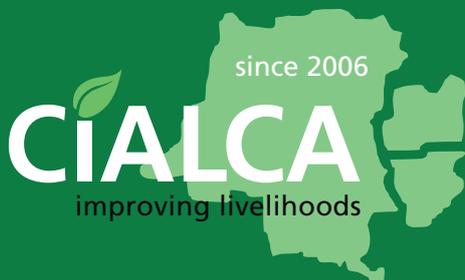


# A practical perspective on **One CGIAR**



*Lessons from 15 years of CIALCA agricultural research  
for development consortium work in Central Africa*



Catalyzing partnerships,  
capacity building and research  
towards entrepreneurial  
farming in Central Africa

The authors would like to dedicate this publication to Jean-Marie Sanginga, one of the early CIALCA scientists and strong advocate for integrated systems research and development in the Great Lakes Region of Central Africa. Jean-Marie passed away in June 2020.

## A practical perspective on One CGIAR

*Lessons from 15 years of CIALCA agricultural research for development consortium work in Central Africa*

Marc Schut<sup>a,b,1</sup>, Roseline Remans<sup>c</sup>, Eliud Abucheli Birachi<sup>d</sup>, Guy Blomme<sup>e</sup>, Kathelyne Craenen<sup>f</sup>, Bruno Delvaux<sup>g</sup>, Gerd Dercon<sup>h</sup>, Beatrice Ekesa<sup>i</sup>, Desire Kagabo<sup>d</sup>, Muller Kamira Bacishoga<sup>j</sup>, Speciose Kantengwa<sup>a</sup>, Patrick Karangwa<sup>k</sup>, Kokou Kintche<sup>l</sup>, Rhys Manners<sup>a</sup>, Sylvain Mapatano<sup>m</sup>, Roel Merckx<sup>n</sup>, Perez Muchunguzi<sup>o</sup>, Athanase Nduwumuremyi<sup>k</sup>, Celestin Niyongere<sup>p</sup>, Nsharwasi Leon Nabahungu<sup>l</sup>, Jules Ntamwira Bagula<sup>q</sup>, Walter Ocimati<sup>i</sup>, Pieter Pypers<sup>c</sup>, Anne Rietveld<sup>s</sup>, Rony Swennen<sup>t,u</sup>, Godfrey Taulya<sup>o</sup>, Elke Vandamme<sup>v</sup>, Rachel Zozo<sup>r</sup>, Piet van Asten<sup>w</sup>, Bernard Vanlauwe<sup>r</sup>

<sup>a</sup>International Institute of Tropical Agriculture (IITA), Kigali, Rwanda; <sup>b</sup>Knowledge, Technology and Innovation Group, Wageningen University, Wageningen, the Netherlands; <sup>c</sup>The Alliance of Bioversity and CIAT, Geneva, Switzerland; <sup>d</sup>The Alliance of Bioversity and CIAT, Kigali, Rwanda; <sup>e</sup>The Alliance of Bioversity and CIAT, Addis Ababa, Ethiopia; <sup>f</sup>Embassy of Belgium in Rwanda, Kigali, Rwanda; <sup>g</sup>Universite Catholique de Louvain (UCL), Louvain, Belgium; <sup>h</sup>Joint FAO/IAEA Programme on Nuclear Techniques in Food and Agriculture, Vienna, Austria; <sup>i</sup>The Alliance of Bioversity and CIAT, Kampala, Uganda; <sup>j</sup>The Alliance of Bioversity and CIAT, Bukavu, Democratic Republic of Congo; <sup>k</sup>Rwanda Agriculture and Animal Resources Development Board (RAB), Huye, Rwanda; <sup>l</sup>International Institute of Tropical Agriculture (IITA), Bukavu, Democratic Republic of Congo; <sup>m</sup>Platform DIOBASS, Bukavu, Democratic Republic of Congo; <sup>n</sup>KU Leuven, Department Earth and Environmental Science, Leuven, Belgium; <sup>o</sup>International Institute of Tropical Agriculture (IITA), Kampala, Uganda; <sup>p</sup>Institut des Sciences Agronomiques du Burundi (ISABU), Bujumbura, Burundi; <sup>q</sup>Institut National pour l'Etude et la Recherche Agronomiques (INERA), Mulungu, Democratic Republic of Congo; <sup>r</sup>International Institute of Tropical Agriculture, Nairobi, Kenya; <sup>s</sup>The Alliance of Bioversity and CIAT, The Hague, Netherlands; <sup>t</sup>International Institute of Tropical Agriculture, Arusha, Tanzania; <sup>u</sup>KU Leuven, Department of Biosystems, Heverlee, Belgium; <sup>v</sup>International Potato Centre, Kigali, Rwanda; <sup>w</sup>OLAM International Ltd., Singapore

Credits photography: CIALCA and CGIAR.

1 Corresponding author: Dr Marc Schut ([m.schut@cgiar.org](mailto:m.schut@cgiar.org))

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# Executive summary

There is a wind of change blowing through the sector of international agricultural research for development (AR4D), mainly as a result of comprehensive reorganisation and transformation of one of its largest players, the CGIAR. In January 2020, Food Policy published a Special Issue providing valuable external and high-level reflections, challenges and recommendations for One CGIAR. One of the papers by Coffman et al. (2020) provided five Challenges and related Recommendations to the One CGIAR.

This perspective paper complements the Special Issue, by taking the five Challenges and Recommendations to One CGIAR as a starting point, and grounds those recommendations in the 15 years of AR4D practice of the Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA). CIALCA is a longstanding consortium of CGIAR centres and regional and national research and development partners that aims to accelerate the impact of agricultural research for sustainable development and transformation. CIALCA has had a strong focus on the Great Lakes Region countries of Rwanda, Burundi and eastern Democratic Republic of Congo, with affiliated research and capacity development activities in the broader East Africa Region (Uganda, Kenya and Tanzania). The objective of this perspective paper is to derive key success factors and lessons learned from CIALCA that can support the development, establishment and impact of similar consortia as part of Regional Integrated Initiatives under One CGIAR.

The table provides an overview of the Challenges and Recommendations made to One CGIAR by Coffman et al. (2020) and what we believe are the three most important practical recommendations based on CIALCA experiences, reflections and lessons learned. The core text of the perspective paper provides additional recommendations, perspectives and details.

Our reflections could provide the starting point, or inform a broader assessment of successes, failures and learning among similar existing, mature CGIAR consortia and partnerships elsewhere, from which more concrete guidelines can be distilled to inform the establishment of new Regional Integrated Initiatives under the One CGIAR framework. It is important that such guidelines are broad enough to accommodate social, political and cultural diversity across the locations where CGIAR is active.

CIALCA confirms that the key principles that drive the transition process towards One CGIAR make sense and should be pursued. Strong and continued (pooled) investment creates a stable and enabling environment for collaboration, learning and combining demand- and supply-driven research and delivery with partners. It also allows to bring together international, regional and national expertise to tackle complex agricultural problems in a multi-disciplinary way. When investors and partners see this happening, they are more than willing to co-invest and work together. If this occurs in an organizational set up that is conducive for doing state-of-the-art science and delivery, then this will attract and motivate young researchers and have a higher likelihood to lead to real innovation and impact.

In the operationalization and implementation of its research agenda, One CGIAR should learn from, and build upon existing, mature AR4D consortia and initiatives such as CIALCA to ensure that existing relations, collaborations and innovation and scaling processes are preserved and exploited. However, we also recommend that One CGIAR actively supports and incentivises re-organisation, optimization and change in existing consortia and their modus operandi to further increase efficiencies and avoid business-as-usual mentality.



## Challenges and Recommendations made to One CGIAR by Coffman et al. (2020)

## Top 3 practical recommendations for One CGIAR based on CIALCA experiences, evidence, lessons learned and reflections

<p>#1 <b>Cooperation and Collaboration:</b> To meet the challenges of global cooperation and collaboration, the One CGIAR must form alliances with universities and National Agricultural Research Institutes (NARIs) and make strategic use of other institutions' leadership abilities and comparative advantages.</p>	<ul style="list-style-type: none"> <li>• Regional integration and providing pooled funds reduces competition among CGIAR centres and AR4D organisations, enhances impact orientation and expands planning horizons</li> <li>• Regional Integrated Initiatives attract investments, and facilitate alignment, integration and synergies between those investments</li> <li>• Co-investment between CGIAR and national and regional AR4D partners forms a basis for more equal, sustainable and impactful collaborations</li> </ul>
<p>#2 <b>Capacity Building:</b> In formulating the One CGIAR capacity building strategy, a more sustainable framework should underpin a model where training is done regionally, in cooperation with NARIs, and structured to reach the entire constellation of trainees, from PhD-level scientists to farmers.</p>	<ul style="list-style-type: none"> <li>• Capacity development requires investment across individual, organisational, network and systems levels if it is to contribute to agricultural transformation at scale</li> <li>• CGIAR alumni end up being business, policy or science leaders which creates a basis for ongoing collaboration and increased legitimacy and impact</li> <li>• Continuous capacity development needs assessment with partners can inform AR4D agenda setting and priorities for innovation and scaling</li> </ul>
<p>#3 <b>Enabling Environments for Young Researchers:</b> To ensure an environment of scientific excellence and innovation, One CGIAR will need to institute flexible work environments, schedules, and services that address family work-life issues, and benefits that reward the effort made by researchers, staff, and families.</p>	<ul style="list-style-type: none"> <li>• CGIAR needs to provide more secure career pathways and tenure track for all its staff and encourage capacity development through sabbaticals, secondments to (partner) organizations, exchange visits and talent development programs</li> <li>• Young researchers need to be provided a safe space to develop ownership over tackling a science or development challenge, mentored by their senior colleagues</li> <li>• CGIAR needs to provide and follow progressive international policies and standards that encourage diversity in the work-place and work-life balance</li> </ul>
<p>#4 <b>Policy-Relevant Research:</b> The One CGIAR should develop policy-relevant research to guide research and implementation strategies that follow 'what works' while avoiding what is duplicative or anecdotal.</p>	<ul style="list-style-type: none"> <li>• Invest in structures that facilitate continuous dialogue for demand articulation and mapping of policy, development and business questions and needs to inform investments in innovation and scaling of innovation</li> <li>• Combine demand- and supply-driven research for policy to not only focus on the immediate needs of today, but also provide new ideas that can inform future programming of sustainable agricultural transformation</li> <li>• Combine addressing knowledge gaps using scientific research with understanding policymakers, their needs, processes and policy systems</li> </ul>
<p>#5 <b>Advocacy and Communications:</b> One CGIAR should take a leadership position and hone in a unified message in support of science, and advocate for new technologies and public policies that address the challenges of feeding the many without destroying the planet.</p>	<ul style="list-style-type: none"> <li>• Implementing a vision and agenda that is developed with and agreed upon by key government, public and private stakeholders</li> <li>• Advocacy can benefit from having liaison officers who nurture, maintain and manage relationships with (local) research, development and policy organisations</li> <li>• Strong and unified monitoring, evaluation, learning and performance management systems are needed to generate for communicating on progress, learning and achievements that is tailored to different audiences</li> </ul>

