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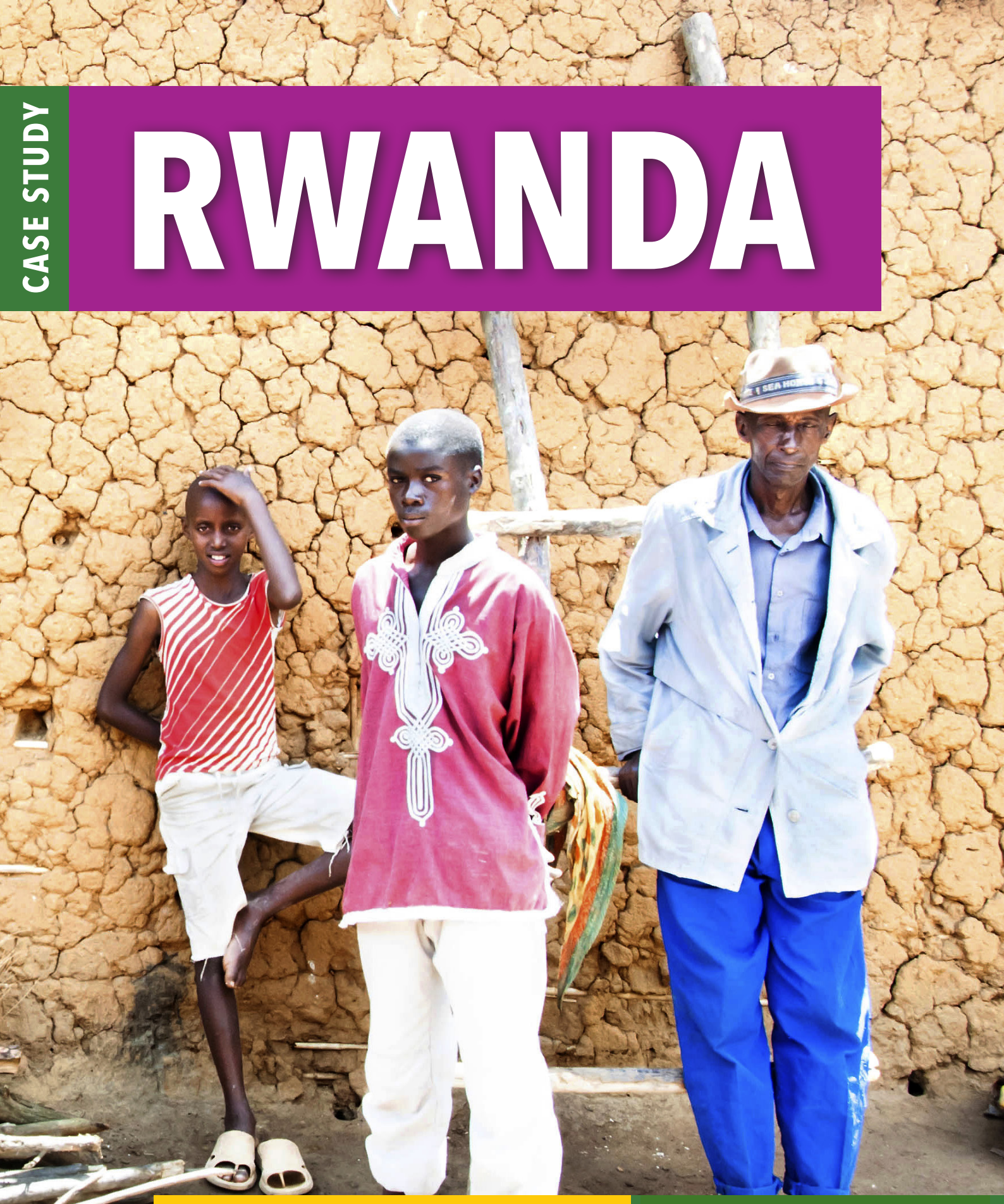

Building multi-stakeholder processes in agricultural research for development in Rwanda

CGIAR
RESEARCH PROGRAM ON
Integrated Systems for the Humid Tropics

Please refer to this case study as:

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Building multi-stakeholder processes in agricultural research for development in Rwanda

On a cool but sunny Friday morning in mid-May 2015, a 56-year-old farmer called Joseph was sitting on the porch of the local administration office in Kadahenda, Karago Sector, Rwanda. He was staring at the potato fields, the recently planted trees and the sector's new potato seed storage house, and felt happy. He realised that, exactly one year before, he had been sitting on that same spot, looking at the same mountains, which at that time had shown signs of poor potato production caused by inferior seeds and limited knowledge on how best to plant and manage this crop. Suddenly, the sound of a motorcycle woke him up from his daydream, and Joseph looked up to see his new partner and friend from the SACCO bank who had just arrived for their monthly innovation platform meeting. Joseph smiled at him and knew that the innovation platform of which he was the president had brought him and his fellow farmers much more than 'just' the improved seeds they expected to get at the start.

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October 2015

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In addition, throughout the process of data collection for, and the writing of, this case study, many people have given valuable contributions. Without them, developing this case study would not have been possible, and therefore we want to express our sincere gratitude to them.

First, we want to thank all interviewees for their time and openness when talking about the multi-stakeholder process as they experienced it. Second, we want to thank the people who participated in Humidtropics events and took photographs during platform meetings and other activities. Third, we want to thank Catherine O'Dea for her profound and sharp language editing and Luc Dinnissen who gave this case study an attractive design.

RESEARCH PROGRAM ON Integrated Systems for the Humid Tropics

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For quality of life

Humidtropics, a CGIAR Research Program led by IITA, seeks to transform the lives of the rural poor in tropical America, Asia and Africa. Research organisations involved in core partnership with Humidtropics are AVRDC, Bioversity International, CIAT, CIP, FARA, icipe, ICRAF, ILRI, IITA, IWMI and WUR.

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Humidtropics, a program for impactful research for development

CGIAR is a worldwide partnership addressing agricultural research for development (R4D), whose work contributes to the global effort to tackle poverty, hunger and major nutrition imbalances, and environmental degradation. The CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics) is led by the International Institute of Tropical Agriculture (IITA) and aims to improve the livelihoods of the rural poor living in (sub)tropical areas in sub-Saharan Africa, Central America and the Caribbean, and Asia. An important intervention strategy in Humidtropics is the strengthening of multi-stakeholder collaboration and partnerships to achieve development impact at scale. To achieve this, Humidtropics supports local level innovation platforms (IPs) in its Field Sites that experiment with various technological and institutional innovations aiming to tackle site-specific constraints. In addition, Humidtropics supports R4D platforms at (sub-)national level that bring on board the key scaling actors in the agricultural system and that form the link between local and national level. Innovations that are successfully tested in the IPs are intended to be scaled up by the R4D platform to generate impact on a larger scale (Humidtropics, 2012).

But why go to all this trouble to bring together researchers, farmers, policymakers, the private sector, extension workers and NGOs in IPs and R4D platforms? This approach is rooted in the belief that encouraging multi-stakeholder interaction and collaboration can foster engagement, ownership and demand-driven R4D that is better tailored to the needs and realities of farmers and other stakeholders. Consequently, this approach will lead to development impact and outcomes (Humidtropics, 2012).

Humidtropics adopts an integrated systems perspective. Instead of targeting one single pre-selected commodity and trying to boost its productivity at farm level, Humidtropics focuses on stimulating productivity, natural resource management (NRM) and institutional innovations across different levels in order to achieve more sustainable impacts. It considers all farm enterprises and their interactions, as well as nutrition, social differentiation (e.g. gender and youth), and policy and markets (Humidtropics, 2012).

In November 2012, Humidtropics started activities in the West African Humid Lowlands, the East and Central African Highlands, Central America and the Caribbean, and the Central Mekong – all of which are referred to as Action Areas or Flagships. Initially, a variety of planning and capacity building workshops were organised for key actors from the participating countries (referred to as Action Sites) to coordinate activities and build

their expertise and knowledge on facilitating the multi-stakeholder processes and systems-oriented R4D.

This case study zooms in on multi-stakeholder processes in the East and Central Africa (ECA) Action Area or Flagship that were launched on 20 May 2013 in Bukavu, DR Congo. The ECA Flagship encompasses the Rwanda, DR Congo, Burundi, Uganda, Kenya and Ethiopia Action Sites. More specifically, the case study describes and reflects upon the first two years of Humidtropics in Rwanda (Box 1), aiming to outline the multi-stakeholder process as it unfolded and highlighting lessons that can be learned from this. In Rwanda, activities are mainly taking place in Kadahenda and Kayonza (also referred to as Field Sites). The case study is based on meeting minutes, progress reports, event documentation, and 10 semi-structured key informant interviews. Furthermore, data originate from an IP and an R4D platform reflection meeting, and participatory observation by the authors. Some interview quotes used in this case study have been slightly edited to enhance readibility.

