also asked to complete 'expression of interest' sheets, with different ones being used depending on participants' actual and potential roles.

## Marketplace feedback

Towards the end of the day, those responsible for monitoring, evaluating and capitalisation of the CDAIS project presented findings from 256 registered expression of interest sheets. Of these, 79% showed an interest in accompanying at least one of the partnerships.

Partners stated that they could offer support in the following areas: access to financial and micro-insurance services, diffusion of large-scale innovation, on-farm innovation, experimental design, incubation of innovative projects, and the market launching of innovative products, among others. They also noted coherence between the needs of the partnerships and the offers made. And of these, 86% expressed a desire to use such support services as offered.

## Closing remarks

The closing ceremony was marked by statements from the Burkina Faso CDAIS project coordinator and the FAO representative from Rome. They thanked all the participants for their full participation and interest shown in the marketplace, and invited everyone to remain available and become more involved in the implementation of CDAIS. Kaboré concluded by saying, "The marketplace allowed us to realise that efforts





are being made to innovate in the agricultural sector in Burkina Faso. We also realised that these innovations focus on family-oriented, market-oriented agriculture, and new processed products we saw, such as new micro-irrigation systems and techniques for producing high-quality, high-market-value sunflower oil. These made me realise that the agricultural sector is no longer isolated, but is increasingly opening up through the development of collaborative capacities.”

## In conclusion

This ‘marketplace of agricultural innovations’ was seen by all as a great success. It clearly achieved its objectives, as was seen by the input of all participants, the number of expressions of interest to collaborate, new contacts made, and the responses of so many of those invited. In all, 97% said that it was an effective means for building partnerships with other actors. But participants noted that more time would have been better. Activities were intense and they would have preferred more time to listen and to talk at each stand. The words of one participant were representative of most: “Next time, we would like two days, and not just one, to make the most of such an event.”

Emmenegger of CNABio added what he gained from the day: “We learnt a lot about existing support services and benefited greatly from sharing experiences with them. We will make firm appointments with donors who indicated their interest in accompanying us, plan to use Agridata to share price information and the availability of certified products, and will solicit the services of TallMedia Group to help us increase our label’s visibility. This has created confidence amongst those involved in the CNABio partnership, building on the collaborative approach and joint reflection inspired by CDAIS. And implementation of the accompanying plan will be a masterpiece of this dynamic.”

---

### Prepared by

Nomandé Prosper Kola, Lead National Innovation Facilitator (kola.nomande@gmail.com, +226 76696042); and Marc Gnoumou, National Innovation Facilitator (mgnoumou@yahoo.fr, +226 76060629)

CDAIS is implemented in Burkina Faso by Agrinatura (represented by CIRAD), FAO Burkina Faso, and the Ministry of Higher Education, Scientific Research and Innovation (MESRSI), along with other partners for other niches. For more information, visit [www.cdais.net/home/pilots-countries/burkina-faso](http://www.cdais.net/home/pilots-countries/burkina-faso).

## 07 A MARKETPLACE OF INNOVATIVE IDEAS





BURKINA FASO

# ORGANIC CERTIFICATION TAKES ROOT

**Nomandé Prosper Kola** Lead National Innovation Facilitator

**Lassaya Nikiema** National Innovation Facilitator for the BioSPG partnership

January 2018





“We used to have poor soils and problems with the growth of our crops. Today, we see that organic farming gives better results.”

“Thanks to the money I earn from producing organic vegetables, this helps with the costs of schooling my children. I also feed my family with healthy food, and don’t buy any vegetables at the market anymore,” said Clarisse Ilboudo, a farmer in the Koubri women’s organic producers group, Kadiogo province, Burkina Faso. The Koubri women’s group is supported through ‘Bio SPG’, a national organic agriculture label based on a participatory guarantee system approach, supported by the CDAIS project as one its innovation partnerships.

The Burkina Faso Bio SPG (Système Participatif de Garantie – Participatory Guarantee System) label is one of the first national organic labels in West Africa. This approach to organic production and certification is an innovative system supported by the CDAIS project. The main stakeholder in this value chain is the National Council for Biological Agriculture (CNABio), which oversees organic certification using the ‘SPG’ methodology.



*Clémence Samba, Facilitator for the SPG innovation partnership, supports Ima Abdila and Clarisse Ilboudo through regular visits in commercialising their products.*

## The participatory guarantee system approach

The participatory guarantee system approach is an innovative process for organic labelling that includes many stakeholders in the value chain. This broad base ensures that there is better ‘ownership’ and thus a greater respect for the standards, characterised by participatory and multi-stakeholder processes. Certification is coordinated by different structures at three levels.

- Local control group (GLC, Groupe Local de Contrôle) – a small group of producers, processors and consumers jointly check compliance directly with other producers and processors.
- Operator control office (BuCO, Bureau de Contrôle de l’Opérateur) – a member of the National Council for Biological Agriculture (CNABio) organises producers among different local control groups.
- CNABio Central Committee (CCC, Comité Central du CNABio) – a structure of the CNABio executive office takes decisions independently, regarding the certification process.

## BioSPG – more than just certification

When a farmer decides to adopt certification, all groups are involved, with control of practices in the field made by the GLC, and the final decision for certification given by the CCC. Because so much farming in Burkina Faso is characterised by excessive and unregulated use of agrochemicals, organic agriculture is already an innovation in itself. But the SPG process goes beyond certification by engaging local peer groups in the whole process.



## Accompanying producers on the road to certification

Clémence Samba is employed by CNABio and became a facilitator with the CDAIS project. She has supported the certification process of the Watimona association (literally “come, it is all good” in the local Mooré language). And her involvement also helped with the establishment of an active women’s group. Sitting under a mango tree, Ima Abdila, Watimona Coordinator for organic production, told the story of how they got involved in the CNABio organic-certification process, up to when they received full certification in October 2017: “Our president had heard about CNABio and certification, and she told us about it. At the beginning,



*Mr Ima Adbila shows how organic practices are being used, such as composting and growing different crops and varieties together.*

we were not really sure because we could not see the real interest. Afterwards though, we realised that it would not change our ways of working, but it would strengthen them, and help us to be better able to sell our produce.”

## Challenges to organic production and certification

Many producers do not engage in organic certification because of strong competition from conventional producers, and they fear not being able to find avenues to sell their produce. In response, CNABio accompanies and reassures new members by confirming the opportunities

## Increasing visibility

A CDAIS workshop was held on 9 October 2017 at the Ministry for Agriculture, Ougadougou; the ministry oversees the Bio SPG certificate and guarantees the organic integrity of products from certified farms. On that day, 16 organisations (including Watimona) received their certificates. The workshop, entirely financed by the CDAIS project, aimed to give wider visibility of certified organic products to consumers. The limited involvement of national and local authorities so far has slowed the development of organic production, so this was communicated to stimulate government support. This activity was also part of the capacity strengthening within the partnership, to add to the ability of being better able to influence strategic and political process. A total of 90 people attended, representing political and traditional authorities, technical services, non-governmental organisations, research institutes, consumers and those involved in CNABio. The event benefited from wide media coverage – online and audiovisual and broadcast on the national TV news. A representative of the Burkina Faso Government, His Excellency Le Larlé Naba Tigré, gave the audience a powerful testimony: “Food is a weapon. It is the deadliest weapon ever. That is why I invite the various stakeholders in agriculture and the media to work together for the better promotion of organic agriculture of which the SPG is one of the keys.”



*His Excellency Le Larlé Naba Tigré presents his praise for the work. On his right, Clémence Samba, CDAIS Facilitator for the SPG innovation partnership.*



Clarisse Iboulo

for selling at higher prices, and by strengthening links between producers and consumers. Clémence Samba highlighted the public webpage of the CNABio website that gathers together all the markets for organic products: “We have a lot of consumers who ask where they can buy organic fruit and vegetables. Listing all the producers and giving them more visibility is one of our missions. In this way, consumers can also come and buy directly from certified organic farms.”

“Commercialisation is a challenge. This is why the CDAIS project supports CNABio. We need to strengthen our capacities to structure our partner’s network and give more visibility to organic agriculture.”

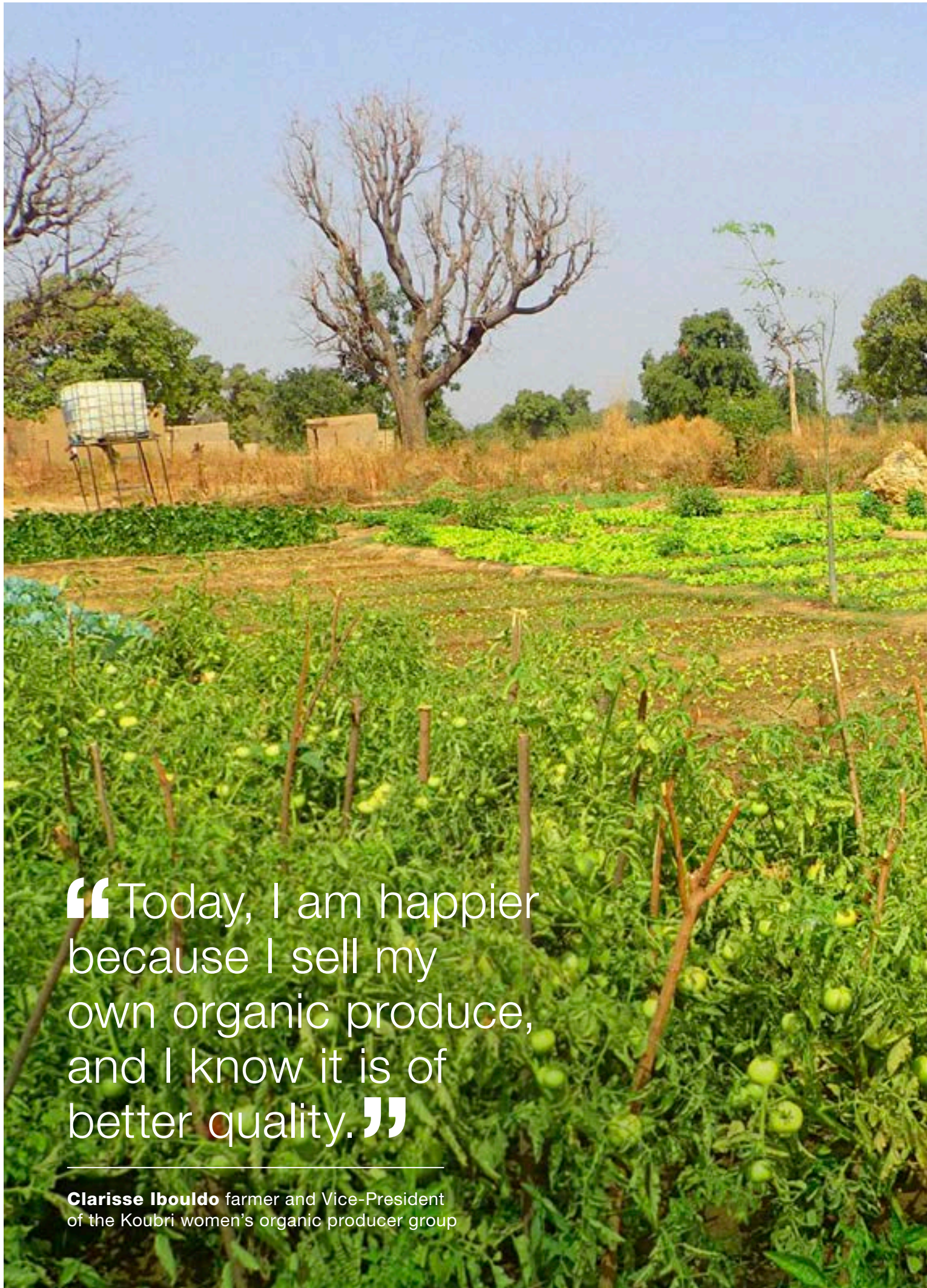
**Clémence Samba** CDAIS Facilitator for the SPG innovation partnership

### Supporting women’s groups

Clarisse Iboulo is an organic farmer, and also vice-president of the Koubri women’s organic producer group. Before becoming an organic farmer, Iboulo use to sell her conventional vegetables at the market. “My organic vegetables are a bit smaller so it is hard for me because for the same price, consumers want more vegetables,” she said. “But my vegetables are healthier!” Thanks to the extra income she now earns, Iboulo can better support household expenditure and, in particular, the costs for her children’s schooling. She also feeds her own the family herself with what she produces.

Around 20 women farm in this area, but only half of their land is cultivated because of a lack of water. Watimona wants to install a larger water pump and invest in a more advanced irrigation system including the construction of two new storage tanks. But even before this, other solutions are being tested and implemented such as the use of buried earthenware jars. More than financial and technical support, Watimona is also a customer, as the association itself buys around 30% of the group’s production to supply the local school canteen, where some of the producers’ children are studying!





“Today, I am happier because I sell my own organic produce, and I know it is of better quality.”

---

**Clarisse Iboulo** farmer and Vice-President of the Koubri women's organic producer group





*Clarisse Iboulo on her farm,  
and proud of her harvest*





“We still have a lot of work to do on raising awareness and increasing knowledge amongst consumers and authorities that are not seizing the opportunity of organic agriculture. That is why we will soon launch a radio programme to target a new public,” explained Samba. The advantages of organic food on human health are not well known in Burkina Faso, and more support from research and the effective diffusion of results are needed to help scale up the SPG and the benefits of organic agriculture.

During a capacity needs assessment workshop for this innovation partnership at the beginning of the project, CDAIS helped stakeholders to voice their issues, needs and concerns. Lack of collaboration and among stakeholders was highlighted and, as an answer, stakeholders spontaneously began to provide answers without waiting for further CDAIS interventions. As a result, a monthly meeting of organic producers was established in Ouagadougou and this gave birth to the idea of organising a marketplace of organic produce in which the women from Koubri will participate.

## And tomorrow?

Farmers spoke with one voice: “We hope we will be able to produce much more on our farms, because we see that the technical practices are effective. Before, we used to have poor soils and problems with the growth of our crops. Today, we see that organic farming gives better results, so we want to keep producing and increase our productive capacity.”

---

### Prepared by

Nomandé Prosper Kola, Lead National Innovation Facilitator (kola.nomande@gmail.com, +226 76696042); and Lassaya Nikiema, National Innovation Facilitator for the BioSPG partnership (rimwend@gmail.com, +226 76009259)

Bio SPG is one of five innovation partnerships in Burkina Faso being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/burkina-faso](http://www.cdais.net/home/pilots-countries/burkina-faso). CDAIS is implemented in Burkina Faso by Agrinatura (represented by CIRAD), the Ministry of Higher Education, Scientific Research and Innovation (Ministère de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation, MESRI), and the local office of FAO.

## 08 ORGANIC CERTIFICATION TAKES ROOT





BURKINA FASO

# WOMEN LEAD THE WAY IN RURAL ENTERPRISES

**Armel Hien** National Innovation Facilitator, monitoring, evaluation and learning

**Raymond Kiogo** National Innovation Facilitator for the family micro-enterprise partnership

June 2018





## “Quality is what we need – and the quality of our new relationships helps us with the quality of our cereals”

For many years, rural women have been creating their own food processing companies that promote local agriculture by bringing to the market original foods in products that are accessible to urban populations. The aim of CDAIS is to support these companies' development by strengthening their capacities to experiment and learn together, as well as to negotiate and make contracts with suppliers and traders. And Dakoupa in Bobo-Dioulasso is one of many small family businesses supported by CDAIS through the women-led agri-food processing micro-enterprise innovation partnership.

The courtyard of the house is clean, calm and orderly. Outside in the streets, the soil is a red, dry clay, that blows away at the slightest gust of wind, and settles in every corner of every room... Apart from a few bags of maize that can be seen under the porch, nothing appears out of place, and it looks like any other traditional well-kept house. But appearances are misleading. Who would believe that this courtyard is a food-processing factory and the hub of a company that employs six women? Catherine Gnoula has been the manager of this processing unit for more than ten years, and her experience – most recently with support of CDAIS – has allowed her to grow her business, network and build trust with producers and traders.

### Women lead the way

Bobo-Dioulasso in the Hauts-Bassin region in the southwest of the country has fertile soils and relatively high rainfall. It is a large cereal-producing area, but there are few outlets. The food processing sector supported by CDAIS is therefore fundamental for the support and development of the various actors, including producers, processors, intermediaries and resellers.

The CDAIS project supports Gnoula in her role as an food processor to achieve success in her business. One of the main difficulties for women entrepreneurs is building trusting

relationships with producers. So, CDAIS facilitators assist by organising arrangements whereby women entrepreneurs can work regularly with producers. For example, Gnoula explained, “with the support of CDAIS we had a workshop with grain producers during which we were able to discuss our needs in terms of variety and quality.” Another participant added, “producers were also able to explain their constraints, and they could also talk to each other about production techniques, because many were from different regions.”



*Dambélé Ouandé dries maize flour on tables in the courtyard of her house.*



## Creating a space to share views – the CDAIS approach

The support team conducts training and exchange activities between grain producers and women entrepreneurs. Never done before, these innovations have allowed the various actors in the sector to work together, enabled the exchange of contacts for future collaboration, and helped to increase the efficiency of agricultural value chains.

An example of this CDAIS-supported exchange was a workshop in Bobo-Dioulasso on 7 December 2017 that brought 15 producers together with five women processors, members of the Réseau de Transformateurs de Céréales du Faso. Facilitated by Adama Traoré from the national agricultural researcher institute (INERA) and Raymond Kiogo, National Innovation Facilitator for the family micro-business partnership, the day focused on sharing information for better collaboration. Adama Traoré also introduced different high-yielding and high-quality cereal varieties, some previously unknown to the producers.

The women had the opportunity to explain the challenges they face in having to work with poor-quality cereals, highlighting the need for becoming involved in the process. And, as Traoré explained, “such exchanges are really important. We have connected producers and distributors before, but have not really linked producers and processors. And the results are amazing.”



*During the producer and processor exchange workshop, Catherine Gnoula could show off the many and varied goods produced by her family micro-enterprise.*

“Us processors are not simple people!” exclaimed Gnoula, President of the Dakoupa unit in Bobo-Dioulasso that makes maize, fonio, sorghum and millet into couscous and other products. “Food processing units are traditionally run by women because we are the ones who manage food in our homes – but setting up a processing business is different.”

A second pillar of CDAIS support for processors is to help the drawing up of business contracts. Dambélé Ouandé

manages the Wendmanegda processing unit, a few streets away from Dakoupa. Since she first became involved with CDAIS, she has felt more confident in negotiating with producers, because she now knows what she wants and how to express it better. “The quality of the cereals we process is fundamental for us – to make good millet couscous, we need good cereals!” she explained. “So the contract should not necessary fix the price in advance, but it should assure the quality and quantity of cereals that we expect.”



### The constraints of women entrepreneurs

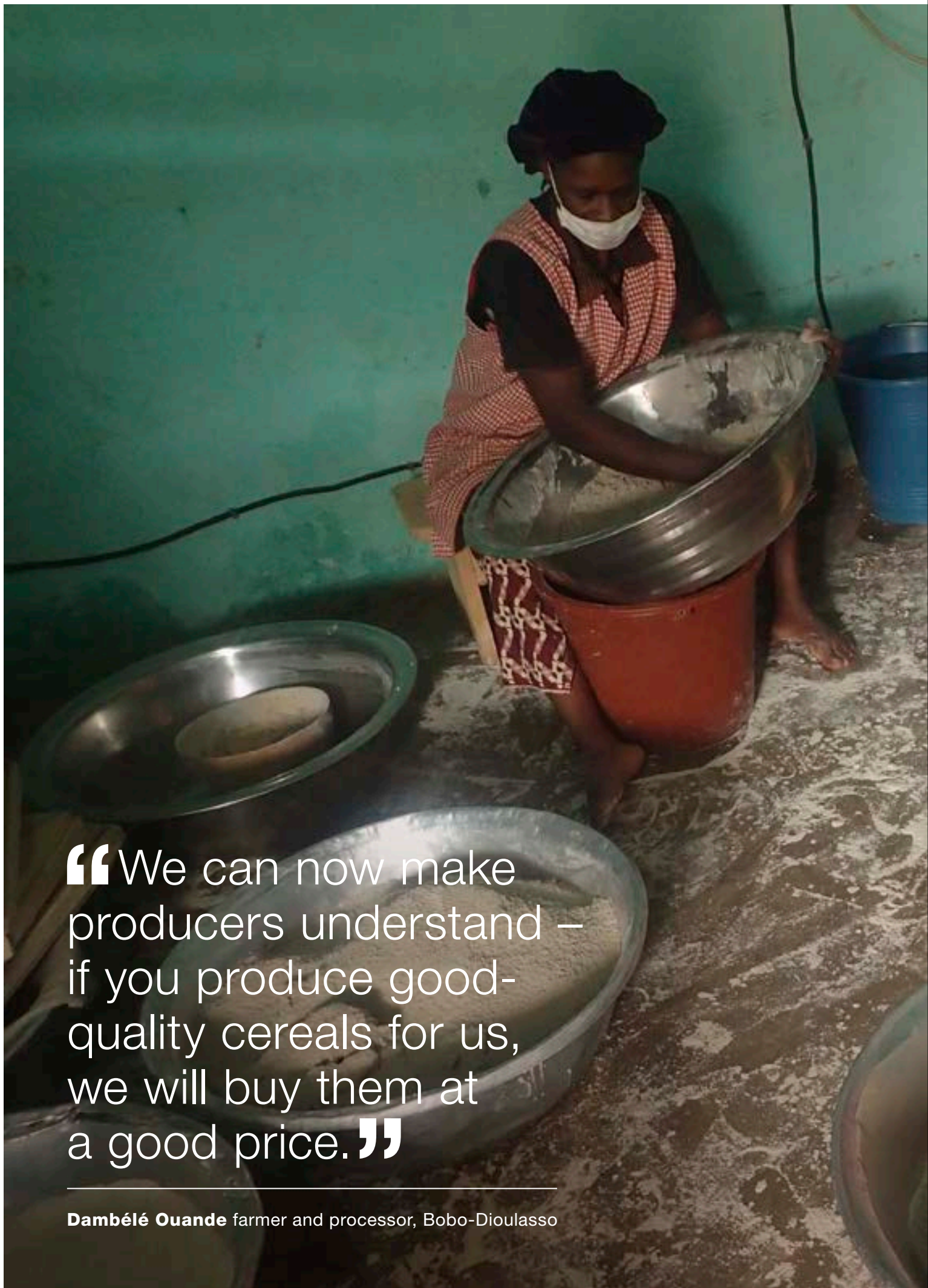
Gnoula and Dambélé face similar difficulties, with suppliers on one side and their employees on the other. Often, they find stones and plant stems or cobs mixed with the cereals, as farmers do not put enough emphasis on producing a pure high-quality product, or dishonest farmers mix them in to make the bags heavier. In these cases, employees must spend many hours sorting by hand, which is time-consuming, tiring and uncomfortable work. Dambélé added, “and it is difficult to keep women in this job for a long time because I cannot afford to pay them more for the extra work they do, and yet, this is essential work for the company.”

### Entrepreneurial dynamics supported by research

Gnoula has now integrated herself into various projects in Burkina Faso and, thanks to one of these networks, has acquired a grain drier, corresponding exactly to the needs of her business, and allows her to dry millet and fonio flour in just three hours, and the variety of foods that can be dried is wide. “The advantages of the drier are that drying is faster, quality is better and, above all, I can work in any season,” says Gnoula, “and so I don’t need drying tables any more, which cannot be used when it’s raining or windy.”

Complementing CDAIS, other applied research projects are also interesting for Gnoula, when they aim to improve the





“ We can now make producers understand – if you produce good-quality cereals for us, we will buy them at a good price. ”

---

**Dambélé Ouande** farmer and processor, Bobo-Dioulasso





*Catherine Gnoula and her employees mix maize flour in their kitchen workshop.*



# BURKINA FASO



*Gnoula's new dryer, a much-needed addition to her enterprise.*

“The advantages of the drier are that drying is faster, quality is better and, above all, I can work in any season.”

**Catherine Gnoula** processor, Bobo-Dioulasso

sector in ways appropriate to the reality of entrepreneurs, and offer concrete answers to obstacles she sees for the development of her business. And she is very happy that, with support from CDAIS, she has been able to draw up grain-purchase contracts and also a lease contract for land they have rented for two years. Gnoula had never before signed a lease agreement, and this has helped her guarantee the stability of her business. The CDAIS support team made her aware of the importance of such contracts to reduce the vulnerability of the business and accompanied her in what proved to be a difficult but essential negotiation process.

## And on to the next stage...

Being a processor in a small family unit in Burkina Faso is a daily challenge, with insecurity in the supply of raw materials, ignorance of cereal prices, lack of contracts

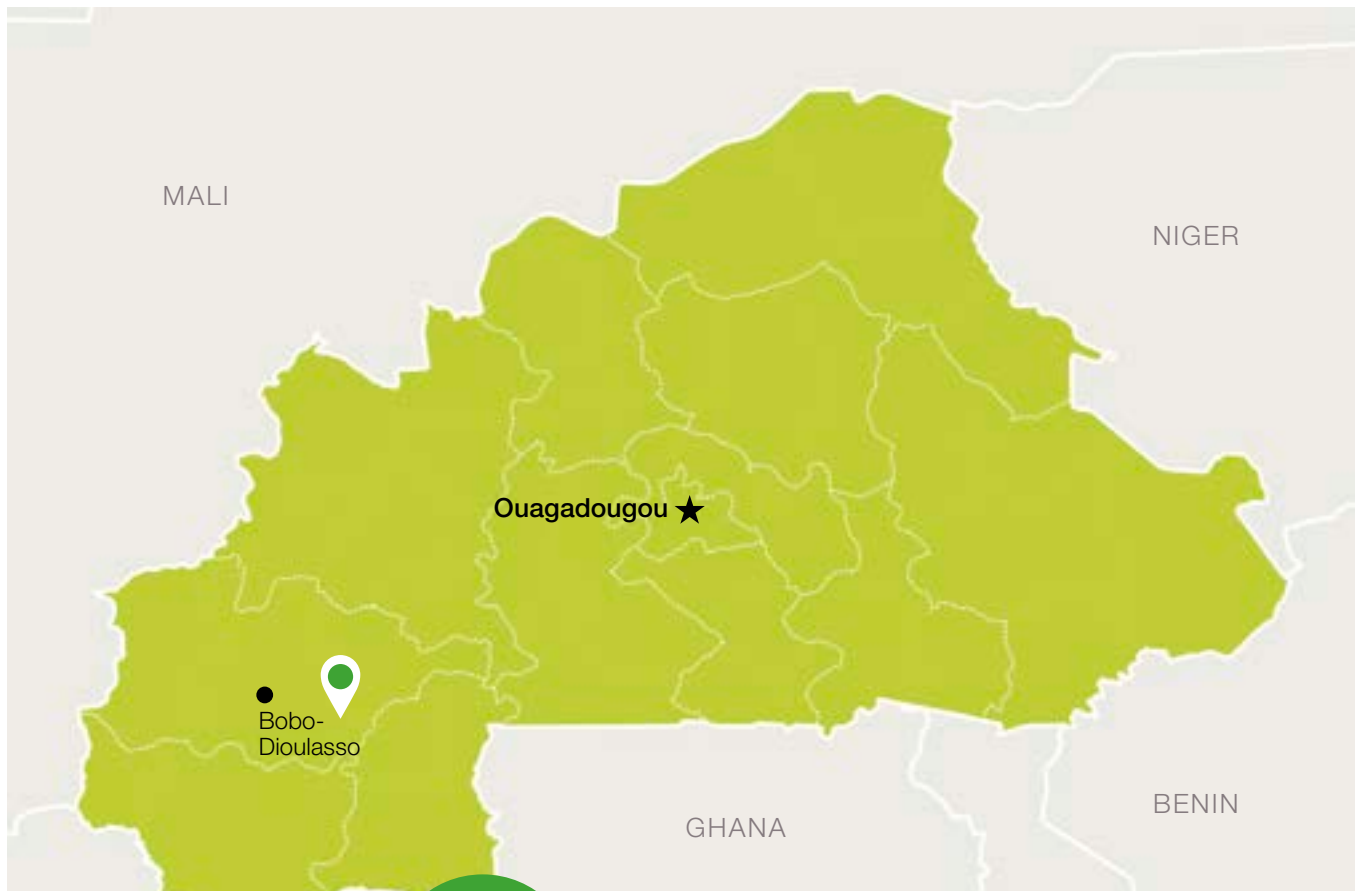
governing trade, and unstable markets. CDAIS works in partnership with the entrepreneurs, but challenges remain. However, Gnoula is confident. On the door of the workshop there is a sign based on a quote by Martin Luther King: “If someone is called to be a street sweeper, they should sweep streets so well that all the hosts of heaven and earth will pause to say, ‘here lived a great streetsweeper who did their job well’”. Gnoula says she is carried forward by this quote, because “even if our work seems insignificant, we must do it with dedication, because all work is important at its level.”