# Introduction

There is a wind of change blowing through the sector of international agricultural research for development (AR4D), because of comprehensive re-organization and transformation of one of its largest players, the CGIAR.<sup>2</sup> The CGIAR is a consortium of 15 AR4D centres, the first of which were established in the late 1960s. Formed in 1971 on the heels of the first celebrations of a Green Revolution in 1968, CGIAR was tasked with extending and translating that revolution in agricultural production to new countries and new crops<sup>3</sup>. Over the past decades, the CGIAR has undergone several reforms as donor funding models shifted, demands on the AR4D sector have changed, and accountability and reporting mechanisms for accessing funds have evolved (Leeuwis et al., 2018; McCalla, 2014). It has resulted in a situation where a drastic reform is underway to adapt the CGIAR structure for current challenges and dynamics (Barrett, 2020).

The re-organization of CGIAR is largely fuelled by an ambition to develop and implement a more coherent research strategy aimed at 'Ending hunger by 2030 through science to transform food, land and water systems in a climate crisis' and focussed on five impact areas: nutrition, poverty, gender, climate, and environment, and ultimately the Sustainable Development Goals (SDGs) (Barrett, 2020). The transition is also a response to increased fragmentation in the CGIAR system. The key driver of this fragmentation is a strong reduction in what used to be referred to as 'core-funds' that CGIAR centres could invest in strategic, long-term scientific endeavour along a pipeline of agricultural innovations of different maturity level, with the ultimate objective to contribute to achieving development outcomes and SDGs. Because of a desire for greater control and oversight from those investing in the CGIAR on the one hand, and limited ability to show impact on the other hand, 'core-funds' have been reduced and partly replaced by a sprawl of short-term projects and programs. Although such projects are often more focused and tangible, they also increasing internal competition over limited resources, rather than joint collaboration among CGIAR-centres, and scientists spending more time on report writing, proposal development, engaging with scaling partners, and less time allocated to the actual science (Leeuwis et al., 2018; Lobell, 2020). This has resulted in a situation where the impact potential of the CGIAR is underutilized, leading to critical questions from those investing in, working in, and those supposed to benefit from, agricultural research for development.

To counteract some of these trends, the CGIAR has initiated a large-scale and comprehensive transition process, referred to as One CGIAR. As us stated on the CGIAR website: One CGIAR is a dynamic reformulation of CGIAR's partnerships, knowledge, assets, and global presence, aiming for greater integration and impact in the face of the interdependent challenges facing today's world (CGIAR, 2020). Some of the key features of One CGIAR include: (i) A sharper mission statement and impact focus to 2030, aligned with the Sustainable Development Goals (SDGs); (ii) Unified governance under a One CGIAR Common Board; (iii) Institutional integration, including more aligned management under an empowered Executive Management Team, common policies and services, and a unified country and regional presence; (iv) A new research modality; as well as (v) More, and pooled, funding (CGIAR, 2020).

In January 2020, Food Policy published 5 Viewpoint articles and an Editorial as part of a Special Issue on research strategy for the new One CGIAR<sup>4</sup>. The articles provide useful reflections, challenges and recommendations, key research issues, principles and priorities for One CGIAR. The articles have two things in common. First, they all present a global perspective and remain at the level of making generic recommendations, which is understandable and probably wise when taking into account where the CGIAR currently stands in its transition process. Second, the authors, although several of them have experience working in or with the CGIAR, present an external perspective. On the one hand, such an external perspective is good and allows one to think out-of-the-box and beyond existing constraints in the system. On

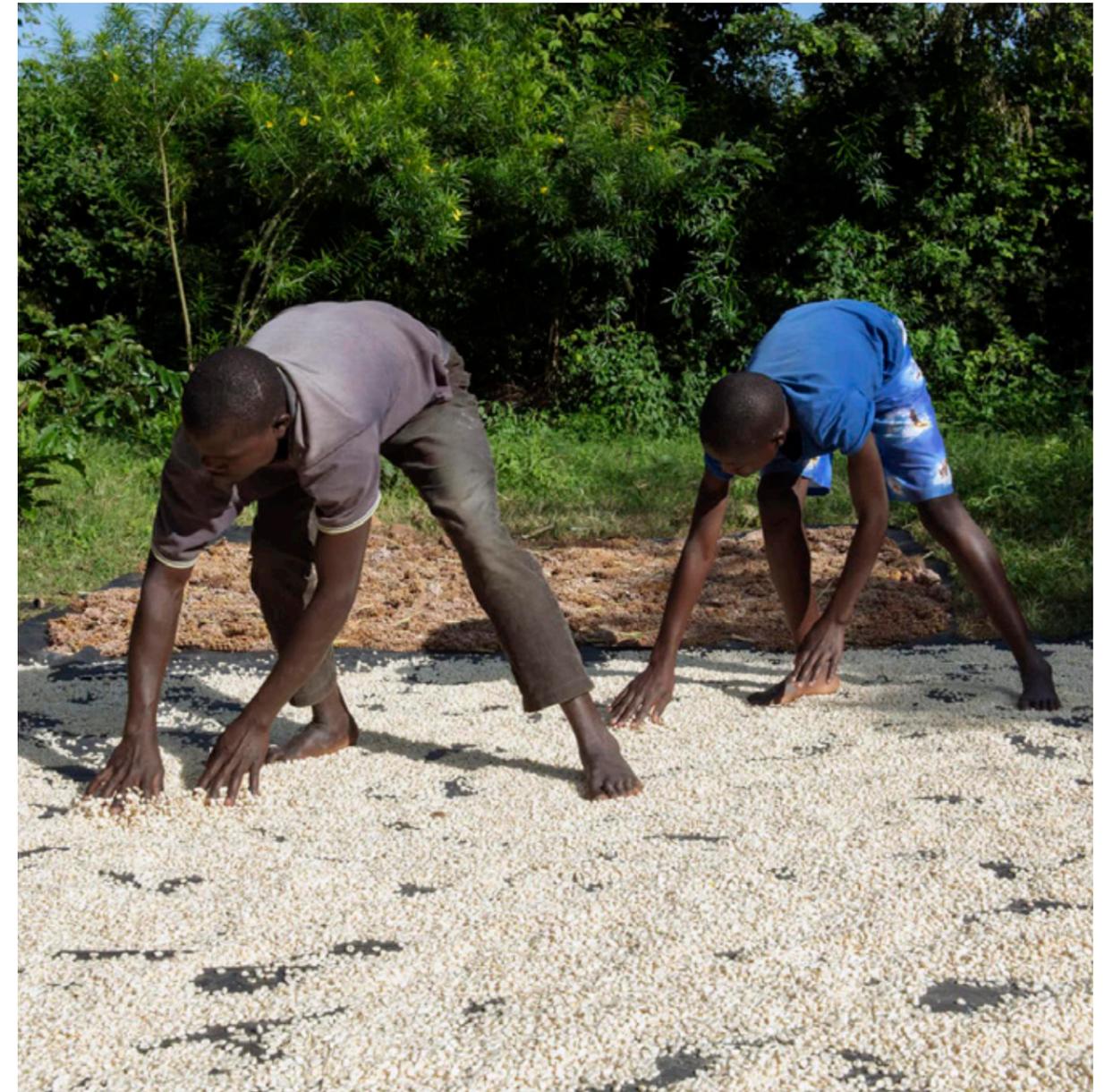


Photo by C. De Bode/CGIAR

the other hand, it could also benefit from grounding some of the proposals and recommendations in the everyday practice of AR4D within the CGIAR.

This working paper complements the Special Issue papers, by presenting a practical perspective on One CGIAR, based on 15 years of collaboration between several CGIAR centers and their partners in a consortium working in Central Africa.

It takes the 5 Recommendations to One CGIAR proposed by Coffman et al. (2020) as a starting point, and grounds those recommendations in the 15 years of AR4D practice of the Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA<sup>5</sup>). The objective is to derive success factors, failures and lessons learned that can support the development, organisation and impact of similar consortia as part of Regional Integrated Initiatives under One CGIAR.

