

TOWARDS SUSTAINABLE AGRICULTURE

An analysis of farmers' participation in agriculture programmes in Rwanda

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Layout: www.NickPurserDesign.com

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May 2018

Acknowledgements

This research was commissioned by International Alert and written by Prof. Alfred R. Bizoza, Jean Bosco Nkurukiye and Patrick Byishimo – all of High Lands Centre of Leadership for Development. The research was conducted in the latter part of 2017 but finalised between January and April 2018.

International Alert would like to thank everyone for their support in conducting the research, especially our local partner Pro-Femmes/Twese Hamwe, district and sector officials, village and cooperative leaders, and farmers. Special thanks also go to Gloria Mutoni, Betty Mutesi and all the staff of the Inclusive Engagement for Change project in Rwanda.

The research was funded by the European Union delegation to Rwanda. International Alert is grateful for the support of our strategic donors: the UK Department for International Development; the Swedish International Development Cooperation Agency; the Dutch Ministry of Foreign Affairs; the Finnish Ministry of Foreign Affairs; and the Irish Department of Foreign Affairs and Trade.

The opinions expressed in this report are solely those of International Alert and Pro-Femmes/Twese Hamwe, and do not necessarily reflect the opinions or policies of their donors.

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Abbreviations

BAPs	Best agricultural practices
CCOAIB	Conseil de Concertation des Organisations d'Appui aux Initiatives de Base
CIP	Crop Intensification Programme
EDPRS	Economic Development and Poverty Reduction Strategy
ESs	Executive Secretaries
FFS	Farmers Field School
FGD	Focus group discussion
GDP	Gross domestic product
GIZ	The German Development Agency
GoR	Government of Rwanda
IE4CP	Inclusive Engagement for Change Project
IPAR	Institute of Policy Analysis and Research
JADF	Joint Action Development Forum
KII	Key informant interviews
M&E	Monitoring and evaluation
MINAGRI	Ministry of Agriculture and Animal Resources
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MOH	Ministry of Health
NAEB	National Agricultural Export Board
NISR	National Institute of Statistics of Rwanda
PSTA	Strategic Plan for the Transformation of Agriculture in Rwanda
RAB	Rwanda Agricultural Board
RGB	Rwanda Governance Board
SEDOs	Social Economic Development Officers

EXECUTIVE SUMMARY

International Alert and Pro-Femmes/Twese Hamwe are implementing the Inclusive Engagement for Change Project (IE4CP) aimed at contributing to the promotion of sustainable agriculture and food security in Rwanda. The IE4CP endeavours to foster farmers' participation and engagement in the agriculture planning and budgeting process to ensure more ownership over agriculture development programmes. This study was conducted to assess the extent to which the process of determining which crops to grow is inclusive of the farmers who grow those crops, the level of participation of farmers in agricultural performance contracts, and the relationship between the two. A performance contract known in Kinyarwanda as *Imihigo* is one of the planning tools used at distinct levels with a special emphasis at district level. The process of setting *Imihigo* targets is meant to be participatory; however, citizen satisfaction in the planning process including *Imihigo*, district action plans and budget remains low and needs to be improved.

The study also sought to explore farmers' perceptions on the efficiency of different agricultural practices including mono-cropping and inter-cropping. The research was conducted in the IE4CP targeted districts of intervention: Bugesera (Eastern Province), Huye and Nyamagabe (Southern Province). It was carried out on 421 farmers (44.7% men and 55.3% women) using a structured survey questionnaire, 43 key informant interviews (KIIs), including with officials of both central and local administration, and 184 men and women who participated in 20 focus group discussions (FGDs).

Summary of the key findings

Existing mechanisms of farmers' participation: The study revealed mechanisms for farmers' participation in channelling their views and feedback regarding the choice of agriculture-related *Imihigo* targets under the performance contracts and in the selection of priority crops. These mainly include meetings at different administration levels, and the use of farmer promoters and Farmers Field School (FFS) facilitators, participation into *Umuganda*,¹ and other community-level meetings. Among all of them, Village Council meetings (also known as *Inteko z'Abaturage*) appear to be the best, although they take various topics at once, which limits their effectiveness as far as citizen participation is concerned.