BOX 1 Rwanda's biophysical, demographic and institutional context

Rwanda is a hilly landlocked country whose altitude declines from west to east, with extremes of 950m and 4,519m (CIA, 2015). It has a temperate climate with two rainy seasons (September to January and mid-February to May) (Nabahungu & Visser, 2013), and of its 24,668km2 of land, 74.5% is agricultural (including 17.4% permanent pasture). Major environmental problems are deforestation, overgrazing, soil exhaustion, soil erosion and poaching. With its over 12 million inhabitants (median age 18.7 years), Rwanda is the most densely populated country in Africa. Of this population, 90% work in agriculture and jointly earn about 32.5% of Rwanda's GDP, 27.8% live in urban areas and 44.9% were estimated to live below the poverty line in 2011 (a decrease from 57% in 2006) (CIA, 2015).

Another distinctive characteristic of Rwanda is its strong and well-structured government system, which provides both opportunities and constraints for innovation. The government has a clear vision on agricultural development that translates into a clear vision on regulation, promotion of specific farming practices, information dissemination, training and subsidies (Kathiresan, 2011). If the authorities are convinced that innovations are useful, they can easily bring them to scale by integrating them in national policy frameworks. This, however, is more difficult for innovations that deviate from government's vision, unless very convincing arguments and results are provided. Rwanda's well-developed institutional environment provides a strong basis for collaboration between researchers, policymakers and other stakeholders to reach mutual understanding on the preferred route to sustainable agricultural intensification.

The two Humidtropics Field Sites in Rwanda are located in the Northern Highlands: in Kadahenda, Karago Sector, Nyabihu District (Figure 1) and the Eastern Lowlands: in Mwili,

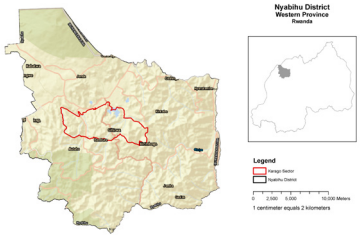

FIGURE 1 Map of Nyabihu District indicating Kadahenda.

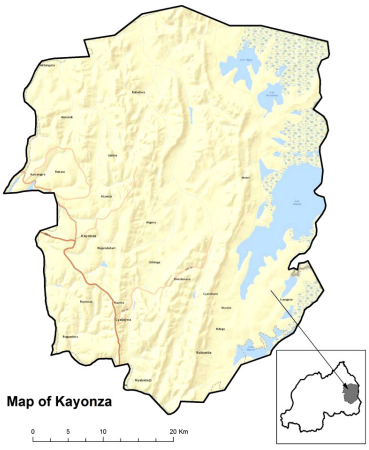

FIGURE 2 Map of Kayonza District.

Rukara and Nyamirama Sectors, Kayonza District (Figure 2). In Kadahenda, agriculture is dominated by annual crops, especially Irish potato and climbing bean, and to a lesser extent wheat, maize and field peas (Kagabo, 2015). Cassava, banana, beans, maize and soybean predominate in Kayonza. In general, rainfall and soil fertility are more favourable in the Northern Highlands than in the East.

How multi-stakeholder processes in Rwanda contribute to achieving Humidtropics' intermediate development outcomes (IDOs)

IDO 1: Increase income for rural households

"Through their involvement with the innovation platform in Kadahenda, more farmers have been linked to a micro-finance institute to access credit."

IDO 2: Better nutrition for rural households

"An international NGO that is a member of the research for development platform has supplied nutritious banana varieties to farmers in Kayonza."

IDO 3: Increase farm productivity

"Analysis shows that farmers involved in research for development activities in Kadahenda and Kayonza have managed to increase their production."

IDO 4: Sustainable natural resource management

"Rotation, intercropping and usage of chemical and organic fertiliser is supporting farmers in reversing nutrient-depleted soils."

IDO 5: Empowered women and youth

"To better understand constraints for women and youth in agriculture, a gender norms study was conducted in Kayonza."

IDO 6: Enhanced innovation capacity

"Increased collaboration between local level stakeholders in Kadahenda allowed farmers to access collective potato seed storage facilities."

The initiation of the multi-stakeholder process in Rwanda

Launching the program and deciding where to work

To support the multi-stakeholder process in Rwanda (Box 1), the national research and extension institute of Rwanda, Rwanda Agriculture Board (RAB), was chosen as the national facilitator and has played a major role in driving activities ever since. The main reason for selecting RAB was that this institute had previously collaborated with the main CGIAR centres under the CIALCA[1] program that had supported partnerships to coordinate activities and stimulate demand-driven research. With the aim of building on existing collaboration and activities, it was decided to re-engage with former CIALCA partners, including RAB.

RAB's involvement included identifying the national facilitator to initiate and support the multi-stakeholder process and the implementation of research for development (R4D) activities. In total, two RAB researchers acted as national facilitator. The initial facilitator received a new job opportunity in September 2014, after which he was succeeded by one of his colleagues. Both of them were soil scientists. Also, both of them were assisted by colleagues from RAB (in particular one research technician) and representatives of IITA. This small group of people can be considered as the team that facilitated the multi-stakeholder processes in Rwanda.

The start of Humidtropics in Rwanda was marked by a two-day launch workshop organised on 25 and 26 July 2013. This brought together about 70 potential partners selected in advance by the first national facilitator based on a stakeholder inventory and analysis exercise done by a small team from RAB and IITA. On the first day, the program was explained, and feedback was given about the preceding ECA Flagship launch meeting in Bukavu, DR Congo. Then, participants brainstormed in groups relating to the three main agro-ecological zones in Rwanda (with high, mid or low altitudes) about major constraints and potential Entry Themes for sustainable agricultural intensification. On the second day, participants brainstormed in groups about potential Field Sites and partners relevant to the select-

1 The Consortium for the Improvement of Agriculture-based Livelihoods in Central Africa (CIALCA) is an agricultural research for development program that has been active since 2006 in the Great Lakes region, including Rwanda. It is currently led by the CGIAR centres IITA and Bioversity International in collaboration with national research institutes. CIALCA initially focused on improving productivity of legume- and banana-based systems to enhance income, nutrition and environment, and in 2011 it expanded thematically – increasing its focus on farming systems, livestock integration, climate change, multi-stakeholder collaborations and understanding drivers of impact. At that point, CIALCA agreed to partner with Humidtropics to work on R4D activities targeting banana, cassava, seed systems and markets, irrespective of location.

ed Entry Themes, and additional explanation was given about working with multi-stakeholder platforms.

Subsequently, as the group invited for the launch meeting was considered too big to become the R4D platform, the national facilitator – together with some partners that joined the launch meeting – discussed a reduction in partners and selected about 20 to participate in the R4D platform.

Identifying demand-driven and systems-oriented research themes

On 16 and 17 October 2013, a small team of CGIAR and RAB researchers and a representative of the farmer organisation IMBARAGA went to Nyabihu District in the Highlands of Rwanda and Kayonza District in the Lowlands of Rwanda for a ground truthing visit. They observed the landscape and farmer fields, and conducted focus group discussions with farmers to identify production challenges and opportunities in both sites. They intended to complement the earlier appraisal of constraints and potential Entry Themes done during the launch in July 2013. Eventually, 'Irish potato-tree-livestock integration' was formulated as the Entry Theme for the Highlands, and 'Banana and maize-legumes-livestock integration' as the Entry Theme for the Lowlands.

Four and a half months after the ground truthing visit, an attempt was made to further specify these Entry Themes into concrete Entry Points for sustainable intensification in Rwanda. This was done during two Rapid Appraisal of Agricultural Innovation Systems (RAAIS - Schut et al., 2015) (Box 2 and Photo 1) workshops were organised on, respectively, 3 March 2014 in the Highlands and 4 March 2014 in the Lowlands. In the Highlands, 19 people participated (18 male and one female). They represented farmers, NGOs, the private sector, government and research. In the Lowlands, 18 people participated (15 male and three female), representing similar stakeholder groups as in the Highlands.

BOX 2 Rapid Appraisal of Agricultural Innovation Systems (RAAIS)

RAAIS is a diagnostic tool for integrated analysis of complex agricultural problems and innovation capacity. RAAIS workshops facilitate different stakeholder groups (farmers, the private sector, NGOs, government and research) to systematically identify their constraints and opportunities for innovation to address complex agricultural problems. Participants analyse these constraints and opportunities with regard to different problem dimensions (biophysical, technological, socio-cultural, economic, institutional and political) and different levels (national, regional, local) and subsequently prioritise them. In this way, participants jointly create an abstract representation of the agricultural system that

PHOTO 1 Stakeholder RAAIS workshop.

provides a comprehensive basis for selecting context-specific Entry Points for sustainable intensification. Key to RAAIS is that it increases awareness of how stakeholders' challenges are interrelated and require collective action and also that the process is both visual and interactive. Using large sheets of paper, tables and coloured cards, stakeholders literally group around the problems they identify and discuss their various options to resolve these (Schut et al., 2015).