<sup>2</sup> [www.cgiar.org](http://www.cgiar.org)

<sup>3</sup> <https://hssonline.org/conferences/historical-perspectives-on-the-consultative-group-on-international-agricultural-research-cgiar/#:~:text=Formed%20in%201971%20on%20the,new%20countries%20and%20new%20crops>

<sup>4</sup> [www.sciencedirect.com/journal/food-policy/special-issue/10ZH9P5WC1R](http://www.sciencedirect.com/journal/food-policy/special-issue/10ZH9P5WC1R)

<sup>5</sup> More information on CIALCA can be found on [www.cialca.org](http://www.cialca.org)

# CIALCA: 15 years of CGIAR consortium work in the Great Lakes Region of Central Africa

CIALCA is a longstanding consortium of CGIAR centers, National Agricultural Research and Extension Institutes, African and Belgian universities, FAO/IAEA and other national and international partners. CIALCA aims to accelerate the impact of agricultural research for development. CIALCA was 'born' out of a call for proposals by the Belgian Directorate General for Development Cooperation (DGDC) in April 2004. Following the call, it was proposed to merge 3 submitted CGIAR projects that operated largely in the same parts of Rwanda, Burundi, and the eastern of Democratic Republic of Congo (DR Congo), with similar agro-ecological conditions and national partner institutes.

Due to the complementary nature of the activities proposed, DGDC urged the involved institutions to operate as a consortium to ensure cooperation and complementarity and avoid duplication at the national level. In 2005, CIALCA was born and received continued support from DGDC during 4 main phases:

## PHASE 1: 2005-2008

### Technology design and testing

During the first phase of CIALCA aimed, among others, at determining the agro-ecological, socio-economic and farming systems characteristics of the CIALCA region, called 'mandate areas', and as well as establishing the benchmark of the intervention. A number of technical research products were delivered, and technologies that were developed in other countries were brought in and adapted. This included improved banana and legume germplasm, improved cassava-legume intercropping system, and integrated pest management approaches for bananas. The focus was on research, design and testing of innovations to improve major farming systems in the Great Lakes Region in a supply-driven way.

## PHASE 2A: 2009-2011

### Technology dissemination and capacity development

The second phase continued the investments made during the first phase, but with more emphasis on the promotion and dissemination of CIALCA innovations through strong (1) collaboration with national agricultural extension services, and international non-governmental organizations, and (2) the establishment of a Knowledge Resource Centre in Bu-

jumbura, Burundi. CIALCA also set forth the consortium's strong focus on scientific capacity development, by training over 50 students in a region that had lost much of its scientific capacity during the many years of civil unrest and conflict. An international scientific conference entitled 'Challenges and Opportunities for Agricultural Intensification of the Humid-Highland Systems of sub-Saharan Africa' was convened by CIALCA in Kigali, Rwanda in 2011.

## PHASE 2B: CIALCA+, 2012-2013

### Technology dissemination and capacity development

In the context of the reform of the CGIAR system, the formulation of the CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics) was initiated in early 2010 and from the start, the CIALCA operational area was identified as part of the intervention area for East and Central Africa. CIALCA+ was a bridge to the Humidtropics program, allowing CIALCA to integrate its network of partners into the new CGIAR Research Program and to adapt its activities and approaches to the vision, mandate and organization of Humidtropics. Key features of CIALCA such as its demand-driven, regional and integrated research for development approach informed the CGIAR reform and establishment of so-called 'Systems CGIAR Research Programs' more globally.

## PHASE 3 (2013-2016)

### From cropping systems to integrated livelihood systems

During this phase, CIALCA became the key operating platform for the CGIAR Research Program Humidtropics in

Central Africa. By building on many years of investment in innovation and partnerships, CIALCA was able to jumpstart activities and mobilize multi-stakeholder networks in Burundi, Rwanda, and eastern DRC. The integrated systems approach includes understanding livelihood diversity, gender, value chains, nutrition, markets, natural resource improvement, institutional innovation, and the scaling of successful innovations through partnerships. In June 2016, CIALCA celebrated its 10th Year Anniversary with its staff, partners, donors, and alumni during the 7th African Agriculture Science Week organized by the Forum for Agriculture Research in Africa (FARA) in June 2016 in Kigali, Rwanda (IITA, 2016).

## PHASE 4: 2017-2020

### Entrepreneurial farming, ICT and integrated agricultural systems for nutrition

The closure of the CGIAR Research Program Humidtropics formed a starting point to reset and re-focus the CIALCA research for development agenda with the national partners, the Belgian government's new strategic policy note on 'Agriculture and Food Security' and the CGIAR Research Program on Roots, Tubers and Bananas (RTB). Based on 10 years of experience in the region and reflection on CIALCA's unique role in the region, CIALCA decided to develop its agenda around 3 Pillars: (1) Policies and Partnerships, (2) Capacity

Development, and (3) Innovation and Scaling. The cross cutting thematic focus was on: (i) entrepreneurial farming, (ii) ICT for agriculture, and (iii) integrated sustainable agricultural systems for nutrition. Significant time was spent on demand mapping with the public and private sector in the region to work in a demand-driven way, and redesigning the way CIALCA should respond to those demands in a responsible and sustainable way. Major changes from earlier phases were to subdivide between learning- and more impact-oriented workstreams, to work with high-impact partners around modalities of co-investment, and to revitalize the PhD and MSc capacity development program.

Through 15 Years of CGIAR consortium work, passing through several cycles of CGIAR reforms, donor investment cycles, regional policy re-orientation, and through several phases and foci, CIALCA managed to establish itself in the field of agricultural research for development landscape in the Great Lakes Region of Central Africa. It made CIALCA among the longest running 'investments' in the CGIAR. Below, we share some of the key success factors and learnings from 15 years of regionally integrated consortium work that could support the One CGIAR in setting up similar consortia elsewhere in the world.

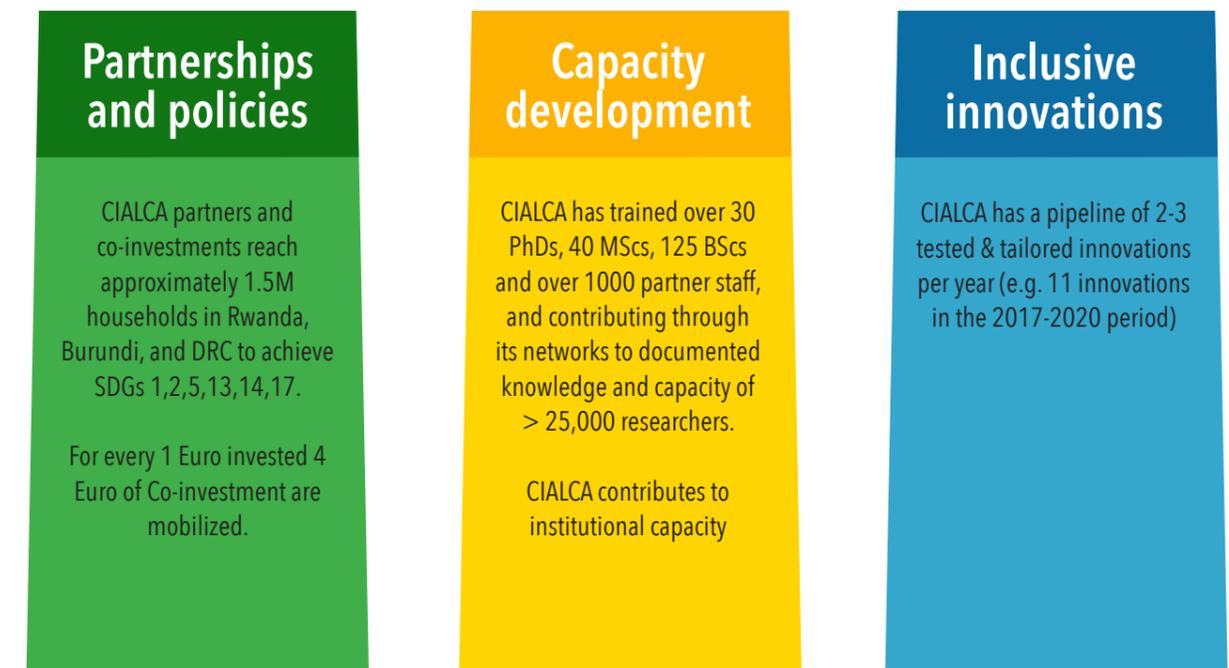


Figure 1. An overview of key CIALCA achievements and results mapped under its three Pillars

6 In 2019, Bioversity International and CIAT joined forces as the 'Alliance of Bioversity International and CIAT'.

# A practical perspective on One CGIAR challenges and recommendations

The initiative to write this working paper triggered a reflection exercise within the CIALCA team. A list of former and current CIALCA staff, partners, students and donor representatives was developed, and a short survey was sent out to harvest feedback and inputs against the five challenges and related recommendations made by Coffman et al. (2020) to the One CGIAR (Table 1).

In total, 20 respondents provided inputs to the survey, sharing their experiences of how CIALCA contributed to navigating the challenges and recommendations for One CGIAR. Below, we summarise the cross-cutting recommendations. Each section shares the main CIALCA experiences, as well as a set of broader reflections that could trigger useful discussion for One CGIAR when developing, organizing and implementing its Regional Integrated Initiatives

## CHALLENGE #1

### Cooperation and collaboration

**RECOMMENDATION #1**  
To meet the challenges of global cooperation and collaboration, the One CGIAR must form alliances with universities and NARIs and make strategic use of other institutions' leadership abilities and comparative advantages (Coffman et al., 2020).