---

### Prepared by

Armel Hien, National Innovation Facilitator, monitoring, evaluation and learning, Ougadougou (hiarmel@yahoo.fr, +226 62417464),  
Raymond Kiogo, National Innovation Facilitator for the family micro-enterprise partnership, Bobo-Dioulasso (kiogeoraymond@yahoo.fr, +226 76004510).

Family micro-enterprises is one of five innovation partnerships in Burkina Faso being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/burkina-faso](http://www.cdais.net/home/pilots-countries/burkina-faso). CDAIS is implemented in Burkina Faso by Agrinatura (represented by CIRAD), the Ministry of Higher Education, Scientific Research and Innovation (Ministère de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation, MESRI), and the local office of FAO.



MALI


NIGER

Ouagadougou ★

Bobo-Dioulasso

GHANA

BENIN



**Family micro-enterprises**  
Supporting the development of food-processing innovations led by women

**Location:** Bobo-Dioulasso region

**Aim:** Improving quality of processed products, availability of quality inputs and processing equipment, and accessing to tailored financial services

**Facilitators:** Azara Nfon Dibie (GRET), Raymond Kiogo (IRSAT)

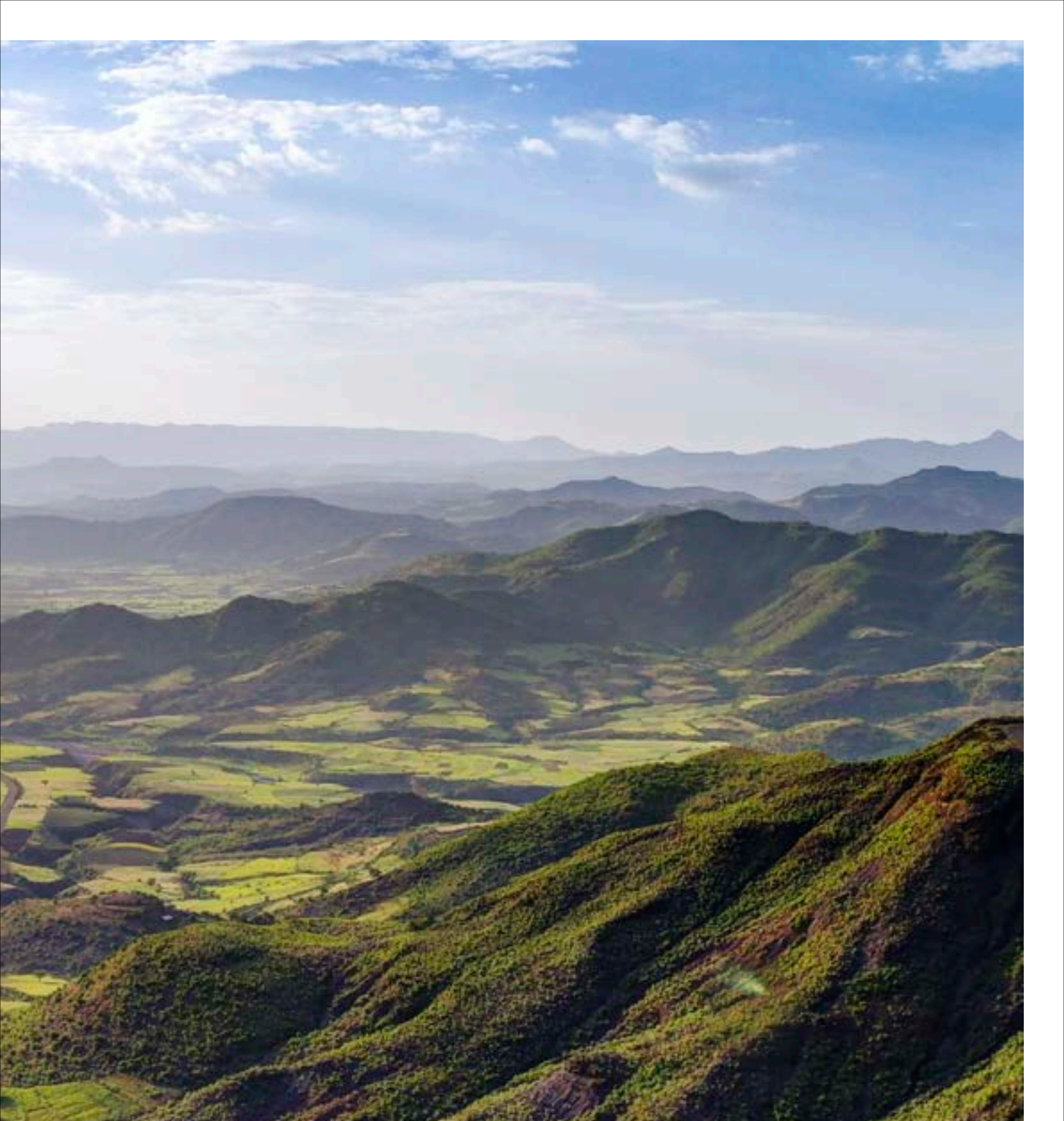
“It’s not always easy to implement good practices. I don’t have the space to separate everything, for example, though I know it would be better. But we are walking forwards, advancing, even if we know that everything is not perfect.”

**Catherine Gnoula** processor, Bobo-Dioulasso









# ETHIOPIA



ETHIOPIA

# FEED SAFETY – CHANGE THROUGH LEARNING

**Getachew Asmare** National Innovation Facilitator for the feed safety and quality innovation partnership

September 2017

10



“We can achieve change only by promoting innovative ways to learn, reflect and work together.”

“I see mindset shifts being promoted by CDAIS,” said Gemechu Nemie, Director of the Ethiopian Animal Feed Industry Association and a key member of the livestock feed safety and quality innovation partnership. And this is the sort of change that the CDAIS project is beginning to engender, as partners start to implement approaches that better promote innovation in agriculture, by inspiring small and simple personal revolutions. Ethiopia is one of eight CDAIS pilot countries and, within each, several ‘innovation partnerships’ have been selected. Here we see how one small step in one country is already making waves. “Milk is vital for a healthy society – and I now see a brighter future through new innovation thinking,” said Tsegay



*“I have been a dairy farmer since 2007 and now have 60 cattle. But the high cost and poor quality of animal feed, along with lack of attention or support, seriously hampers development of this sector” said Tsegay Teklemariam.*

Teklemariam, a dairy farmer in Goro on the outskirts of Addis Ababa. “And it is clear that to do so, we must develop on-farm feed production, and link with banks so we can access loans for investment.” He was recommended by the Ethiopian Ministry of Livestock and Fisheries to play a part in the new CDAIS programme because he sees the need to transform the dairy sector, is very happy to share his skills and experience, to learn from others, and to work together to achieve change. But, he adds, “we also need to set up an information-sharing mechanism, and to have continuous training and follow-up. There is much to do.”

## Livestock – an essential national resource

Ethiopia has more livestock than any other country in Africa. The sales of meat, milk and other animal products from 57 million cattle, 29 million sheep, 29 million goats, 7 million donkeys, 2 million horses, a million camels and half a million mules make up one-quarter of national gross domestic product (GDP), 45% of agricultural GDP, and provide 16% of foreign earnings from the export of live animals, hides and skins. In addition, but more difficult to measure, is the work these animals provide, for ploughing, threshing, and transporting farmers, families and farm products to market and bringing back domestic needs.

## From challenges to solutions

But the livestock sector could contribute much more to the national economy. Animal diseases, and poor-quality breeding stock and feed contribute to reduced production and sales. In response, the Ministry of Livestock and Fisheries has a vision and strategy of what can and needs to be done to develop the sector. Built on solid facts, realistic targets and priority interventions, CDAIS partners are actively supporting this – in new and innovative ways.



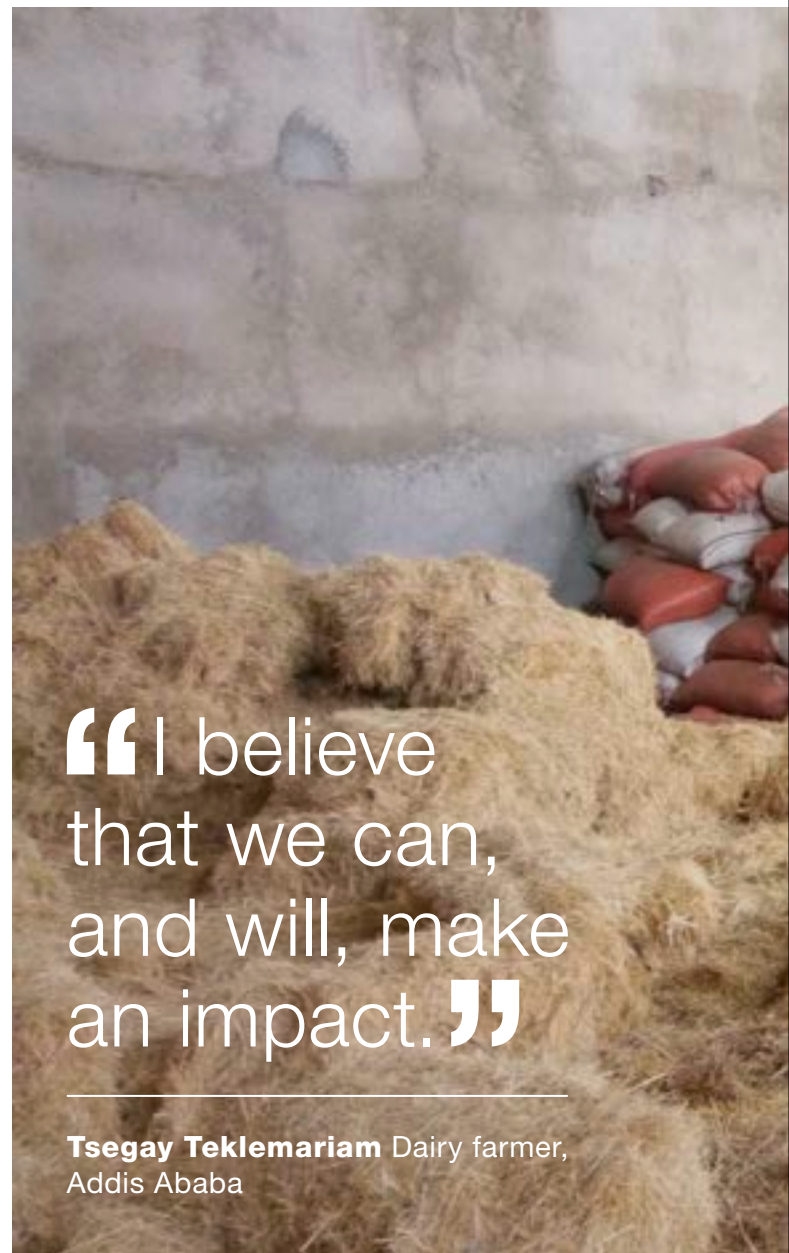
Research findings on the contamination of feeds by aflatoxin, published by International Livestock Research Institute (ILRI) scientists in 2015, prompted professionals and the feed industry to look more closely at the causes and control methods. Consequently, CDAIS partners helped to establish the 'feed safety and quality innovation partnership' under the auspices of a task force of the Veterinary Drug and Feed Administration and Control Authority (VDFACA). This partnership aims to overcome identified problems and ensure feed safety and quality along supply chains, with members including a wide range of stakeholders representing government ministries and authorities (including VDFACA), farmers, traders, the Ethiopian Animal Feed Industry Association, and the Ethiopian Poultry Producers and Processors Association, among others.

## Key sector needs

After three days of intense discussion, solutions were identified and proposed that would overcome challenges to meeting the quality, safety and adequacy of inputs in the livestock sector. The presence of aflatoxins was confirmed as a particular and increasing issue in the milk industry, for example. The partnership agreed to develop a directive on feed risk assessments, risk management and risk communication. During the process, stakeholders analysed causes and effects around poor feed safety and quality, and developed a detailed assessment of the causes and possible solutions. Thanks to the use of new tools, they also proposed a plan of action that would lead to definite impacts in the short to medium term.

## A farmer reflects...

"The CDAIS training helped me to gain new knowledge on feed safety and quality issues," dairy farmer Tsegay Teklemariam pointed out five months after attending the capacity needs assessment. He spoke from his milk parlour on how those few days had changed his way of thinking: "We all talked together about the history of the problem, the impacts of poor feed quality, aflatoxin concerns, possible solutions, and new global issues regarding feed safety. And, thanks to the training, I came to understand the concept and benefits of agricultural innovation systems by using new ideas, how to identify challenges and solutions, and how to



“I believe that we can, and will, make an impact.”

**Tsegay Teklemariam** Dairy farmer,  
Addis Ababa

reach an actual action plan through working with others.” Tsegay explained that “the visioning tool was especially educational. I tried to implement it in my own activities, and envisioned going into the milk and feed processing business in the future. It helped to give me a clear direction.” Thanks to CDAIS, change is happening.

## The bigger picture

A key stakeholder, the Ethiopian Animal Feed Industry Association (EAFIA), was established by feed-factory owners, private dairy farmers and feed-manufacturing cooperatives in 2008. It is a not-for-profit, non-political, democratic, voluntary and secular organisation legally registered with the Federal Ministry of Justice. EAFIA's vision is to improve the productivity and profitability of



## CDAIS capacity needs assessments

The ‘capacity needs assessment’ for the livestock feed safety and quality innovation partnership took place over three days, on 28–30 March 2017. It involved the active and intense input of 14 key stakeholders, including farmers and feed traders, facilitators and policy makers. It introduced new concepts and tools such as the ‘problem-and-solution tree’ and the ‘netmap’, opening participants’ eyes to different ways of seeing issues and identifying the most effective ways forward. As part of the CDAIS project, the same depth of analysis is being undertaken with every innovation partnership in every pilot country – 32 in total – yielding valuable changes around the world.



*Participants at the CDAIS training and assessment workshop learnt how to use new tools and work together to prioritise problems and clearly identify possible solutions.*



## Progress in 2017 and 2018

After the national coaching-plan workshop, a Feed Safety and Quality partnership coaching-plan workshop was held on 10 November 2017. Discussions helped to understand key bottlenecks and possible solutions leading to a refined action plan.

Then, after the first reflection and refinement workshop on 4–5 May 2018, the partnership's objective was revised to include the development of a directive on feed risk assessment, risk management and risk communication, with activities being revised accordingly.

Two partnership members and the national innovation facilitator attended the CDAIS marketplace event on 8 May 2018 in Addis Ababa, presenting two posters.

This led to expressions of interest from the World Bank's Livestock Micro Reforms in Agribusiness (L-MIRA) project and international economic development organisation ACDI/VOCA, to work with the partnership, the latter promising to offer US\$ 3000 to cover part of the cost of a consultant to develop the directive, and to enhance the knowledge and skills of partners in regulatory framework development.

members and contribute to the development of Ethiopia's livestock-feed industry. From the vantage point that EAFIA offers, its Director, Gemechu Nemie, added that the capacity need assessment workshop and the coaching-plan and monitoring evaluation learning workshop that followed had many other positive impacts.

"Above and beyond [this], I have realised the importance of the new tools we learnt, and how they stimulated thinking on how best to approach feed safety and quality issues," Gemechu continued. "I drew essential lessons from this, and feel that I have new skills. Thanks to CDAIS for enabling joint learning, new uses of knowledge and for creating an enabling environment for interaction. This has also inspired other members to develop legal frameworks and guidelines for risk assessment, risk management and risk communication to build a vibrant legal feed safety and assurance system. The intended legal framework will assist Ethiopia to meet international requirements, ensure human health, build consumer confidence in animal products, and legalise the often informal animal-feed business."

## What does the future hold?

"The CDAIS workshops had important impacts on my thinking. I recognised marked changes," said Gemechu, "and particularly in how to innovate." Using skills gained from CDAIS, Gemechu is planning to conduct a similar capacity

needs assessment survey of his own organisation to support the preparation of a five-year action plan. "I want to share knowledge and the skills gained from CDAIS." To do so, he wants the project to offer well-documented tools and best practices, along with experiences from the many different workshops, as "these could help convince others to follow the 'agricultural innovation systems' as the obvious way forward."

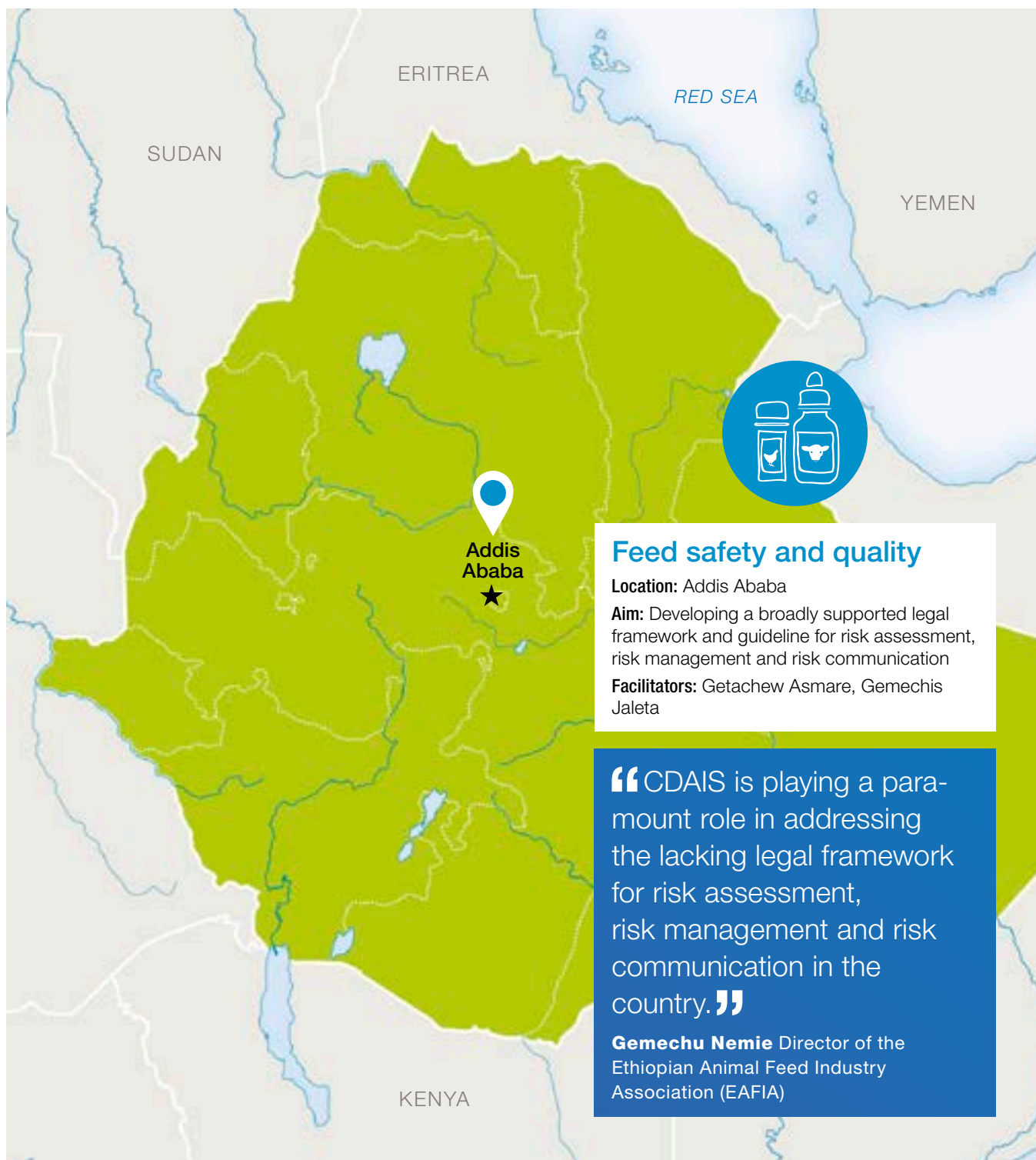
“I have a dream that other members of EAFIA can benefit like me.”

**Gemechu Nemie** Director of the Ethiopian Animal Feed Industry Association (EAFIA)

### Prepared by

Getachew Asmare, National Innovation Facilitator for the feed safety and quality innovation partnership (getasi97@gmail.com, +251 9 12 69 22 05).

Feed safety and quality is one of five innovation partnerships in Ethiopia being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/ethiopia/](http://www.cdais.net/home/pilots-countries/ethiopia/) CDAIS is implemented in Ethiopia by Agrinatura (represented by ICRA), FAO Ethiopia and the Ethiopian Institute of Agricultural Research (EIAR), along with other partners for other partnerships.



### Feed safety and quality

**Location:** Addis Ababa

**Aim:** Developing a broadly supported legal framework and guideline for risk assessment, risk management and risk communication

**Facilitators:** Getachew Asmare, Gemechis Jaleta

“CDAIS is playing a paramount role in addressing the lacking legal framework for risk assessment, risk management and risk communication in the country.”

**Gemechu Nemie** Director of the Ethiopian Animal Feed Industry Association (EAFIA)



# THE NEED FOR SEED — SUBTLE CHANGES

**Tegege Wakoya** National Innovation Facilitator for the seed partnership

**Kebebe Ergano** Lead National Innovation Facilitator

December 2017





## “The ‘need for seed’ improves agricultural yield, but requires more than just improved technologies”

To ensure food security, farmers must have access to quality seed, in adequate quantities. The Government of Ethiopia acknowledges this, and has responded by investing in improving the seed sector. However, as this example shows, not all challenges can be overcome by technical training and new technologies alone. A large seed cooperative union was faced with a problem that affected its very existence. And the solution was not technical. CDAIS became engaged, and now they are making concrete steps towards resolving the issue – which will have much broader knock-on benefits for all farmers in the region.



*Crop production is one of the mainstays of the rural population in Ethiopia, especially in the Southern Nations, Nationalities and Peoples Region, and adequate quantities of high-quality seed is crucial.*

“The problem is clear,” said Tessema Alemayehu, Head of the Farmer Seed Multiplication and Marketing Cooperative Union (EDGET). “The government’s regional quota system means that we have to reserve lots of seed for certain buyers. But not all of those buyers are legally obliged to buy, and if they don’t, we lose!” In 2012, some 600 tonnes of seed were left unsold, resulting in a loss to EDGET of 2.4 million Ethiopian Birr (US\$88,000). “That was the worst year, though even two years ago we still lost 500,000 Birr (US\$18,350) through unsold seed. This is not sustainable. But since CDAIS became involved, we came to see the problem much more clearly.” Tessema continued, “then at the coaching-plan workshop we saw what was needed, and at the validation workshop we agreed how key players would support us by lobbying Ministry of Agriculture officials.”

“Thanks to CDAIS, we are now moving quickly towards resolving our problems.”

**Tessema Alemayehu** Head of the EDGET seed cooperative union

### The rise of seed cooperative unions

The Ethiopian Government gives high priority to increasing crop production as a means of improving food security and rural livelihoods. As one example, the Growth and Transformation Plan aims to improve smallholder productivity by scaling up dissemination of agricultural technologies. But, despite so much effort, performance has been below expectations because issues of access to markets, information and technologies have prevented farmers from seizing emerging opportunities, making it difficult for smallholder farmers and traders to take advantage.

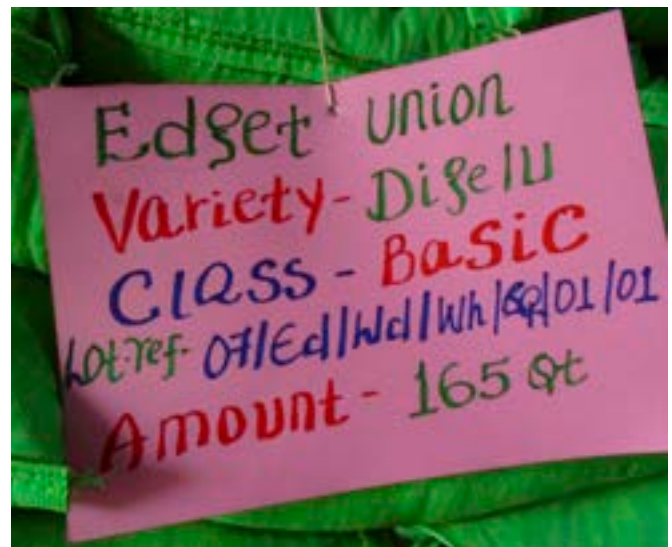




*1000 tonnes of high-quality seed to farmers every year, making a huge contribution to increasing food production.*

Improved seed is an integral part of increasing crop productivity. And, although public seed enterprises have played a key role, farmers' seed demand is not yet met. In response to this, the Southern Regional Bureau of Agriculture and Natural Resources decided to set up seed producer cooperatives, championed by the non-governmental organisation (NGO) Self Help Africa, and EDGET was the first in the region.

Established in 2009 by 12 seed-producing cooperatives with a total of 777 individual members, EDGET started with a capital of only 120,000 Birr (US\$4400). Today, it has



19 primary co-ops and 1186 members, employing 13 staff with a control committee and board of directors, working in six woredas (districts) – Lanfuro, Silti, Sankura, Sodo, Mareko and Meskan. Buoyed by this success, the region is now establishing more cooperative-based seed producers, such as Zereta Kambata and Halaba Holoresenka.

## CDAIS inspiring change

CDAIS is a global partnership that promotes capacity development for agricultural innovation, to make agricultural innovation systems more efficient and sustainable in meeting the demands of farmers, small agribusinesses and consumers. Since 2015, CDAIS has been supporting five partnerships in Ethiopia, one of which is community seed production and marketing, led by the EDGET cooperative union. Work here began with a capacity needs assessment workshop in March 2017, when the national legal regulation that limits seed marketing based on the enforcement of a regional quota system was identified as a key problem.