Level of farmers' participation in agricultural performance contracts (Imihigo): Farmers' participation in the planning of agricultural *Imihigo* targets is limited to the planning of crop coverage (cultivated area, types of priority crops, seeds and fertilisers) through the NKUNGANIRE² programme, and they have limited participation in other areas of agriculture, such as erosion control, irrigation, mechanisation and agroforestry.

While *Imihigo* targets are supposed to be set at household level based on what each household wants to achieve, the study revealed that household *Imihigo* targets are mainly set for home

1 *Umuganda* is a Rwandan homegrown initiative; the word *Umuganda* would be translated as 'coming together in common purpose to achieve an outcome'.

2 NKUNGANIRE is a distribution system of agricultural inputs (seeds and fertilisers) at a subsidised price.

planning purposes, and they are not directly connected to villages', sectors' or districts' *Imihigo* targets. It was further revealed that household *Imihigo* are generally set after *Imihigo* targets have been set at district level, whereas some district targets should ideally derive from/be based on household *Imihigo* targets and not vice versa.

Level of farmers' participation in the selection of priority crops: Both local leaders and sample farmers acknowledge limited participation of farmers in selection of priority crops, which is carried out at central level based on their role in food security and enhancement of national economy and nutrition. Farmers' participation is limited to the selection of agricultural sites where priority crops are grown with some guidance by sector agronomists or farmer promoters and FFS facilitators. About 75.5% of the sample households grew prioritised crops in 2017B, and 83.5% in 2018A. However, results indicate that there are farmers who still grow crops that are not prioritised. About 24.5% and 16.5% of the sample farmers planted crops not considered as priority crops during 2017B and 2018A respectively. Farmers' deviation from priority crops is explained by a number of factors including risk-averse considerations, recurrent delays in input supply, and weather variability – extreme events. Sweet potatoes and sorghum are the crops most grown in cases of farmers' deviation from growing selected priority crops; the different reasons for this include their roles in household food security, weather tolerance and resilience, and their marketability potential due to traditional consumption behaviour. Moreover, the two crops ranked first when farmers were asked what they would grow if there were no priority crops.

Determinants of farmers' choice in selection of crops to grow: There are several factors that influence farmers' choices in selecting different crops to grow. These include:

- Land size: More than 65% of the sample farmers have less than 0.3 ha. This has implications in terms of crop selection and the entire farming system. For example, the smaller the size of land owned, the more inter-cropping is desired, compared to mono-cropping, which is more desirable for those with larger plots.
- Plot location: Main plots for the majority of households (91.5%) are located on hillsides. Farmers apply inter-cropping, crop rotation and agroforestry on hillsides rather than in marshlands. Irrigation and mechanisation, row planting and use of fertilisers are applied in marshlands rather than on hillsides.
- Access to agricultural training: Results indicate that 40.6% of the sample farmers received training on best agricultural practices, which influenced the adoption of the mono-cropping system. KIIs indicated that inter-cropping is clearly discouraged in terms of ongoing extension services, although some farmers are still practising this, especially those with small plots located on hillsides.
- Expected agricultural income: Farmers choose to cultivate crops with high income potential, which vary between the two main seasons (A&B) and districts.
- Agricultural season: In some areas, farmers do not grow maize in season B due to climatic factors. Based on season, farmers generally rotate cereals and beans between agricultural season A and B, while they generally grow vegetables during agricultural season C.
- Access to agricultural inputs and extension services: Farmers grow crops that are not prioritised in their villages in case of recurrent and/or unaddressed concerns about delays in the supply of agricultural inputs. This is partly because in these circumstances they prefer growing less demanding crops (mainly in terms of fertilisers) and also because they do not feel accountable in growing priority crops as long as they do not have agricultural inputs at a subsidised price.
- Other factors include perceived importance of food crops in terms of household food security, type and suitability of crops, market access and prices, and previous seasonal experience (for example, farmers may not grow a crop that was previously attacked by a terrible disease or pest, i.e. case of maize and Nkongwa).