One of the key starting points for developing fruitful cooperation and collaboration with universities, NARIs and other public and private sector partners<sup>7</sup>, is that in-house competition among CGIAR-centres must be reduced significantly. In many regions and situations, CGIAR centres compete over research and development grants and partnerships, and often put their 'own' innovations, mandate crops and thematic areas above the questions whether these are priority or have the highest impact potential. This leads to situations where innovations get 'forced' onto recipients, rather than adapting the innovation to needs. CIALCA has always embraced an

outcome-orientation focussed towards optimising farming and agricultural systems for improved productivity, income and nutrition benefits. When putting the societal outcomes at the centre of an integrated project and focusing on overcoming key bottlenecks to optimise farming or agricultural systems, then collaborations can be established to address those (site-specific) bottlenecks. In CIALCA, this meant seeking collaboration with other CGIAR centres or other R4D partners to address specific livelihood challenges in the Great Lakes Region. This was most visible during the CIALCA Phase 3, where the International Potato Centre (CIP) and World Agroforestry Centre (ICRAF) were engaged to support work in Northern Rwanda, and the International Livestock Research Institute (ILRI) supported crop-livestock integration in Burundi and eastern DRC, while CIALCA was supporting those efforts through specific fodder-crop research (Klapwijk et al., 2020) and studies focussing on multi-stakeholder innovation platforms (Schut et al., 2016a). Under Phase 4, a collaboration with the Soil and Water Management & Crop Nutrition Laboratory (SWMCNL) of the Joint FAO/IAEA Division was established to provide insights in increased water use efficiency to counteract drought effects on cassava production in Central Africa. As consortia, past and present CIALCA work attracted and connected projects of different partners funded by various donors based on demand of scaling of (validated) CIALCA innovations adapted to the local context, regional capacity development, and student scholarships for sustaining the innovation-scaling cycle. During Phase 4 of CIALCA, the value of those related 'spin-off' projects represented a total of USD 10.9M, more than 3.6 times the original investment in CIALCA by DGDC Belgium (USD

Table 1. Five challenges and related recommendations made by Coffman et al. (2020) to the One CGIAR.

One CGIAR Challenge	One CGIAR Recommendation
#1 Cooperation and Collaboration	To meet the challenges of global cooperation and collaboration, the One CGIAR must form alliances with universities and National Agricultural Research Institutes (NARIs) and make strategic use of other institutions' leadership abilities and comparative advantages.
#2 Capacity Building	In formulating the One CGIAR capacity building strategy, a more sustainable framework should underpin a model where training is done regionally, in cooperation with NARIs, and structured to reach the entire constellation of trainees, from PhD-level scientists to farmers.
#3 Enabling Environments for Young Researchers	To ensure an environment of scientific excellence and innovation, One CGIAR will need to institute flexible work environments, schedules, and services that address family work-life issues, and benefits that reward the effort made by researchers, staff, and families.
#4 Policy-Relevant Research	The One CGIAR should develop policy-relevant research to guide research and implementation strategies that follow 'what works' while avoiding what is duplicative or anecdotal.
#5 Advocacy and Communications	One CGIAR should take a leadership position and hone a unified message in support of science, and advocate for new technologies and public policies that address the challenges of feeding the many without destroying the planet.

2.9M for the period September 2017-December 2020) (CIALCA, 2020). Having a central coordination platform such as CIALCA ensured active integration, collaboration and synergies between those short-term projects and their partners, as well as continuity in AR4D in the Great Lakes Region for long-term transformation.

One of the unique features and comparative advantages of CIALCA is its ability to connect actors, organisations and AR4D systems across national boundaries (Muchunguzi et al., 2016). The Great Lakes Region of Central Africa is a region with a long history of past and present turmoil and conflict, which sometimes makes it difficult for national scientists to collaborate, exchange and learn with and from each other. CIALCA enables NARI scientists to exchange with their counterparts in other countries, to test innovations in different agro-ecologies across countries, but also to expose the different types of enabling environments, and how to develop country-specific strategies for innovation and scaling (Hermans et al., 2017). Furthermore, CGIAR centres and scientists usually have a broad international network, and can tap into knowledge, innovations and research conducted on

similar problems or opportunities in other parts of the world. Providing access to this knowledge, and to the universities and AR4D organisations working on it, is considered a big advantage of working with consortia such as CIALCA. CIALCA also provides open access to all of its household socio-economic data from the region to its government, public and private partners through CIALCA-base, which was launched in 2019. Although this does not translate into direct and tangible impact at farm-level, it does provide a starting point for science and learning in AR4D. For example, one of our respondents indicated that his science work on agronomy at scale, decision-support tools and dealing with variability in on-farm conditions in CIALCA inspired the development of a much larger R4D initiative (African Cassava Agronomy Initiative), and how that created a basis for Excellence in Agronomy which is likely to become one of the large-scale initiatives under One CGIAR. Such examples demonstrate the butterfly effect of providing space for real science and learning in R4D projects.

The advantage for the CGIAR is that the NARIs and other public and private partners usually understand better the

<sup>7</sup> CIALCA particularly values its partnerships with Belgian Universities (UGhent, UCL, KUL, ULiege) and their counterparts in the Great Lakes Region, and its partnerships with the National Agricultural Research Institutes in Rwanda (RAB), Burundi (ISABU) and DR Congo (INERA), henceforth referred to as NARIs.

local context in which agriculture is to contribute to improving livelihoods or achieving societal outcomes. The CGIAR usually introduces global concepts or products that need to be translated, adapted and embedded in country or regionally specific systems in order to meaningfully contribute to agricultural development. This is where the comparative advantage of local partners is evident. To achieve impact at scale, partnerships should transcend those within the research community, and also engage government and private sector partners who can provide access to validated innovations at large scale. During Phase 2 of CIALCA, investments were mainly targeted towards the training of staff in the national extension systems and non-governmental organisations to disseminate CIALCA innovations in the region. During Phase 4 of CIALCA, a different collaborative approach with scaling partners was chosen, spending more time on identifying their challenges and core research questions and developing a Theory of Change towards overcoming those challenges. Rather than trying to reach large numbers of beneficiaries directly (the Phase 2 approach), CIALCA now tried to collaborate more strategically with service providers to overcome their structural bottlenecks and enable them to operate more efficiently at scale (the Phase 4 approach). This latter approach has a much larger impact and sustainability potential, but requires relationship building, including more long-term research and learning trajectories. It also emphasizes the need to form selected strategic partnerships with organisations that are able and willing to make a difference, rather than making the working with as many partners as possible an objective in itself.

In the context of acknowledging mutual comparative advantages and added value between CIALCA and its learning and scaling partners, it becomes easier to develop more equal and demand-driven partnerships based on the development of a joint vision, defining priority constraints, transparency and shared responsibility, co-learning and developing a common language. However, this is easier said than done. Many of the local organisations see the CGIAR centres as ‘donors’, rather than as knowledge or research partners that they can collaborate with to overcome country agricultural challenges. As will also be emphasized under Challenge #5, it should be the countries and national partners who are in the driving seat in terms of expressing their demands and interests, and jointly exploring where collaboration can be of mutual benefit. CIALCA has successfully experimented with a co-investment model based on a principle of ‘you don’t pay us; we don’t pay you’. The

co-investment model has worked in three collaborations between CIALCA and its delivery partners. As part of Phase 4, CIALCA spent almost one year on so-called demand-mapping with innovation and scaling partners. Main steps involved in demand-mapping are (1) developing a joint understanding of core mandates, modus operandi, objectives and operating systems of both CIALCA and the partners, (2) developing an inventory of the partner needs, challenges and interests, (3) exploring how a collaboration can be mutually beneficial, (4) documenting the collaboration in a Theory of Change, (5) mobilising broader support for the collaboration, and (6) documenting the collaboration, activities and timelines, responsibilities and co-investments in a Memorandum of Understanding that facilitates the execution of the work. A recent publication by Hammond et al. (2020) is a good example of an output that resulted from a co-investment between CIALCA and One Acre Fund, the biggest non-governmental extension provider in Rwanda, providing access to agricultural inputs to approximately 500,000 rural households.

In CIALCA Phase 4, the above process took appropriately one year from first discussion to signed MoU and initial activities. This time is usually not available in short-term interventions, but is a key condition for developing more equal collaborations between CGIAR and its academic, research and development partners. Co-investment is more than just merging budgets. It is a safeguard and indicator to ensure that CGIAR works on things that matter to its clients, and that those clients take co-ownership over the activities. Furthermore, co-investment created a more equal platform for CIALCA and its partners to discuss, negotiate and agree on the AR4D agenda, and identify those agenda items that are important enough for the national and regional partners to invest their own (scarce) resources. Co-investment engenders trust across partners as all cards are in the open and there are no ulterior motives. Once agreements and co-investments are documented, the agility of projects increases. All parties are moving in the same direction, towards similar goals and outcomes. Co-investment also creates a more enabling environment for the scaling of innovations, as one can assume that approval for co-investment requires support and buy-in from key decision-makers in the national system. In sum, moving away from a situation where national and regional partners participate in – rather than co-design – the projects with CGIAR is a key condition for creating a situation in which co-investments can translate into sustainable and impactful agricultural development. We acknowledge that the

Table 2. CIALCA's multi-level approach to strengthening capacity for innovation and scaling in agricultural systems

Level	Rationale	Mechanisms
Individual	Capacity in a system is as good as the capacity of its people.	BSc, MSc and PhD training; Interns; International exchange programs
Organisational	Organisational conditions and structures need to enable and incentivize individual staff to perform, develop and advance agricultural development	Participatory/ collaborative research; Capacity development of staff of government, public and private sector organisations through group trainings; University and vocational curriculum development
Network	Single organisations often cannot foster systems transformation or change. There is a need for coalitions or networks of change	Public-private partnerships; Linking and creating synergies between projects and organisations
System	Networks of individuals and organisations require an enabling (policy) environment to translate their ideas and innovation into action. There needs to be investment in developing systems that stimulate a continuous identification of bottlenecks for agricultural development, and develop solutions to overcome those bottlenecks	Surveillance tools, early warning systems, and decision-support-tools that can increase efficiencies in the agricultural research and extension systems; Design and implementation of enabling public and private sector policies and strategies

funding of NARIs complicates co-investment and having a level playing field for collaboration around agricultural development challenges.