Participants were asked to list their Top 5 challenges and constraints relating to agriculture, first individually and later in homogeneous stakeholder groups. Subsequently, all participants decided together on the most important constraints in relation to productivity research, NRM research, institutional research and nutrition research (Tables 1a and 1b). Building on this information, Entry Points were selected to guide R4D activities (Schut and Hinnou, 2014).

Productivity	NRM	Institutional	Nutrition
1. Limited knowledge on integrated soil fertility management practices and their economic profitability and benefit	1. Lack of knowledge on biophysical options (crop, tree, livestock, landscape, land, climate, water quality)	1. Insufficient capacity development leading to low knowledge and engagement levels	1. No impact of practices on livelihoods and landscapes
2. Lack of agricultural inputs (seeds, trees, animals)	2. Limited farm size for integrated agriculture	2. Weak farmers' organisations	
3. Lack of diversification of tree-fodder species and resistant potato varieties		3. Low collaboration between researchers and other stakeholders in the agricultural sector	

TABLE 1A Prioritised constraints under the different categories of innovation relating to the (Highlands) Entry Theme 'Irish potato-tree-livestock integration'.

Establishing a national level research for development platform

The national R4D platform was officially established at a launch workshop organised on 28 April 2014 in the CIAT (International Centre for Tropical Agriculture) office in Kigali, Rwanda's capital. Fourteen people took part, some of whom had participated in the RAAIS workshops conducted two months earlier. About half of the participants came from research, three represented NGOs, two represented private sector organisations and one participant represented the Rwanda government.

The meeting started with the first national facilitator explaining the program and what it had done so far in Rwanda. Next, members chose an interim committee and brainstormed about a short-term action plan for the creation of a local level platform in the Northern

Productivity research	NRM	Institutional research
1. Inappropriate integrated soil fertility management and integrated pest management to address crop intensification program constraints (disease, nutrient depletion)	1. Climate change	1. Farmers are resistant to innovations that may aggregate their produce
2. No access to agricultural inputs (seed, fertiliser, pesticides, etc.)	2. Limited land	2. Shortcomings in production techniques due to ineffective extension system
3. Extreme diseases (banana and beans)		3. Lack of market for agricultural produce

TABLE 1B Prioritised constraints under the different categories of innovation relating to the (Lowlands) Entry Theme 'Banana and maize-legumes-livestock integration'.

Highlands. Moreover, a small group was designated to develop a proposal for the platform-led innovation fund (also known as 'Cluster 4'). According to one facilitation team member, participants in the launch meeting seemed very enthusiastic and involved in the discussions. They really shared their ideas, and whatever was planned came from the whole group.

Establishing local level innovation platforms

To initiate the local level multi-stakeholder process, two IPs were established in Rwanda. The first one was launched in the Northern Highlands in Kadahenda on 30 May 2014 (Photo 2), and the second one in the Eastern Lowlands in Kayonza on 21 August 2014 (Photo 3).

PHOTO 2 Kadahenda IP launch, 30 May 2014.

Northern Highlands: Kadahenda IP

In terms of projects previously implemented by RAB and other Humidtropics partners in Rwanda, Kadahenda was almost a virgin area. Hardly any of them had worked there before, and this forced them to start from scratch using the data collected during the ground truthing visit of October 2013 and the RAAIS workshop of March 2014. Moreover, according to the national facilitator, the facilitation team, at that time, was still relatively unexperienced in how to go about implementing Humidtropics and establishing IPs. They went to the field knowing that they had to hold discussions with farmers and look for Entry Points, and hence they learned while doing.

PHOTO 3 Kayonza IP launch 21 August 2014.

Preceding the IP launch meeting, a selection of different stakeholders was called, informed about the idea of setting up an IP and invited for its launch. On the day itself, the Humidtropics program, the IP concept and the role of IP members were explained. Then, participants committed to becoming Kadahenda IP members, selected a leadership committee and discussed how each one could contribute to, and benefit from, the platform. The young IP agreed on potato being its main Entry Point and voiced tackling the challenge of lack of potato

seeds (quality and quantity) as its common goal. Box 3 summarises the R4D activities in Kadahenda.

BOX 3 R4D activities in the Northern Highlands of Rwanda: Kadahenda

The overarching aims of R4D activities in Kadahenda are to enhance potato yield and to improve potato seed availability. Conventional farming methods often include continuous potato cropping, limited nutrient application and the use of local varieties often obtained by saving seed from one season to the next.

Interaction of improved Irish potato varieties and mineral fertiliser

Aiming to enhance Irish potato production in Kadahenda, this R4D activity compares interactions of one improved Irish potato variety (-58) and three popular local varieties (Kuruseke, Mabuno and Mabondo) with mineral fertiliser (NPK 17-17-17, at 300kg/ha) – in addition to uniform quantities of manure. Planting started on 4 December 2014 and targeted five farmers. Next seasons, rotation will take place with climbing bean. Plants were studied in relation to germination (time and percentage), number of tillers per hill, plant height, biomass yield (specified in commercial and non-commercial tubers) and diseases (bacteria and viruses). On all criteria, the improved variety scored better than the local varieties, except for proportion of non-commercial tubers.

Rotational effect of climbing bean and maize on potato growth and yield

This R4D activity compares the performance of potato grown in four different rotation schemes with maize and bean, and continuous potato cropping. In the first season, only Irish potato fields (-58 variety) were established at five participating farms, and in the following three seasons the other crops will be added. Similar parameters are tested as in the mineral fertiliser experiment.

Assessing different potato varieties for yield potential

This R4D activity both targets the challenge of potato seed availability and tests the performance of one improved Irish potato variety (-58) compared to three popular local varieties (Kirundo, Kigega and Rwashaki). Planting took place between 13 and 21 November 2014, and 11 farmers participated. In the trials, farmers applied organic nutrients (e.g. compost and manure), based on what they had available, and samples were taken for laboratory analysis. In addition, farmers provided land, labour, fertiliser (NPK 17-17-17, at 300kg/ha) and pesticides, and Humidtropics provided the seeds. In conjunction with this R4D activity, farmers were trained on potato seed handling (in field and in store) and the seed production business. Farmers were convinced to store part of their yield collectively.

Response of climbing bean to Alnus biomass and mineral fertilisers

In September 2012 – before the IP was established – trials were implemented aiming to increase fertiliser use efficiency through exploring synergies offered by the combined application of mineral fertilisers and the leaf biomass of the Alnus acuminata tree. Treatments include 20 t/ha of Alnus biomass, fertiliser (NPK 17-17-17, at 300kg/ha), the combination

of Alnus biomass and fertiliser, and a control without any fertiliser. The experiment is a project of ACIAR (Australian Centre of International Agriculture Research) co-managed by RAB and ICRAF (International Centre for Research in Agro-forestry). The variety used for the testing is Gasilida, and for rotation purposes the experiment shifts each season to plots which had potatoes as their previous crop. The experiments cover four farmer field schools hosted by farmer groups and 12 individually managed experiments each season.

Incorporated in the R4D activities, there is a link with intercropping systems (the rotation trial), agro-forestry (the usage of Alnus biomass) and soil fertility management (experimentation with fertiliser, Alnus biomass and rotation practices). Moreover, the platform itself proposed to engage with local private sector actors that process potato – linking them to markets and income. Furthermore, the IP farmers agreed on a system among themselves where they pool money to purchase livestock for the different farmers involved to facilitate access to manure. Lastly, the platform itself represents an innovation that stimulates collaboration and partnerships among its members and enhances their capacity to innovate.

Eastern Lowlands: Kayonza IP

In contrast to Kadahenda, the Eastern Lowlands in Kayonza were not unfamiliar to the partners implementing Humidtropics. Many of them had been working there under the successful CIALCA program whose funding had been extended under Humidtropics. This created a good opportunity to establish an IP in Kayonza. On 17 July 2014, this message was communicated to the R4D platform during a meeting.

Since the Entry Points selected during RAAIS by stakeholders in the Lowlands coincided strongly with former CIALCA activities, the decision to continue the testing and upscaling of CIALCA technological and institutional innovations was easily made. Following this decision, a delegation of R4D platform members visited three big farmer cooperatives in Kayonza to look for potential locations and stakeholders to bring on board in this IP. Subsequently, another R4D platform meeting was organised on 31 July 2014 where the members started planning activities that could be implemented in Kayonza in the upcoming season (mid-September). The activities – which were based on former CIALCA work and expertise about the area – were validated and prioritised by the R4D platform. Next, responsible persons and organisations that would lead the activities were identified, and four of them were further detailed. The detailing of activities was finalised during a third R4D platform planning meeting on 20 August 2014.