Farmers' perceptions on their participation in Imihigo targeting and selection of priority crops: Information collected in the KIIs substantiate that citizen participation in annual *Imihigo* targets is still limited. Farmers perceived that the planning process should be revised to meet farmers' opinions, and they suggested that every farmer should plan for and share agricultural *Imihigo* before the beginning of the fiscal year for compilation at village level. This could be achieved through more efficient consultations of farmers, providing feedback on adopted agricultural *Imihigo* to farmers, and strengthening seasonal agricultural preparation meetings in their villages.

Challenges for farmers' participation in the planning of agricultural Imihigo and in the selection of priority crops: Key challenges that undermine farmers' participation in *Imihigo* include the fact that consultations are demanding for authorities in terms of time and financial resources. There is also a challenge rooted in the structure of the meetings in which authorities tend to make one-way speeches instead of allowing two-way exchanges with citizens. These add to limited feedback of what is considered in *Imihigo*, thus reducing the farmers' motivation for active participation.

Advantages of citizen participation: Citizen participation is very beneficial and worth investing in. Based on the findings, the main advantage is increased farmers' ownership over agriculture programmes. Moreover, farmers' involvement in the process allows government to set good and realistic plans, which are effectively implemented by farmers through collective actions. As a result, farmers' livelihoods are improved.

Recommendations

In response to the above challenges and towards inclusive planning of *Imihigo* related to agriculture and the selection of priority crops, the report makes the following recommendations for policy actions:

Farmers, farmer promoters and FFS facilitators

The planning and the implementation of agricultural *Imihigo* are constrained by some farmers who do not register in the ongoing NKUNGANIRE programme. Therefore,

- Farmers should register on time for easy implementation of agricultural *Imihigo*;
- Farmer promoters and FFS facilitators should strengthen their mobilisation processes to increase farmers' registration in the NKUNGANIRE programme.

Civil society organisations, including International Alert

- Strengthen advocacy to promote more farmers' participation in the planning of *Imihigo*;
- Support and build the capacity of farmers' organisations/cooperatives in government engagement and active participation for agriculture-related planning;
- Design programmes that empower women farmers and raise awareness on the need for them to actively participate in agriculture-related planning, *Imihigo* in particular.

Local leaders and policy-makers

- Enforce more and effective consultations of farmers in setting *Imihigo* related to agriculture and sharing feedback;
- Promote dialogue with farmers during community meetings, create an enabling environment that allows farmers to express their needs and concerns – less speeches, more dialogue;

- Encourage farmers to have *Imihigo* booklets prior to the beginning of the fiscal year, and set up a strong mechanism for compiling individual household targets that are crucial in informing district targets (i.e. crop coverage);
- Farmers' participation in agriculture *Imihigo* setting at village level needs to consider areas other than the selection of site and types of crops such as the planning of Soil and Water Conservation Measures (SWC) radical terraces, irrigation and agroforestry;
- More capacity development in planning and implementing of agriculture-related *Imihigo* both at household and village levels, with more emphasis on women empowerment;
- Considering the need to include sorghum and sweet potatoes among priority crops where appropriate as most favoured crops;
- Considering a need for state–citizen dialogue in order to address factors that lead to farmers' reluctance to grow selected crops;
- More empowerment of FFS facilitators and farmer promoters to ensure improved participation of farmers at village and cell level.

Village Council meetings

- Village Council meetings are great opportunities to enhance citizen participation but they deal with a lot of topics at once. There is a need to improve the agenda setting for the effectiveness of these meetings.

Increased engagement with private sector and civil society

- There is a need to exploit and benefit more from the existing mechanisms of engagement between government, private sector, civil society organisations and citizens, such as the Joint Action Development Forum (JADF), towards more citizen participation and integration of community needs into the overall national planning process.