At the local level, direct cooperation and collaboration with farmers or other beneficiaries through participatory research based on principles of inclusivity and equality is required. Here also, principles of co-investment can be applied, as long as the risks associated with doing scientific research are mitigated and not transmitted to (vulnerable) groups of next- or end-users. Participatory research approaches have been widely used in CIALCA, and in several cases have fast-tracked the adoption of CIALCA innovations (Dontsop Nguetzet et al., 2020). The use of digital tools can enable citizen science and crowdsourcing of data as part of innovation design, testing and validation, and as part of monitoring, evaluation and learning mechanisms. This enables rapid and continuous feedback from innovation users on the extent to which innovations serve their purpose and what modifications or complementary innovations would be required (Steinke et al., 2020; Van Etten et al., 2019).

## CHALLENGE #2

### Capacity building

#### RECOMMENDATION #2

In formulating the One CGIAR capacity building strategy, a more sustainable framework should underpin a model where training is done regionally, in cooperation with NARIs, and structured to reach the entire constellation of trainees, from PhD-level scientists to farmers (Coffman et al., 2020).

During the most recent phase of CGIAR Research Programs, capacity development has not received considerable attention and investment. In a reflection on the CGIAR, Leeuwis et al. (2018) concluded that investment in strengthening capacity at both individual and systems levels are essential to foster co-ownership and legitimacy of AR4D investments, and to increase the chances that research becomes salient and effectively linked to national agendas, policies, partnerships and ongoing development efforts. It seems that as part of One CGIAR, capacity development is back on the agenda.

CIALCA has a strong history of strengthening capacity in the Central Africa Region. The CIALCA philosophy is that capaci-

ty development can only lead to transformative change if it is performed across individual, organisational, network and systems levels (Table 2). The multi-level perspective is rooted in the idea that one can strengthen capacities of individuals, but that those individuals cannot enact their newly acquired capacities in organisations that do not have capacity to support innovation and change. In a similar way, individual organisations may be isolated if not part of a bigger network of change. CIALCA seeks to bring together different types of government, public and private sector organisations who can meaningfully contribute to addressing bottlenecks for innovation and scaling, and that need to work together to overcome challenges for agricultural development in the region. As mentioned before, CIALCA facilitated access to international experts and organisations that have worked on similar bottlenecks that can help solve more country, agro-ecological or regional challenges. Lastly, countries need to develop their capacity to innovate and scale innovations through policies, strategies and other frameworks that can stimulate collaboration between public and private organisations, stimulate investment in the agricultural sector, encourage efficiencies and continuous capacity to identify problems and develop solutions to overcome those problems.

Although we cannot claim that CIALCA has invested equally in capacity development across all four levels explained above, there are a number of lessons learned that could inform capacity development strategies in One CGIAR. For example, PhD-trajectories of approximately 4 years do not always align well with funding cycles of (integrated) projects, usually 3 years maximum. This complicates entering into partnerships with (inter)national universities, as well as the learning process of the students. CIALCA experiences show that once students continue their 'normal' jobs in the NARIs, the finalisation of the doctoral thesis is challenging, both for the students and for those supervising the students, as students get additional activities not linked to the PhD thesis. CIALCA seeks to develop cohorts of PhD and MSc students. For example, as part of the current phase, eight PhD students are following the same capacity development trajectory. Having a cohort of students from different countries in the region has multiple advantages, such as (1) developing a regional network, (2) peer-to-peer exchanges and support, and (3) providing basic training on generic topics such as the integration of gender and nutrition in AR4D, use of ICT-tools in data collection and analysis, and the art of writing scientific papers. The One CGIAR should also consider to develop regional alumni networks. The CIALCA experience is that many of our alumni end up being business, policy or science leaders with whom we still actively collaborate and who can support us in increasing the legitimacy and impact of our

AR4D in the region. Additional benefits for CIALCA students include their exposure to international research and development networks, developing their language and multi-cultural skills when spending time at universities abroad.

As for capacity development at the organisational level, CIALCA employs two main mechanisms: training programs for partner staff and collaborative research. The first mechanism includes more targeted trainings. For example, CIALCA supports the training of approximately 70 local extension officers in Rwanda in the use of ICT tools for providing banana pest and disease management advice to farmers. The engagement of extension officers in the design, testing and validation of the ICT tools increases the likelihood that the tool serves their needs and operates under real, uncontrolled conditions. Subsequently, these extension officers can train other extension officers following a *training of trainers* model. In addition, developing generic skills (such as the use of a smartphone) can also support other interventions with a focus on the use of ICT for agriculture. The second mechanism is developing capacity through collaborative research efforts or learning by doing. Through co-investments, CIALCA has set up collaborative efforts with partners to design, implement and evaluate and publish research together with its partners (see for example: Hammond et al., 2020). Such collaborative research fosters more organic and bi-directional learning and feedback between the CGIAR scientists and its partners and clients. It also creates fertile ground for scaling of innovation, as the partner organisations are fully aware of the innovation, will have ensured that the research innovation fits within their organisation's operating systems, and will advocate for its broader use if deemed beneficial for the organisation. This is a strategic approach to scaling of CGIAR innovations, as compared to trying to push or advocate for innovations after their initial design, testing and validation without partner involvement. During various Phases of CIALCA there have been investments in developing curricula for university and vocational training. This is a more sustainable way of embedding CIALCA or CGIAR research and experiences in training systems, and making it available for future generations, ensuring that donor investments are not a temporary success, but provide long-term and actionable solutions to encourage real benefits for recipients, rather than being empty numbers. Digital tools and training platforms open up a new spectrum of possibilities in terms of developing online training materials that are accessible and free to a broad variety of organisations globally. CGIAR scientists could be involved in updating and testing curricula as well as guest lecturing with their university counterparts in the countries where they operate.



Strengthening capacity for innovation and scaling at network level was the key focus of CIALCA Phase 3, where a number of so-called multi-stakeholder innovation platforms were set up. Innovation platforms aim to support holistic analysis of farming and agricultural systems, identifying and prioritising entry points for innovation, and working together to make improvements. After 3 years of implementation and study of innovation platforms and their functioning, we had to conclude two things. First, the orchestrated approach to setting up or implementing innovation platforms did not seem very promising. The systems analysis highlighted several key bottlenecks for innovation – mainly non-technological related to access to market, credit, inputs – that the CGIAR centres and their partners were not able or keen on tackling (Schut et al., 2016b). Instead, they continued to focus on the design, testing and validation of technological innovations, while ignoring the partner demands and interests. Second, we found that over time the initial innovation platform networks fell apart, leaving a few CGIAR centres and one or two other partners that received direct budget support from CIALCA (Sartas et al., 2018; Sartas et al., 2019). It inspired us to invest more in demand-mapping and development of the co-investment model as part of CIALCA Phase 4. It also contributed to better understanding of the importance of

having fit-for-purpose partnerships that are focussed on addressing specific bottlenecks in innovation systems, rather than striving for equal and continuous stakeholder participation throughout all phases of innovation processes (Lamers et al., 2017). Stakeholder mapping using tools such as social network analysis can support to identify which stakeholders are fit-for-purpose to overcome specific bottlenecks in innovation and scaling processes (Hermans et al., 2017), and such tools have supported CIALCA spin-off projects in more critical thinking about who to involve when and for what purpose in AR4D processes.

Capacity development at systems level is the most ambitious and least tangible form of capacity strengthening, and probably the outcome of strengthening capacity at individual, organisational and network level. Capacity to innovation at systems level has been described as the capacity (i) to continuously identify and prioritize problems and opportunities in a dynamic systems environment, (ii) to take risks, experiment with social and technical options, and assess the trade-offs that arise from these, (iii) to mobilize resources and form effective support coalitions around promising options and visions for the future, (iv) to link with others in order to access, share and process relevant information and

knowledge, and (v) to collaborate and coordinate with others, and achieve effective concerted action (Leeuwis et al., 2014). These capacities – if developed – provide benefits or enabling environment for development that cut across multiple sectors, including agriculture. CIALCA has made specific investments in developing capacity at systems levels, mainly by engaging in policy development. This has met varied success. Policy advocacy for banana-coffee intercropping and promoting innovative banana disease management have not yielded the desired results so far. Working with the NARIs and Ministries of Agriculture on developing soil information systems, early warning systems for pests and diseases, and updating fertilizer recommendations for key food security crops in the Central Africa Region seem to be more promising in terms of resulting in change at systemic level. For all kinds and levels of capacity development, ongoing capacity needs assessments are essential. Continuous and inclusive needs assessments across individual, organisational, network and systems levels can inform integrated project cycles and shape the AR4D agenda. If stakeholders and partners see their needs reflected in the CGIAR AR4D agenda and its investments, then this would also contribute to recognition and showing value added of the CGIAR in the agricultural sector in the countries and regions where it operates.