Beside the impacts on hindering the ability of all seed unions to achieve their goals, it has knock-on effects that prevent the government reaching its own targets. Those in the community seed partnership asked CDAIS to help organise more discussions with higher authorities in the Regional Bureau of Agriculture and Natural Resources, the Cooperative Promotion Office, the Southern Agricultural

## Coaching plans

The CDAIS coaching-plan process facilitates the building of functional capacities among actors in any given innovation partnership. For the community seed partnership, a coaching plan was developed in July 2017 by those involved in a workshop in Addis Ababa, specifying priority objectives, key activities needed to achieve them, indicators and actors of change. The coaching plan was then validated at a second workshop in Butajira in November, to confirm what was prepared in July and to update participants on objectives and progress made so far. The CDAIS facilitator Tegegne Wakoya presented the main coaching-plan issues before stakeholders deliberated, then made adjustments, and suggested activities that needed to be added including the lobbying of key decision makers ahead of a regional stakeholder workshop on seed markets, and preparing a policy paper. The validation workshop was concluded with participants showing their commitment to sharing roles in key activities.



*CDAIS Monitoring and Evaluation Expert Elias Zerfu animating the coaching-plan validation workshop. A great step forward was the offer made by several influential stakeholders to lobby the Ministry of Agriculture on behalf of the seed cooperative.*

Research Institute, and the Regional Seed Quality Control Agency, and to assist the union in lobbying decision makers for a change in seed-marketing regulations.

EDGET's vision is to contribute up to 70% of regional seed demand in the next five years, formulated into the coaching plan. Desta Daniso of the Southern Regional Cooperative Promotion Office summed up the issues, and how CDAIS was approaching them: "Cooperatives are trying to increase the capacity of farmers to produce quality seed, to increase output, to increase yield. But there is a problem because they can't always sell the seed, and that is an issue that technical approaches won't solve. CDAIS is offering an innovative way to address the issue."

“CDAIS is focusing on how to organise seed-marketing actors and how to get them to talk to each other, which is changing the situation more than any increase in technical skills.”

**Agdew Bekele** Southern Agricultural Research Institute

## Onwards and upwards

"This problem of seed distribution is not just an issue for this cooperative union – we need to resolve it at the regional level," said Fate Sirmollo. Working for the regional Agriculture Input Quality Control Authority, she added, "as such, I appreciated this meeting very much as it took us another step closer. When we have achieved the change we want, all seed unions and many more farmers will have access to more and better seed, which will help us to reach our goals of improving agricultural output and food security." The next step is to prepare a draft policy document and to begin to lobby ministry officials. And Tessema Alemayehu was very happy about this: "I am enthusiastic about learning how to lobby, and this is helping us a lot. And I am convinced that, through CDAIS, this is a very appropriate way to address many of the problems that we are facing, and that are not solved by providing technical support, finance or new buildings."





*Seeds of hope, seeds of change, seeds for food security.*

The next stage will be to build on this success and create a regional seed platform so that similar issues can be raised and resolved in a similarly effective and timely manner. Desta Daniso of the regional Cooperative Promotion Programme made this clear, “the agricultural extension system is limited, though NGOs are now coming in to help. But these new and different actors need to talk to each other and, so, making a platform will really help, and this will be a first as far as I can see.”

“CDAIS doesn’t buy machines or offer credit. But it provides something more, something different that other projects don’t: it builds capacity in soft skills.”

**Tessema Alemayehu** Head of the EDGET seed cooperative union

## 2018 update

Since this story was published in December 2017, the capital of the EDGET seed cooperative union has increased from 17 to 21 million Birr (US\$761,000). It now also satisfies demand for early generation seed through supply from its members, rather than depending on seed from research institutes, having more than doubled production from 70 to 160 tonnes. Production of certified seed has also increased by 50% from 800 to 1200 tonnes, with all being sold and none remaining, thanks to new contacts made through CDAIS that helped by become seed-selling agents.

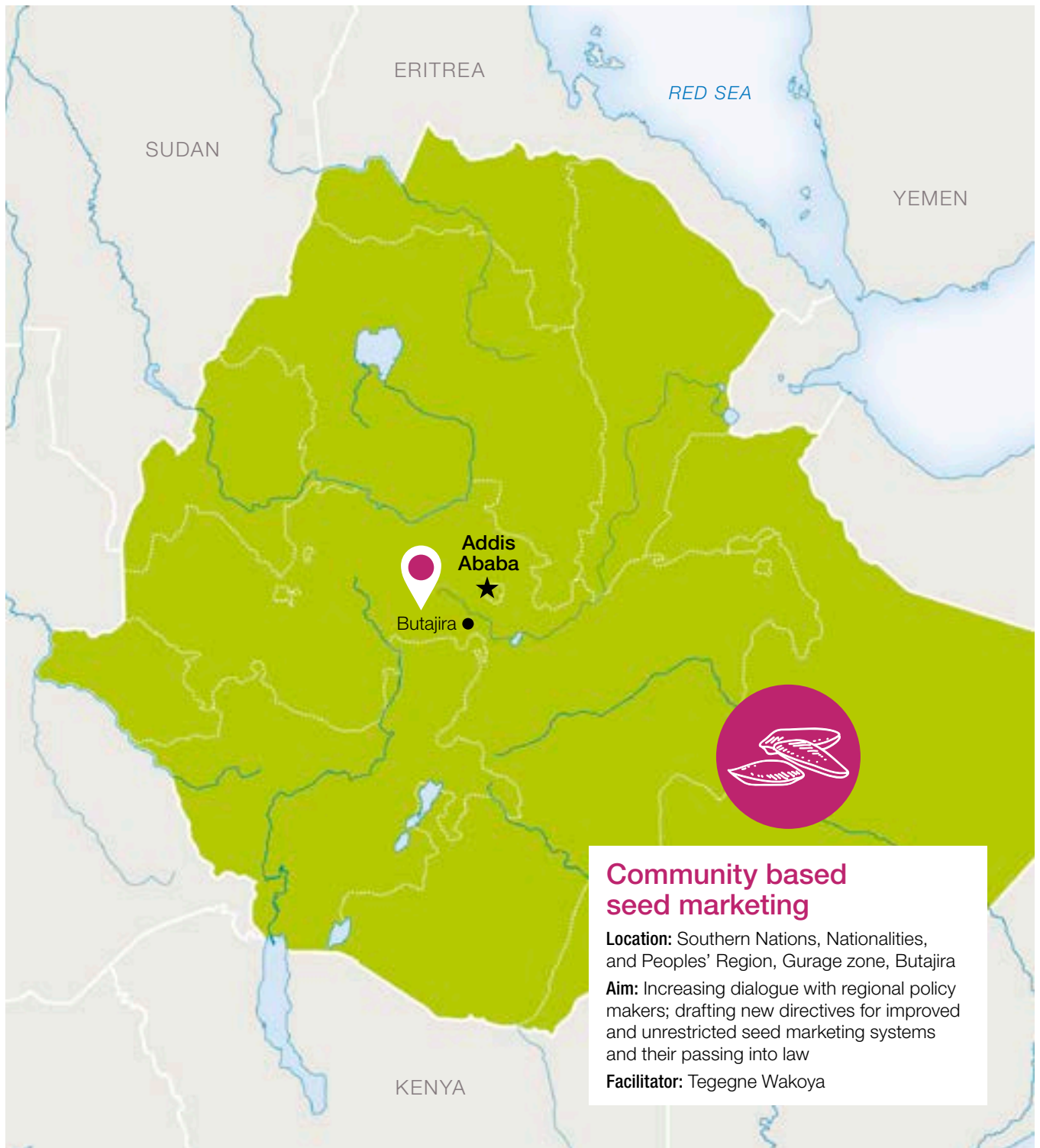
The CDAIS ‘marketplace’ event in May 2018 provided new links leading to new benefits. Four organisations appreciated the innovative idea of the partnership and promised to support in different ways. The Maize and Wheat Improvement Center (CIMMYT) and the International Livestock Research Institute (ILRI) offered support for crop and forage seed production, respectively, the NGO Self Help Africa helped with a funds to solve the problem of early generation seed, and the Integrated Seed Sector Development (ISSD) provided a US\$7000 row-planter machine. CDAIS does not provide machines, as we see here, it enables people and organisations to build the skills to obtain them in other ways. And it is building partnerships and skills that are leading to change more than any increase in technical capacity alone.

### Prepared by

Tegegne Wakoya, National Innovation Facilitator for the seed partnership (tegegne.wakoya@selfhelpafrica.net, +251 911486501), and Kebebe Ergano, Lead National Innovation Facilitator (kebeberg@yahoo.com, +251 91306116).

Community-based seed production and marketing is one of five innovation partnerships in Ethiopia being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/ethiopia](http://www.cdais.net/home/pilots-countries/ethiopia). CDAIS is implemented in Ethiopia by Agrinatura (represented by ICRA), FAO Ethiopia and the Ethiopian Institute of Agricultural Research (EIAR), along with other partners for other partnerships. Photo credits, with thanks: Tessema Alemayehu

# 11 THE NEED FOR SEED – SUBTLE CHANGES





# INNOVATING WITH CHICKPEA CLUSTER FARMING

**Turuwark Warkineh** National Innovation Facilitator for the chickpea production and marketing partnership; **Endlakachew Abie** National Innovation Facilitator for the chickpea production and marketing partnership; **Simret Yasabu** Communications Consultant

September 2018





“Farmers listen to each other and work together for a common goal.”

Chickpea is an important crop in Ethiopia, but yields and grain quality remain poor. To help unlock the full potential, CDAIS has supported the value chain around the northern city of Gondar since 2016. As a result of new platforms, experience sharing and developing a combination of new organisational skills and behavioural change, research and extension support services stopped telling and started listening, and joined forces in innovating together with farmers.

“When they told us about cluster farming, I was hesitant because I thought no one would give us support and follow-up. But things were so different.”

**Kefyalew Asres** Chickpea farmer, Gondar

## The chickpea context

Chickpea is a multi-purpose legume and an excellent source of protein. High local demand means smallholder farmers can increase income through sales, while the rest of the plant is used for animal feed and the chickpea plant improves soil fertility by fixing atmospheric nitrogen. Ethiopia is a leading producer of chickpea in Africa and the sixth largest in the world. However, it exports little, with only a 4% share of international chickpea trade.

According to the Ethiopian Ministry of Agriculture, the overall vision of the national chickpea sector is to have “an efficient and well-functioning chickpea value chain that contributes to improved food security, smallholder incomes and environmental sustainability in Ethiopia, through a sustainable increase in on-farm productivity and strengthened marketing channels enabling reliable and



*Chickpea – an important crop in northern Ethiopia.*

profitable access to domestic and international markets.” Aware of the huge potential, the government aims to double average chickpea yield from 1.7 to 2.3 tonnes per hectare in the five years up to 2019/20, by promoting new technologies. But systemic challenges hinder realisation of this vision, including high prevalence of pests and diseases and lack of mechanisation affecting production; limited supplies and high cost of improved seed, bio-fertilizers



and quality pesticides; little attention given to chickpea in the extension system; and inadequate market information, high price fluctuations and high transaction costs.

## CDAIS – the change-maker

CDAIS has been supporting the chickpea value chain around Gondar in northern Ethiopia since 2016. A capacity needs assessment clearly showed that knowledge and resources were unevenly distributed between farmers, input suppliers, traders, transporters, processors and consumers. To overcome this, CDAIS began to support the development of functional capacities, or ‘soft skills’, that would increase impacts and outcomes from uptake of new technology and technical skills.

In partnership with N2Africa, CDAIS has helped to improve the innovation capacity of actors involved in chickpea production and marketing through a platform led by the Tsehay Cooperative Union. The N2Africa project is coordinated by the International Livestock Research Institute (ILRI), and aims to increase smallholder productivity of chickpea and other grain legumes by promoting the adoption of bio-fertilizers and other technologies; but this also requires complementary agricultural, ecological, institutional and organisational capacities across value chains.

In the 2017 cropping season, CDAIS supported implementation of an innovative chickpea ‘cluster farming’ system in Dembia district to address key problems in chickpea production and to support chickpea value-chain development. And cluster farming was considered an important requirement for seed production, being a system that brings many smallholder farmers, each with their small plot of land, to work collectively and plant the same crop at the same time for improved efficiency while retaining ownership of their land.

## Pest and pesticide problems

Azene Tadesse, a young farmer who participated in the chickpea cluster farming, shared his experience with the other farmers: “I prepared my land for chickpeas by ploughing several times as was advised by the development agents to minimise risks of diseases, and used planting

methods and bio-fertilizers recommended by N2Africa experts.” Yields improved, but he noted that some fields were still affected by pests and diseases, “I have done everything I can, except saving my chickpea field from pest attack – a serious problem that every stakeholder must recognise and solve.” Azene added that he purchased pesticides from private traders and sprayed but with no effect, also noting the problem of pesticide availability, which left him using a harmful chemical. Another problem farmers pointed out was the lack of access to improved, disease-resistant chickpea seed.

“This year, thanks to CDAIS, we were able to work better with our farmers, who received money directly from the union at the moment of sale and at better price.”

**Mr Kese** Chickpea farmer and Cooperative Chairman

Researchers from Gondar Agricultural Research Center also recognised issues raised by farmers in relation to chemicals. It was noted that getting the right chemicals is becoming hard for farmers as they are sold in the market like other commodities. Several chemicals found in the market are banned internationally, but farmers buy them because they are easily available and relatively cheap. They also do not get proper instruction on chemical application and use. It was recommended that Tsehay Cooperative Union should import and supply only effective ‘third-generation’ chemicals, which are less hazardous to human health and the environment, and that the government should give high priority to halting the trade in illegal chemicals.

## The need for quality seed

Kefyalew Asres is a member of a seed-multiplication cooperative, and started chickpea cluster farming in 2017. He said, “producing chickpea seed was always a challenge, and cluster farming is not being implemented as expected. But now I see changes as the Gondar research centre and Tsehay Cooperative Union are supplying the necessary seed at the right time.”

## 12 INNOVATING WITH CHICKPEA CLUSTER FARMING

### Sharing experiences, finding solutions

To reflect on the implementation of chickpea cluster farming in Dembia district in 2017, CDAIS organised a farmer field day at the end of the year. At this event, many more farmers acknowledged the benefits of cluster farming. Importantly, both the government Land Administration Office and the District Municipality also joined the partnership. More specifically, the government heard the need for and took the responsibility for controlling the illegal trade in chemicals, which will eventually require a change



*On 31 December 2017, some 151 participants came together, shared experiences, initiated new partnerships, created new market linkages for both farm inputs and products, and garnered better policy support.*

in policy. The District Municipality was also requested, and promised, to give land for Gondar Agricultural Research Center to produce prebasic and basic seeds, and the Tsehay union promised to collect and pay for seed from farmers in a timely manner and thus help their financial situation and build trust. And much was learnt. Kefyalew Asres, chickpea farmer and seed multiplication cooperative member, said, “we have come to understand the importance of cluster farming and we hope to improve our practices next year.” Another farmer, Mengistu Mekonnen, added, “I have seen that bio-fertilizers are useful and better than chemical fertilizers.”



CDAIS-facilitated interactions have helped those involved to see things from different perspectives. For example, Demilew Nebiyu, Seed Quality Quarantine Officer: “We have been criticising and blaming farmers for not producing quality seed. I thought the problem was only the absence of cluster farming, but I learnt that it is not only farmers who should change their practice, we all have a role to play too. The District Land Administration Office, for instance, should allocate land for the research centre so that farmers will get basic seed sustainably.”

### The best solution is collaboration

CDAIS's intervention has brought various positive changes, including a common understanding among different actors about the problems of the innovation partnership – the partnership will be further strengthened with government support in the coming months and years. The actors confirmed that, thanks to the capacity building received, joint planning and action, the learning events organised and the introduction of cluster farming, productivity increased from the previous year





*Ploughing ahead with chickpea cluster farming.*

by an average of 0.6 tonnes per hectare. And the total production of seed has increased, from 17 tonnes in 2016 to 78 tonnes in 2017. A technical advisory group has been set up, links established with Debre Zeit research institute in Oromia Region (600 km from Gondar), and 10 tonnes of basic seed has been secured – double what was expected. Seed has been distributed to farmers, a training manual on chickpea seed production has been prepared, and development agents and selected farmers have been trained accordingly.

Farmers feel listened to, not pushed into a new idea – seeing the benefits of working together. They listen to each other and work together for a common goal and, one by one, the constraints to this new way of working are taken away and more farmers are asking to be part of this initiative called chickpea cluster farming.

As Endalkachew Abie, and who is also General Manager of the Tsehay farmers union concluded, “An increase in production of chickpea in 2017 has inspired me and my team to think for big added value. I will work hard now to generate extra funding for this work, and to set up a chickpea processing plant to supply a Gondar brand of chickpea flour for domestic and international markets.”

“We used to practise what we learnt from our ancestors. Before, I never had such close support from development agents as this, and from related training. I benefited a lot.”

**Kefyalew Asres** Chickpea farmer, Gondar

#### Prepared by

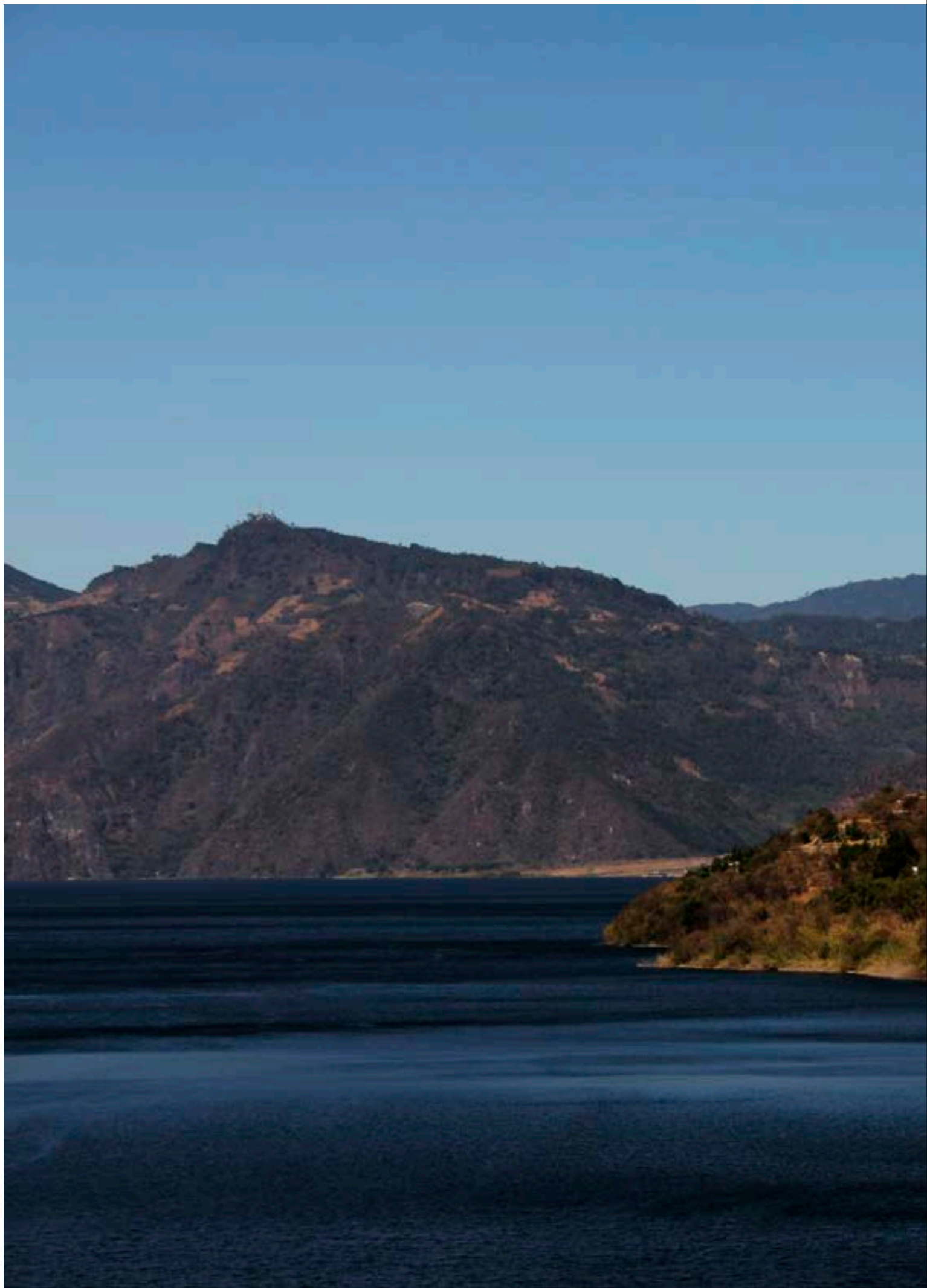
Turuwark Zalalam Warkineh (tiruworkzelalem@gmail.com, +251 921749060) National Innovation Facilitator for the chickpea production and marketing partnership, Endlakachew Abie (endalkbt@gmail.com, +251 918098824) National Innovation Facilitator for the chickpea production and marketing partnership, and Simret Yasabu, Communications Consultant for CDAIS Ethiopia (simretyasabu@yahoo.com, +251 911662511).

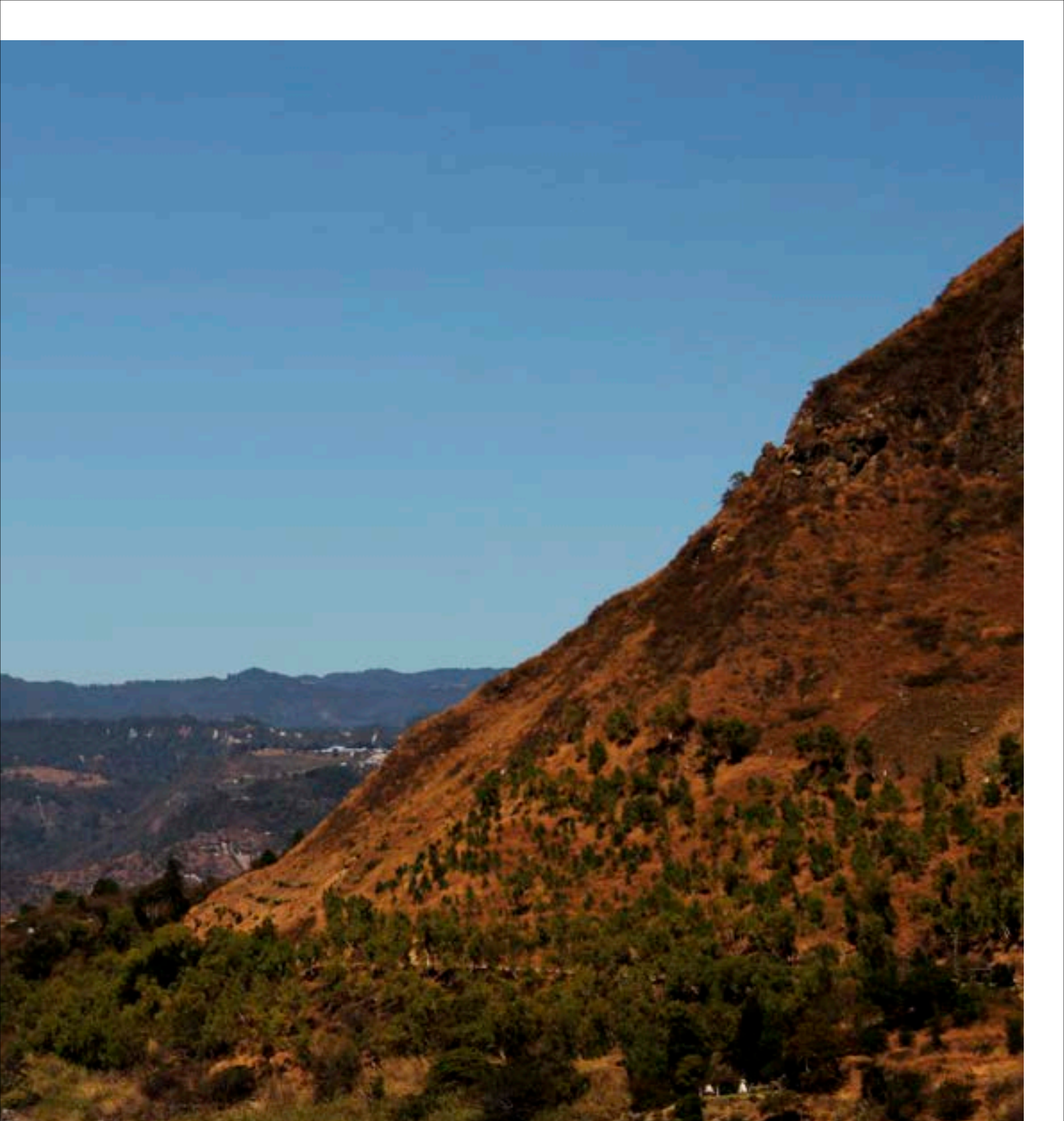
Chickpea production and marketing is one of five innovation partnerships in Ethiopia being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/ethiopia](http://www.cdais.net/home/pilots-countries/ethiopia). CDAIS is implemented in Ethiopia by Agrinatura (represented by ICRA), FAO Ethiopia and the Ethiopian Institute of Agricultural Research (EIAR), along with other partners for other niches.

# 12 INNOVATING WITH CHICKPEA CLUSTER FARMING









# **GUATEMALA**



GUATEMALA

# BETTER BEANS MEAN BETTER NUTRITION

**Jair Escobar** Communications Consultant

**Fernando Palma** National Innovation Facilitator for the bean partnership

April 2018

13



“The new ‘Chorti’ variety is more adaptable and marketable, less demanding than traditional varieties.”

“Before, people were not really interested,” said Leonel Ozorio, President of the ATESCATTEL seed cooperative, “but CDAIS has helped to bring people together and now we see much more buy-in.” This innovation partnership is building key functional capacities among producer associations and, now, bringing other stakeholders onboard to help improve nutritional security through innovative approaches in promoting a new bean variety with increased production potential and nutritional content. “And now we are getting the message across in better ways through improved dialogue with a much wider range of actors.”



*A new bean variety, ‘Chorti’, is bringing opportunities for the improved nutrition of mothers and children.*

The ‘dry corridor’ is a region of Guatemala that covers part of the departments of Baja Verapaz, Zacapa, El Progreso, Jalapa, Chiquimula, Jutiapa and Santa Rosa. It is vulnerable to drought and, in some parts, communities lack food security, with a high level of extreme poverty. Malnutrition is a significant problem, especially among young children and their mothers. The traditional diet in Guatemala and throughout much of Central America is based on maize and beans and, as diversifying this has proved problematic, increasing the nutritive value and yields of these crops is seen as a key approach.

Introducing and promoting new crop varieties is notoriously problematic without the involvement of a wide range of stakeholders. For this reason, in 2016, this initiative was selected to be one of the country’s CDAIS innovation partnerships, continuing the work that FAO (the Food and Agriculture Organization of the United Nations) had started with the ‘Seeds for development’ programme, strengthening the ability of smallholder associations to produce certified seeds. The partnership is also complementary to other initiatives that are working towards the same goals, such as the ‘Biofort’ platform that aims to create permanent collaborative links between the public and private sectors, civil society and farmers, to improve the nutritional quality of food production in Guatemala, in order to increase the food and nutritional security of the most vulnerable populations in a sustainable, efficient and participatory manner.