1. INTRODUCTION

Over the last two decades, Rwanda has experienced a remarkable growth towards its long-term development goals as defined in the country's Vision 2020 long-term strategy. Through this strategy, the aim is to transform Rwanda from a knowledge-based economy to become a middle-income country by 2020. By 2018, the country has committed to raise the gross domestic product (GDP) per capita to \$1,240; to have less than 30% of the population below the poverty line; and to have less than 10% of the population living in extreme poverty.³

The Ministry of Agriculture and Animal Resources (MINAGRI), through its third phase of the Strategic Plan for the Transformation of Agriculture in Rwanda (PSTA 3), indicated that the agriculture sector was expected to contribute significantly to the country's growth targets by 2018.⁴ The growth of the agriculture sector is estimated at 4%, with 31% of the sector's contribution to the national GDP in 2015,⁵ and it contributed 1.6 percentage points to the overall GDP growth in FY 2014–15.⁶ This is partly explained by the fact that about a quarter of the population earns their income from farm wages and increased productivity under the ongoing Crop Intensification Programme (CIP).⁷ Production increase has, so far, had positive effects on both the sector growth and people's livelihoods following the prioritisation of food crops such as maize, Irish potato, cassava, wheat, rice, soybean and beans.⁸ The productivity of these crops has increased considerably, for example national production of maize has increased from 101,659 t in 2007 to 667,834 t in 2013.⁹

Despite the above achievements, statistics from the 2013/14 Integrated Household Living Conditions Survey (EICV4) show that 39.1% of Rwandans still live in poverty and 16.3% in extreme poverty.¹⁰ Therefore, the structural transformation of the economy is happening at a slower pace meaning the majority of the population continues to rely on subsistence agriculture. Consequently, food and nutrition security remain critical for the country's development, especially for households headed by women,¹¹ in order to address the high stunting level, which is currently estimated at 38%.¹² Going forward, given the development challenges and significant role agriculture continues to play in Rwanda's economy, addressing food insecurity and malnutrition through coordinated nutrition and agriculture interventions will be critical to Rwanda's ability to sustain growth and reduce poverty. This is also consistent with the 2015 World Bank report stipulating that agriculture and extensive social protection systems are critical in reducing poverty.¹³ It is in this regard that Rwanda has considered food and nutrition security as foundational in the ongoing national planning process including the new National Strategy for Transformation

3 Ministry of Finance and Economic Planning (MINECOFIN), Vision 2020, Ministry of Finance and Economic Planning, Kigali, Rwanda, 2000; MINECOFIN, Economic Development and Poverty Reduction Strategy II (2013–2018), Kigali, Rwanda, 2013

4 MINAGRI, Strategic Plan for the Transformation of Agriculture in Rwanda: Phase III (PSTA 3) 2013–2017, Kigali, Rwanda, 2013

5 National Institute of Statistics of Rwanda (NISR), Gross Domestic Product – 2015 Q1, Kigali, Rwanda, 2015a

6 MINAGRI, Annual Report FY 2014–2015, Kigali, Rwanda, 2016

7 MINECOFIN, Op. cit., 2013; MINAGRI, Op. cit., 2013; NISR, Seasonal Agricultural Survey (SAS) 2015 Season B, NISR: Kigali, Rwanda, 2015b

8 MINAGRI, National Agricultural Policy, draft, Kigali, Rwanda, 2004; A. Kathiersan, Farm Land Use Consolidation in Rwanda: Assessment from perspectives of Agriculture Sector, MINAGRI: Kigali, Rwanda, 2012

9 Rwanda Agricultural Board (RAB), Annual Report FY 2015–2016, Kigali, Rwanda, 2017

10 NISR, EICV4 – Main Indicator Report, NISR: Kigali, Rwanda, 2015c

11 NISR, Comprehensive Food Security and Vulnerability Analysis, NISR: Kigali, Rwanda, 2015d

12 NISR, Rwanda Demographic and Health Survey (DHS) 2014/15, NISR: Kigali, Rwanda, 2015e

13 World Bank, Rwanda Economic: Managing Uncertainty for Growth and Poverty Reduction with a Special Focus on Agricultural Sector Risk Assessment, Washington DC, USA: The World Bank, 2015

(the Economic Development and Poverty Reduction Strategy, known as EDPRS), the upgrade of Vision 2020 to Vision 2050, and subsequent Sector Strategic Plans to start in 2018. Specific to food security, the country had already initiated the Joint Action Plan to Eliminate Malnutrition; the District Plan to Eliminate Malnutrition; the CIP; and other projects aimed at improving the country's nutritional status with a focus on women and children under five.