### CHALLENGE #3

#### Enabling environments for young researchers

##### RECOMMENDATION #3

To ensure an environment of scientific excellence and innovation, One CGIAR will need to institute flexible work environments, schedules, and services that address family work-life issues, and benefits that reward the effort made by researchers, staff, and families (Coffman et al., 2020).

The CGIAR is an extremely demanding, exciting and confusing working environment for young researchers, and the Recommendation #3 made to One CGIAR is timely and appropriate. One of the key principles of CIALCA is that young researchers (for example postdoctoral researchers) work 100% on CIALCA instead of scattering their time across multiple projects. This creates focus, ownership and leadership over the tasks, and allows young researchers to invest in developing and discovering their contribution to a specific science domain. CIALCA affords a bubble to allow young researchers a fertile medium to define themselves as scientists, rather than becoming project managers.

CIALCA distinguishes between learning-oriented and impact-oriented workstreams (Table 3). The impact-oriented workstreams focus on translating or embedding (proven) CIALCA innovations into the systems of scaling partners. This work is usually led by the more experienced CIALCA scientists who were involved in the design, testing and validation of the CIALCA innovations during earlier phases. Impact-oriented workstreams are characterised by requiring quick results and impact, often with organisations that focus on achieving impact at scale. These organisations need to see a direct benefit in the collaboration and are less interested in engaging in a more open-ended process of scientific discovery and learning. Providing young researchers with an environment that allows them to experiment, make mistakes, learn and focus on science is extremely important, but also extremely difficult in the CGIAR. Often, young researchers are drawn into project management, reporting and communication, leaving little to no time to do the science that they are passionate about. In addition, more senior science staff should have sufficient time to mentor young colleagues in how to navigate the CGIAR system and develop themselves and their science domain in the AR4D sector. Offering opportunities for professional and career path development is important for the young researchers, as well as for the One CGIAR as a learning organisation.

CIALCA's leadership and management has changed and rejuvenated over time, bringing new spirits, energy and research themes, but also a better understanding of what the next generation of young researchers is looking for in their jobs. Every new generation of young scientists bring their own ideas about the *so-what* of their projects and organisations, how their work leads to measurable benefits, and what they consider to be a modern and professional environment that enables them in achieving their potential. Part of this is finding the right work-life balance, which is challenging. What is still typical in the CGIAR is long days in the field, whole growing seasons away from home, six-day work weeks, remote research locations, the expectation of always being connected through weekends and leave, and a limited or slow embrace of technological advances such as video conferencing that can replace travel that burdens family life, and contributes significantly to negative environmental impacts. The recent COVID-crisis may have accelerated the uptake of digital tools for collaboration, and hopefully will become more accepted and used as part of the 'new' normal where we find a good balance between online and in-person modes of collaboration.

The new generation of male and female CGIAR researchers prioritises work-life balance, want to live and work in an

Table 3. CIALCA's impact-oriented and learning-oriented work streams.

Characteristics	Impact-oriented workstreams	Learning-oriented workstreams
Partner demand	Clearly defined knowledge questions and clear idea of what should result from the collaboration (delivery and impact)	Knowledge questions are less clear, and final outputs/ objectives are to be defined (more discovery oriented)
Impact potential	High	Uncertain
Type of collaboration	Collaboration focused on delivery	Collaboration focused on learning
Who should lead?	CIALCA scientists	CIALCA PhDs and postdocs
Type of science	Application of proven tools and technology (applied research)	Development and testing of innovations (exploratory research and piloting)
Science model	More consultancy/ service delivery to guide strategy development and implementation	Science to shape future development agendas
Timelines	As soon as possible	Flexible (therefore better for PhDs/ postdocs)
Partner motivations	Invest in a collaboration if they believe it will make them more (cost-)efficient/ increase their impact	Collaborating with an established AR4D consortium, curious how to enhance their development programs

environmentally responsible way, and believe in equity in the workforce. To be able to recruit and maintain the best professionals, the One CGIAR needs to reflect this in their institutions, work environments, and benefits and follow both international progressive standards and local cultural norms. This includes working part-time, working from home, opportunity to take sabbaticals, support child day-care, better conditions for maternity and paternity leave, and more conservatively defined responsibilities that avoid excessive work load. It would be incorrect to claim that CIALCA provides such more progressive conditions and meets international standards. Where CIALCA has made good progress is in allowing work-from-home, organising writing and learning retreats, allowing staff to combine work-related travel with visiting their families, but there is still much progress to be made.

Another challenge that goes beyond CIALCA as a consortium is the fact that all scientists in the CGIAR lack permanent contracts and tenure track. Career paths in the CGIAR are extremely unclear and uncertain which creates insecurity for young researchers. This goes hand in hand with the strong dependency of (fragmented) project funding which

does not create continuity for both the researchers and the research lines they are trying to develop. The One CGIAR ambition to strive for 70-80% pooled funding which can create a more stable funding situation and create more enabling conditions and prospects for young researchers to develop themselves in the CGIAR system.

As a consortium, CIALCA creates a safe space for working with peers in other CGIAR centres. There is a lot of competition between CGIAR centres, which sometimes creates challenges for pooling brainpower to overcome agricultural development challenges. Young researchers in the CGIAR and in the NARIs should be incentivized to collaborate, jointly develop the best ideas and proposals, and exchange within and across scientific disciplines and geographical locations. One of the greatest achievements of the current cycle of CGIAR Research Programs is that it builds a global network of scientists working on similar commodities, thematic areas or innovations, creating a basis for learning and advance in research for development. By putting outcomes and impact at the core of its reform, One CGIAR creates a basis for its staff and partners to join forces in tackling the world's agricultural challenges, rather than individual CGIAR centres

8 [www.ipes-food.org/pages/OneGGIAR](http://www.ipes-food.org/pages/OneGGIAR)

'pushing' their commodities, thematic fields or innovations. One CGIAR should continue to develop a global network of agricultural thought leaders, and stimulate all of its researchers to continue to develop their multi-cultural, multi-dimensional science skills and competencies.

A final recommendation to One CGIAR is to institutionalise programs that allow young- and mid-career researchers to develop their capacity as scientists, leaders or research managers. An example could be to develop a CGIAR talent-program, where those scientists with the competences and ambition to develop themselves as research managers are mentored and prepared for a role as managers in the CGIAR. Similar talent-programs can be developed for research or science leaders. If One CGIAR aspires to become a USD 2 billion/year organisation<sup>8</sup>, then providing a career path to its talents is an absolute prerequisite for becoming the global centre of excellence for AR4D. Another example could be the secondment of CGIAR staff to government, public or private sector organisations. This can also allow CGIAR researchers to better understand their clients and partners and their needs and demands, and stimulate capacity and network development of the researchers and the CGIAR more generally.

#### CHALLENGE #4

### Policy-relevant research

#### RECOMMENDATION #4

The One CGIAR should develop policy-relevant research to guide research and implementation strategies that follow 'what works' while avoiding what is duplicative or anecdotal (Coffman et al., 2020).

There is a strong need for the One CGIAR to align research agendas with the policy agendas of government, public and private sector organisations. Here, it is important to spend time on demand-mapping and identify the knowledge and capacity gaps that hamper the development, implementation and enforcement of agricultural policies aimed at improving livelihoods and agricultural systems more generally. As mentioned earlier, organisations that could benefit from collaborating with the CGIAR often do not have a clear idea about what their knowledge or capacity gaps are, and how research can help them to overcome those gaps. Demand-articulation is therefore a prerequisite for conducting policy-relevant research and should be seen as an important step or phase in any research cycle, on which sufficient time and attention should be spent. For Phase 4 of CIALCA, almost one year was spent on mapping demand, and developing Theories of Change with partners to define what type

of research would be policy-relevant to them. A good starting point for developing a policy-relevant research agenda is to develop an inventory of country and regional agricultural development priorities (e.g. those defined in policy or strategy documents). The added value of the CGIAR is that it can propose concepts, models and applications from different parts of the world, based on previous and ongoing work on similar policy challenges or opportunities elsewhere and tailor it to the local circumstances. A good example is recent CIALCA work on developing site-specific fertilizer recommendations for cassava. This work builds on earlier work conducted by the CGIAR in Tanzania and Nigeria, and was brought into Rwanda, Burundi and eastern DR Congo to support the government and other local organisations in updating their fertiliser recommendations to farmers. Early results created broader interest and attention to apply the same science to potato and maize. The CGIAR has an important role to play in availing both positive and negative examples and learning from other geographies and sectors to guide research and implementation strategies that are proven to work.

However, working in a policy-relevant way is much more than just working on the 'right' questions and what is proven to work. An important condition for research to successfully inform policies is to develop relationships, mutual understanding and credibility with those people designing, implementing and evaluating policy (Schut et al., 2014). CIALCA has worked in partnership with the national institutions (research, extension and policy) at both national and local levels. This mode of operation has fostered the identification of problems and ownership of innovations. It also eased advocacy as the key stakeholders are part of the entire process of developing, testing, validating and – finally – scaling innovations. Important for developing such (trust) relationships is to take policy-makers to the field, invite them to your research stations, respond quickly to their questions and demands, facilitate access to experts in the network, and deliver on commitments. Nevertheless, some of the CIALCA innovations, such as Single Disease Stem Removal (SDSR) to manage Banana Xanthomonas Wilt in Central Africa has, despite its technological superiority (Blomme et al., 2017), not resulted in large-scale policy adoption. Only recently, CIALCA – supported by the CGIAR Research Program on Roots Tubers and Banana – has started the development of country-specific scaling strategies for SDSR in Burundi, Rwanda and eastern DR Congo. It showed that political or capacity related bottlenecks hamper the mainstreaming of SDSR in policy. A similar example from CIALCA is related to coffee-banana intercropping in Rwanda (Jassogne et al., 2013). Despite clear benefits for income and food security, coffee-banana intercropping did not lead to impact at scale



as it was conflicting with the Rwandan government's Crop Intensification Program that promoted mono-cropping for some of the main food and cash crops during that period of time. It does not mean that such science may not lead to policy change in the future. There are many examples of where windows-of-opportunity may open as a result of – for example – a major crisis, and 'old' science may become relevant again for informing 'new' policies or strategies.