Once the activities were planned and the Field Sites and some stakeholders were selected by the R4D platform, a meeting was organised at the Kayonza District Office on 21 August 2014 to formally launch the IP. During this meeting, the Humidtropics program and the IP

concept were explained, and participants selected a leadership committee among themselves. Subsequently, the lead person of each (research) activity proposed the R4D activities, and it was agreed that the IP would meet again in the following week to discuss and validate experiments with hosting farmers. Box 4 summarises the R4D activities in Kayonza.

BOX 4 R4D activities in the Eastern Lowlands of Rwanda: Kayonza

The overarching objective of R4D activities in Kayonza is to increase the production of maize- and banana-based cropping systems. Conventionally, these crops were grown in monocrop – as recommended by the Rwanda government (Kathirezan, 2011) – but within R4D activities they are intercropped with legumes.

Maize and soybean intercropping systems, with bean in rotation

This R4D activity compares maize and soybean monocrops and three different intercropping technologies – with and without fertiliser (DAP). One plot cultivated according farmers' usual practice was included as a control treatment. Next season, the maize-soybean fields will be rotated with beans. The different treatments have been compared in relation to soybean-shoot development, maize growth, grain yield, gross benefit and land productivity/land requirements.

Banana and bean intercropping systems

This R4D activity compares the performance of banana (improved varieties FHIA 17 and FHIA 25 and local variety INJAGI) and bean (RWR 2245 bush variety) grown in monocrop and intercrop. DAP was applied to beans, and banana received 5kg of farmyard manure just before planting. The activity covers two plots of banana monocrop, one bean monocrop and two intercrops, with one of the improved banana varieties and the local banana variety combined with bean. After the first season, data were collected on bean and banana growth, and bean yield.

Cassava/bean intercropping systems

In the first planting season, a trial demonstrating cassava and bean intercropping was established in Murama. However, in February 2015, the responsible researchers and the facilitation team observed that it was not doing well; many cuttings had not germinated and some fields were poorly managed. At that juncture, no new replacement cuttings were available and it was decided to stop the trial (the second round of beans was not planted). It is intended to establish a new trial in September 2015, but perhaps at a different site.
The intercropping trials are linked to natural resource management through soil fertility management and land productivity.

How the process continued

Planning and coordinating from national level

After its launch, the national R4D platform continued meeting to give advice on, and assist in, the coordination and execution of activities with the two IPs (Photo 4). They discussed things like research protocols (especially for the Kayonza IP), monitoring and evaluation (M&E) efforts, proposal and budget writing, and how best to manage the IPs. Often, meetings included updates by platform members about what had been done since the previous meeting, and reports or plans were shared with the platform to be commented on, adjusted, completed and/or approved. Overall, the frequency of R4D platform meetings was higher at the beginning of the process compared to later in the first year, whereas for the implementation of R4D activities this was the other way around.

PHOTO 4 R4D platform meeting on 20 August 2014 to finish planning of R4D activities in Kayonza.

In addition to meetings, smaller delegations of the R4D platform – often including members of the facilitation team and their colleagues from RAB or CGIAR centres – followed up activities that were jointly agreed upon by the platform. This included, amongst other things, visiting Field Sites, developing proposals and protocols, and assisting with the implementation or monitoring of R4D activities in collaboration with IP members.

BOX 5 Humidtropics platform reflection meetings

In January 2015, Humidtropics platform reflection workshops were organised with the R4D platform and the Kadahenda IP to facilitate platform members' reflection on the process and achievements so far. The workshop built on the theory of change – the impact pathway – as explicated in the Humidtropics philosophy (humidtropics.cgiar.org/impact-pathway/), which indicates required aspects in relation to process, content and outcomes. Moreover, it built on the priority constraints of stakeholder groups and sites as identified during RAAIS (Schut and Hinnou, 2014). The workshop included a questionnaire, visual group and subgroup exercises and discussions (Lamers et al., 2015) (Photo 5).

PHOTO 5 Humidtropics platform reflection meeting with IP 9 January 2015.

Examination of the priority activities as ranked by R4D platform members during the Humidtropics platform reflection workshops (Figure 3) shows that 'planning research activities,' 'attending platform meetings,' and 'identifying needs, challenges, opportunities, etc. of stakeholders' scored highest. Moreover, from the overview of meetings in Box 6, it seems that the R4D platform often meets in response to an external need or request. That is, the facilitator or an external person calls for a meeting and asks the R4D platform to assist in, or give advice on, something. This was confirmed by interviewees involved in the R4D platform.

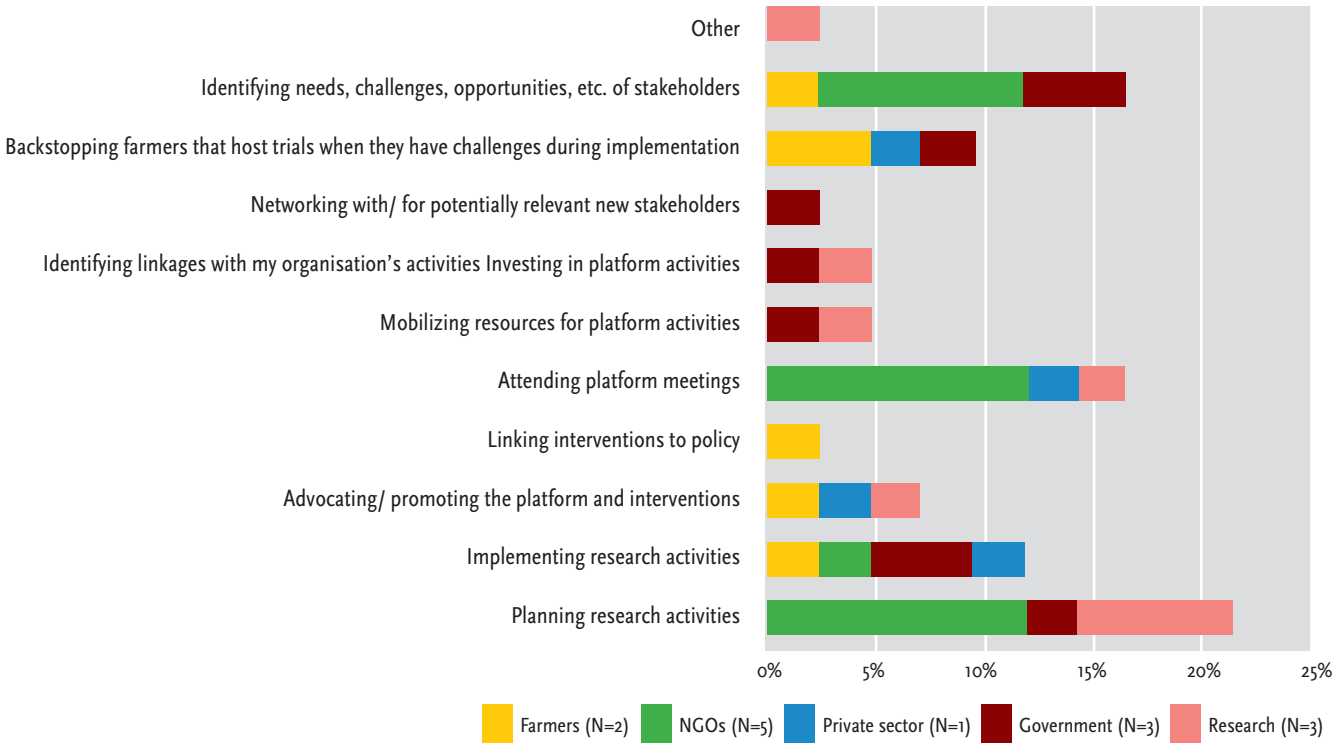

FIGURE 3 Top 3 priority activities of R4D platform members as ranked by stakeholder group.Results derived from questionnaire completed by R4D platform members during Humidtropics platform reflection meeting January 2015.

BOX 6 Overview of R4D platform meetings in Rwanda

28 April 2014

Launch meeting: R4D platform meets for the first time. Humidtropics and what has been done in Rwanda is explained, a leadership committee is formed, a short-term action plan for creation of an IP is developed and a committee is selected to write a proposal for activities in Kadahenda (platform-led innovation fund).

17 July 2014

R4D platform is updated about what has happened under Humidtropics on different levels since 28 April (at Field Site level in Rwanda, by some R4D platform members, at ECA Flagship level), and members comment on this. The platform is informed that CIALCA will continue funding R4D activities under Humidtropics and will work in the Eastern Lowlands in Kayonza.

31 July 2014

The concept proposal for activities in Kadahenda and the report of the field visit to Kayonza are shared, and R4D platform members comment thereon. Proposed CIALCA activities are shared with the platform, and members are asked to validate and prioritise them, appoint lead persons/institutions and detail those activities that require experimentation in the field.