“CDAIS doesn’t tell us what to do, but how to help ourselves to get what we want and need.”

**Willín Morán** Farmer and representative of the APALH producer association, Atescatempa, Jutiapa



## From plans to action

The first planned activity agreed by all actors of the bean innovation partnership, drawn from their coaching plan, took place on 16 April 2018 in Atestecampa, a small town a few kilometres from the El Salvador border in the dry south-east of the country. It brought together 22 participants including six women, four from the local health services, two government agricultural extensionists, farmers and seed cooperative representatives, as well as the CDAIS team. Ena Salazar from the local health centre explained that the problem is not poverty per se, but the impacts of children's retarded development due to the lack of nutrition, adding "we were unaware of this initiative before today, but are grateful for this opportunity, and will now take this knowledge on board in our efforts to change attitudes towards the need for better nutrition." Another partner was the NGO Semilla Nueva that sits on the national 'Plataforma Biofort'; Victor Albacan, who had just joined the activities, expressed a strong interest in the partnership's methods to disseminate new knowledge on this new variety. Karina Hernandez, Vice President of the main seed cooperative, said "this was such a great meeting today, that has helped us to 'spread the word'."

Jorge Sazo, Agricultural Extensionist for the Ministry of Agriculture and Livestock (MAGA), added "I now see the benefits of the inter-institutional approach promoted by CDAIS and this is clearly the right way to go – because together, we can cover many more different aspects and achieve much more."



*CDAIS promoting 'buy-in' from new partners to support the promotion for scaling up adoption of a new more nutritious and productive bean variety. Country Project Manager Julio Catalán explaining the fundamental issues and needs for innovation;*

The partnership is developing into a network of producer associations, increasing the production of high-quality beans that contribute to food security in the region. For Willín Morán, an APALH representative, it is very important to focus on improving the nutrition of pregnant women. And this would then have valuable impacts not only at the nutritional level, but also at the cognitive level, given that a large part of the learning problems identified in Guatemala are closely related to nutritional deficiencies.

## A new bean variety

The ATESCATEL and APALH cooperatives are the two producer main actors of the innovation partnership, started growing a new improved bean variety in 2016 called 'Chorti' (ICTA ChortíACM), which was developed by CIAT (the International Centre of Tropical Agriculture), HarvestPlus

and ICTA (Instituto de Ciencia y Tecnología Agrícolas, the national institute of agricultural science and technology). This variety of *Phaseolus vulgaris* bean was bred for increased resistance to drought, mosaic virus and other pests, but – most importantly – it is richer in iron to combat high levels of anaemia especially among mothers, and zinc that also helps with improved absorption of other minerals.

## Capacity needs identified

Both producer associations are leading seed producers in the region. They pay farmers a fair price for seed produced and build technical capacities. In the initial work by CDAIS, stakeholders identified the importance of strengthening the entrepreneurial capacities of producers at individual and organisational levels, reinforcing the collaborative spirit of producers, and having a good market strategy to promote

## 13 IMPROVING NUTRITION – A NEW BEAN VARIETY



*Karina Hernandez, Vice-President of the ATESCATEL seed cooperative, Atestecampa, Jutiapa*

this added-value variety of beans. They also identified other partners, such as Semilla Nueva ('new seeds'), a non-governmental organisation (NGO) that collaborates with communities and governmental agencies to develop and expand the use of ICTA Chortí beans. As Julio Portillo from ATESCATEL said, "knowledge needs to be updated. Nothing is static in life."

### Early successes

Morán explained that they started growing the Chortí bean for improved nutrition and better yields. "It proved to be well adapted to local conditions, with yields in the region of a very respectable 35–40 quintals per manzana [up to 2.5 tonnes per hectare]," he said, "and in 2017, we negotiated a better price compared to other varieties. The new 'Chortí' variety is more adaptable and marketable, less demanding than traditional varieties – with less waste, and better taste."

Walter Palma of ATESCATEL added, "since we started working with CDAIS at the end of 2016, we have improved how we work with others, locally and nationally. In 2016, sales were zero, but in 2017 our 84 members produced almost 200 quintals [10 tonnes], for their own home consumption, with ten [of them] growing the bean for sale with seeds fetching about 7 quetzal per pound [US\$2/kg]."

“We know how to sow and grow, but what we need is a change in people, and we are grateful for support from CDAIS to do this.”

**Lionel Osorio** President of the ATESCATEL seed cooperative





*Members of the ATESCATEL seed cooperative are very happy to be playing an increasing role in improving nutrition in the department of Jutiapa*

## Moving on...

The government could play a much greater role in promoting the planning of production and sales, based on new alliances between the public and private sectors through coordination with seed companies – to plan annual seed production, for example. And this is just the sort of issue that will be picked up by the upcoming CDAIS policy dialogue processes. At the national level, more efforts are also required that focus on market strategies, since local people tend to prefer larger-seeded traditional varieties over new types with smaller seeds, as bigger is not always better, as well as improving producers' ability to secure new markets. And as Willín Morán concluded, "this is a new approach and I feel satisfied with the progress so far. But we still have much to do."

### Prepared by

Jair Escobar, Communications Consultant (jair.obregon@gmail.com, +502 42113116), and Fernando Palma, National Innovation Facilitator for the bean partnership (fernandopalma1705@gmail.com, +502 40311572).

Beans is one of four innovation partnerships in Guatemala being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/guatemala](http://www.cdais.net/home/pilots-countries/guatemala). CDAIS is implemented in Guatemala by Agrinatura, represented by the Italian Cooperation Agency (Agenzia Italiana per la Cooperazione), Italy, FAO Guatemala, and the Ministry of Agriculture and Livestock (MAGA).

## 13 IMPROVING NUTRITION – A NEW BEAN VARIETY





GUATEMALA

# AVOCADOS – FROM ANNUAL TO TREE CROPS

**Jair Escobar** Communications Consultant

**Sergio Coroxón** President of AIDA

**Yarucy López** Extensionist for the Ministry of Agriculture and Livestock

June 2018

14



“The greatest achievement is that we stopped competing unfairly among ourselves.”

**O**n 5 May 2018, the Association for Integrated Development of the Altiplano (AIDA) became formally established, and avocado farmers celebrated. “Today, we are so happy to have consolidated our consortium of eight producer associations from different municipalities in Sololá,” explained Don Andrés, community leader and lifelong farmer. “Farmers from San Andrés Semetabaj and other communities around Lake Atitlán began to talk about growing a new variety of avocado some time ago. But since CDAIS came, so many things have changed. They helped us come together, like a large family of growers now working in partnership for our common good.”

Before, farmers in the area grew only or mainly maize and beans. But in 2005, people were told that a new variety of avocado could produce well here, and that it could earn them money. However, as Andrés explained, “this was unknown to us, and the more we explored what we needed and the demands of the market, the more our doubts increased and the less willing we became.” Another



“When I got 80 quetzales [€9] for my first sale of avocados, I felt like a millionaire!” said Ampara García.

association board member, Ampara García Estrada, added that for her it was difficult at first to understand the benefits of growing avocado, and not sowing maize and beans as they had done all their lives. “But the first harvest was fruitful,” she said.

“CDAIS motivated us through training and taught us to work together. The greatest achievement is that we stopped competing unfairly among ourselves, and farmers from different municipalities got together in this new common space.”

**Ampara García** Avocado producer and AIDA Board Member, San Andrés Semetabaj

## Transition, like trees, takes time to produce fruit

“Growing traditional crops feeds our families every year, but the market is saturated and we can’t make money from selling maize and beans. Instead, avocado may take longer to grow, but the profits are much better, and that makes it a crop for the future.” So said Mario Chavez, also known as ‘the professor’ by those who know him. He also explains that the ‘critical period’ in the process of moving to avocado production is when families may not have enough maize and beans to eat, before they start earning money from fruit sales to buy food. “Those of us who have been involved in this have realised that we can now save and also have access to things that were previously unthinkable for us.”

Manolo Jeréz, far from rushing to start cultivating avocado, was about to sell land that he was not farming. But, in the



## Building trust – a catalyst for change

“The greatest achievement of the CDAIS initiative has been the consolidation of AIDA as a representative association of avocado producers from all around Lake Atitlán,” said Sergio Coroxón. But this did not happen overnight. And it was only possible thanks to the many meetings that CDAIS has facilitated since 2015. However, work began in just one community. As news of early successes spread very quickly, interest was expressed by farmers from all around the lake. Further meetings were organised and, over the course of a year, a new grouping emerged including farmers from eight municipalities. This was also made possible through an analysis of capacity needs, followed by the joint development of a coaching plan, and implementation of the resulting action plan. As Coroxón explained, “by using this process, CDAIS helped us developed a common approach.”

“The greatest achievement of the CDAIS initiative has been the consolidation of AIDA as a representative association of avocado producers from all around Lake Atitlán.”

**Sergio Coroxón** President of AIDA

When the AIDA board of directors presented themselves to its members, they compared what has been created to a child or an avocado tree – growing and beginning to flourish – and that they were now like a large family. And as a board member stated, “producing avocados motivates us to work together and not in isolation. At the beginning the challenges were many, but we learnt, and today we are joined by our desire to continue creating even stronger alliances. We are now a group of more than 200 smallholder farmers, but we are large in collective terms. And our aims should go beyond economic objectives, to creating jobs and opportunities, supporting youth, sports and art, and to create a better quality of life in general terms.”



*The final planning meeting between representatives of the eight municipality associations from around Lake Atitlán, 19 April 2018.*

absence of any good offers, he decided to grow avocado. “In the past two years I have seen failure and success, but I have also learnt a lot,” he said. “Though it took time for me and my family to understand that gains were not going to be immediate and, on the contrary, that there would be hard times that we had to pass.”

“At the start,” said Sergio Coroxón, “I was a government extension agent and it was my work to communicate with smallholder producers. But after listening to their stories,

I started to have doubts. Then CDAIS provided opportunities and gave confidence for me as well as for the whole community. So I asked myself, ‘I have land, why not become a grower too?’” Coroxón then became an avocado producer, and got more involved, eventually being elected as president of the association. “It has been a long process, but it has had very positive results,” he said. “Decision making is a complex task, made more complex when outcomes impact on a family’s nutritional security or economic future. But CDAIS has built capacities, and has taught us how to fish.”

## 14 AVOCADOS – FROM ANNUAL TO TREE CROPS



*Training in the cultivation of Hass avocado*



*The 'Hass' avocado variety is a small and manageable tree that produces fruit that fetches a good price on national and international markets.*

“CDAIS has united us and taught us how to work as a team. We stopped being spectators and now we feel that we are the main actors in what we do.”

**Mario Chavez** ACDA, farmer and member of AIDA

### Advancing quicker, together

Through CDAIS, Manolo Jeréz saw that association and collaboration between farmers is crucial for the development of communities. But he also learnt, through training and the spaces CDAIS created, about technical needs as well as organisational ones. He saw how organic management improves fruit quality and quantity. This year, 90–95% of his fertiliser is organic and he is expecting a better harvest. In addition to learning almost everything necessary to grow avocado, Jeréz now advises other smallholder farmers who want to start avocado cultivation, offering advice on pruning, harvesting, planting and pest management.

The strategic alliance of avocado, within the framework of CDAIS, followed up on the European Union-funded Regional Programme of Research and Innovation of Agricultural Value Chains (PRIICA project). This included a range of innovation actions in the avocado value chain that emphasised inter-institutional coordination and development of public-private partnerships. Other aspects developed by consortium members included implementing a technological innovation agenda, identifying and incorporating new supporting members, promoting collaboration among smallholder members, and developing business plans, market studies and partnerships.



# GUATEMALA



*Farmers being trained on the cultivation of avocado.*

Amparo García is a leader in avocado cultivation in the area, and she adamantly believes that the participation and training of women is crucial, not only for the growth of farm businesses, but also because it promotes community development, generates employment and has opened new opportunities for those who previously did not have any. “We changed the way we think – and so the way we farm also changed,” she said. In addition to avocados, farmers are also diversifying, and collectively marketing a range of other associated products, including honey, herbs, medicinal plants and mushrooms.

Moving forward, Jeréz sees improving the ability of all producers to better commercialise their products as a goal of AIDA, through working even closer together. Don Andrés added that seeking export markets will be key to further expansion, “and this is possible, as now we are joined, we are stronger.” Coroxón concluded by adding that “now that our AIDA association is legally consolidated, we can also look at getting loans, and we want to build a central collection centre, also as a place that our smallholder members can gather and share ideas.”

“Thanks to this, the people involved live better today. Families have greater access to education and health services, and an improved quality of life.”

**Sergio Coroxón** President of AIDA



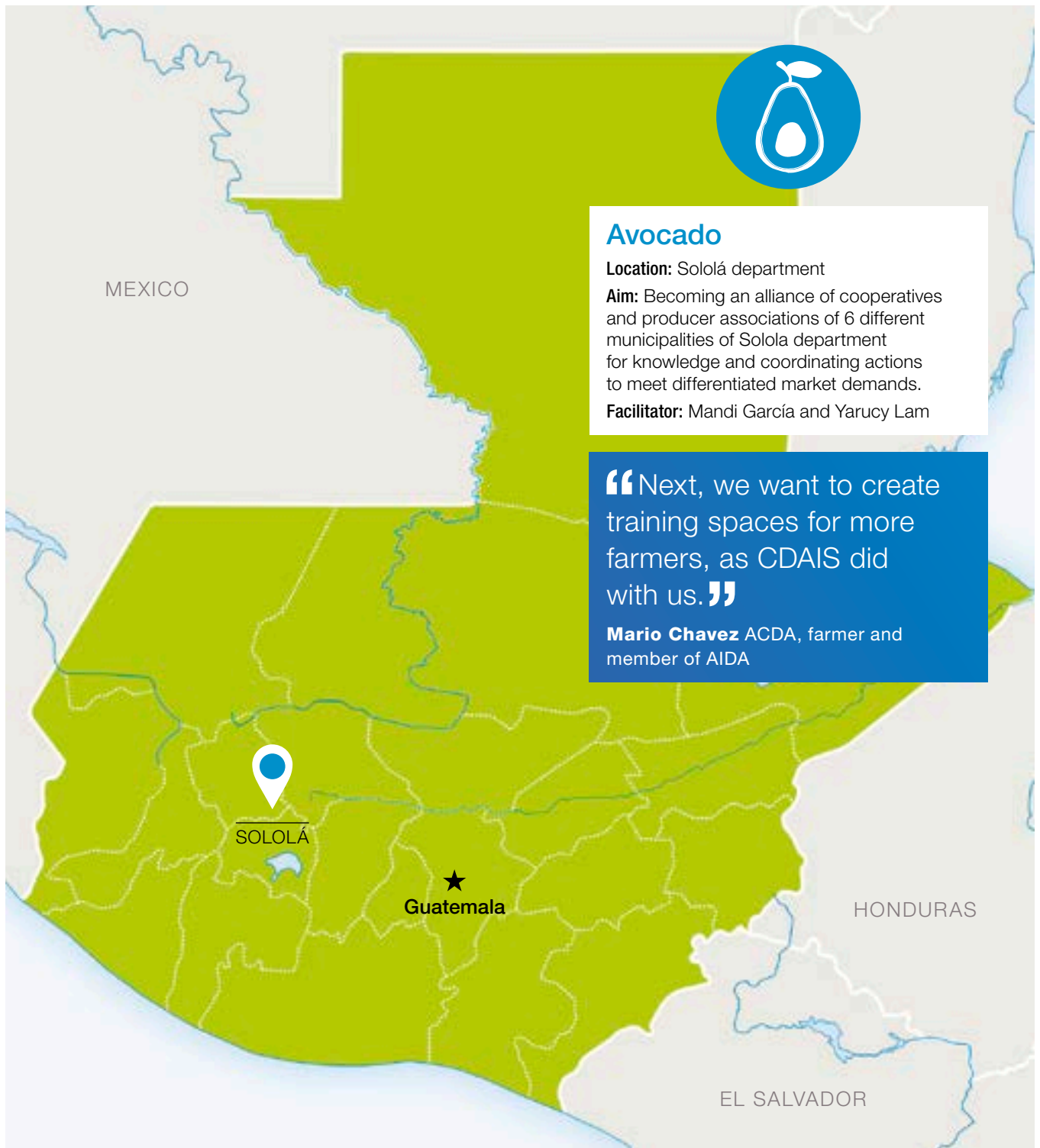
*Farmers are using the benefits of the association to market a wide range of other products.*

## Prepared by

Jair Escobar, Communications Consultant (jair.obregon@gmail.com, +502 42113116); Sergio Coroxón, President of AIDA (sergiocoroxon@yahoo.com, +502 49578523); and Yarucy López, Extensionist for the Ministry of Agriculture and Livestock (yarucylam@gmail.com, +502 57202755).

Avocado is one of four innovation partnerships in Guatemala being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/guatemala](http://www.cdais.net/home/pilots-countries/guatemala). CDAIS is implemented in Guatemala by Agrinatura, represented by the Italian Cooperation Agency (Agenzia Italiana per la Cooperazione), Italy, FAO Guatemala, and the Ministry of Agriculture and Livestock (MAGA).

# 14 AVOCADOS – FROM ANNUAL TO TREE CROPS



## Avocado

**Location:** Sololá department

**Aim:** Becoming an alliance of cooperatives and producer associations of 6 different municipalities of Sololá department for knowledge and coordinating actions to meet differentiated market demands.

**Facilitator:** Mandi García and Yarucy Lam

“Next, we want to create training spaces for more farmers, as CDAIS did with us.”

**Mario Chavez** ACDA, farmer and member of AIDA



SOLOLÁ



Guatemala

HONDURAS

EL SALVADOR



GUATEMALA

# MOVING TO MODERN BEEKEEPING

**Jair Escobar** Communications Consultant

**Cristian Miranda** National Innovation Facilitator for the beekeeping partnership

August 2018

15



## “We see new ideas from CDAIS as pollinators of our minds.”

From the Maya to modern times, beekeeping has been a much respected activity in rural Guatemala. Then in recent years, production increased and a national association was formed. But internal disagreements soon saw a fall in production and sales. Then, thanks to CDAIS, producers across the country asked for and were given, a new space in which to gather. And there they rediscovered their common interests and goals, and have re-established their original organisation, to excellent effect.



*Guatemalan beekeepers – men and women – transitioning from traditional to modern methods.*

Following the start of exports to Europe in the 1990s, beekeepers identified a need to further improve the production, marketing and distribution of honey and other bee products. And following dialogue between various actors in the beekeeping sector, the National Apicultural Council (CONAPI) was established in 2001, consolidating 11 different associations. However, the road proved difficult, and in 2007 there was a fracture and the organisation broke up. But as export markets became more accessible, beekeepers reacted, realising that they needed to work together more than ever. “And this was the main reason for the reactivation of CONAPI,” said Cristian Miranda, a young activist promoting Guatemalan beekeeping.

“We started in December 2016 with one meeting, then another, before CDAIS helped us to organise a capacity needs assessment workshop in March 2017,” revealed beekeeper William Velásquez, an active member of the Integral Apicultural Cooperative Cuilco (CIPAC) association. He then took up the story: “this was an eye-opener where we learnt a lot. And building on that, CDAIS helped us to participate in the agri-trade marketplace where we looked for alternative markets and exchanged lots of ideas. There we learnt how to talk, to others, in public. We learnt how to share ideas. And importantly, we learnt, even after 20 years working in our associations, that this was a way of strengthening our capacities.”

“CDAIS has opened up for us the possibility of entering new markets. Not through providing contacts, but through teaching us to reach spaces we did not know.”

**Esvin Estrada** President of CONAPI

### An organisation is a honeycomb

CONAPI’s constitution states that it includes 809 producers (111 women and 698 men) who together manage a total of 43,254 hives, or some 50 hives per producer. “And the reactivation of CONAPI is one of the great achievements of CDAIS,” said Velásquez. “We are all fully in tune with the methodology that CDAIS proposed and, with time, the results are being realised ... We have a joint account and in legal terms everything is in order – from the receipt of donations to the issuing of expenses.” And, he added, “CDAIS interventions have been a direct cause of this rejuvenated national platform that has benefited all of us and will surely bring more in years to come.”



## Apiculture in transition

Beekeepers in the partnership are now aware that it is necessary to innovate and to take significant steps forward, not only in production, but also in sustainable marketing plans. And the contribution of CDAIS in the development of functional capacities is ideally complemented by the technical skills of traditional beekeepers. While the process has not been easy, there is now consolidation at the national level as a spearhead in this transition process. “Boosting beekeeping is fundamental not only for producers, but also for national food security and to protect our forests,” said Alvaro Almengor of the COPIASUR cooperative and a beekeeper for more than 30 years.

“There have been a lot of projects that promote production, but CDAIS is new because it helps us to do something different – to promote contacts, make the most of those contacts, and provide opportunities for innovation, that is leading to transition.”

**Cristian Miranda** Beekeeper and member of Integral Apicultural Cooperative Cuilco (CIPAC), San Marcos

## Reorganisation, the key to collective action

“The greatest achievement of CDAIS was the reorganisation that was crucial in consolidating and reactivating the CONAPI platform,” said William Velásquez. “Exchanging methodologies with professionals from other fields diversified the range of products we extract from our hives, but for that to happen, it was also important to know and recognise ourselves.”



This meant changing our attitudes and ways of thinking, which was the most difficult thing for us because we are so used to being given everything.”

A good example of how CDAIS helped in this transformation was a training day held on 18 April 2018. Members of CONAPI realised that they needed a strategic plan, but also that they lacked the skills needed to develop one. With support from CDAIS, they identified and contracted a specialist in working with associations, Jesus Villafaro, and he started the day by saying “we are here thanks to CDAIS, and to support this process that you asked for.”

And the results were clear. Speaking for the group, Carlos García of the Integral Apicultural Cooperative Cuilco (CIPAC), Huehuetenango, expressed their appreciation: “Today has been a huge step for us all, in building a common strategy – together – so we lift the profile of apiculture in the country, and beyond. And thanks to CDAIS for this opportunity to meet and advance towards our goals.”

*< With CDAIS support, a trainer spent a day with CONAPI members, where they worked on different aspects of strategy development, presenting and discussing their findings – that was to create the basis of their new five-year strategic plan.*

## 15 MOVING TO MODERN BEEKEEPING



*The challenge now is to consolidate or, as Carlos García put it, “to be as organised as our bees in their honeycombs.”*

### Change is now seen at all levels...

Secretary Karla Paz acknowledged the effects from the process: “CDAIS was a unifying influence that really helped to bring the groups together and reinvigorate our national association. Before CDAIS, we only rarely met ... Then we would meet, but then we saw that we needed to plan. CDAIS then helped us formulate a plan. Then when we had a plan, we didn’t know how to put it into action. CDAIS helped us to start to implement it. We have seen institutional changes. Now, here we are, together, advancing again.” She also noted the personal change: “I have also changed, myself. I now see the importance of personal competence and confidence to achieve our goals.”

Velásquez was also clear about the links between change at different levels: “CDAIS strengthens our capacities to grow, to see our own way clearer, to see much better within ourselves our needs and what we need as farmers, as producers, as people.” And in his own experience, “since becoming involved with CDAIS I have seen the change in how I myself look at things. I understand the need to get to know others first, to understand their situations, and how this helps me become better able to share experiences such as our different ways to market our products. We have also developed lots of new links, and this is an innovation – to share across value chains, such as with CDAIS avocado producers. Our bees pollinate their avocados, but we also see new ideas from CDAIS as pollinators of our minds.”



# GUATEMALA



Members of CONAPI celebrating after a successful training event.



Members of CONAPI presenting their products at an event in Guatemala City in celebration of World Bee Day, May 2018.

## Adding value to successes

The newly reformed national association also decided that it should broaden its horizons and not wait for things to happen on their own. Part of this was the World Bee Day event held in May 2018, where members of the beekeeping partnership participated, showcasing their work and their range of products (not just honey), and the importance of the alliance. The meeting was value-added as, thanks to CDAIS support, members learnt how to raise their profile and to see the process as a long-term strategic plan.

Now CIPAC and CONAPI work closer together to integrate new organisations and promote alliances with a dream of having a beekeeping school and in attracting new youth to the group, “as we need them to carry on our work

with us and after us ... and we need them to help us to encourage others.” And with such a vision, the future will be sweeter indeed.

---

### Prepared by

Jair Escobar, Communications Consultant (jair.obregon@gmail.com, +502 42113116), and Cristian Miranda, National Innovation Facilitator for the beekeeping partnership (cris\_mira07@hotmail.com, +502 31204097).

Beekeeping is one of four innovation partnerships in Guatemala being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/guatemala](http://www.cdais.net/home/pilots-countries/guatemala). CDAIS is implemented in Guatemala by Agrinatura, represented by the Italian Cooperation Agency (Agenzia Italiana per la Cooperazione), Italy, FAO Guatemala, and the Ministry of Agriculture and Livestock (MAGA).



## Honey

Beekeeping cooperatives

**Location:** Huehuetenango department

**Aim:** Strengthening organizational and agro-industrial capacities of cooperatives' producing value-added products of beekeeping cooperatives

**Facilitator:** Cristian Miranda

“CDAIS encourages a change in attitudes in everyone, that the project calls ‘functional capacities’. But I call them basic skills – and the confidence to put them into practice.”