In the overall process of development, the government recognises the crucial role of the civil society organisations in implementing various national policies and strategies where they contribute to the planning process through sector working groups, technical working groups and joint sector reviews, among other forums. Similarly, the government recognises the role of citizens in the planning and budgeting of various development interventions, although this remains limited, leading to low citizen satisfaction in government services.¹⁴ There is evidence of low satisfaction by citizens in agriculture-related services, at a level of 48.4%. This is specific to participation in the preparation of performance contracts and budget planning at district level. Although this has improved compared to the fiscal year of 2014–15, the levels of citizen satisfaction at their involvement are still low, estimated at 39.8% and 21.8%, respectively.¹⁵ In addition, a 2017 study by the Institute of Policy Analysis and Research (IPAR) indicates that “participation in decision making is poor at the level of the policy design, especially in agriculture where policies are designed at the national level, and rarely informed by farmers’ priorities”.¹⁶

That said, little is known about the effectiveness of the existing mechanisms of farmers’ participation both in the preparation of performance contracts, especially those related to agriculture, and in the decision-making about what crop to plant in their respective communities in line with the crop regionalisation policy. Part of what this research sought to examine was, for example, whether existing mechanisms for farmers’ participation have been effective in channelling their views and feedback with regard to the choice of agriculture-related *Imihigo* targets under the performance contracts, and in the selection of priority crops to cultivate in their respective communities. The research also sought to establish the key determinants or factors explaining farmers’ choices regarding crops to grow and farming practices in their respective geographical areas. And last but not least, how farmers’ participation can be enhanced in both *Imihigo* and the selection of priority crops processes, to ensure a more inclusive and sustainable agriculture development in Rwanda.

14 Rwanda Governance Board (RGB), Final Report Rwanda Citizens Report Card 2016, Kigali, Rwanda, 2016

15 Ibid.

16 IPAR, Evaluation of the Seven Years Government Program (7YGP), IPAR: Kigali, Rwanda, 2017

2. OVERVIEW OF *IMIHIGO* PLANNING AND THE SELECTION OF PRIORITY CROPS IN RWANDA

Rwanda has introduced a number of homegrown initiatives that provide mechanisms to ensure citizen participation in various aspects as well as inclusive growth. These include *Umuganda* (community work), *Umugoroba w'Ababyeyi* (Parents' Evening Forum), *Inteko z'Abaturage* (Village Councils), *Inama y'Igihugu y'Umushyikirano* (National Dialogue)¹⁷ and *Imihigo* (performance contracts).¹⁸ In the process of identifying *Imihigo* targets, priority areas are supposed to be selected from the grassroots to the national level. In this process, feedback from the central level to the community is also expected to ensure that citizens are aware of what *Imihigo* targets have been selected and those not considered among their proposals.

Imihigo carried out by local government authorities include agriculture and related extension services.¹⁹ In the reference made to 2016–17 *Imihigo*, some of the agriculture-related activities include coverage and production of prioritised crops on land use consolidation, soil erosion control, terraces development, use of agricultural inputs, one cow per poor family (*Girinka* programme), animal vaccination and genetic improvement, and milk collection.²⁰