While creating short-term trust with policy actors and providing them with the best answers to their immediate challenges, it is important to identify long-term agendas for research that anticipate the challenges of the future, looking 10-20 years ahead. CIALCA has several local policy champions who are often former CIALCA staff or alumni who have grown to become policy makers or business leaders. Those champions provide a good sounding board for CGIAR centres, and can advise how the CGIAR can best contribute to addressing policy questions. Similarly, when so-called 'windows-of-opportunity' for contributing to policy change emerge, former staff or alumni can play an important role in bridging research and policy.

It is important for the CGIAR to be transparent about its comparative advantage and mandate, and the strengths and weaknesses associated with that. CGIAR is not an emergency relief or development organisation, and it should not aspire to be. The recent 'response' to COVID-19 shows that providing rapid response to challenges in the agricultural domain is in many cases beyond the CGIAR's capacity, although there are good examples of where CGIAR mobilised existing

data to guide rapid response interventions with partners. The CGIAR Strategy and Results framework (2015) states: 'Research by CGIAR and its partners can support the drive to disseminate innovations, but the scaling up effort must be led by national institutions, supported by regional or international development organizations where appropriate'. This may be easier said than done, as many governments and donors do regularly knock on the doors of CGIAR centres with urgent demands, which are often difficult to accommodate in the current context of CGIAR. More generally, CGIAR should invest more in keeping track of its contribution to agricultural transformation and sustainable development impacts across global, regional and national levels. Novel performance and results management systems should focus on keeping track of how long-term investments in innovation and scaling resulted in achieving outcomes at scale, so that we will have many more CGIAR success stories similar to those of, for example, orange-fleshed sweet potato (Low and Thiele, 2020).

During the demand-mapping of the current phase of CIALCA, many more 'demands' were identified than CIALCA could effectively address. That means that there should also be transparent mechanisms for prioritisation demands based on criteria that include impact potential, alignment with national agricultural strategies, available expertise and capacity to effectively support or work on identified gaps and demands. In addition, demands that cannot be addressed immediately, should be shared with other (more relevant) partners in the AR4D network. CGIAR should also invest in analysing or optimising the effectiveness of incumbent policies and pol-

icy frameworks. An example from CIALCA is a study by Klapwijk et al. (2014) who analysed the Rwandan Government's 'One Cow per Poor Household' policy, concluding that not all households could support an improved cattle breed in terms of its feed and labour requirements, which triggered development organisations to explore alternative small- or micro-livestock options (Klapwijk et al., 2020). It is a good example of how critical, scientific evaluation of policies can lead to making improvements or exploring alternative policy models.

Not all CGIAR research needs to have direct policy-relevance. As explained in the previous section, CIALCA distinguishes between impact-oriented workstreams and learning-oriented workstreams. The policy-relevant research would – in most cases – be executed under the impact-oriented workstreams, trying to address short-term needs or demands by adapting and embedding innovations in the systems of government, public or private sector extension or delivery mechanisms. Learning-oriented workstreams can be more supply driven and propose innovations that – if successfully designed, tested or validated – contribute to more long-term agricultural transformation or sustainable development. As those learning timelines often expand the timelines of incumbent policies, politicians or policymakers, they do not always meet direct demands. In CIALCA Phase 4, the combination of having both impact- and learning-oriented investments and workstreams enables us to balance between addressing both the problems of today, and those of the future. In the end, it is about finding the right balance between push and pull, supply-driven and demand-driven, discovery and learning, and learning and impact. A key lesson for the One CGIAR is to ensure that investment in innovations that are of different levels of scaling readiness, to ensure a constant flow or pipeline of innovations to contribute to impact.

#### CHALLENGE #5

### Advocacy and Communications

#### RECOMMENDATION #5

One CGIAR should take a leadership position and hone a unified message in support of science, and advocate for new technologies and public policies that address the challenges of feeding the many without destroying the planet (Coffman et al., 2020).

For One CGIAR to be successful, it needs to be seen as a Global Centre of Excellence for AR4D. This starts with developing and communicating a clear vision and strategy that creates trust and buy-in with funders, partners and beneficiaries

across different levels. Such a vision and strategy need to be developed with key stakeholders, including regional agricultural policy and advocacy networks, global players such as the United Nations Food and Agricultural Organisation (FAO), donors and investment banks, and representatives of civil society, private sector and farmer's organisations to ensure buy-in, ownership and co-investment in achieving it. As mentioned in the previous section, advocacy starts with developing and nurturing stakeholder and partner networks, and by developing, implementing and evaluating joint AR4D agendas. A joint vision provides the starting point for developing a coherent integrated project, improves transparent communication, and ensures that all involved are on the same page in terms of what it does, and does not seek to achieve. Successful advocacy could also emerge from having liaison officers who 'manage' the relationships between research and other stakeholders in the agricultural sector. Such a liaison officer could represent CGIAR in key events, agricultural sector working groups and meetings, and facilitate matchmaking between research and development players. Although this is not something that CIALCA does directly, this should be considered as part of the One CGIAR transition.

With its 15 years of presence in the Central Africa Region, CIALCA has been able to build a reputation and develop such personal relationships. In many occasions, the CIALCA consortium or CIALCA as a brand name that is sometimes better known than the CGIAR centres leading the consortium. One CGIAR provides an opportunity to develop such a brand out of the CGIAR, where the CGIAR becomes the brand name on the long-term, rather than the numerous short-term projects that it designs and implements. This requires a clear communication strategy that puts CGIAR first. As we have seen with CIALCA, developing a brand name takes time, but if done successfully, attracts investment, builds trust and clarity on what CGIAR is, what it does, and how that contributes to agricultural transformation and sustainable development.

For advocacy and communication to be effective, it is very important to be objective and correct when communicating, and not try to only emphasize the things that are successful, but also those efforts that are difficult, those innovations that looked promising, but did not work. Speaking with one voice, and ensuring visibility in the field, online and in policy arenas is essential. For communication to be effective, clear communication targeted to different audiences is key. Scientists often get lost in technical details and abstract language that does not resonate well with the language, worldviews of farmers, business people or policymakers. The media can play a role in translating scientific outputs and



indicating what are the (potential) benefits for the agricultural sector or society more broadly. High quality and unified communication products further contribute to developing a culture of excellence and high standard. Depending on the audience, communication products should provide both the global relevance of the work that is being implemented (ie. its importance and contribution to achieving the Sustainable Development Goals at scale), as well as a personal touch to make the CGIAR work more personable (ie. how investments in innovation and capacity development changes people's lives). As part of CIALCA, we try to combine this in our reporting where we share scientific advance towards achieving impact at scale, but also share the stories of the scientists and PhD-students implementing the AR4D activities.

Communication strategies should emphasize the added value of using science and research products in designing, implementing and evaluating agricultural policies. It should

focus on the types of savings and efficiencies that advanced scientific knowledge can result in, and how these can benefit farm, national and regional levels in terms of food security or cost savings. Presenting different impact scenarios (e.g. best-case scenario versus worst-case scenario) can provide a useful strategy in communicating expected outcomes. Strong and unified monitoring and results systems are needed to generate the content on outputs, outcomes and impacts that can provide the basis for communicating about progress, learning and achievements. Since 2017, CIALCA has fully aligned its monitoring, evaluation and learning with the CGIAR digital MEL platform which enabled more streamlined, effective and concise communication about progress at both project and CGIAR research program level. Furthermore, it has reduced the reporting burden on the CIALCA scientists by reporting all deliverables and outputs in one digital system that can easily be accessed and used to aggregate progress at project, research program and CGIAR system levels.

# Synthesis and conclusions

In the previous section we have shared experiences and ideas of how the five Challenges and Recommendations made by Coffman et al. (2020) could be operationalised and implemented as part of Regional Integrated Initiatives that are being developed under One CGIAR. Our proposals and ideas are based on 15 years of experiences, lessons learned and broader reflections under the CIALCA consortium. The main take-away messages have been summarised in Table 4.

Our reflections could provide the starting point, or inform a broader assessment of successes, failures and learning among similar existing, mature CGIAR consortia and partnerships elsewhere, from which more concrete guidelines can be distilled to inform the establishment of new Regional Integrated Initiatives under the One CGIAR framework. It is important that such guidelines are broad enough to accommodate social, political and cultural diversity across the locations where CGIAR is active.

CIALCA confirms that the key principles that drive the transition process towards One CGIAR make sense and should be pursued. Strong and continued (pooled) investment creates a stable and enabling environment for collaboration, learning and combining demand- and supply-driven research and delivery with partners. It also allows to bring together international, regional and national expertise to

tackle complex agricultural problems in a multi-disciplinary way. When investors and partners see this happening, they are more than willing to co-invest and work together. If this occurs in an organizational set up that is conducive for doing state-of-the-art science and delivery, then this will attract and motivate young researchers and have a higher likelihood to lead to real innovation and impact.

In the operationalization and implementation of its research agenda, One CGIAR should learn from, and build upon existing, mature AR4D consortia and initiatives such as CIALCA to ensure that existing relations, collaborations and innovation and scaling processes are preserved and exploited. However, we also recommend that One CGIAR actively supports and incentivises re-organisation, optimization and change in existing consortia and their modus operandi to further increase efficiencies and avoid business-as-usual mentality.