**Cristian Miranda** Beekeeper and member of Integral Apicultural Cooperative Cuilco (CIPAC), San Marcos

MEXICO

HUEHUETENANGO

Guatemala

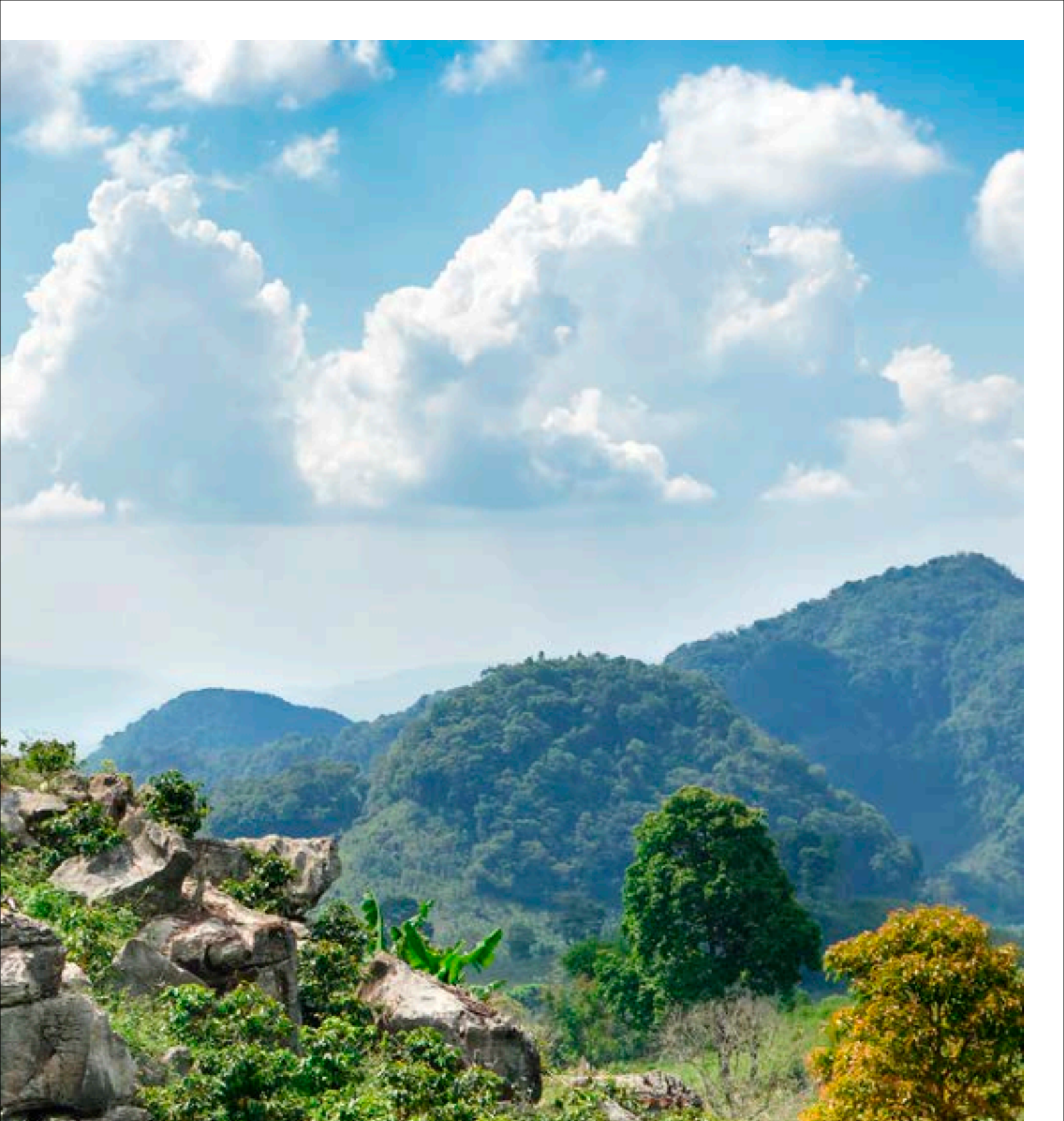
HONDURAS

EL SALVADOR









# HONDURAS



HONDURAS

# FROM POTATO PESTS TO POLICY PROCESSES

**Miriam Villeda** Communications Officer of the Department of Agricultural Science and Technology in partnership with CDAIS Honduras

**Héctor García** National Innovation Facilitator for the potato partnership

April 2018

16



“From a problem arose a strategy, and all the links of the chain have now come together.”

“The CDAIS project brings an innovative methodology because it creates capacities in us as human beings,” explained Carlos Valladares of the Intibucá farmers network. “This has improved our understanding of our situation, we have taken full responsibility for it, and are now better able to obtain and manage information to improve producer organisations.” Associations in the region have appreciated the spaces created by CDAIS that allow them to link with other stakeholders, find solutions to common problems and, now, even take issues to the national policy level.

“From a problem arose a strategy, and all the links of the chain have now come together to find solutions to the issues posed by the potato psyllid,” explained Héctor García, National Innovation Facilitator for the potato partnership in La Esperanza. “Now those involved do not act alone, are all aligned to a shared vision and combine efforts to achieve their goals. Before there were conflicts and competing interests, but now there is a motivated, orderly alliance that is working towards solutions – and achieving them!”

## The potato situation

National annual potato production is more than 40,000 tonnes (895,000 quintals), grown on around 2500 hectares by more than 6000 smallholder producers – this satisfies most of the national demand and also generates some 15,000 permanent jobs with 35,000 indirect beneficiaries. Based mostly in upland areas of Intibucá, Ocotepeque, La Paz and Francisco Morazán departments, 85% of growers produce on less than a third of a hectare, and are mostly from the Lenca and Chortí ethnic groups. During the January–June dry season there are risks of severe damage by pests, especially the potato psyllid, known locally as paratrioza. Losses can be up to 80%, with control costs significantly reducing profitability. Also, potato production depends almost entirely on imported certified seed

potatoes, mainly from the Netherlands, making up 40–45% of production costs, so developing national certified seed potato production is a further goal.

PRONAGRO had started working within the partnership to improve the competitiveness of the potato sector through management and facilitation of decision-making processes among key actors, but something was missing. Actors attended meetings to talk about their own problems, but did not share a common vision. This partnership was selected by CDAIS in 2016, and a multi-stakeholder dialogue and capacity needs assessment identified the need to create and strengthen leadership, organisational and business skills around three common objectives. The key aims were to: (1) strengthen links between producers, traders, local government, universities and financial institutes; (2) establish an integrated strategy to control potato psyllid; and (3) improve producers’ access to required resources. Also, Edwin Flores, Secretary of PRONAGRO and a key partner said, “the self-analysis facilitated by CDAIS generated a common vision, identified strengths and weaknesses, and the need for links, cooperation and dialogue to help find solutions. And we have progressed well along this road.”

“An impact of CDAIS is that we have adopted a new way of looking at things, developing people’s capacities to learn to work together, as we can only get so far by walking alone.”

**Héctor García** National Innovation Facilitator for the potato partnership, La Esperanza



# HONDURAS



*Potato stakeholders receiving training in good agricultural practices as a result of links made through CDAIS, and also making good use of the opportunity to share experiences among themselves.*

## Improving harvests

The potato partnership has seen great changes since its inception in 2016. Through CDAIS's work, a technical committee was established, and an action plan developed and validated. Nine community-level organisations were formalised furthering collaboration among actors, and they began to get their voices heard in decision making. As Carlos Valladares of the Intibucá Farmers Network explained, "CDAIS supports processes that have improved internal organisation in producer groups and the whole potato chain, also improving technical assistance by getting individuals and groups to agree on common needs."

"With the capacity development started through CDAIS, we have advanced our technical, marketing and organisational skills," said José María Pineda, a potato producer in Bethlehem, Manazapa, Intibucá. "And now we have better knowledge, especially in managing potato psyllid which destroyed my entire crop two years ago. Today, we know how to cope, and my plot is the best in the area." But he added that benefits are not just technical: "belonging to the partnership is a great help because we all meet to consult, share, listen, debate and resolve our problems – we are no longer alone. Before we were at the mercy of middlemen, or 'coyotes' as we call them. Now we have a new marketing system and have secured a fair price. Oh, to be organised, and woe be to me if I leave the partnership!"

“CDAIS contributes to strengthening the potato partnership by integrating processes to generate an environment of understanding, and the availability of ‘support to all’ to address their common issues.”

**Edwin Flores** PRONAGRO, La Esperanza, Intibucá



*"CDAIS is different from other development projects because it works with people and not just with materials and equipment, increasing individual capacities," said National Innovation Facilitator Héctor García.*

## Building a policy dialogue, from the roots upwards

In April 2018, fifteen actors from the potato partnership met at a centre in La Esperanza, Intibucá. The aim – to identify policy issues that hamper them in achieving their common vision, what changes they would want to see, and how they might do this. This policy dialogue process in the eight CDAIS pilot countries builds on previous work carried out in each of the innovation partnerships, such as supporting the identification and agreement of common visions and problems, and finding means themselves to overcome them. But some issues such as national laws and regulations would normally be beyond their abilities to address, so this process will build capacities in how they can bring their issues to the national government. But, Carlos Valladares explained, “we definitely need policies to regulate the market, reduce impacts from oligopolies and revise imports and tariffs, but this may be more feasible through local government because they are more aware of our situation.” These and other views help CDAIS and its partners consider how best to take them forward.



*CDAIS creates a space for representatives of smallholder potato producers, service providers, traders and local government to get together and decide what they want to see changed at the national policy level. Left: Carlos Valladares of the Intibucá farmers network sharing his views; Right, producer associations agree on their common issues.*

## Innovation breeds innovation...

One member of the partnership is ASOFAIL, the Intibucá Association of Artisanal Farming Families, established in 2011, with 139 members mostly from the indigenous Lenca people. “We now have ten certified farms and a collection centre, and sell to supermarket chains including Walmart,” said association member Arlis Zepeda. “Farmers talk more now, and share information, with positive effects regarding production, post-harvest and marketing issues. But we also had another big problem,” Zepeda revealed. “Many children of potato farmers think their only option in life is to emigrate north and abandon their agricultural heritage. So, we started providing another panorama for them, with an innovative programme of training and motivating. And skills I learnt through CDAIS help me to empower this generation of young producers with micro-entrepreneurial capacities, giving them a new attitude of hope and pride, through education, gender equity, maintaining family unity, and reducing emigration by providing dignified agricultural work.”

Another unexpected benefit of the capacity building is the new awareness of environmental pollution caused by indiscriminate disposal of agrochemical containers. The partnership played a part in the establishment of a network of special bins where farmers now bring their empty containers, instead of just throwing them away in their fields or rivers.

## Moving on

“The approach that CDAIS uses is new and it took time for us to understand it, though it has since helped everyone in the partnership understand the situation faced by the potato industry through the spaces that the project has opened. We have all accepted the challenge of the work plan, accepted our commitments, and hope to continue with CDAIS in organisational strengthening, including the emergence of a new sub-sector of specialised seed potato producers,” explained Edwin Flores, a member of PRONAGRO, La Esperanza.



# HONDURAS

> “A new municipal regulation on handling empty containers and training is contributing to less environment pollution,” said farmer. “We now know we must collect and take them to a collection centre so they can be disposed of properly.”

√ Two farmers from the ASOFAIL producer association bringing in their harvest to the collection and processing centre, where it will be washed, sorted and packed for sale to supermarkets.



“With CDAIS we now know each other better, and how to express our needs and aspirations. We learnt to reassess our skills, empower ourselves, build our businesses, and make new commercial, financial and strategic alliances.”

**Arlis Zepeda** ASOFAIL, Intibucá

## Prepared by


Miriam Villeda, Communications Officer of the Department of Agricultural Science and Technology (Dirección de Ciencia y Tecnología Agropecuaria, DICTA), in partnership with CDAIS Honduras ([miriam\\_villeda@yahoo.es](mailto:miriam_villeda@yahoo.es), +504 99450556), and Héctor García, National Innovation Facilitator for the potato partnership.

Potato is one of four innovation partnerships in Honduras being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/honduras](http://www.cdais.net/home/pilots-countries/honduras). CDAIS is implemented in Honduras by Agrinatura represented by the Italian Cooperation Agency (Agenzia Italiana per la Cooperazione), Italy, FAO Honduras, and the Honduras Secretaría de Agricultura y Ganadería (SAG).

# 16 FROM POTATO PESTS TO POLICY PROCESSES







“The CDAIS project brings an innovative methodology because it creates capacities in us as human beings.”

---

**Carlos Valladares** Intibucá farmers network





*As well as pests, no local production of certified disease-free seed potatoes is another major constraint. But with support, this is changing and farmers are hoping to reduce the cost of buying imported seed by up to 60%.*



HONDURAS

# IMPROVING COFFEE BY COLLABORATION

**Miriam Villeda** Communications Officer of the Department of Agricultural Science and Technology, in partnership with CDAIS Honduras

**Rudy Mejía** National Innovation Facilitator for the coffee partnership

June 2018





“Thanks to our collaborative efforts, 14 producers in Copantillo now export coffee to buyers in Australia, Germany, Japan and Taiwan.”

“We first needed to know who we are, what we offer, and how to offer it,” said coffee farmer Denis Cortez. “We in the partnership organised ourselves, and now all get involved in working for the common good. We are more aware of the impacts of what we do, how to improve quality, and apply on our farms what we learn such as new processing methods.” He is one of thousands of producers that CDAIS and its partners are working with in western Honduras, with clear results.

“Thanks to our collaborative efforts, 14 producers in Copantillo now export coffee directly to buyers in Australia, Germany, Japan and Taiwan – something we would never have imagined possible before,” explained Cortez, a producer with the Caja Rural Bienestar Copantillo, San Andrés. “We have changed our attitudes and the way of looking at our coffee farms, using new drying processes and boosting coffee quality. Thanks to this, we have managed to do without intermediaries and started negotiating directly with national and international buyers with differentiated prices.” And Edwin Bautista of the Honduran Coffee Institute (IHCAFE) added, “this has been possible because the partnership has been strengthened, through consensual internal analysis and by the determination to find consensus on actions needed to meet their objectives, such as direct sales of their special high-quality coffee that increase their profits.”

“CDAIS directs its gaze on smallholder coffee producers and has helped us to coach them through training, updating concepts, organisational strengthening and empowerment.”

**Carmen Rivera** Honduras Quality Coffee (HCQ) Project Manager



*Training coffee producers in the innovation partnership: on the preparation and use of organic manure to improve yields (top) and how to correctly dry beans (bottom).*

## Meeting national and smallholder needs

Honduras is the fifth largest producer of coffee in the world, the third largest in Latin America and the largest in Central America. This is the result of the efforts of 120,000 coffee farming families and coffee institutions. The market continues to grow, but in the last 15 years, Honduras also



## From partnerships to policy changes

Work started in 2016 with an assessment of capacity needs of partnership actors and the group as a whole. The partnership was built and met regularly throughout 2017 in CDAIS meetings, validating their common needs and ways forward, developing these into coaching and action plans. This also included, in parallel, technical and organisation capacity-building activities. In April 2018 they met again to share progress and achievements so far. This meeting was also the second that included three consultants working with the partnership to draw out policy and regulatory issues that are preventing them from reaching their goals, or that could better support them. Once validated by the partnership, these will be taken to a national-level meeting in the coming months. All of these ongoing activities form complementary components to the CDAIS 'learning cycles' that are clearly building functional capacities ('soft skills'), and the ability of actors to navigate complexity, collaborate, reflect and learn, and participate in strategic policy processes.



*Left: results from the net mapping and problem-solution tree exercises being discussed at the initial capacity needs assessment in October and November 2016. Right: farmer representatives from producer associations and other stakeholders agreeing on next steps achieving their common objectives, Gracias, Lempira, April 2018.*

started to position itself as a producer of high-quality coffee. Producers have been gaining ground internationally, but this is limited by the lack of knowledge of the potential of the coffee they produce. Every year there are more smallholder producers who start to prepare speciality coffee, but most sell their coffee at low prices to intermediaries in the national market. So, the CDAIS coffee partnership was formed, to work with producers in the western region where there was already a strong 'coffee culture' in the preparation of speciality coffees, but who lacked capacities in marketing as the main weakness in the sector.

“ I am in love with my coffee. But before, I did not care about improvement because middlemen took most of the profits. Today, I am the one who controls the business directly and now earn much more. ”

**Mardo Antonio Vásquez** Coffee producer in San Andrés, Lempira

Inclusivity and sustainability are also key components. The selected area includes two indigenous ethnic groups, but mostly Lenca, and the coffee industry employs many women as labourers, so a comprehensive model is being developed to allow inclusive empowerment for all groups. Environmental issues are also at the heart of the initiative, as the approach is increasing the production and productivity of value-added coffee without further forest clearance to increase the areas being cultivated. The retention of natural tree cover is also promoted – for shade, to reduce soil erosion, and to increase the soil's organic matter and water-holding capacity – as good agricultural practice.

## Positive changes

“CDAIS supports coffee producers with technical knowledge to better manage their farms, especially in aspects of quality,” explained Mario Romero, Manager of the Honduran Coffee Producers Association (AHPROCAFE) in Lempira, a non-profit organisation dedicated to organising and strengthening the capacities of their 12,685 members

## 17 IMPROVING COFFEE BY COLLABORATION



through coffee projects and organising meetings at village, municipality and departmental levels. He added, “before, smallholder producers showed no interest in adopting new technologies or ideas. But since working with CDAIS, they are now aware of the issues and are much more open, and talking about the importance of quality and of new methods. Even if technologies require more work, like solar driers, they now know that they are adding value to their product and it will sell for more, so are willing to invest.”

“Only when a technician promoted by CDAIS visited my farm, did I realise that I was harvesting my coffee beans at the wrong time,” said Mardo Antonio Vásquez, a producer in San Andrés. “I learnt how to determine the optimal state of maturity and, after I started to apply the technique, my coffee won first place among 70 participants in a quality coffee competition! Now I want to improve the quality even more by implementing post-harvest best practices. I harvest about 50 quintals [2.3 tonnes] each year, but last year I sold 24 quintal [1.1 tonnes] of this, almost half, as speciality coffee for which I received three times more per quintals

than I get for my ‘normal’ coffee.” Verónica Bejarano Banegas of the Lempira Sur (COMLESUL) cooperative was happy to explain that, now, producers also feel more confident in accessing finance: “Caja Rural de Copantillo is a good example of such new alliances, with farmers benefiting from loans to improve their farms.”

### Challenges and next steps

The innovation partnership is focused on areas where speciality coffees already have institutional and productive infrastructure, and technical capabilities are high. Based on these experiences, further work could strengthen other cooperatives that have not reached their full potential, and replication in other coffee-producing regions such as El Paraíso, Olancho and Comayagua that do not yet have the same capacities. But this should acknowledge the lessons learnt, including that the concepts as presented were considered too abstract, and that the project time frame is not long enough to ensure that innovation will be sustained.



# HONDURAS



*Farmers have quickly adopted new techniques that improve the quality of their coffee, but more than that, they have developed a parallel set of functional skills.*

“CDAIS came to smallholder coffee producers at a time when nobody was looking at their problems,” concluded Carmen Rivera, Project Manager at Honduras Quality Coffee (HCQ), a private company that provides technical assistance on quality control and marketing to producers and exporters. “We share the same vision and aims as CDAIS and IHCAFE in relation to coffee producers. This project came at the right moment when it was thought that change was not possible because of low institutional capacity, and that farmers lacked capacities not only in technical knowledge, but also in how to strengthen their associations, linking to and learning from each other, and getting their voices heard at higher levels. But we see that change is possible!”

## **Prepared by**

Miriam Villeda, Communications Officer of the Department of Agricultural Science and Technology (Dirección de Ciencia y Tecnología Agropecuaria, DICTA), in partnership with CDAIS Honduras ([miriam\\_villeda@yahoo.es](mailto:miriam_villeda@yahoo.es), +504 99450556), and Rudy Mejía, National Innovation Facilitator for the coffee partnership, Instituto Hondureño del Café (IHCAFE), Escuela Superior del Café (ESCAFE) ([rudyomarhn@gmail.com](mailto:rudyomarhn@gmail.com), +504 98282863).

Coffee is one of four innovation partnerships in Honduras being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/honduras](http://www.cdais.net/home/pilots-countries/honduras). CDAIS is implemented in Honduras by Agrinatura represented by the Italian Cooperation Agency (Agenzia Italiana per la Cooperazione), Italy, FAO Honduras and the Honduras Secretaría de Agricultura y Ganadería (SAG).

# 17 IMPROVING COFFEE BY COLLABORATION





HONDURAS

# NEW MARKETS FOR CACAO PRODUCERS

**Miriam Villeda** Communication Officer for the Directorate of Agricultural Science and Technology and CDAIS Honduras

**Erick Ordoñez** National Innovation Facilitator for the cacao partnership

June 2018

18



“Exchanging experiences is the best way to learn more about how to do things better.”

“CDAIS does not give us money, but it opens spaces for cacao producers, associations and industry to work together,” said Sergio Segovia, President of the ASOPROCCAN association. Actors in the cacao value chain of Atlántida on the north coast are, thanks to CDAIS, now achieving quality standards and promoting entrepreneurship. This was the vision of this innovation partnership, to focus actions on fulfilling their dream of strengthening their organisations and applying good agricultural practices in cacao cultivation. And, as Bernarda Moya, a cacao producer in Balfate, La Ceiba explained, “the relationships that CDAIS helps to create, benefit us all.”

## Cacao in Honduras

The ‘Atlantic’ (Caribbean) coast of Honduras has the perfect climate for growing cacao, though 80% of the estimated 4000 cacao producers grow on less than one hectare. And only 10% of the 1500 tonnes annual production is currently exported as high-quality cocoa, and only 5% of the income made in the whole value chain goes to the farmers. The problem is the reluctance of producers to acknowledge the benefits of increasing quality and to take the necessary steps. The solution? To build capacities of producers, processors and traders, and to support the production and marketing of high-quality cacao.

## Identifying needs

CDAIS chose to accompany the cacao innovation partnership on the Costa Atlántida as this is where the crop is most widely grown. The idea was to create a space for reflection where independent producers and associations find support from other actors that have a relationship with what they do. Many producers suffer from poor farm and post-harvest management. But through the partnership, they were able to expose these weaknesses and others responded. For example, staff

from the Regional University Center of the Atlantic Coast (CURLA), part of the National Autonomous University of Honduras (UNAH), became interested in designing training, opened university classrooms for producers, and even created a specialised curriculum for an intensive cacao diploma that is now offered to producers nationally and internationally.

Those in the cacao partnership seek to accompany each other to find solutions or alternatives to problems related to market access, product quality, post-harvest handling, storage infrastructure, product image, processing, financing, availability of technologies, and more.

Producers dream of becoming influential players in export markets and presenting a first-class product. For this, they have determined that organisation opens opportunities for them. By improving their productivity of fine cocoa, from their cacao, they know that they will increase their profits. This will generate opportunities to improve production and their overall quality of life. The process is also serving as an example for producers in other cacao-producing areas such as Olancho, Gracias a Dios and El Paraíso.

## Insight

The partnership proposes building capacities in marketing strategies, cost-of-production analysis, administration and accounting, value addition, organisational legality, equipment and infrastructure such as collection and processing micro-centres, undertaking a cacao census, and certification of timber lots. “CDAIS is strengthening the coordination between actors in the cacao chain,” explained Liliana Fernandez, a Technician of the Directorate of Agricultural Science and Technology (DICTA). “It brings many benefits for all, including access to new information through training, sharing experiences among producers, understanding legal frameworks, and it helps to develop capacities in many other ways.”





“CDAIS has given us a space for us to grow, share and work together.”

**Liliana Fernandez** Extensionist with the Directorate of Agricultural Science and Technology (DICTA)







# HONDURAS



*From harvested pods to cacao ready for sale, CDAIS has been supporting cacao producers in the innovation partnership throughout the process, especially in the important step of drying.*

# 18 NEW MARKETS FOR CACAO PRODUCERS

“CDAIS has helped us to focus on our problems and look for our own solutions,” said Blanca Garcia, of the Lancetilla association of artisanal women producers. “We attend CDAIS meetings because we want to strengthen ourselves and find support to develop various projects, such as new markets for our products. In this space we relate to others and this helps guide us in how to obtain financing and infrastructure for a new factory with a cold room, and training for developing innovative products.”

“New knowledge from CDAIS benefits each of us and our municipalities, because we learn to take advantage of our strengths, and make more profit and generate employment for others in our families,” added cacao producer Bernarda Moya. “CDAIS makes us take advantage of partnerships and, thanks to that, today we have the support of organisations like Rainforest Alliance, Aproh cacao and others. We also have access to logistics, facilities and knowledge from the local university (CURLA). And how I wish all cacao producers in Honduras could also share this knowledge!”

“CDAIS gives us knowledge to meet our needs, solve our problems, and make our work more efficient by connecting us so that we support each other.”

**Oscar Cerna** Farmer and member of the Pico Bonito cacao producer association, San Francisco, Atlántida

## Linking with learning

“Before, knowledge remained in the classroom because there was no university–producer relationship,” explained German Bulnes, Professor of Agricultural Economics at CURLA. “Then CDAIS came and raised the concern as to why our students did not participate in the field. Now they get involved, they learn together with producers, and their education has been enriched by field experiences and sharing knowledge.” Evangelina Trejo, Head of the Liaison Department added, “CDAIS helped show us the need to work in cacao and strengthen ourselves.

This project is important because it made us reach out to the many cacao growers around us. And because of this opening, we designed a new diploma in cacao production within agroforestry systems, which made us reflect on our teaching skills, improving our educational offers, bringing new knowledge to communities and reinforcing our strategic alliances.”

José Ruiz, a Support Facilitator of the cacao innovation partnership from CURLA, emphasised the new-found motivation among producers since CDAIS started: “Producer organisations always come to each meeting they are invited to, talking about their experiences as farmers and cooperatives, and the importance of working together to improve their plantations, product quality and sales. And the new link with the university is a new experience for producers, because no organisation showed any interest in their development until now. The associations understand that they don't receive funding or material things but are very happy to have new knowledge in processes for strengthening their organisations, improving governance, and plantation management.”

“CDAIS offers us so many things!” said Oscar Cerna, member of the Pico Bonito association. “It brought us an IFAD [International Fund for Agricultural Development] workshop on increasing the profitability of our cacao cultivation where I learnt such a lot. It also opened doors with the university [CURLA], and their new diploma is great, being adapted to our time availability. Now I produce better cacao, know how to prune my trees, and use local waste for organic fertilisers.”

## Moving forward

“My involvement with the CDAIS process allowed me to see the importance of organisational issues, and so I have opened the association to more producers,” said Sergio Segovia, President of ASOPROCCAN, originally an association of 40 cacao producers in the El Cangrejal basin that now aggregates other associations with more than 300 producers in all. “We have plans to establish micro-predrying processing centres and a larger secondary centre for drying, but also to extract cacao oil, which is easy to produce and with ready markets in Central America, Canada and the Netherlands.”



## The cacao coaching plan

Workshops for reflection on and revision of the coaching plan during 2017 and 2018 allowed the innovation partnership to agree the focus of training based on producers' needs. At each meeting, they reviewed past work and the effectiveness of commitments, and made readjustments to future plans where considered necessary. Coaching includes training on improving production through the use of organic fertilisers, fiscal regulation, financing, certification of agroforestry systems, needs of the chocolate market, value addition, and bar-code registration. Cacao producer Bernarda Moya spoke positively about the results: "the workshops and training have raised awareness of our issues and what we need to do to deal with them. But importantly, they have shown that our goals are achievable." She added, "the most beautiful thing is that everything that has been captured comes from a consensus of everyone's views. Nothing is imposed – it is just a continuation of the reality that we live." During the latest meeting in April 2018, Support Facilitator José Ruiz from the university concluded that important resolutions were agreed, prioritising training on organic fertilisation for example, as traders and exporters are demanding this. "Furthermore, it was agreed that we will present

proposals to Rainforest Alliance and the Business Development Centre for Small and Medium-Sized Enterprises to join our cacao innovation partnership," he said.



*A meeting of the cacao innovation partnership in the CURLA centre, La Ceiba, April 2018. Farmers and representatives from producer associations, processors, the university and other stakeholders agreed a detailed and dated plan for training and exchange visits in the following months.*

“CDAIS enriches our mind. In the mountain we collect four ingredients for producing organic compost, but there is a ‘secret’ fifth ingredient, that is CDAIS...”