20 August 2014

The R4D platform meets again to finalise planning and proposals for activities in Kayonza.

18 September 2014
A consultant hired to do a baseline study for Humidtropics (situation analysis) attends the R4D platform meeting and discusses his plans with the platform members.

23 September 2014
The national facilitator presents progress and challenges of Humidtropics Rwanda with visitors from Uganda and Burundi. Then the members discuss the infeasibility of managing an IP in Kayonza with four Entry Points. Since managing four IPs would be too much, members agree that they want one IP, ideally based on banana systems and otherwise maize-soybean. Other activities can continue as ordinary research or upscaling activities.

5 November 2014
The national facilitator updates R4D platform about past (field) activities, plans for the coming weeks and the M&E person appointed. The M&E person explains her plans, and the platform members discuss the work plan for 2015. This includes activities targeting the program's objectives, options for raising interest and strengthening the IPs, the R4D platform and their collaboration, as well as tackling some budgetary constraints that limit the functioning of R4D platform members. Finally, a checklist to be used for the situation analysis is presented and discussed.

17 November 2014
In groups relating to 'system productivity and NRM,' 'nutrition,' 'gender' and 'market,' R4D platform members work on the work plan and budget for Humidtropics' activities in Kadahenda. They discuss and complete templates provided.

12 January 2015
R4D platform reflection meeting using a protocol that builds on the March 2014 RAAIS workshops, the platform reflects on its functioning and achievements of the last year.

12-13 February 2015
Workshop for RAB research team about systems approach and to work on research protocols, conceptual framework, researchable issues, ways to improve productivity.

27 February 2015
R4D platform meeting to discuss plans for proposal for extended platform-led innovation funding; meeting covers group work and plenary presentations and discussions. Taking the R4D platform's ideas into account, a small group later on finishes a one-page proposal.

23-24 March 2015
R4D platform subgroup meeting (with international Humidtropics staff) to work on full proposal for extended platform-led innovation funding as agreed in R4D platform meeting of 27 February.

10 April 2015
RAB staff finishes proposal and results-based management framework.

18-19 May 2015
RAB/R4DP subgroup elaborates on M&E report of first quarter of Humidtropics activities.

"Before, we used to be together, have meetings maybe for planning or reviewing what is happening. But nowadays that is not happening. It is like R4D platform meetings happen because there is a special event (...) It is like the person to propose is outside the R4D platform."

RAB member of facilitation team (14 May 2015)

During the first phase of R4D activities in Rwanda, the level of enthusiasm and the number of participants in the R4D platform were high, but over time both enthusiasm and numbers seemed to diminish. Interviews with the facilitation team revealed that R4D platform members had high expectations at the start that were not, or not completely, met. That is, they might have expected a very clear and active role in the program, shared funding that benefited them to assist in implementation, or Humidtropics being a big project that would quickly reach many farmers and generate a lot of impact. Some interviewees also mentioned that R4D partners had complained that Humidtropics was all about meetings and that they did not do anything. This brought them to conclude that the only way to make partners stay was by giving them concrete tasks and that there was a need to balance the focus on meetings versus implementation. In line with these speculations, the Humidtropics platform reflection meeting (Photo 6) revealed that about a third of R4D platform members considered financial resources among the main constraints of the platform, next to limited participation/involvement of members and poor communication (Lamers et al., 2015).

PHOTO 6 R4D platform reflection meeting 12 January 2015.

Nonetheless, during the same platform reflection meeting, R4D members pointed out ways in which the platform was benefiting them. For example, for some, the work done was relevant and helped them to achieve some of their own or organisational goals or tackle some of their challenges. Furthermore, they appreciated the mutual sharing of experiences and knowledge, the networking and the new partnerships facilitated by it. Overall, when asked to rank their level of satisfaction with the platform, 14% of participants indicated that they were slightly satisfied, 64% moderately satisfied and 21% very satisfied (Lamers et al., 2015).

Problem solving and growing confidence in Kadahenda

In the three months following the Kadahenda IP launch meeting on 30 May 2014, there were no official IP meetings organised. The main reason was the lack of available funding. Nevertheless, according to the IP chairperson, he continued to contact new farmers to sensitise them about the IP and try to bring them on board. The national facilitator mentioned that in this period he maintained contact with the IP

chairperson, but mainly through informal talks when he went to the field to work on other programs. He also explained that, in this early phase of establishing the Kadahenda IP, he and the rest of the facilitation team were not yet sure how best to organise the IP process. Besides talking about concrete R4D activities on which to focus, the team also paid attention to more general reflection and feedback with the IP about their challenges, results of other programs and what could be useful Entry Points.

On the basis of these inputs – and those from RAAIS – a small group of researchers developed a concept for R4D activities in Kadahenda. This was presented to, and validated by, the R4D platform, and later submitted and funded.

On 27 August 2014, the second official IP meeting was organised to recap the platform concept and its benefits, talk about what had been done so far to prepare planting and discuss the next steps to be taken for Irish potato seed multiplication trials (Photo 7). They discussed the general action plan prepared for this activity, varieties to be planted and the need to identify farmers that could host the fields. Plans for other research activities would follow later. After the meeting, the IP members agreed to meet again in the absence of R4D platform members to continue talking about roles, responsibilities and benefits for all involved in the activities.

PHOTO 7 Potato field in Kadahenda.

From this moment onwards, the intensity of activities in Kadahenda increased; that is, in terms both of IP meetings and of field activities, which were implemented starting in November 2014 (Box 7). After some time, the IP members even started to meet monthly – in the absence of the national facilitator and other R4D platform members – and discuss progress and next steps to be taken. Also, they started meeting whenever they felt there were problems that needed to be discussed as a group. In such cases, the chairperson would inform all those concerned (sometimes including staff from RAB or the CGIAR centres) and call for a meeting.

BOX 7 Overview of R4D events under Humidtropics in Kadahenda

30 May 2014

Launch IP. First meeting of IP: Humidtropics, IP and role of IP members are explained, participants commit to becoming IP members, select leadership committee and discuss benefits and contributions of each stakeholder group. Potato is accepted as Entry Point and seed availability as common challenge to be tackled.

June-August 2014

No meetings with national level actors. At local level however, word about the IP is spread and more farmers are brought on board.

27 August 2014

IP meeting with many farmers and some other stakeholders. Benefits of IP are repeated and seasonal planting is discussed, including activities already undertaken to prepare planting and planned activities (e.g. seed multiplication trials and tree planting). IP decides to meet again without R4D platform members to discuss roles, responsibilities, benefits and so forth for multipliers and other farmers around. RAB promises to communicate conditions for multiplication fields and information on banned/accepted inputs.

16 October 2014

Researchers visit Kadahenda to verify suitability of fields proposed for multiplication trials. All fields have required conditions and are maintained.

20 October 2014

IP meeting to discuss with Humidtropics team preparation challenges for the first season and how different IP members and the project will contribute to realising planned activities (including Irish potato seed multiplication, variety screening, comparing local *vs* improved variety and rotation).

10 November 2014

Meeting between IP committee and facilitation team about availability of fertilisers for seed multiplication fields. Decided that for now farmers will search for, and buy, fertiliser themselves and the project will reimburse them later.

13-14 November 2014

First round of planting for Irish potato seed multiplication fields. Planting could only proceed with three farmers as not all farmers had been able to secure funds to buy fertiliser.

17-21 November 2014

Second round of planting for Irish potato seed multiplication fields. Initially, some farmers still had not purchased fertiliser, but as planting progressed they started buying, allowing planting to be finished. Farmers were asked to follow up their fields and contact the technical team in the event of challenges.

28 November 2014

Meeting between facilitation team members and 21 farmers to discuss how planting had gone and fertiliser payment.

4-6 December 2014

R4D platform subcommittee of researchers from RAB, ICRAF and facilitation team members visits Kadahenda to monitor potato seed multiplication fields and discuss post-harvest handling and next season's activities. Subsequently, experiments are established: 'Rotational effect of climbing bean and maize on potato growth and yield' and 'Interaction of improved Irish potato varieties and mineral fertiliser.'

18 December 2014
IP subcommittee meeting between RAB staff and IP committee.

27 December 2014-5 January 2015 and 7-9 January 2015
Data collection on experiments.

9 January 2015
IP reflection meeting, using a protocol that builds on the March 2014 RAAIS workshops. The platform reflects on its functioning and achievements in the last year.

29 January-5 February 2015
Data collection on experiments.

10-17 February 2015
Spraying of potato fields.

11 February 2015
IP meeting to discuss progress of activities, challenges and possible solutions and develop a work plan. IP decides to conduct training on potato disease management and organise an excursion focused on potato seed storage and management. Executive Secretary of Karago Sector commits to provide the sector office as free meeting room for IP from now on.

16-20 February 2015
Training on potato disease management and potato seed storage and management. Trainers come from RAB, and 25 farmers attend.