Table 4. Summary of CIALCA experiences, lessons learned and reflections in response to the five Challenges and Recommendations made to One CGIAR.

One CGIAR Challenge	One CGIAR Recommendation	CIALCA experiences, lessons learned and reflections
#1 Cooperation and Collaboration	To meet the challenges of global cooperation and collaboration, the One CGIAR must form alliances with universities and National Agricultural Research Institutes (NARIs) and make strategic use of other institutions' leadership abilities and comparative advantages.	<ul style="list-style-type: none"> <li>Regional integration as part of One CGIAR reduces competition among CGIAR centres and enhances impact orientation</li> <li>A consortium or platform such as CIALCA can attract other investments in R4D in a region, and facilitate alignment, integration and synergies between those investments</li> <li>Partnerships should be flexible and fit-for-purpose in the sense that they should be formed around addressing specific innovation or scaling questions</li> <li>Co-investment between CGIAR and national and regional partners forms a basis for more equal, sustainable and impactful collaborations</li> <li>Digital tools and citizen science approaches can engage R4D next- and end-users in a cost-efficient, meaningful and inclusive way in innovation and scaling</li> <li>Strong, continued and flexible donor investment and support creates an enabling environment for collaboration, learning and impactful research and delivery</li> </ul>
#2 Capacity Building	In formulating the One CGIAR capacity building strategy, a more sustainable framework should underpin a model where training is done regionally, in cooperation with NARIs, and structured to reach the entire constellation of trainees, from PhD-level scientists to farmers.	<ul style="list-style-type: none"> <li>Investment in developing the agricultural science and innovation capacities of individuals, whether PhD students or farmers, is not sufficient and requires additional investment in developing capacities of organisations, networks and systems in which these individual can contribute to agricultural transformation</li> <li>Cohorts of MSc and PhD students stimulates working on regional challenges from different disciplinary perspectives, as well as peer-to-peer exchanges, mentoring and training on generic agricultural science competences</li> <li>Many CIALCA alumni end up being business, policy or science leaders which creates a basis for ongoing collaboration and increased legitimacy and impact of CIALCA's AR4D in the region</li> <li>Capacity development at organisations level through collaborative research efforts seems more effective and impactful than trying to promote validated products after they have been designed and tested</li> <li>Continuous capacity needs assessment with partners can inform AR4D agenda setting and priorities for innovation and scaling</li> </ul>
#3 Enabling Environments for Young Researchers	To ensure an environment of scientific excellence and innovation, One CGIAR will need to institute flexible work environments, schedules, and services that address family work-life issues, and benefits that reward the effort made by researchers, staff, and families.	<ul style="list-style-type: none"> <li>Avoid young researchers to be scattered across many different projects and allow them to develop ownership over tackling a science or development challenge</li> <li>Provide an environment for experimentation, making mistakes and learning. Do not overwhelm young researchers with management tasks</li> <li>Allow young researchers to discover and develop their science domain and allow them to find their niche and contribution to the AR4D system</li> <li>Let senior researchers mentor young researchers in how to navigate the (challenges of the) CGIAR and broader AR4D system</li> <li>Implement and apply progressive, international work-life balance policies and standards</li> <li>Encourage sabbaticals, secondments to other (partner) organisations, exchanges visits and talent programs to encourage capacity development and networking</li> <li>Provide more secure career paths and tenure track for young researchers that allow scientists to focus on their science, and not their job security all the time</li> </ul>

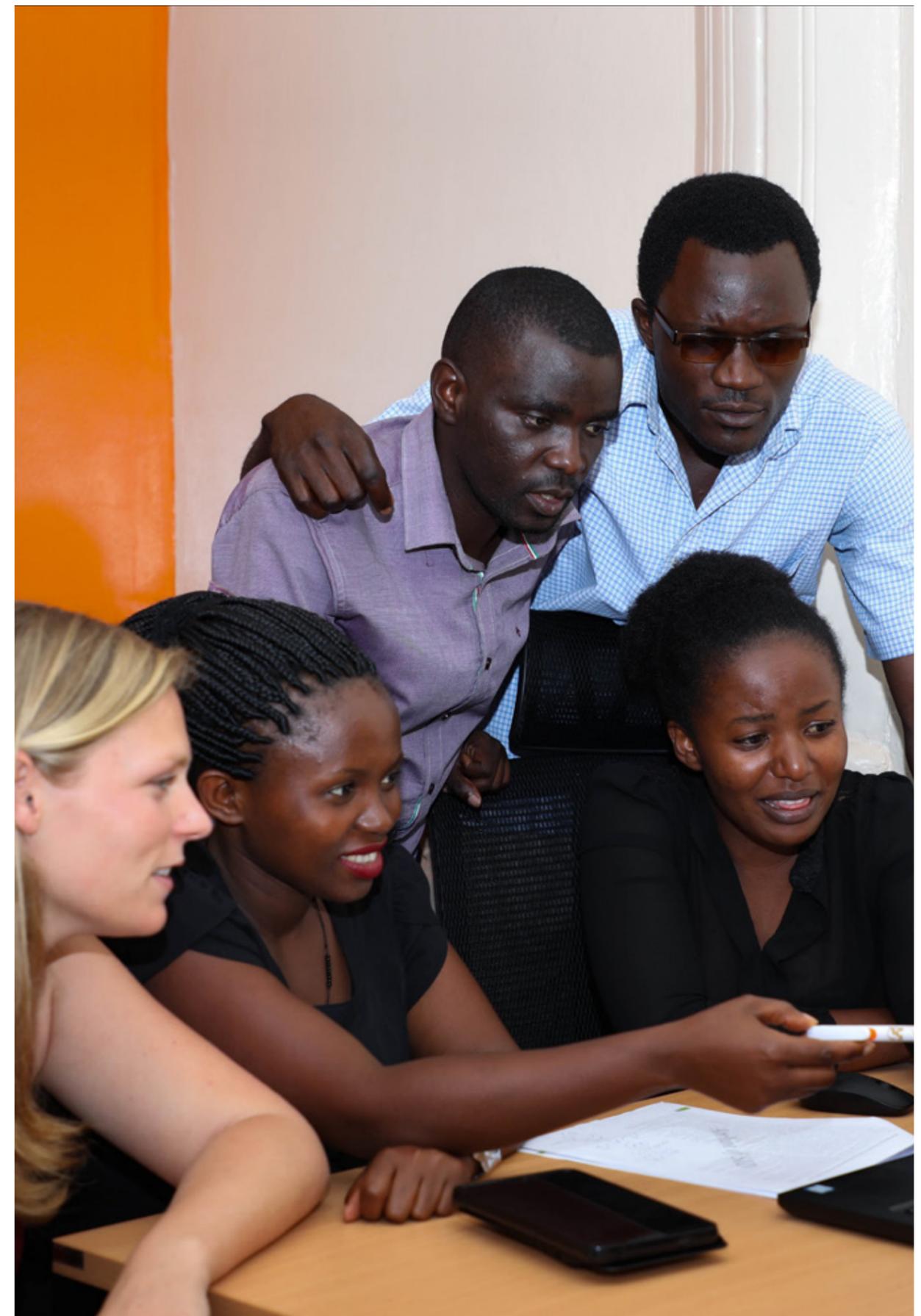
One CGIAR Challenge	One CGIAR Recommendation	CIALCA experiences, lessons learned and reflections
#4 Policy-Relevant Research	The One CGIAR should develop policy-relevant research to guide research and implementation strategies that follow 'what works' while avoiding what is duplicative or anecdotal.	<ul style="list-style-type: none"> <li>• Conducting policy-relevant research requires investment in continuous demand articulation and mapping of policy questions and needs</li> <li>• Comparative advantage of working with the CGIAR is that it can mobilise knowledge, innovations and experiences of what works and what does not work from other geographies and cases</li> <li>• Combine addressing knowledge gaps using scientific research with understanding policymakers, their needs, policy processes and policy systems</li> <li>• Invest in developing relations with policymakers and identify champions such as former CIALCA staff and alumni that can support the alignment of research and policy agendas</li> <li>• Combine demand- and supply-driven research for policy advice to not only focus on the immediate demands of today, but also supply new ideas for agricultural transformation and sustainable development of the future</li> <li>• Engage in the critical analysis of existing policies and use science to review their effectiveness and propose improvements</li> </ul>
#5 Advocacy and Communications	One CGIAR should take a leadership position and hone a unified message in support of science, and advocate for new technologies and public policies that address the challenges of feeding the many without destroying the planet.	<ul style="list-style-type: none"> <li>• Advocacy starts from implementing a vision and R4D agenda that is developed with and agreed upon by key government, public and private stakeholders</li> <li>• Advocacy can benefit from having liaison officers who nurture and manage the relationships between (local) research and other stakeholders in the agricultural sector</li> <li>• Communication strategies should focus on establishing CGIAR as a brand of global excellence in AR4D and provide concise messages about what CGIAR does and why that is important</li> <li>• Communication should be tailored to the needs, perceptions and worldviews of different audiences (e.g. policymakers, investors, beneficiaries, science audiences)</li> <li>• Communication strategy should combine information on the global relevance of AR4D, and personalised stories of how that changed lives of beneficiaries (e.g. farmers, students)</li> <li>• Communication strategies should emphasize the added value of using science and research products in designing, implementing and evaluating agricultural policy, development and business strategies</li> <li>• Strong and unified monitoring, evaluation and performance management systems are needed to generate the content for communicating on progress, learning and achievements</li> </ul>

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