**Oscar Cerna** Cacao farmer and member of the producer association of Pico Bonito, San Francisco, Atlántida

### Prepared by

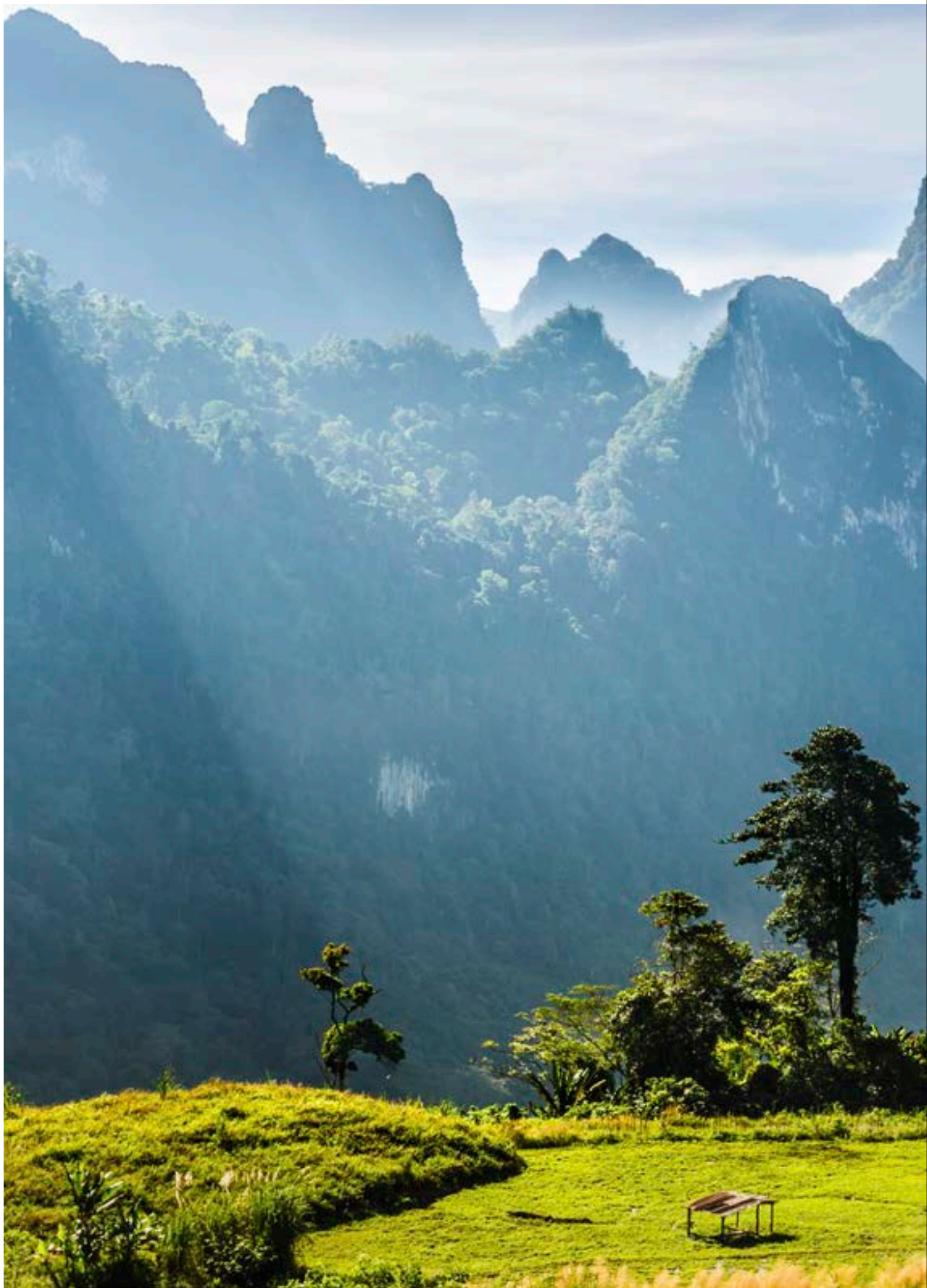
Miriam Villeda, Communication Officer for the Directorate of Agricultural Science and Technology and CDAIS Honduras (miriam\_villeda@yahoo.es, +504 99450556), and Erick Ordoñez is National Innovation Facilitator for the cacao partnership (efer0606@gmail.com; +504 33989870).

Cacao is one of four innovation partnerships in Honduras being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/honduras](http://www.cdais.net/home/pilots-countries/honduras). CDAIS is implemented in Honduras by Agrinatura represented by the Italian Agency for Development Cooperation (Agenzia Italiana per la Cooperazione allo Sviluppo), Italy, FAO Honduras and the Honduras Secretaría de Agricultura y Ganadería (SAG).

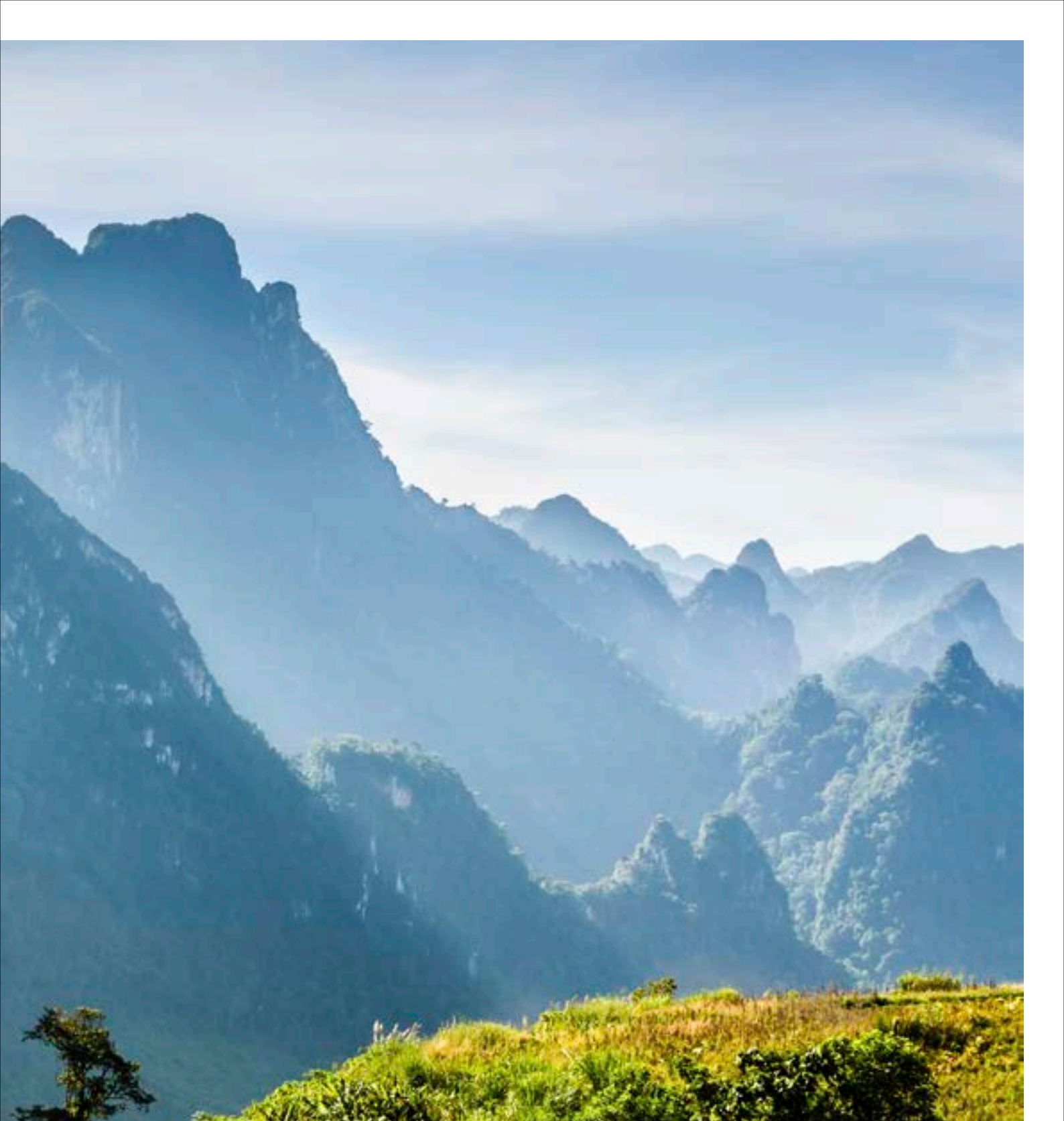
# 18 NEW MARKETS FOR CACAO PRODUCERS











**LAOS**



# SEEDS OF AN ORGANIC FUTURE

**Dalaphone Sihanath** Lead National Innovation Facilitator

**Kolakoth Phommalin** National Innovation Facilitator for the organic vegetable partnership

**Khanthanou Lorsavanh** National Innovation Facilitator for the organic vegetable partnership

December 2017





“People in Laos know the benefits of organic vegetables: that they taste better, last longer and are more nutritious.”

“We have changed already since CDAIS started working with us,” said Khammone Luanglath. “Because of the project, we have for example divided our responsibilities within the group and our profits have increased.” The CDAIS project is working with a group of organic vegetable growers in Tongmang village in Vientiane province, who produce for local markets. It has helped them to better identify their needs, and is supporting their capacity development so that they can improve their functional skills, to help them to better invest, organise and increase production and sales.

“People in Laos know the benefits of organic vegetables: that they taste better, last longer and are more nutritious. And our members have an unlimited supply of the very best – and we make a good profit from our sales” – Khammone Luanglath of the Tongmang organic vegetable growers group, is proud of her achievements. CDAIS became involved in 2017, to help to strengthen the group, and facilitate them in identifying challenges and solutions, with some immediate successes.

### From small seeds...

The market for organic produce is growing and, in response, the Tongmang organic vegetable farmer group was set up in 2015 by the government District Agriculture and Forestry Office (DAFO). The 12 founding village members were initially trained to produce organic compost and bio-extracts for pest control. Later, a site was found for them, with 12 shade houses on two hectares, rented from private individuals for US\$60 (€51) per year on a three-year contract from May 2015 to June 2018. Then a second two-hectare plot was rented for a ten-year period from Lavone Philasaypitak, Head of the group, who was also able to loan seeds and inputs to group members who do not have the means to buy them outright, to be repaid after vegetables are sold.

At the beginning, the group built 15 simple shade-house structures from bamboo poles, and covered them with plastic sheets provided by DAFO. In 2016, they joined a Lao farmers network, which provided training on strengthening group capacities in management, finance and marketing. The group then expanded to 43 members, including 16 youth, who together now farm four hectares with shade houses and an adjacent 18-hectare site of orchards and private plots. The group grows 45 different types of vegetables, along with mushrooms and various fruits from the orchards such as banana, papaya, dragon fruit, lemon and tamarind.

Group members pay monthly fees which are used to buy tools, seeds and other inputs, and to support the marketing of produce. But this money is not enough to allow for the much-needed new investment in new shade houses, to dig boreholes for irrigation or to buy machinery for land preparation, cultivation and mixing organic fertilizers.



*Khammone Luanglath, Deputy Head of the Tongmang organic vegetable growers group*



## ...to identifying capacity needs

The 'capacity needs assessment' workshop for the organic vegetable growers groups took place in April 2017 in Tongmang village, with 43 farmers including 16 youth – and 39 of them were women. The group identified three main 'hot spots' where they wanted support from CDAIS to develop their capacities. These were to help them to obtain credit or investment, produce vegetables and fruit in the rainy season, and improve their ability to market their produce. The skills required for each were determined, and a list of activities were agreed that would reinforce their capacities in these areas. These were then combined into a plan of action in a fully participatory process.

## Youth in agriculture

"Growing vegetables is not as difficult as you think," a girl in the youth group told Khanthanou. "I know how to do everything as I have helped my parents in all the steps – sowing seeds, transplanting, watering, weeding and harvesting." The youth in the group were certainly keen, and they saw a great opportunity. They met, and first agreed on what crops they were going to grow, but they also agreed on what they did not know, and therefore what training they needed. This included how to make organic fertilizers, and the best pest and disease control methods. They also agreed to divide certain tasks. The boys said that they would work on land preparation and watering, the girls said they would sow and weed, and they would work together on transplanting. They prepared daily work schedules for before and after school, and for weekends. Khammone said children really enjoy growing vegetables, "and they are very happy to earn some money that helps a lot in paying for their educational needs and to contribute to family savings."

## Expanding markets

"Before we had four vegetable markets where we would sell our produce" added Khammone, "but at the CDAIS 'marketplace' event we made new contacts, and now we have eight markets where we can sell. The new problem is that we can't produce enough to meet this additional demand! Though at least we know that every extra we can produce, we can sell."



*The group use only organic fertilizers, and government inspectors come from time to time to ensure that what they put in the garden follows organic rules and procedures.*

The group's markets are also growing thanks to social media, and help from the youth. Adult farmers thought that they could sell their fruit and vegetables in weekly food baskets, if only the youngsters could help them to advertise this 'offer'. Then, thanks to training from the Lao Farmers Network, two youths learnt how to take attractive pictures of their vegetables and gardens using their mobile phones for posting on the group's Facebook page. Now the group sells four different vegetable baskets each month to make traditional recipes: bamboo-shoot soup, sweet-and-sour chicken soup, fish sukiyaki, and salad. They are also testing their new underground cold storage unit that works without any electricity, and which they hope will allow them to store some vegetables for up to a month.

## What the future holds

Khammone Luanglath was clear about the anticipated benefits: "At the end of next year when we have carried out the action plan, we expect to have diversified and increased our production, we will be stronger in our marketing, and we will have transformed from a farmers group into a fully functioning farmer cooperative."

## Developing an action plan

Khanthanou Lorsavanh, the national innovation facilitator who leads this innovation partnership, said the greatest need of these farmers is to increase their ability to grow vegetables in the rainy season. The monsoon conditions are so different that most vegetable farmers find it especially difficult during this period and, because of this, the price of vegetables is very high as compared with the dry season. “So,” said Khanthanou, “I planned to provide them with training on how to test their soil, how to make appropriate organic fertilizers and, most importantly, what were the best pest and disease control methods to apply during the monsoon period.” Khanthanou explained that his support

was not just as a provider of technical information, and that CDAIS had equipped him with many other skills that he was now passing on to the farmers. “Besides being trained as a facilitator, I also learnt, for example, how to teach farmers about calculating costs of production.” He went on to explain that after this knowledge was transferred, eight farmers had the confidence to take out loans, being newly assured that they could repay them. And each of the farmers was able to repay the one-year loans within seven months. This success has inspired others and, in 2018, 15 vegetable growers plan to increase their production by taking out loans from the same microfinance institute to build more shade houses. “I am so very happy to see the progress that they are making,” he added, with a smile.



*The group identified key stakeholders who they had to collaborate with to make progress on dealing with the three main hot spots.*





“Our farm is like a school for us – we learn something new every day.”

---

**Khammone Luanglath** Deputy Head of the Tongmang organic vegetable growers group









*Tongmang organic vegetable growers group.*



*The Tongmang youth group identified their capacity needs and developed and agreed a work plan for their vegetable production.*

In 2018, they are planning to expand production onto individual members' land, leaving the original two-hectare plot as a demonstration and experimental site. They also plan to build offices and a new organic-vegetable store. And as their successes are being increasingly acknowledged, thanks in part to the social-media coverage, they are receiving more and more visitors. Attracting locals and foreigners, the Tongmang organic vegetable gardens are even starting to become a bit of a tourist attraction!

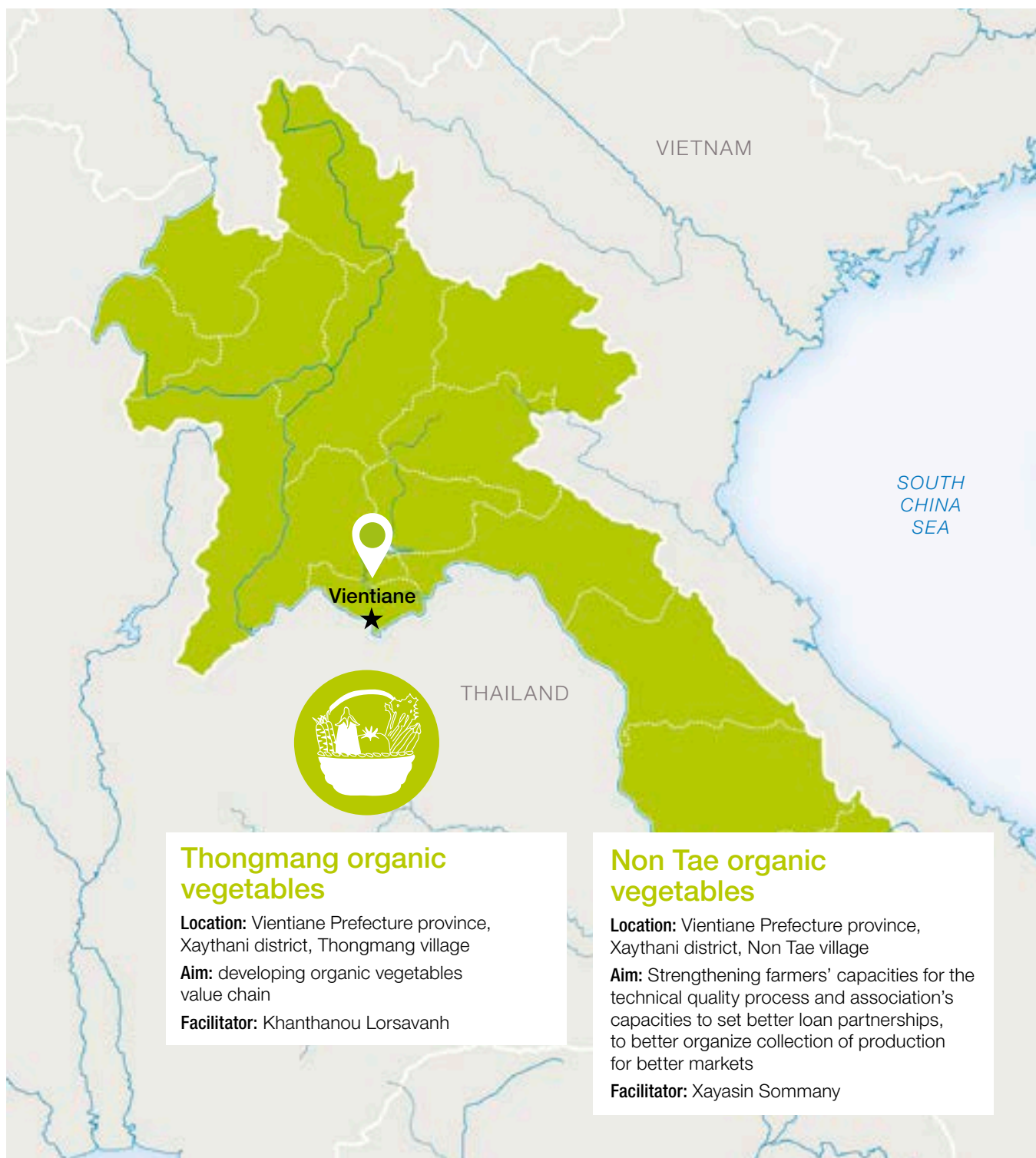
“Before, we grew some rice and little else, but since we joined this group, now we have lots of fresh vegetables for our family and make a good profit too.”

Members of the Tongmang organic vegetable growers group

**Prepared by**

Dalaphone Sihanath, Lead National Innovation Facilitator (sdalaphone@gmail.com, +856 2028022201); Kolakoth Phommalin (k.phommalin@nuol.edu.la) and Khanthanou Lorsavanh (khanth\_lsv@hotmail.com), both National Innovation Facilitators for the organic vegetable partnership.

Organic vegetable production is one of five innovation partnerships in Laos being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/laos](http://www.cdais.net/home/pilots-countries/laos). CDAIS is implemented in Laos by Agrinatura (represented by Centre de coopération internationale en recherche agronomique pour le développement), Food and Agriculture Organization of the United Nations Laos and the Laos National Agriculture and Forestry Research Institute, along with other partners for other partnerships.



**Thongmang organic vegetables**

**Location:** Vientiane Prefecture province, Xaythani district, Thongmang village

**Aim:** developing organic vegetables value chain

**Facilitator:** Khanthanou Lorsavanh

**Non Tae organic vegetables**

**Location:** Vientiane Prefecture province, Xaythani district, Non Tae village

**Aim:** Strengthening farmers' capacities for the technical quality process and association's capacities to set better loan partnerships, to better organize collection of production for better markets

**Facilitator:** Xayasin Sommany



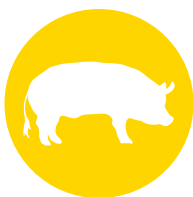
LAOS

# PIG FARMERS BUILDING BRIDGES TO SUCCESS

**Khamla Sengphaxaiyalath** National Innovation Facilitator for the pig rearing partnership  
**Lampeuy Kaensombath** Lead National Innovation Facilitator

June 2018





“An element of the CDAIS approach is building bridges between people.”

“Working with CDAIS has given us not only knowledge and skills, but also the confidence to make connections with the government and other partners,” said Dao Sansihalath, a member of the Xanakham women’s pig-rearing group. “What we have learnt is practical and is helping us grow our business without having to make a lot of costly mistakes.” This has been achieved through support from the CDAIS project since 2016.



*“I make a profit of about US\$25 on each pig I sell. I can sell 20 to 25 pigs about four times a year so I can earn over US\$2000 a year,” said Dao with obvious pride.*

“Working with CDAIS is different to working with other projects. CDAIS doesn’t tell people what to do, it helps them decide what they want and then supports them.”

**Suthavon Keomanythong** Extension Officer with Xanakham District Agriculture and Forestry Office

## Building on past experience

Farmers in Xanakham have been rearing pigs for generations and know that boosting production can improve their livelihoods. Only 240 kilometres north of the nation’s capital city, Vientiane, and on the banks of the Mekong River opposite Loei Province in Thailand, they are in a good position to capitalise on the growing demand for pork products. The Lao Government is also aggressively promoting meat production. When word came to the Dong Kha village administration to “see what they could do”, they nominated committee member Sathian Khamchaleun to canvass the community and had little difficulty recruiting interested villagers. In 2012, there were 12 households in a loose-knit group rearing five to ten pigs each, with more people asking to join. The group was doing well enough but not receiving much support from government agricultural extension services or the private sector.

Then in 2015, the National Agriculture and Forestry Research Institute (NAFRI) agreed to partner with CDAIS. The Xanakham pig-rearing group showed strong potential and was selected as one of five partnerships for Laos. In May 2017, farmers presented their action plan to representatives from government, a national bank, a microfinance association, a meat-processing company and other national stakeholders at a specially organised ‘marketplace’. Members of the pig-rearing group maintained contact with the meat-processing company, which is providing continuing advice on value-added products. CDAIS is also supporting links to a microfinance association to help financial capacity development. “We want to know if it is going to be profitable to make products like sausages and pork rind, but we needed training,” said Khamchaleun.

Value-added products are not the only challenge for the group. “Now we buy most of our piglets in Thailand,” said Pheng, one of the bookkeepers for the group. “We want to breed our own piglets, but until we can raise all we need, we buy them across the river in Thailand.”



## Forging links, building bridges

An element of the CDAIS approach is building bridges between people. Connecting smallholders with government services means CDAIS projects will continue long after the funding ends. Based on the group's plan, CDAIS facilitated a training-and-study tour to NAFRI's pig research centre in Vientiane in November 2017. The group members then decided they wanted to visit a commercial operation in Thailand from where they have been buying piglets for some time, but it was difficult for them to make arrangements on their own. The District Agriculture and Forestry Office (DAFO) offered support and CDAIS helped contact Thai farms, with one producer accepting an invitation to a consultation meeting in July 2017 leading to a signed collaboration agreement between the Dong Kha pig group and Yong Yut Farm in Thailand. "Arranging the consultation meeting was an important breakthrough," said Patrick D'Aquino, CDAIS Focal Person for Laos. "As an external agency we have a certain amount of 'convening power' that allows us to create space for and facilitate dialogue. Once we get different stakeholders talking they usually find a way to meet everyone's needs."



*Dong Kha pig producers on their study tour to Thailand: learning about piglet production from Thai experts*



*Dong Kha pig producers on their study tour to Thailand: taking notes on pig feed formulation during a field visit*

Following the consultation meeting, the pig-raising group arranged their study tour to Thailand in January 2018 with backstopping from CDAIS. The group included two staff from Xanakham DAFO. During the first two days, the group learnt about farm management from a Rajabhat University expert, with a third day at Yong Yut Farm for hands-on experience and visiting a feed mill where they picked up tips on optimal feeding practices. "What we learnt is practical and can help us grow our business without making a lot of mistakes," said Dao, the group's marketing lead.

“As an external agency we have a certain amount of ‘convening power’ that allows us to create space for and facilitate dialogue. Once we get different stakeholders talking they usually find a way to meet everyone’s needs.”

**Patrick D'Aquino** CDAIS Focal Person for Laos

# 20 PIG FARMERS BUILDING BRIDGES TO SUCCESS



*Members of the Xanakham pig-rearing group and a few of their animals*

This is becoming more difficult as the government wants to restrict imports of live pigs and pork. A new bridge across the Mekong River to Thailand is only two hours from Dong Kha village. “We enjoy the trip but it costs money, so our group wants to invest in breeding our own,” explained Khamchaleun. “We will need to learn a lot but we made that part of our action plan during the CDAIS capacity needs assessment.”

“CDAIS coaching has resulted in a better working relationship with local technical advisory staff and new links with traders and other stakeholders.”

**Sathian Khamchaleun** Head of the Dong Kha pig-production group

## From farm gate to market

The road network in Laos is improving, making it easier for buyers to come to small villages like Dong Kha. “We sell about 80% of our pigs to middlemen who come to collect them. I meet them and negotiate a price for our members, which is better than before when everyone tried to negotiate individually. The group gives us power,” said Dao. “And everyone has mobile phones now so it is easy to check the price,” she added. It takes about six months to raise a pig to 80–100 kilograms, when they can be sold for about 15,000 Lao kip (US\$1.75) per kilogram, yielding a profit of roughly US\$25 per pig.

Demand for pork is rising and, with backstopping support from CDAIS, the farmers are gradually improving their production process. Dao, for example, invested US\$3000 of her own money to build a modern pig shed. CDAIS encouraged the group to work with the local DAFO, and arranged for one of the extension officers, Suthavon, to work with them. “A good design means the shed is easier to keep clean and is better for animal health,” he said. The sloping concrete floor makes it easy to hose the urine and manure into a drainage pipe that runs into an effluent storage pond nearby. Pigs are segregated by age which makes feeding more efficient.

## The road ahead

The Xanakham pig-rearing group has big plans for the future. CDAIS coaching has resulted in a better working relationship with local technical advisory staff and in new links with traders and other stakeholders. With support from CDAIS, members are gaining technical knowledge through exchange visits and study tours, and their own expanding experience. Several members are already investing or saving to invest in breeding their own pigs, and the group action plan calls for developing value-added products. Group membership also helps build individuals’ numeracy and business-management skills. Lack of these ‘soft skills’ is often a major reason many small enterprises fail to go beyond the household level, so building these capacities is an essential prerequisite for success.

One important outcome of the CDAIS process is the confidence that comes from learning new skills and





*Dao's new pig shed was designed with help from the District Agriculture and Forestry Office. The sloping concrete floor makes it easier to keep the pens clean, and slurry is channelled into a pond where it is stored until the dry season to be spread on nearby rice fields.*

developing and implementing an action plan. Lampheuy Kaensombath, Lead Coordinator for CDAIS national innovation facilitators said, "I called Mr Sathian one day and he was in a meeting at the governor's office with representatives from DAFO, the Industry and Commerce Office, the Provincial Planning Office and some pig traders, talking about live-weight prices." This is a good indication that the Xanakham pig-rearing group is moving up the value chain and developing the skills they need to manage on their own. CDAIS staff have now started to support local technical advisory staff to scale out innovations to other farmer groups in the district using the approach developed with the Xanakham group. The CDAIS strategy was not to support the DAFO before the farmer group had developed enough confidence and autonomy, as the usual relationship between extension services and farmers is often top-down. But the two partners now have a more balanced and profitable relationship in which the farmers identify and ask for what they need.