24 February 2015
IP meeting to discuss farmer training and decide on potato seeds storage. IP opens and closes its meeting with an agriculture-oriented song.

27 February 2015
IP committee and local RAB staff meet with Executive Secretary of Karago Sector. Sector will temporarily provide storage house for free and farmers will rehabilitate it before storing their seeds.

3 March 2015
IP member and manager of SACCO bank – accompanied by RAB staff – visits storage facility and starts developing a proposal for the IP to build its own storage house.

9-13 March 2015
Potato harvesting.

13-19 April 2015
Second round of potato planting.

1-10 May 2015

Data collection on potato germination.

11 May 2015

IP meeting attended by visitors from R4D platform and IITA. IP members representing local government, SACCO bank and farmers (IP president) share their experiences and happiness with the platform and its achievements/successes. The IP president also presents challenges faced and where they want to go. Finally, IP members are asked to write down ideas for nutrition activities to be started with the platform.

Slowly but surely, IP members in Kadahenda seemed to start gaining faith in the platform. They started connecting the IP to their other work and investing in its success. For example, the local authorities tried to incorporate the platform's activities in the performance contracts that they sign with their superiors and, from late February onwards, they started providing a meeting room – free of charge – whenever the IP asked for it. As regards farmers, they increasingly started functioning as a group. According to the IP chairperson, those living close assisted one another during planting and harvesting, and whenever farmers faced problems relating to activities or found potential solutions, they shared these with the whole group. In addition, new farmers who joined the platform were helped out by those more familiar with the IP and its activities. In the Humidtropics platform reflection meetings, all stakeholder groups involved in the IP mentioned the advantage of working together or in networks as being among the key opportunities of the platform (Lamers et al., 2015). Four out of five groups even explicitly mentioned the multi-stakeholder character of the IP as important success factor (Lamers et al., 2015). Nevertheless, despite growing confidence, challenges kept emerging along the way, demanding even more collaboration and problem solving by the members.

I think the driver of success is the willingness of partners to work on this or that. We as researchers, we may be interested in soybean systems, but also work on banana because farmers are interested in that. We can diversify, there is no problem. As long as everyone is interested and happy, things will move.'

RAB member of facilitation team (14 May 2015)

A first challenge for the Kadahenda IP had to do with the availability of inputs (fertiliser and pesticides) for the potato seed multiplication trials. Initially, the facilitation team had promised that the program would provide seeds, fertiliser and pesticides to farmers, but once it was time to plant and RAB tried to get the fertiliser and pesticides

from the dealer, the dealer refused to provide them as RAB did not have the money ready at that moment. The problem was put up for discussion with the IP, and it was decided that the farmers involved in the multiplication trials would take responsibility as they did not want to jeopardise their yields. They would seek out and pay for the inputs themselves, and the project would reimburse them later on. As not all farmers could secure funding, two rounds of planting were required for the seed multiplication trials. Despite farmers' complaints about the delay in planting, the trials were a success (Photo 8). When it became clear that the program would not reimburse the farmers as promised, the IP had already generated enough enthusiasm, active participation and trust among farmers that these decided to accept this setback. For them, receiving the quality seeds had been their most important gain.

PHOTO 8 IP farmer showing potato yield.

Some other challenges relate to potato seed storage. Initially, the farmers wanted to manage harvests individually as they wanted to sell some of their produce to recover expenditures and keep the rest in their respective houses to sell later on. In contrast, researchers preferred to manage part of the harvests collectively, as this would facilitate quality control through properly managing storage conditions and increasing the likelihood that seeds would still be there at the start of the next planting season. Finally, the researchers managed to convince the farmers, but unfortunately there was no proper storage facility in the region. After discussing this issue in the IP, the local authorities decided to step in and temporarily provide a house that could be used for storage – free of charge (Photo 9). However, as the house was not completely suitable for potato seed storage, the farmers decided to group themselves and jointly tackle the final part of the problem. Each of them contributed 8,000Rwf ($11.6), and together they rehabilitated the storage house. During the first season, farmers were still hesitant to store their complete yield in the collective storage house – instead they hid part of their yields as it was a new thing that still had to prove its value. Consequently, the yield declared by farmers involved in the multiplication trials was only 32% of the yield from experimental plots growing the same variety.

PHOTO 9 IP members walk back from a visit to their fields and collective potato seed storage house May 2015.

In addition to local authorities and farmers, a financial institution – SACCO bank – started to become increasingly involved in the IP's activities (Photo 10). More than before, farmers opened accounts at SACCO and some even took out loans, for example to finance the inputs for the multiplication trials. Also, the IP opened a group account and agreed with SACCO that if they took a group loan they could refund this after harvesting. This turned out to be an innovative arrangement that was very convenient for the farmers as this is when they have a cash income. The reason why the IP considered taking a

PHOTO 10 IP meeting 11 May 2015, IP/R4D platform member visualises diversity of stakeholders in Kadahenda IP.

group loan again related to the challenge of the lack of a sectoral seed storage facility. The house provided by the government was temporary, and therefore farmers were thinking of building a seed storage depot of their own. SACCO responded to this idea by visiting the temporary storage house and developing a proposal for the platform to build a similar storage facility for 10,000,000Rwf ($14,500). Having verified this proposal, the IP submitted it for a subsidy from DBF, a financial institution that is a partner of SACCO bank and promotes small and medium-sized enterprises by providing financial services. DBF agreed to provide 2,500,000Rwf ($3,600) as a grant to the IP. In addition, SACCO could provide 2,000,000Rwf ($2,900) as a group loan to the IP, and the rest of the required resources would be provided in kind by the IP itself.

Inspired by their financial collaboration to rehabilitate the potato seed storage facility and potentially build a storage facility of their own, the IP farmers decided to group again – this time in response to their challenge to access manure. The farmers decided to set up a system among themselves in which each farmer IP member would pay 1,000Rwf monthly and the group would buy a sheep to be given to one of the members. Each month, another member would receive a sheep and, once the sheep gave birth, the first-born would be given to another IP member.

Successful research but little process in Kayonza

In Kayonza, the local IP met again one week after its launch on 21 August 2014. Since by that time field activities had already been formulated by the R4D platform and presented to the IP during its launch, this second IP meeting on 28 August 2014 mainly involved farmers who had been selected to host field activities. The farmers were enthusiastic and together with the researchers they grouped around the three main activities to be implemented. This grouping simultaneously represented a geographical separation as farmers in the different sectors in Kayonza were growing different priority crops. Each group discussed the protocols, and the farmers discussed their current practices and popular local varieties to be included in the experiments as controls. Interviews with the facilitation team revealed that by this time the R4D protocols were already generally set and farmers could not really make changes. Nevertheless, protocols were adjusted based on practicalities like limited land that farmers had available for the experiments.

"First I thought they were coming mainly to take over the field and that I might not get the yield. (...) But when a leader asks you to give your land, you do not say no. Later I realised that I could keep all the yield."

IP farmer from Nyamirama Sector (13 May 2015)
about her first impression when she was asked to participate

After this farmer IP meeting, the number of farmers that could host a trial was still insufficient. Hence, IP members were asked to contact additional farmers to host experiments in the current planting season. Planting of trials started halfway through September 2014 (Photo 11). Box 8 provides an overview of R4D events in Kayonza.

PHOTO 11 Planting of maize-soybean field in Mwili Sector 18 September 2014

BOX 8 Overview of R4D events under Humidtropics in Kayonza

21 August 2014
IP launch during which Humidtropics program and IP are explained, leadership committee is chosen and planned field activities are presented to the IP.

28 August 2014
IP meeting with mainly farmers. Three groups are formed based on the different activities to be implemented and, in these groups, farmers and lead researchers discuss the protocols for field activities.

18 September 2014
Planting maize/soybean-climbing bean system in Mwili Sector. All farmers who will host the experiment and some R4D platform members attend the establishment of the first field. Next, farmers are divided into three groups with one lead farmer each who will facilitate the establishment of the other fields under supervision of the IP president.

22 September 2014
Planting banana-legume system in Rukara Sector and Nyamirama Sector starting with a demonstration of trial establishment. In each site, five farmers will host a trial.

24 September 2014
Planting cassava-bean-soy system in Murama Sector. Demonstration of trial design is attended by 10 farmers who will host the experiment. There is a problem with diseased cassava cuttings that requires new clean cuttings to be sought in the area. These are distributed on 30 September.

7 and 8 October 2014
Data collection in, respectively, Mwiri Sector and Rukara and Nyamirama Sectors.

18-19 November 2014
Nutritious banana varieties provided by an NGO R4D platform member and planted in

Kayonza by an extension officer. On 27-28 November, local varieties bought and planted as well to compare the different bananas.