“An important outcome of the CDAIS process is the confidence that comes from learning new skills and developing and implementing an action plan.”

**Lampheuy Kaensombath** Lead national innovation facilitator

#### Prepared by

Khamla Sengphaxaiyalath, National Innovation Facilitator for the pig rearing partnership (khamla.s772@gmail.com, +856 20 2333 6020), and Lampheuy Kaensombath, Lead National Innovation Facilitator (lampheuyk@gmail.com, +856 2 0 2829 9751).

Pig rearing is one of five innovation partnerships in Lao PDR being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/laos](http://www.cdais.net/home/pilots-countries/laos). CDAIS is implemented in Lao PDR by Agrinatura (represented by CIRAD), FAO Laos and the Laos National Agriculture and Forestry Research Institute (NAFRI), along with other partners for other partnerships.

# 20 PIG FARMERS BUILDING BRIDGES TO SUCCESS





LAOS

# CATTLE PRODUCERS BLAZING NEW TRAILS

**Khamla Thammachak** National Innovation Facilitator for the cattle partnership

**Lampeuy Kaensombath** Lead National Innovation Facilitator

June 2018





## “Cattle are our savings bank.”

Smallholder farmers the world over like to raise cattle if they can and those in Laos are no exception. “Cattle are our savings bank,” said Phokham Keomanivong, a member of the Ban Keun cattle-production group. “If you need money for an emergency or a special event like a wedding or a funeral, you can always sell a cow.” As much as they love their traditions, Ban Keun farmers see the need to change their practices, and CDAIS is helping them do just that.



*Past Chair of the group's management board, Phutpasan Vongxipason with part of his herd. Extensive grazing is becoming more difficult, especially in peri-urban areas such as Ban Keun.*

The Ban Keun cattle group started in 2009 with 22 members who collectively held 85 hectares of pastureland and had about 400 cattle in total. Members pay a one-time membership fee of 50,000 Lao kip (about US\$6) and elect a Board of Directors to manage the group's affairs. Over the years, the group had grown to 63 members with 1000 head of cattle in 2016 when CDAIS began working with them.

“In the past, we had only limited technical training. Now CDAIS is helping us learn more about the business of raising cattle and how we can manage our group better.”

**Souvath Ketsatha** Chair of the Ban Keun cattle-production management board

## Farming in a changing landscape

Farmers everywhere have to adapt to changing circumstances. In Laos, the government only began opening its borders to trade and commerce in the late 1980s, but the pace of change has been increasing steadily ever since. Incomes are higher, more people are living in cities, and hydro-power development and foreign investment are changing land-use patterns across the country. The good news for farmers with cattle is the increased demand for meat and more supportive government policies. The bad news is that traditional methods of raising cattle are becoming uneconomic and there is growing competition from large-scale commercial cattle-raising operations. “We have had many technical training projects in Laos,” said Khamla Thammachak, a CDAIS Facilitator who works full-time at the Department of Technical Extension and Agro-Processing, a CDAIS partner agency. “What farmers are asking for now is help with skills in management, marketing and connecting to value chains.”

## Planning for action

“Helping the group develop a one-year action plan was the next step in the CDAIS process,” said Thammachak. “We go year by year because the idea of action planning is new to the group and this is a learning-by-doing process.”



## Skilled facilitation opens new pathways

During the CDAIS participatory capacity needs assessment in December 2016, members were very happy that “CDAIS facilitators made sure everyone at our meeting got a chance to express their ideas,” as one member said. A particularly sensitive issue emerged around a livestock loan agreement initiated by a former high-ranking government official and a large Lao company. The company provides Brahman-Thai cross-bred cows to farmers who then pay back in-kind with calves. “Usually in three years we can give back to the company two calves and then the cow is ours,” said Somsavang, a member of the group’s Board and owner of ten cross-breed cows. “But they require a lot more care than our native Lao cattle and need special feeding. Also, the company was not collecting their calves when they said they would and we had to continue to feed and care for them.” In the CDAIS needs assessment dialogue, some members wanted to raise their concerns with the company, but some of the government actors were reluctant to do this because of perceived ‘political sensitivities’. “At first, the company representative was defensive, but thanks to CDAIS facilitators we were able to have a good discussion about the problems and could agree on a solution,” said Bounkong Chandala, Deputy Chair of the group’s Board. The company then confirmed it would collect its calves according to the agreed schedule and take back cows from farmers who were struggling to provide the required feed and level of care. “CDAIS showed how we can talk about sensitive issues and find a solution that meets everyone’s needs,” said Souvath Ketsatha, the newly elected Board Chair.

“CDAIS showed how we can talk about sensitive issues and find a solution that meets everyone’s needs.”

**Souvath Ketsatha** Chair of the Ban Keun cattle-production management board.

We want them to change the plan.” Action planning has given the group a new lease on life. The members have identified three ‘hot spots’ they want to work on – growing more fodder, breeding, and getting more benefits from selling their cattle. As groups members explained, “the CDAIS facilitator showed us how to break down the problem into steps and we can see more clearly now what we need to do.” The clarity in planning is paying off and, as their management capacity increases, the general membership is getting more involved.



*Fattening cattle to make a profit requires considerable investment and expert knowledge.*

## Old habits are hard to break

As part of their action plan, the Ban Keun group wanted to produce more fodder grass and wanted to buy a tractor to cut and transport the fodder. “They kept asking me if the project would give them money for a tractor,” said CDAIS Facilitator Thammachak. “I explained to them the project does not work like that, and tried to focus them on brainstorming solutions and helping them develop the capacities they need, such as calculating costs and benefits, and developing a business plan. They have a good case for buying a tractor, but they have to figure out how to pay for it. Eventually, I think they will put this in their action plan but it is up to them. That’s how CDAIS works.”

## 21 CATTLE PRODUCERS BLAZING NEW TRAILS



*Brahman-Thai cross-bred cows grazing on pasture beside a field of planted Napier grass*

### Blazing new trails

The Ban Keun group faces many of the same challenges as cattle-raising groups in other parts of the country. Available pasture area is shrinking due to land-use change, and cultivating fodder grasses such as Napier grass and Congo (or ruzi) grass means learning new techniques and practices. To deal with these issues, the Ban Keun group is negotiating with local authorities to protect land for community grazing by officially 'zoning' identified areas and setting up a revolving fund for medicines and supplementary feeds.

How to make more money from their cattle is another challenge. The group is looking for training to help members improve cattle feeding practices, improve grassland quality, organise a feed market and coordinate with the National Agriculture and Forestry Research Institute and the government extension services to obtain grass seeds and technical support. Once the group members decide what they want to do, CDAIS provides backstopping support for activities such as their planned study tour for 25 group members to visit Phonexay District in Luang Prabang Province to learn how to grow and collect fodder-grass seed, how to feed and fatten cattle using silage and concentrates, animal health care, and management of herds and their farmer group.



*Phutpasan Vongxipason checking the health of his Napier grass.*

“Before we worked with CDAIS, government and NGOs [non-governmental organisations] would come to us with their plan, but CDAIS helps us make our own plan.”

**Souvath Ketsatha** Newly elected Director of the group's management board





A big 'thumbs up' from members of the Ban Keun cattle group for advances made thanks to CDAIS support.

“CDAIS is helping us manage our group more professionally. This is important because we want to build a cooperative in the future.”

**Souvath Ketsatha** Newly elected Director of the group’s management board

## Good prospects

With support from CDAIS national innovation facilitators, the Ban Keun cattle group have strengthened their leadership capacities and with their new confidence are planning to transform the group into a cooperative. As a cooperative, they could expand their membership and earn income to provide services to a larger number of smallholder farmers – and buy that tractor they so badly want.

Perhaps a more challenging issue has to do with the ‘tradition’ of cattle rearing. Many group members, while not wealthy even by Lao standards, have

sufficient income from other farming and off-farm activities that they have no pressing economic need to commercialise their operations past a certain point. To do so would require more investment, time and effort. But, as another farmer Mr Somtavong says, “we love to raise cattle. It’s our tradition.” And with support from CDAIS, the Ban Keun cattle group are building on the that tradition with an eye to the future.

### Prepared by

Khamla Thammachak, National Innovation Facilitator for the cattle partnership (KI\_tmc@hotmail.com, +856 202255 9997), and Lampheuy Kaensombath, Lead National Innovation Facilitator (lampheuyk@gmail.com, +856 2028299751).

Cattle production is one of five innovation partnerships in Lao PDR being developed as part of the CDAIS project. For more information, visit [www.cdais.net/home/pilots-countries/laos](http://www.cdais.net/home/pilots-countries/laos). CDAIS is implemented in Lao PDR by Agrinatura (represented by CIRAD), FAO Lao PDR and the Lao National Agriculture and Forestry Research Institute (NAFRI), along with other partners for other partnerships.

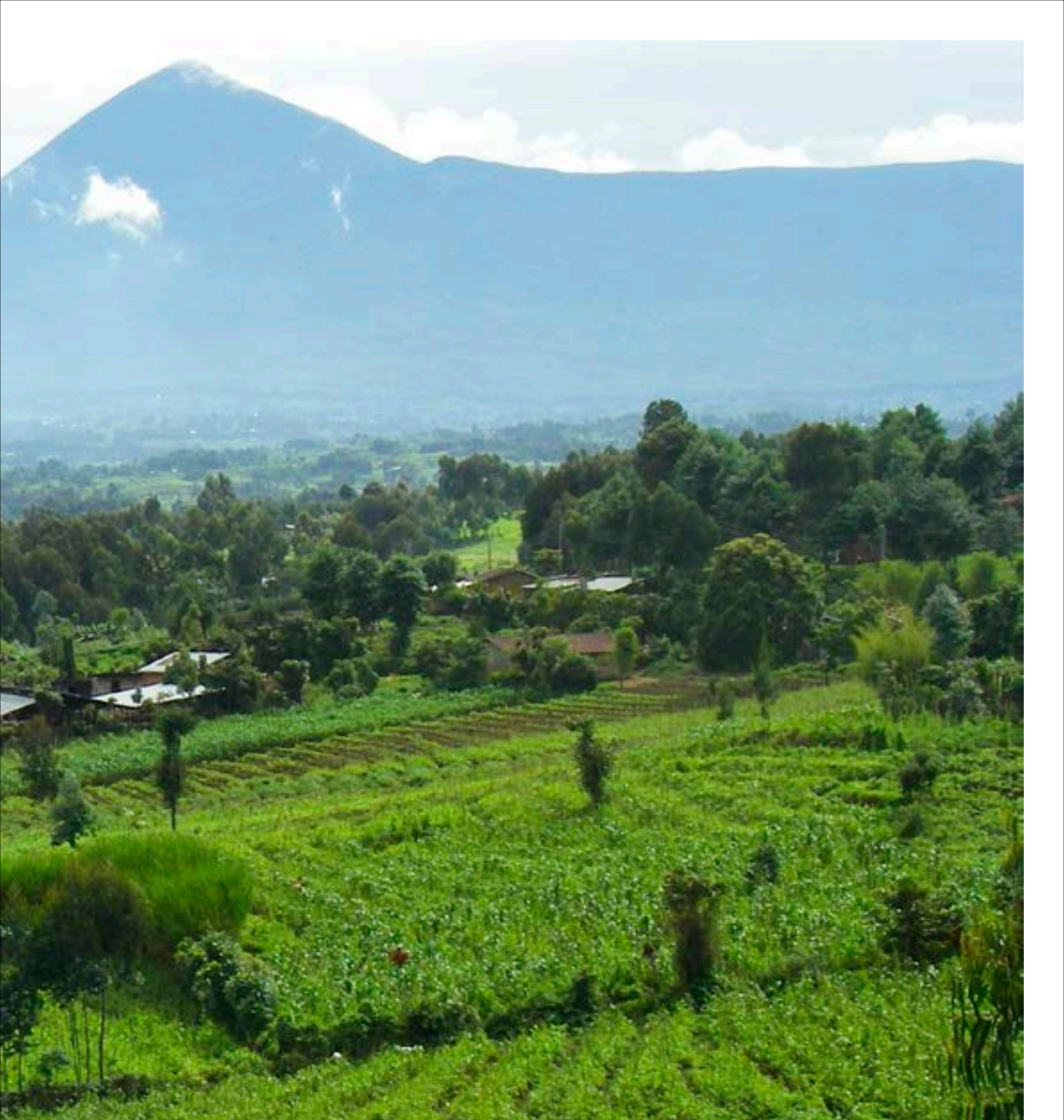
## 21 CATTLE PRODUCERS BLAZING NEW TRAILS











**RWANDA**



RWANDA

# COOPERATION IN THE CASSAVA PRODUCTION

**Gisele Ntakirutimana** National Innovation Facilitator

**Jean Pierre Bizimana** Entrepreneurship and Business Management Consultant

September 2018





“What has changed? We came together. And together we found ways to solve our problems.”

Cassava is an important crop of Rwanda, especially in the south. A processing factory was constructed, but it was unable to source enough roots to make it profitable. Since CDAIS became involved, however, actors got together, saw the problems and agreed ways forward. Now a few years later business is booming for all involved – farmers with a secure market, producers of improved planting material, and the factory itself that produces much more cassava flour and now employs 230 people.



CDAIS National Innovation Facilitator Straton Habumugisha observing that not everyone grows disease-resistant varieties.

Agriculture is the main economic activity in Rwanda, involving more than 80% of the labour force and contributing 33% of gross domestic product (GDP). Of all crops, cassava is ranked third in importance for household income and food security. To reach its vision of becoming a middle-income country by 2020, the government has targeted the transformation of agriculture into a productive, high-value, market-oriented sector, and Southern Province has become the cassava basket for the country.

“We are overwhelmingly pleased by the interventions made by CDAIS, that have helped restart our engines that now turn day and night!”

**Viateur Ngabonzima** Production Manager, Kinazi Cassava Plant, Ruhango

## From potential to problems

Using a public–private partnership, the government supported the construction of the Kinazi Cassava Plant at a cost of US\$10 million, with a capacity to process 120 tonnes of roots per day into high-quality cassava flour. It started work in 2012, but a study in 2015 found that it was running at only 7% capacity, and identified the reasons for this. There had been a sharp decline in the supply of cassava caused by lack of communication and collaboration between and among farmers and multipliers of improved planting material. Cassava is grown from cuttings, and these should be disease-free and preferably of improved varieties. Moreover, prices offered were low and there were delays in payment, so farmers preferred to sell to other markets.





*Cassava in the landscape – as the third most important food crop in Rwanda, it supports livelihoods and food security.*

Also, the crop varieties that were being increasingly grown proved susceptible to cassava mosaic virus and cassava brown streak disease. Farmers lacked access to disease-resistant varieties and yields declined, farmer income decreased, impacting on household living conditions. Because of the inadequate supply, Rwanda even had to import cassava flour from Tanzania and Uganda.

## Turning the tide with ‘cassava week’

In response to the identified problems, CDAIS gathered diverse value-chain actors during ‘cassava week’, in Ruhango district in October 2017 under the theme ‘Strengthening collaboration of all stakeholders for sustainable solutions’. It was supported at the highest level: opened by Hon. Fulgence Nsengiyumva, State Minister in charge of agriculture at the Ministry of Agriculture and Animal Resources, who called on actors to work together and committed government

support. The event enabled a common understanding to be reached of the relevance of innovation and the role of policy, institutional and organisational issues in overcoming the challenges. The resulting 23 recommendations included improvements in the enabling environment, including the need for multi-stakeholder platforms and incentives to promote innovation in cassava production and processing.

“CDAIS coaching sessions are very different from others I have had. They also made me see things differently, to see others as partners and not competitors, and to see the need for change.”

**Felicien Simpunga** Cassava farmer, Ruhango district

## 22 COOPERATION IN THE CASSAVA PRODUCTION

### Kick-starting success

More meetings were convened and facilitated by CDAIS, and farmers, multipliers and the factory owners started to implement agreed solutions. Functional capacities were developed, the partnership was strengthened, and the relationship between the Kinazi Cassava Plant and farmers improved greatly. Six months after cassava week, supply had increased massively, and from running at 7% capacity in 2015, the factory was operating at 70% capacity in May 2018. The impact was also felt by farmers: “Now the factory is buying our produce and paying us on time at a price a bit more than others, we see more profit and this encourages us to improve our farming methods.”

These activities were also complemented by direct learning in nine key subject areas identified by partnership members, and that form the core of CDAIS ‘learning cycles’. These were: roles and responsibilities; inclusive management; conflict management; entrepreneurship; record-keeping;

standards; access to markets; communication; and advocacy. Capacity-development coaching modules were developed for each of these and delivered by CDAIS experts in two-day courses, which have been very well received – the range of subjects matching the range of stakeholder interests.

“Effective partnerships are the key. Without them, everyone loses. For example, with no access to improved varieties, crop quality is poor, the factory won’t buy it, farmers can’t repay their loans, the bank loses too.”

**Yves Nicholas Rutagungira** Supply Manager,  
Kinazi Cassava Plant, Ruhango



*Cassava week brought together 80 representatives from farmer cooperatives, local and central government, extension services, input suppliers and private investors in cassava processing, trade and transport, and national and international non-governmental organisations.*



## Reflecting and refining, together...

An integral part of the CDAIS approach to capacity development is to encourage joint reflection and learning, and then using the lessons learnt to continually refine the coaching and action plans for sustainable achievements.

Within the cassava innovation partnership, 20 actors met on 4 September 2018, including farmers, multipliers of improved planting varieties, bulk buyers, and representatives from the processing plant and from two local banks. Alexia Mukamusoni's story exemplifies the impacts of CDAIS on farmer livelihoods. A widow with three children, she grew cassava but struggled with pests and diseases and found it hard to sell it. "I realised that we needed to work together, learn modern techniques and secure new markets," she said. She joined the Ubumwe Mbuye cooperative, and she is now its president. She saw the need for new resistant varieties, and started multiplying them for sale to other farmers, which makes up a large part of her income.



*CDAIS not only provides a space for joint learning, but also facilitates reflection sessions to learn from what has been done.*

## The end result – benefits all round

"I have changed from producing just for the family, to farming commercially for the market, thanks to the modern farming methods I have learnt," said Alexia Mukamusoni. "I have changed in that now I save, and cooperative members save. We have learnt how to divide our income into what to use, what to invest, what to save. Now we keep records, so we know. Each cooperative member now puts in 2000 Rwandan francs (USD\$2.30) per month for health insurance, and we can better pay school fees. Also, the cooperative had no reserves before, now we have more than a million francs in the bank!"

Some farmers also reported large yield increases, as Felicien Simpunga explained: "Before 2017, I produced 15 tonnes per hectare, but thanks to implementing what I have learnt, my yields have doubled to 30 tonnes in 2017 to 2018. I thank the project for the new knowledge and ways of thinking that have helped me and many other farmers who have learnt from me." Another farmer, Wéllars Ntaganira, noted a different change: "Before I just 'did' things, but now I 'think' about what I do, what impacts my practices will have, and whether they are profitable. I see, I note, I analyse."

“I am now more self-confident and so are our cooperative members. This helps us [in] negotiating prices, and in going to banks to get credit, which we did not dare do before.”

**Alexia Mukamusoni** Cassava farmer and President of the Ubumwe Mbuye cooperative, Ruhango

For Eric Kayonga, improving cooperative management was the most important thing he learnt: "Thanks to the project, things have changed for the better. Before, we didn't know if we made a profit or not, but after training on documentation and record-keeping, entrepreneurship and business management, now we write everything down, do our accounts and work together to look for markets. We make better decisions."

## 22 COOPERATION IN THE CASSAVA PRODUCTION



*Group work is an important part of CDAIS coaching.*



*Six months after cassava week, supply of quality cassava had increased massively, with this factory that was running at 7% capacity in 2015, running at 70% capacity in May 2018.*





*Stakeholders in the cassava value chain celebrating after reflecting on their successes.*

Yves Nicholas Rutagungira, Supply Manager at Kinazi Cassava Plant was equally clear: “I have seen big changes in the past two years, with many more farmers producing for us, now they know we offer a fair price. And it is very good to have multipliers in our partnership, so farmers have access to improved varieties, because we need quantity and quality. This has also shown me that to guarantee supply, I have to work with farmers as partners and not just as producers to buy from. And the most important thing is that I have learnt how to work with farmers.” This view was mirrored by Révérien Ndatemungu from the Savings and Credit Cooperative: “Coaching in partnerships has proved very important for us to be able to work better with our clients. We all now understand our roles – the bank, multipliers, producers and buyers.”

CDAIS has not only brought this diverse group of stakeholders together to solve their common problems, it has also designed capacity-building modules that address the

equally diverse interests and needs among the partnership. And now they want to formalise the partnership so that they can carry on working together after the project ends.

---

#### **Prepared by**

Gisele Ntakirutimana, National Innovation Facilitator (kirutagigi@yahoo.fr, +250 788443914), and Jean Pierre Bizimana, Entrepreneurship and Business Management Consultant (bizicom2@gmail.com, +250 788306633).

Cassava is one of three innovation partnerships in Rwanda, being developed as part of the CDAIS project. Visit [www.cdais.net/home/pilots-countries/rwanda](http://www.cdais.net/home/pilots-countries/rwanda) for more information. CDAIS is implemented in Rwanda by Agrinatura (represented by the Natural Resources Institute (NRI), part of the University of Greenwich in UK), FAO Rwanda, and the government through the Ministry of Agriculture and Animal Resources (MINAGRI), in partnership with other institutions, depending on the different innovation agendas under consideration.

## 22 COOPERATION IN THE CASSAVA PRODUCTION





RWANDA

# CHALLENGES IN THE MILK CHAIN

**Gilbert Kayitare** Country Project Manager  
**Anita Mutesi** National Innovation Facilitator

September 2018





“Any agricultural innovation requires finance, and the role of banks is crucial.”

“**B**urera dairy opened in September 2015 but immediately had problems in sourcing milk as there was no organised supply chain,” explained Managing Director Emmanuel Mahoro. “But things improved when everyone involved began to meet.” Beginning in November 2016 with a capacity needs assessment workshop, CDAIS has helped to bring different actors and interests together, followed by more meetings and coaching sessions. And in September 2018, a first reflection meeting assessed the achievements and remaining challenges, but also identified that benefits went far beyond just the dairy.

In Burera, farmers kept cattle for the sale of calves, cows and manure. But few produced milk because they had no market. The government responded by investing in a community milk processing centre (now Burera Dairy Ltd) in Cyanika to stimulate demand. But from the outset in 2015 the dairy could not operate because there was no organised supply chain. Other challenges included traders paying farmers late for milk collected, lack of transport, no access to credit, and no functioning community collection centres. But thanks to the commitment of the Burera District Agriculture Office, with CDAIS support, things soon changed.

“The district office in partnership with CDAIS has achieved much by bringing the different actors together. And since the first meeting in October 2016, you see the changes now.”

**Jean de Dieu Nizeyimbabazi** Director of Agriculture and Natural Resources, Burera District

### Early progress, 2016–17

With CDAIS, the newly created partnership learnt not only how to identify problems in partnership, but also to prioritise them. “During the capacity needs assessment in 2016, we came up with doable actions plans,” said Jean de Dieu Nizeyimbabazi, Director of Agriculture and Natural Resources, Burera District, at a meeting in June 2017. “Actors now understand the challenges, and the partnership makes it easier for them to make improvements, with awareness of community needs and challenges also shared through this platform.” Before CDAIS there was little discussion, and the Burera dairy partnership realised that the only way to achieve their aims was to collaborate, share and support each other. Demand for the centre’s milk increased, also helped by getting the ‘RSB quality’ mark (Rwanda Standards Board), resulting in new markets.



Ensuring high milk quality is a key to success. CEPTL Technician Jean Baptiste Zirikana assessing freshness and that the milk has not been adulterated.





*Recording milk delivery at the cooperative milk collection centre next door to Burera dairy.  
And the numbers add up – supply has greatly increased.*

## Building on successes – fast forward to 2018

“We have doubled production in a little over a year, buying 1500 litres per day, and aim to hit our capacity of 2100 litres in the coming months,” said Burera Dairy Managing Director Emmanuel Mahoro. “We buy from the CEPTL cooperative milk collection centre next door to the dairy, that in turn buys from 1035 individual farmers via six community collection centres, paying the government-set price of 200 Rwandan francs (US\$0.23) per litre. Each centre has its own milk cooler, but as some are up to 20 kilometres away, transport is an issue. Since May 2018, I have also attended several CDAIS training courses, the most interesting for me being on advocacy and access to markets.”

“CDAIS has taught us how to approach markets and, thanks to this, I see our cooperative becoming more competitive and increasing production of higher-quality milk products in the years to come.”

**Pierre Celestine Mbonaruzza** President of the CEPTL cooperative and milk collection centre, Cyanika, Burera

### Looking backwards, and forward – “We all jump together”

At a meeting on 10 September 2018, diverse stakeholder groups evaluated what had been learnt over the past two years. It included representatives of milk producers associations, community milk collection centres, Burera dairy, milk transporters, retailers, consumers, a local bank, the district government, and the Rwanda Agriculture Board. Of the capacity-building coaching modules, the most beneficial were noted by all as those on entrepreneurship and business skills, standards for improved businesses, and advocacy. And participants presented all the benefits and changes that the new knowledge and skills gained had made on how they think and what they do on a day-to-day basis, summed up by Jean de Dieu Nizeyimbabazi, who has been involved since the beginning: “The project helped the group to discuss their problems, their needs, and roles, responsibilities

and strategies required to make things better – and everyone became actively involved.” And James Ndaruhutse of Rwanda Agriculture Board concluded, “with this reflection workshop we have refreshed our minds on the new knowledge we have gained.”

For the future, there was also a desire to have further coaching on those areas identified as being of most relevance to all actors, and on cooperative management and business-plan development. There was strong agreement to establish a multi-stakeholder partnership that will continue under its own initiative, and this should also include other big milk buyers such as those from Kigali. Country Project Manager Gilbert Kayitare concluded that the next step in this direction would be the organisation of a policy dialogue, including national and local government and other stakeholders, that could provide the foundation for a self-sustaining future platform.



Stakeholders in the Burera milk value chain presenting, classifying and analysing their achievements, and next steps.



## But benefits go beyond the dairy

And while changes in Burera dairy are impressive, they are small compared with the impacts elsewhere. The demand stimulated by the dairy, strong government support, and new partnerships promoted by CDAIS have led to a massive increase in the supply of quality milk. “See how production has increased,” said James Ndaruhutse, Burera Livestock Officer for the Rwanda Agriculture Board (RAB). “In 2016 there was only one community milk collection centre with a small output, and now there are six, producing in total an average of 10,300 litres per day.” Although the Burera dairy can only absorb a fraction of this, there is a ready market for quality milk in the larger towns and especially in Kigali. And the maths is self-evident. An increase in production of some 10,000 litres at Rwanda francs per litre makes RWF2 million (US\$2300) per day, or an additional US\$70,000 per month now going into the pockets of farmers in the area.

And there are other knock-on benefits. “Before training, I would buy milk from anyone, but now I understand the added value of quality,” said Thacienne Umutoniwase, a milk retailer from Gahunga. “I then started to buy only from the collection centres and, as people saw that the quality was guaranteed, I got more customers and now sell twice the amount of milk than before.” Thadee Ngwizabahizi also explained his own transformation in starting a new business: “I started with CDAIS in 2016 as a member of a milk collection centre, but after training on entrepreneurship, record-keeping and access to markets, I helped start a milk transporters cooperative using what I learnt. We now employ two full-time staff and plan to invest in motorbikes instead of bicycles to reduce transport times.”

## Bringing the banks on board

Any agricultural innovation requires finance, and the role of banks is crucial. Aimable Niyomzima, local Branch Manager for Banque Populaire Rwanda explained: “We offer loans as low as RWF500,000 (US\$575) to farmers – enough to buy a cow. And we can offer larger loans to farmers or cooperatives, but previously they didn’t know how to keep records or manage a project. But in the year since I started with CDAIS there have been many changes. Meeting with farmers I began to see their issues and



*Jean de Dieu Nizeyimbabazi with a gallon of fermented milk from Burera dairy.*

needs, and they also started understanding that we at the bank need to see files, figures and a business plan. And CDAIS training is also helping. We are moving forward.”

Community collection centres must have a milk cooler, the smallest starting at RWF7 million (US\$8000). But even without bank loans, farmers were so keen to get involved in the new milk trade that they accepted alternative sources of finance. As Jean de Dieu explained, “Without bank loans, some made agreements with buyers from Kigali who would pay for a cooler, which the collection centre would repay in instalments, or by accepting to receive less per litre, though terms are not always in the cooperatives’ best interests.”

## 23 CHALLENGES IN THE MILK CHAIN



*Milk being delivered from a community collection centre to the central cooperative. Organisation of the milk value chain has provided new wealth to local farmers, and many others.*

“ I started to buy only from the collection centres and, as people saw that the quality was guaranteed, I got more customers and now sell twice the amount of milk than before. ”

**Thacienne Umutoniwase** milk retailer from Gahunga





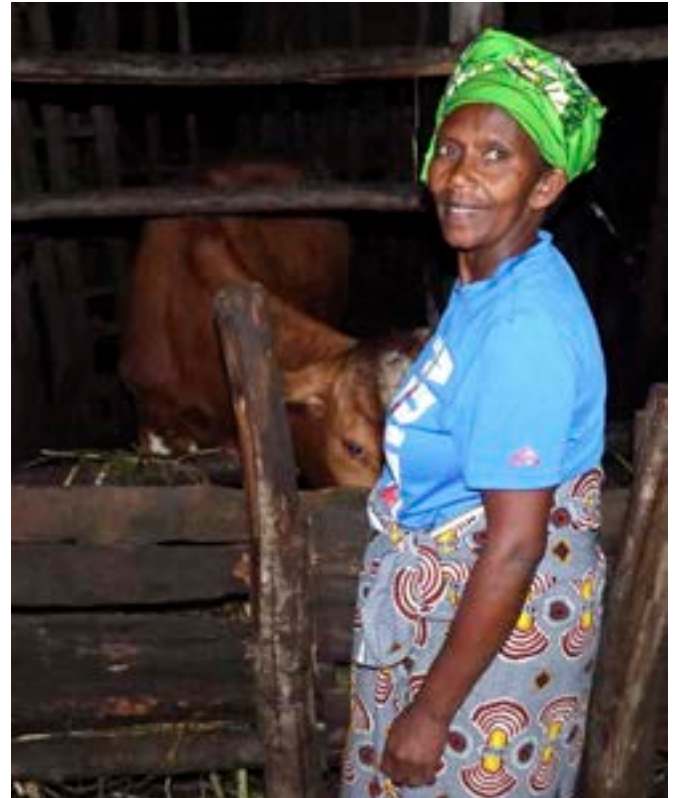
## Beyond CDAIS – what next?

All this has shown that benefits in this case were far greater than what was expected, and stimulated milk production far in excess of what the dairy could use, so new markets were found. Then there are other knock-on benefits such as for transporters, retailers and consumers who now have better-quality milk products. But crucially, it is clear that such impacts were only possible with the availability of finance, committed people and partnerships.

And for future? “After the CDAIS project finishes,” James Ndaruhutse of RAB said, “I think that the partnership will continue. The farmers need it, and we support them.” Jean de Dieu concurred: “We have the commitment from CDAIS who will organise a national dialogue in the coming months. And from this, we can agree on the structure and functionality of the platform that we will carry these successes and multiply them in the years to come.”

“We have seen many changes for the better. Now we are all milk producers, thanks to the community milk collection centres.”

**Aloys Hakuzimana** President of the Union of Burera Livestock Producer Cooperatives (IABU).



*Farmer Catherine Mukaruganwa now tends four cows, and is happy with the 22 litres of milk they produce that provide a much-needed daily income.*

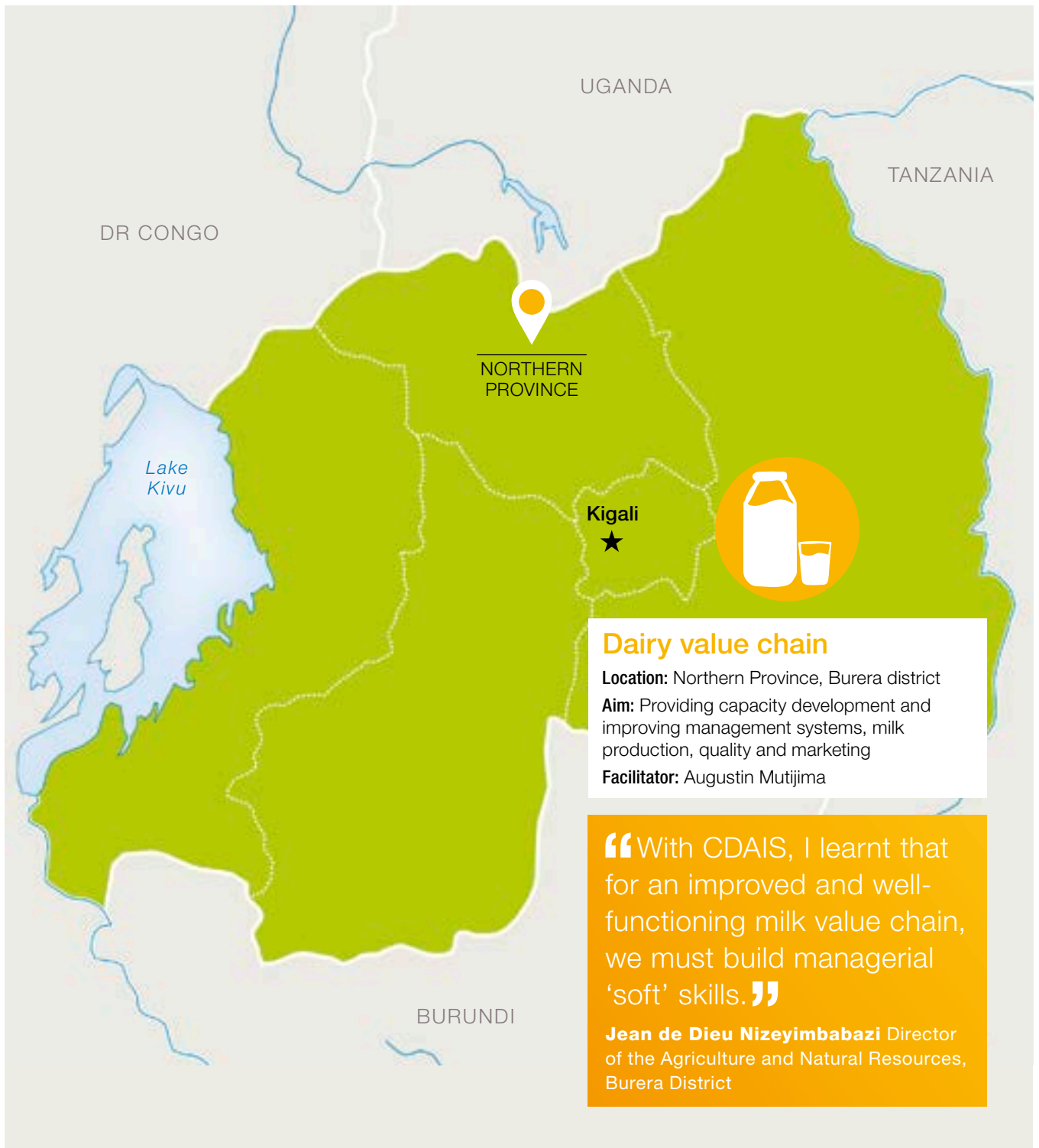
### Prepared by

Gilbert Kayitare, CDAIS Rwanda Country Project Manager (gilbert.kaitare@fao.org, +250788301692), and Anita Mutesi is National Innovation Facilitator (anita.mutesi@cesb.gov.rw, +250 783011360).

This story is an update from one published in September 2017.

Community dairy production is one of three innovation partnerships in Rwanda, being developed as part of the CDAIS project. Visit [www.cdais.net/home/pilots-countries/rwanda/](http://www.cdais.net/home/pilots-countries/rwanda/) for more information. CDAIS is implemented in Rwanda by Agrinatura (represented by the Natural Resources Institute (NRI), part of the University of Greenwich in UK), FAO Rwanda, and the government through the Ministry of Agriculture and Animal Resources (MINAGRI), in partnership with other institutions, depending on the different innovation agendas under consideration.

## 23 CHALLENGES IN THE MILK CHAIN





RWANDA

# RESOLVING CONFLICTS IN WATER USE

**Straton Habumugisha** National Innovation Facilitator

**Désiré Mushumba** Agro-economy consultant

September 2018





“Before, we had problems accessing water as all the farms are above us and would take all the water.”

Centred on a reservoir and irrigation scheme for livestock keepers and crop producers, the core objective of CDAIS Rwangingo catchment was to promote fair, effective and efficient use of water, as well as conflict management through collaboration among users. It stimulated a partnership framework among water users, service providers (including extensionists, input suppliers and water users organisations) and supporters (agri-projects, enablers). In less than two years, the multi-stakeholder partnership is gradually implementing effective resource management, eradicating conflicts, and improving animal and crop productivity.



*Gilbert Niyomwungeri is a farmer in the catchment, but also an operations manager for the water users association, helping to ensure fair partition of water, organising repairs when needed, and collecting members' fees.*

“CDAIS came just at the right time,” explains Damien Maniriho, Manager of the local Rural Service Support Programme. “We had just finished rehabilitation of the Rwangingo marshlands with installation of a dam and its water distribution channels. But the rice farmers, maize producers, vegetable growers and livestock keepers kept unfairly competing for the distribution and use of water in the catchment, which raised conflicts that we tried and could not resolve by ourselves.” And the preliminary CDAIS needs assessment in 2016 revealed that the lack of effective collaboration was the key bottleneck limiting the adequate exploitation and fair use of the water reservoir.

“Without CDAIS the farmers would be struggling day and night. We have seen great achievements.”

**Damien Maniriho** Manager of the Rural Service Support Programme in Rwangingo

## Rwangingo catchment

Farmers and livestock keepers in parts of Rwanda's Eastern Province experience periodic and unpredictable times when rain does not fall, and a significant annual dry season in July and August. In response, the Government of Rwanda was financially supported by the World Bank to construct a US\$10 million dam retaining a 95-hectare water reservoir with a capacity of 3.3 million cubic metres and irrigation channels to distribute water to over 875 hectares of farmland. It was completed in 2015, but there was no plan on how to organise water users to sustainably exploit this infrastructure, until CDAIS came in to fill the gap.





*Vice-President of the water users association Yussuf Nkurizabo discussing issues with CDAIS Facilitator Straton Habumugisha; and water users further down the line.*

## Resolving conflicts

“A water users association was set up, but only for rice farmers in Gatsibo district,” explained Maniriho, “and there were always complaints from cattle keepers in Nyagatare district that they didn’t have enough water for their animals. So, the first step was to establish a broader committee including all water users in the catchment.” Godfrey Mpambara, President of the Terimbere Mworozzi livestock producers cooperative confirmed: “Before, we had problems accessing water as all the farms are above us and would take all the water. But CDAIS helped us to talk with the farmers and this helped us all understand the needs of the others. Now there are much fewer conflicts. And with enough water our milk yields have increased, we can grow fodder crops and, as our cattle don’t have to walk far, they put on more weight and look better.”

“We now have 1448 members, individual farmers,” said Vice-President of the water users association Yussuf

Nkurizabo. “And CDAIS has improved the collaboration amongst us, giving members a better feeling of ownership. The partnership has helped us as now we have a plan, and regulations. Before, there were also issues with the infrastructure, but our organisation coordinates the maintenance, with a team of operators in the field, everyone working together, and with funds from user fees we can quickly make repairs.”

“With the training on conflict management we have learnt to resolve our problems collectively, and we now meet on a regular basis to solve issues as a team.”

**Hamduni Munyanziza** President of Rwangingo rice producers cooperative

### “We see the changes”

A diverse group of stakeholders met on 6 September 2018 to reflect upon what had been learnt, facilitated by members of the national CDAIS team. Project Manager Gilbert Kayitare introduced why they were there by asking, “What have you learnt from working together and from new capacities you have developed, and what changes have you seen in how you think and do things?” And the statements and rich discussions that followed brought out many examples.

Government Extensionist Josiane Manirakiza said, “now we discuss the issues and try to find solutions together. Before CDAIS coaching, different groups of farmers looked out only for themselves, but today we sit together.” Farmers too all saw changes. Hamoudoun Mzee, President of Couga rice growers association noted that, “with new advocacy skills we lobbied the local government to link us to Duterimbere Bank and they have now agreed to give loans to our members.

And we have improved our negotiation skills and the rice factory now issues us a contract that guarantees a price for our crop before harvesting.” Hamduni Munyanziza, President of another rice producers cooperative added, “CDAIS has given me new knowledge which has helped improve how we do things, such as training on record-keeping that allows for transparent recording and sharing of financial information, and this in turn helps us to negotiate advance payments with our main buyers. Advocacy training has also helped cooperative members feel more confident. We engaged with a microfinance institution and they are now more open to lend to our members.”

“Before CDAIS coaching, different groups of farmers looked out only for themselves, but today we sit together.”

**Josiane Manirakiza** Government Extensionist



*There was clear feeling among rice, maize and vegetable farmers, livestock keepers and government extensionists from Rwangingo catchment that everything had changed for the better following CDAIS interventions, as they met to reflect on successes and what to do next with the CDAIS team (foreground).*





*^ The main channel taking water to the catchment.  
> A technician regulating the amount of water leaving the dam.*

Another conflict that was resolved by talking together was explained by maize farmer Maxime Shema: “Cattle breeders downstream complained that chemicals from our fields contaminated the water, affecting their animals. So, we built retention systems to lower the levels of residual pesticides.” Maize and vegetable producers also agreed not to spray near water channels, and she added that, “training on conflict management made us aware of the need to accept the fair sharing of water with other users.”

## **An approach that works**

The capacity-development model that CDAIS is testing aims to build functional capacities to help individuals, organisations and national platforms involved in agricultural innovation systems to navigate complexity, improve collaboration, reflection and learning, and engagement, that will combine to allow better adaptation and increased innovation. In Rwangungu, this comprised facilitation of meetings between the different groups, establishment of an ‘innovation partnership’, and the implementation of capacity-building modules to develop or reinforce competencies identified by group members themselves. And here, this has very clearly succeeded.





## 24 RESOLVING CONFLICTS IN WATER USE







All the different groups have benefited in different ways. “As water use is now regulated, I am now sure about future supply when I plant my rice, I feel more secure,” said Omar Mutezimana. And he was clear about the benefits, “now I have bought a cow as well and pay my children’s school fees without any problem.” More water and improved practices have also led to higher yields, explained Damian Maniriho, with average maize yields having increased almost 50% from 3 tonnes per hectare to 4 or 4.5 tonnes, with rice increasing from 5 to 5.5 tonnes a hectare, and they are aiming for 6.

“Our confidence increased after CDAIS negotiation coaching, and thanks to this we have just signed a contract with African Improved Foods that reflects the interests of both sides.”

**Eugene Kalisa** President of the Rwangingo rice growers cooperative



*Cattle grazing near the main irrigation channel, and a farmer preparing land for planting vegetables, showing the diversity of water users and uses in the catchment area.*

#### Prepared by

Straton Habumugisha, National Innovation Facilitator, Rwanda (stratonnh@gmail.com, +250 788622690), and Désiré Mushumba, agro-economy consultant, Rwanda (mushdesire@yahoo.fr, +250 788566096).

Rwangingo catchment is one of three innovation partnerships in Rwanda, being developed as part of the CDAIS project. Visit [www.cdais.net/home/pilots-countries/rwanda/](http://www.cdais.net/home/pilots-countries/rwanda/) for more information. CDAIS is implemented in Rwanda by Agrinatura (represented by the Natural Resources Institute (NRI), part of the University of Greenwich in UK), FAO Rwanda, and the government through the Ministry of Agriculture and Animal Resources (MINAGRI), in partnership with other institutions, depending on the different innovation agendas under consideration.







“I am very happy with the water users association.”

**Omar Mutezimana** rice farmer







# LIST OF CONTRIBUTORS

## ANGOLA

### **Maria de Fátima do Nascimento**

Country Project Manager  
maria.donascimento@fao.org  
+244 938552069

### **Oliveira Paulo**

Lead National Innovation Facilitator  
olivito7angola@yahoo.com.br  
+244 925856832

### **Zeferino Konda**

National Innovation Facilitator,  
seed partnership  
zeferinovida@gmail.com  
+244 923138034

### **Juliana Sacamia**

National Innovation Facilitator,  
rice partnership  
juliananene20@gmail.com  
+244 927326137

### **Romão Cabeto**

National Innovation Facilitator,  
monitoring, evaluation and learning  
romaohossi@gmail.com  
+244 926927844

## BANGLADESH

### **Shila Fatema Wadud**

National Innovation Facilitator,  
fish partnership  
shilawadedgp@gmail.com  
+88 1711527865

### **Mohammed Moshir Rahman**

National Innovation Facilitator,  
fish partnership  
riad242@gmail.com  
+88 1717013264

### **Rozana Wahab**

Lead National Innovation Facilitator  
rozana.wahab@yahoo.com  
+88 1971636666

### **Mohammed Sorof Uddin**

National Innovation Facilitator,  
mango partnership  
sorofu@yahoo.com  
+88 1712157989

### **Mohammed Jamal Uddin**

National Innovation Facilitator,  
pineapple partnership  
jamaluddin1971@yahoo.com  
+88 1815425857

## BURKINA FASO

### **Nomandé Prosper Kola**

Lead National Innovation Facilitator  
kola.nomande@gmail.com  
+226 76696042

### **Marc Gnoumou**

National Innovation Facilitator  
mgnoumou@yahoo.fr  
+226 76 06 06 29

### **Armel Hien**

National Innovation Facilitator,  
monitoring, evaluation and learning  
hiarmel@yahoo.fr  
+226 62417464

### **Lassaya Nikiema**

National Innovation Facilitator,  
BioSPG partnership  
rimwend@gmail.com  
+226 76009259

### **Raymond Kiogo**

National Innovation Facilitator,  
rural micro-enterprise partnership  
kiogoraymond@yahoo.fr  
+226 76004510

## ETHIOPIA

### **Getachew Asmare**

National Innovation Facilitator,  
feed safety and quality  
getasi97@gmail.com  
+251 912692205

### **Tegegne Wakoya**

National Innovation Facilitator,  
community-based seed production  
tegegne.wakoya@selfhelpafrica.net  
+251 911486501

### **Kebebe Ergano**

Lead National Innovation Facilitator  
kebeberg@yahoo.com  
+251 91306116

### **Turuwark Zalalam Warkineh**

National Innovation Facilitator,  
chickpea production  
and marketing partnership  
tiruworkzelalem@gmail.com  
+251 921749060

### **Endlakachew Abie**

National Innovation Facilitator,  
chickpea production  
and marketing partnership  
endalkbt@gmail.com  
+251 918098824

### **Simret Yasabu**

Communications Consultant  
simret.yasabu@yahoo.com  
+251 911662511

## GUATEMALA

### **Jair Escobar**

Communications Consultant  
jair.obregon@gmail.com  
+502 42113116

### **Fernando Palma**

National Innovation Facilitator,  
bean partnership  
fernandopalma1705@gmail.com  
+502 40311572

### **Sergio Coroxón**

President, AIDA avocado growers'  
association  
sergiocoroxon@yahoo.com  
+502 49578523

### **Yarucy López**

Extensionist, Ministry of Agriculture  
and Livestock  
yarucylam@gmail.com  
+502 57202755

### **Cristian Miranda**

National Innovation Facilitator,  
beekeeping partnership  
cris\_mira07@hotmail.com  
+502 31204097

## HONDURAS

### **Miriam Villeda**

Communications Officer, Directorate  
of Agricultural Science and Technology  
miriam\_villeda@yahoo.es  
+504 99450556

### **Héctor García**

National Innovation Facilitator,  
potato partnership  
hegam01@yahoo.com  
+504 97577391

### **Erick Ordoñez**

National Innovation Facilitator,  
cacao partnership  
efer0606@gmail.com  
+504 33989870

### **Rudy Mejía**

National Innovation Facilitator,  
coffee partnership  
rudyomarhn@gmail.com  
+504 98282863

## LAOS

### **Dalaphone Sihanath**

National Innovation Facilitator  
sdalaphone@gmail.com  
+856 2028022201

### **Kolakoth Phommalin**

National Innovation Facilitator,  
organic vegetable partnership  
k.phommalin@nuol.edu.la  
+856 2023995515

### **Khanthanou Lorsavanh**

National Innovation Facilitator,  
organic vegetable partnership  
khanth\_lsv@hotmail.com  
+856 2055996544

### **Khamla Sengphaxaiyalath**

National Innovation Facilitator,  
pig rearing partnership  
khamla.s772@gmail.com  
+856 2023336020

### **Lampheuy Kaensombath**

Lead National Innovation Facilitator  
lampheuyk@gmail.com  
+856 2028299751

### **Khamla Thammachak**

National Innovation Facilitator,  
cattle partnership  
KI\_tmc@hotmail.com  
+856 2022559997

## RWANDA

### **Gisele Ntakirutimana**

National Innovation Facilitator  
kirutagigi@yahoo.fr  
+250 788443914

### **Jean Pierre Bizimana**

Entrepreneurship and business  
management coach  
bizicom2@gmail.com  
+250 788306633

### **Gilbert Kayitare**

Country Project Manager  
gilbert.kaitare@fao.org  
+250788301692

### **Anita Mutesi**

National Innovation Facilitator  
anita.mutesi@cesb.gov.rw  
+250 783011360

### **Straton Habumugisha**

National Innovation Facilitator  
stratonnh@gmail.com  
+250 788622690

### **Désiré Mushumba**

Agro-economy coach  
mushdesire@yahoo.fr  
+250 788566096



# ACKNOWLEDGEMENTS

Thanks are due to the many people, but principally those who openly offered their testimonies and who appear in these stories. We salute you. You spoke from your hearts. And you are now also agents of change.

Besides the named authors, all national innovation facilitators in each country (see [www.cdais.net](http://www.cdais.net)) play a role in CDAIS activities, and many would share stories and experiences, supporting each other. We thank you all, as well as the many others involved in the project in the eight countries, and who played varied roles that were crucial to the development and implementation of activities and events that led to these stories. There is not the space to name you all here in person, but thanks to all partners and partner organisations, country project managers, national project coordinators, and Agrinatura focal points – you were the core of this, and nothing would have happened without you. Also, special thanks to those who assisted in country visits, and to communication support from Madalena Teles (Angola), Viviane Radier (Burkina Faso) and Terry Claydon (Laos). This book would also not have been possible without the support and reviews from Agrinatura Focal Persons and Country Project Managers: Madalena Teles and Maria de Fátima do Nascimento (Angola), Claire Coote and Nasreen Sultana (Bangladesh), Aurélie Toillier and Zacharie Segda (Burkina Faso), Hanneke Bouta Vermeulen and Amanuel Assefa (Ethiopia), Nury Furlán and Julio Catalán (Guatemala), Stefano Del Debbio and Edgardo Navarro (Honduras), Patrick d’Aquino and Oudong Keomipheth (Laos PDR), Hans Dobson and Gilbert Kayitare (Rwanda). And last but not least to the global team, and again you are many, but thanks to you who have helped to steer this from start to end, Myra Wopereis, Karin Nichterlein, Manuela Bucciarelli and Richard Hawkins amongst others.

## Financial support



This document has been produced with the financial assistance of the European Union.

## Global Partnership



Food and Agriculture Organization of the United Nations



## Angola

- Instituto de Investigação Agronómica (ISA)
- Government of Angola
- Instituto Superior de Agronomia Universidade de Lisboa



## Bangladesh

- Research Council National Resources Institute (NRI)
- Bangladesh Agricultural Research Council (BARC)



## Burkina Faso

- Centre International de Recherche Agronomique pour le Développement (CIRAD)
- Ministère de l'Enseignement Supérieur, de la Recherche Scientifique et de l'Innovation (MESRSI)



## Ethiopia

- ICRA
- Ethiopian Institute of Agricultural Research (EIAR)



## Guatemala

- Agenzia Italiana per la Cooperazione allo Sviluppo (AICS)
- Ministerio de Agricultura, Ganadería y Alimentación (MAGA)



## Honduras

- Agenzia Italiana per la Cooperazione allo Sviluppo (AICS)
- Secretaría de Agricultura y Ganadería



## Laos

- Centre International de Recherche Agronomique pour le Développement (CIRAD)
- The National Agriculture and Forestry Research Institute (NAFRI)
- National University of Laos
- Department of Agriculture Extension and Cooperative



## Rwanda

- National Resources Institute (NRI)
- Ministry of Agriculture and Animal Resources
- Rwanda Agriculture Board (RAB)
- Workforce Development Authority (WDA)
- National Agricultural Export Development Board (NAEB)
- University of Rwanda





# COLOPHON

## Editing

Nick Pasiecznik, Agrinatura /ICRA

## Copy-editing

Guy Manners, Green Ink

## Design

[www.studiotekens.nl](http://www.studiotekens.nl)

## Photographs

CDAIS (unless otherwise stated); **Bangladesh** (#4) Mohammed Moshir Rahman; (#5) Mohammed Sorof Uddin; (#6) Mohammed Jamal Uddin; **Burkina Faso** (#7) Nomandé Prosper Kola; (#8) Viviane Radier; (#9) Viviane Radier; **Ethiopia** (#10) Getachew Asmare; (#11) Tessema Alemayehu (page 91, 92, 94); (#12) Turuwark Zalalam Warkineh; **Guatemala** (#14) Mandi Garcia (page 113, 114); (#15) Cristian Miranda (page 117, 119, 120); **Honduras** (#16) Héctor García (page 126, 128-9); (#17) Rudy Mejía; (#18) Erick Ordoñez (page 140, 142-3); **Laos** (#19) Dalaphone Sihanath (page 153); (#20) Terry Claydon; (#21) Terry Claydon (page 164, 165); **Rwanda** (#22) Straton Habumugisha (page 172, 173, 175); Other photographs (page 6, 10, 36, 58, 82, 102, 122, 146, 168) GettyImages

## Maps

One Stop Map, customised by Studio Teekens

## Printing

[www.groenprint.nl](http://www.groenprint.nl)



This book is printed on 100% recycled paper. Additionally, six trees are planted in cooperation with *Trees for All* to compensate for CO<sub>2</sub> emissions, caused by transport and printing.