2 December 2014
Researchers visit Kayonza to check on fields and discuss with extension officers the on-farm data collection to be done in that same week. Also, it is decided that exchange visits should be organised in the second half of December.

18-19 December 2014
Extension officer collects data on soybean, bean and maize in Murama, Nyamirama, Rukara and Mwiri Sectors.

9, 13, 15 and 17 January 2015
Harvesting of bean and soybean from intercropping experiments in Murama, Nyamirama, Rukara and Mwiri Sectors, combined with data collection on bananas by extension officer.

13 January 2015
M&E focal person visits farmers in Kayonza.

21 January 2015
Participatory farmer evaluation conducted by RAB staff at harvest time in Mwiri Sector. Activity was prepared by extension officer on 19 January, documented by a media company and attended by the Executive Secretary of Nyamugari Cell (second administrative level in Rwanda).

4 February 2015
Monitoring visit in Kayonza by facilitation team and IITA lead researcher for maize-soybean intercropping. They observe that germination of cassava in Murama Sector is very poor. Some farmers have refilled their plots with local varieties, and some fields are mismanaged. The option of ending the trial and starting a new one in September 2015 is considered.

3-5 March 2015
Project staff and farmers from, respectively, Rukara, Mwiri and Nyamirama Sectors discuss plans for seasonal activities.

7 March 2015
Monitoring of trials in Kayonza by IITA lead researcher for banana-bean intercropping and technical RAB staff. They discuss data collection and management for banana and decide that maize stems in maize-soybean fields are not strong enough to support climbing beans. Rotation will be done with a different type.

9-13 March 2015
Data collection on banana in Nyamirama and Rukara.

21-26 March 2015
Planting of beans in Nyamirama (21-23 March) and Rukara (26 March) in banana-bean

intercropping trials, and bush beans in Mwiri (24-25 March) to rotate with the maize-soybean intercrop.

6 April 2015
Facilitation team visits Kayonza to monitor fields and discuss data collection plan with extension officer.

12-13 May 2015
Two-day re-launch of the IP. Humidtropics and IP are explained, farmers and researchers make a presentation about the field work, and other stakeholders make a presentation about their work and options for collaboration with the IP. Participants brainstorm about challenges, potential solutions and farmers' needs (relating to trials and the IP in general), decide to divide the current IP into three sector-based IPs and brainstorm about relevant partners to bring on board in each IP. It is decided that the work plan for each IP will be discussed at sector level.

27 May 2015
Monitoring visit by IITA lead researcher for maize-soybean intercropping, facilitation team members and extension officer. They discuss the coming seasons with farmers and data collection with the extension officer.

After planting started in September 2014, no follow-up IP meetings were organised. Instead, most interaction and feedback were naturally triggered by monitoring visits by researchers or extension officers to the trial hosts and by informal communication between farmers living close to one another or acquainted with one another. Other stakeholders who had participated in the IP launch meeting were no longer kept in the loop or actively participating.

"... the thing is we got carried away [during planning] when we saw those Entry Points which were all very good for the area and the farmers were really enthusiastic about them (...) no one really thought about the difficulties they will represent as far as the platform process goes..."

IITA staff member working on process documentation (18 November 2014)

Nevertheless, farmers mentioned that communication and collaboration had increased within their IP, despite its small size and the fact that the IP primarily consisted of farmers and to some extent researchers and extension officers monitoring the trials. Moreover, farmers had received seeds and inputs and learned new skills. Also, every time they faced a problem that they could not solve on their own, they could contact the researchers or extension officers working on the trials and these would help them solve it. By the end of the

PHOTO 12 IP farmer in Mwili Sector showing his banana field 23 June 2015

first season, the fields were looking good and farmers mentioned that their yields had gone up enormously, causing them to be happy and additional farmers wanting to join in (Photo 12).

However, despite successful field work and farmers' appreciation, the Kayonza IP itself was not functioning as an active multi-stakeholder platform driving R4D activities. The groups participating in the different experiments were scattered, and the diversity of stakeholders was limited to farmers, researchers and extension officers. Hence, the facilitation team as well as the R4D platform reflected on this situation and brainstormed about ways to improve it. This started as far back as late September 2014 when they realised the complexity of the Kayonza IP with its three stand-alone Entry Points.

On 12 and 13 May 2015, all the brainstorming was translated into action and the facilitation team – strengthened with some R4D platform members – organised a two-day re-launch meeting of the Kayonza IP (Photo 13). Farmer representatives from all sectors involved, some private sector representatives, and NGO and governmental actors participated, and the concept and benefits of the IP were repeated. Then, farmers and researchers presented their experiences and preliminary results of the trials. The floor was afterwards opened for discussion on challenges and needs of the IP members relating to the trials and how to improve the IP. In addition, the other stakeholders made presentations about their work and how they and the IP members envisioned options for future collaboration. Finally, a critical decision made during this re-launch workshop was that the initial IP would be split up into three sector level IPs to tackle their challenges of distance and diversity in focus. In each sector, a variety of stakeholders would be approached and asked to join the IP. Among themselves, these actors would again discuss the action plan for their IP.

PHOTO 13 Re-launch of Kayonza IP 12 and 13 May 2015: photos show farmer presenting about R4D activities (top), farmer explaining challenges and solutions (middle) and facilitation team member explaining IP concept (bottom).

The facilitation team

As already mentioned, the two national facilitators from RAB facilitated the multi-stakeholder process in Rwanda. Both of them were assisted in terms of note-taking, logistics and organisation, and field work by a research technician from RAB. In addition, two students with a social science background who worked for IITA each joined them for six months and worked on the documentation of the platform process. Of these people, the first national facilitator, the research technician and the first documentation person had worked before under CIALCA, meaning that they were acquainted with one another and with partners in the region. The second national facilitator had worked under FARA's (Forum for Agricultural Research in Africa) Sub-Saharan Chal-

lenge Program that tested the use of the integrated agricultural R4D approach, which includes working with multi-stakeholder platforms.

This small team of people, headed by the national facilitator, had a central role in facilitating the multi-stakeholder processes in Rwanda. Whenever there was a platform meeting, they helped to prepare, organise and facilitate this, made sure that notes were taken and that everything was documented. In addition, they assisted in following up the agreed-upon activities and liaised with the regional Humidtropics management team by complying with regular requests for information and passing on tasks for the platforms (e.g. budgets or proposals). They were involved in some lobbying and networking activities for the program and platforms, and they regularly reflected on the process and how best to continue.

As for field activities, these were initially supervised by the national facilitator and the research technician from RAB, with assistance from the lead researchers – whose physical presence was restricted by the fact that they were based in neighbouring countries – several R4D platform members and local extension officers. Nonetheless, in the first period, the research activities consumed a lot of the time of the national facilitator and his research technician. Fortunately, this became less in January/February 2015 when more researchers (on gender, nutrition and M&E) were appointed to join the field work, and other extension officers became involved. This somewhat lightened the burden for the Rwanda facilitation team.

Linkage, communication and feedback

The multi-stakeholder process implemented in Rwanda under Humidtropics operates at different levels. This makes communication and feedback between these levels essential elements for well-coordinated and meaningful collaboration and scaling of innovation. In relation to communication at IP level, differences as well as similarities can be discerned between the two IPs. In Kadahenda, the IP consists of different stakeholder groups (with farmers being the biggest group) who meet every month to discuss progress, challenges and next steps to be taken. Moreover, additional subgroup meetings are held every time there is a need for those concerned to discuss their issues. In this way, IP members make sure that everybody remains updated and that issues are discussed in a timely manner. In addition to IP meetings, information from individual members – to, for example, the rest of the IP or the researchers or extension officers working on the experiment – is often communicated through the IP chairperson by means of phone calls or face-to-face interaction. For

PHOTO 14 Researcher and facilitation team members visit field in Kayonza and talk to farmers, extension officers and technician 27 May 2015

instance, when farmers have a problem which they cannot solve on their own, they often first call the chairperson, who in turn contacts RAB if necessary.

Likewise, farmers involved in R4D activities in Kayonza interact with their close colleagues, as well as contacting the extension officers or RAB either directly or indirectly through their farmer leader if they have problems that they cannot solve on their own (Photo 14). However, in Kayonza, the IP does not meet as a platform and farmers involved in the different sectors hardly communicate.

Communication between the IPs and between the IPs and the R4D platform takes place through the facilitation team headed by the national facilitator, the researchers involved in field experiments and IP representatives invited for R4D platform meetings. Communication channels include real-life interactions, reports, presentations, monthly updates and/or protocols. In addition, in Kadahenda, the IP sometimes informs RAB about its upcoming meeting and RAB in turn informs R4D platform members, who sometimes decide to attend the IP meeting if they deem it relevant for them. Moreover, some R4D platform members are simultaneously members of the Kadahenda IP (e.g. the representative of the farmer organisation IMBARAGA).

Within the R4D platform, communication takes place mainly in meetings (Photo 15) that are often geared towards providing updates of what has happened and what needs to be done. Additional communication occurs outside the formal meetings, for example through phone calls, emails, short text messages (SMS), subgroup meetings (e.g. to follow up on action plans) or WhatsApp.

PHOTO 15 R4D platform meeting 18 June 2015

Decision-making power over research activities

Research activities implemented under Humidtropics in Rwanda differ between Kadahenda IP and Kayonza IP, but both can be traced back to the Entry Themes formulated based on the ground truthing visit conducted in October 2013 and the Entry Points identified during the RAAIS workshops in March 2014. In this way, local stakeholders in the regions where the IPs are based have been able to give their input into the field work.

Regarding Kadahenda, the relative unfamiliarity of the region to R4D platform members, combined with the facilitation team's uncertainty about how best to establish the IP and manage the platform process, seems to have given local actors more influence in

the planning of R4D activities. That is, after the ground truthing and RAAIS – but before research plans were actually articulated in detail – the IP itself was established and the Themes were again discussed, providing IP members with another chance to give their view on R4D activities. During this meeting, they clearly voiced Irish potato as their main Entry Theme and the availability of Irish potato seeds as the main challenge they wanted to tackle; this was subsequently taken to R4D platform level to develop R4D activities. In contrast, in Kayonza, CIALCA had already been active, and local stakeholders in ground truthing and RAAIS had expressed needs relating to previous CIALCA activities. This provided the R4D platform with sufficient information to proceed directly to the planning and implementation of field work. The mapping of CIALCA against Humidtropics somewhat restricted the crops that could be targeted. The IP members themselves were therefore much less involved in the process of designing R4D activities. It therefore seems that IP members in Kadahenda are likely to have had more opportunities than Kayonza IP members to influence R4D activities and exert decision-making power.

"Everyone felt that we were late in planting and that we had to go to the field. [The season was almost starting] and it is the actions in the field that will show our success. (...) This was a challenge as we were in such haste to plant that we forgot the IP process, which includes that before you do anything you have to let the members know. And also, in the haste of all that, we were operating as the R4D platform only. (...) We needed to enhance the capacities of the IP."

IITA staff member working on process documentation,
about the start of the IP in Kayonza (18 November 2014)

Nevertheless, full compliance with the preferences expressed by Kadahenda IP members still remained restricted by requirements following the Humidtropics approach and objective, which target sustainable intensification of the whole farming system. Hence, R4D activities had to be formulated as an integrated set of activities that contribute to improving potato production while being linked to other activities like crop rotation, agro-forestry, livestock, nutrition, gender, soil fertility management and markets. Also, for both platforms, some requests (e.g. to work on water management) could simply not be granted because of lack of expertise or funding to work on this.

After the activities were decided upon, the lead researchers and the R4D platform developed the final protocols and budgets for both Kayonza and Kadahenda. In turn, the IP members – especially farmers –

added information about farmers' practices and preferred varieties to be included in the trials as controls.

Regarding the R4D platform's decision-making power, the national facilitator explained that this platform functions as a planning and coordination body that should give direction to R4D activities. Likewise, R4D platform members themselves portrayed a similar activity-driving and deciding role for their platform in a questionnaire completed during the Humidtropics platform reflection meetings. For example, using different wording, many mentioned things like identifying or planning for solutions/innovations targeting a greater good (e.g. social well-being, agricultural development or increasing farmers' production) (Lamers et al., 2015). Nevertheless, the extent to which the R4D platform actually utilises this decision-making power can be questioned. According to one interviewee from the facilitation team, R4D platform members generally go along with what is proposed. They make their comments and propose small changes, but still it seems that their level of engagement and guidance is limited to complying with the tasks given rather than challenging ideas that are proposed or searching for creative solutions to push R4D activities in a way that matches their own interest. In addition, given that proposals and planning for R4D activities are often prepared by smaller subgroups of R4D platform members – sometimes in collaboration with Humidtropics staff with a regional function – the actual decision-making power of the R4D platform does not yet seem to have reached full capacity.

Discussion and lessons learned

Comparison of the two IPs in Rwanda reveals that the one in Kadahenda is more advanced in terms of self-reliance, diversity of stakeholders, generating enthusiasm among its members and being linked to other initiatives. However, the initiation processes of the two IPs were quite different.

According to some key actors, a critical difference is that, in Kadahenda, the platform was created around one single Entry Theme (Irish potato) that interested all those involved and managed to create a common focus, goal and motivation to make the platform work. In contrast, in Kayonza there were four different Entry Themes, which were not linked and even geographically spread as hosting farmers were living in different sectors in Kayonza, triggering isolation rather than unity in the platform.
Moreover, in terms of speed and platform process, there had been more interaction in Kadahenda than in Kayonza between the platform and Humidtropics staff as well as among platform members them-

selves before activities started in the field. That is, in Kadahenda, the IP was established and requested to give its ideas about the focus of R4D activities before these were formulated in detail by the researchers. This created more space for IP members to lead and steer the process of developing research plans. Also, IP members themselves met again before the actual start of field work to discuss division of roles and how they would contribute to, and benefit from, the platform. Later on, they continued to do so, expending both time and effort on concrete field activities as well as on strengthening collaboration and the platform process. The IP itself became an asset. In contrast, in Kayonza, the platform launch practically coincided with the start of field activities, leaving little space and time for IP members to become familiar with the platform concept and for non-farmer partners to understand how the platform could benefit them. As a consequence, many of the non-farmer partners dropped out after the platform's launch. This left the Kayonza IP with only the farmers and researchers directly participating in the field work.

Consequently, the higher diversity of stakeholders that remained active in the Kadahenda IP strengthened the IP members' ability to solve problems among themselves. That is, the resources and assets brought in by the different members opened up options for collaboration and for tackling challenges that no one could have solved on their own. This improved the IP's self-reliance and capacity to innovate. According to one interviewee from the facilitation team, the socio-economic status of those involved in the IP might also have been a factor. Most farmers in the Kadahenda IP have more than one plot and at least one head of livestock; this suggests that they are relatively well off and that this enables them to invest in the IP.

A major success factor in both platforms has been the fruitful field activities. Farmers and even other stakeholders involved in the process, when asked about the benefits of the platform, practically always point out concrete agricultural benefits like increasing production or better access to seeds, inputs or technologies. It is these successful field activities that trigger the interest of potential new stakeholders and that confirm the benefits of the platform for those involved. In both the Kayonza and the Kadahenda IP, this has generated enthusiasm among stakeholders in and around the platform.

In relation to the R4D platform, some main lessons learned are the importance of managing expectations among members, helping them to see how the platform can benefit them as well as to understand their role in the process. Overall, members of the facilitation team mentioned that it is easier to focus on the local level than on the national level, as the former is where things become tangible.

Once success is generated at local level, it is easier to convince R4D platform members of the (scaling) potential of technological and institutional innovations.

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Interviewees

Second national facilitator of Humidtropics Rwanda (18 November 2014; 16 May 2015)
IITA researcher working on Humidtropics documentation (18 November 2014; 15 July 2015)
Male farmer leader and IP member in Kayonza (13 May 2015)
Female farmer and IP member in Kayonza (13 May 2015)
RAB research technician who works fulltime for Humidtropics (14 May 2015)
R4D platform and Kadahenda IP member representing IMBARAGA (14 May 2015)
IP president of Kadahenda (15 May 2015)
Director of SACCO bank and Kadahenda IP member (15 May 2015)
Female farmer and IP member Kadahenda (15 May 2015)
First national facilitator Humidtropics Rwanda (8 July 2015)

Other sources

Progress reports, event registration forms filled out for learning system, photos, monthly Rwanda highlights (December 2014-May 2015), participatory observation during the Humidtropics platform reflection meetings, and several R4D platform and IP meetings and informal talks with key people involved in the process.

The CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics) is an agricultural research for development program led by the International Institute of Tropical Agriculture (IITA). Humidtropics aims for sustainable intensification of agricultural systems to improve the livelihoods of farm households. An important intervention strategy in Humidtropics is the strengthening of multi-stakeholder collaboration and partnerships to achieve development impact. To facilitate that, two types of multi-stakeholder platforms have been established in Rwanda: two local level innovation platforms to foster participatory experimentation in, respectively, Kadahenda and Kayonza, and a national research for development platform to bring on board the key scaling actors. Research for development activities in Kadahenda focus on improvement of potato yield and potato seed availability, whereas in Kayonza the focus is on improvement of maize- and banana-based cropping systems.

Humidtropics, a CGIAR Research Program led by IITA, seeks to transform the lives of the rural poor in tropical America, Asia and Africa. Research organisations involved in core partnership with Humidtropics are AVRDC, Bioversity International, CIAT, CIP, FARA, icipe, ICRAF, ILRI, IITA, IWMI and WUR.

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