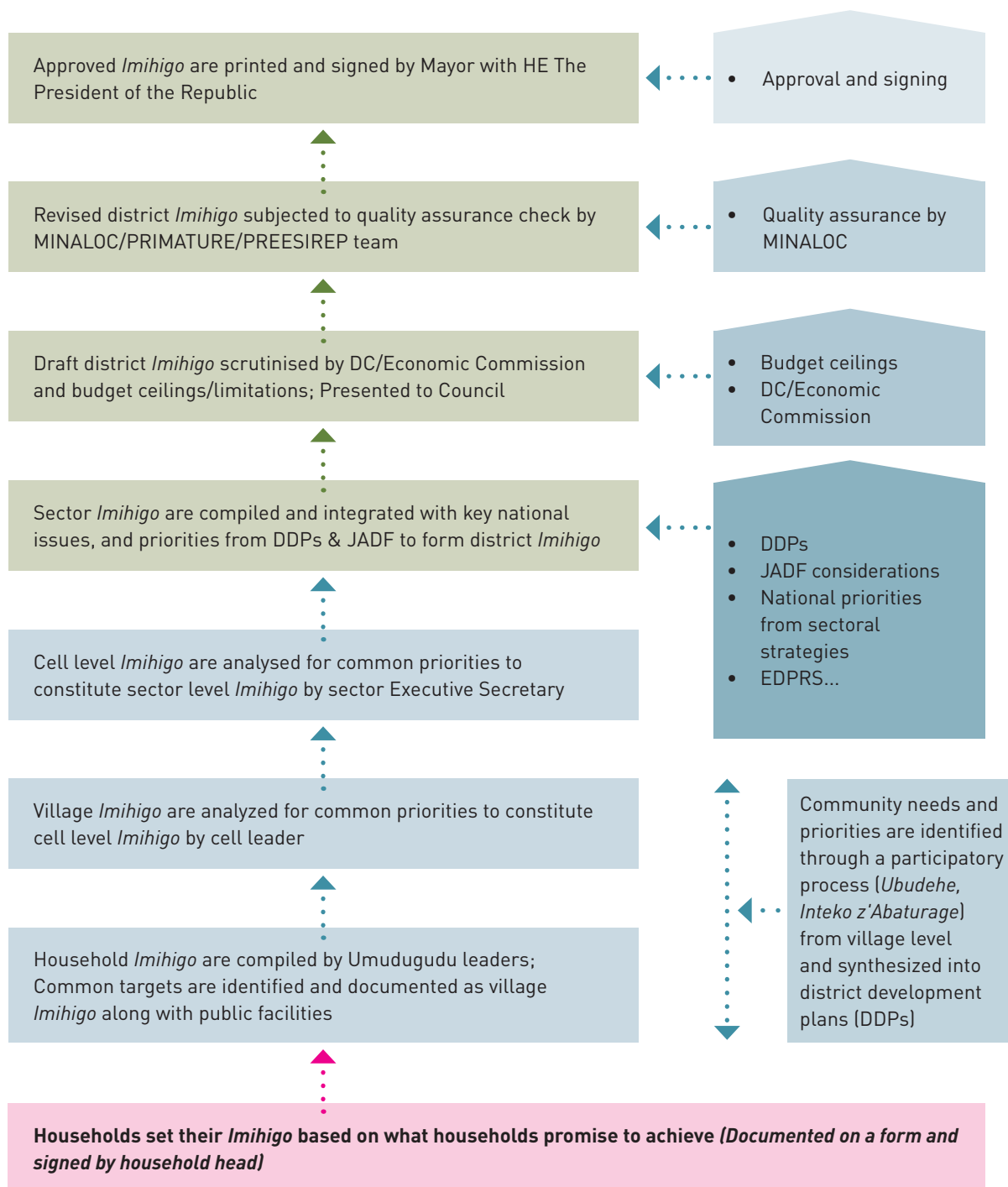
Figure 1 provides a model used for *Imihigo* planning and shows how the system should enable information to be fed upwards through the levels of decentralised government (household, village, cell, sector, district, province, national levels). The analysis was made referring to *Imihigo* planning and evaluation to better understand the extent to which the existing mechanisms enable farmers to participate in the planning process, with a focus on agriculture-related *Imihigo* and on the process of crop selection in the study areas. This study follows the current *Imihigo* planning process to identify the existing links with the current mechanisms of citizen participation.

17 Rwandan Constitution, Section 140

18 Performance contracts whereby mayors of districts sign the 'performance contracts' with His Excellence President of the Republic of Rwanda as introduced in 2006.

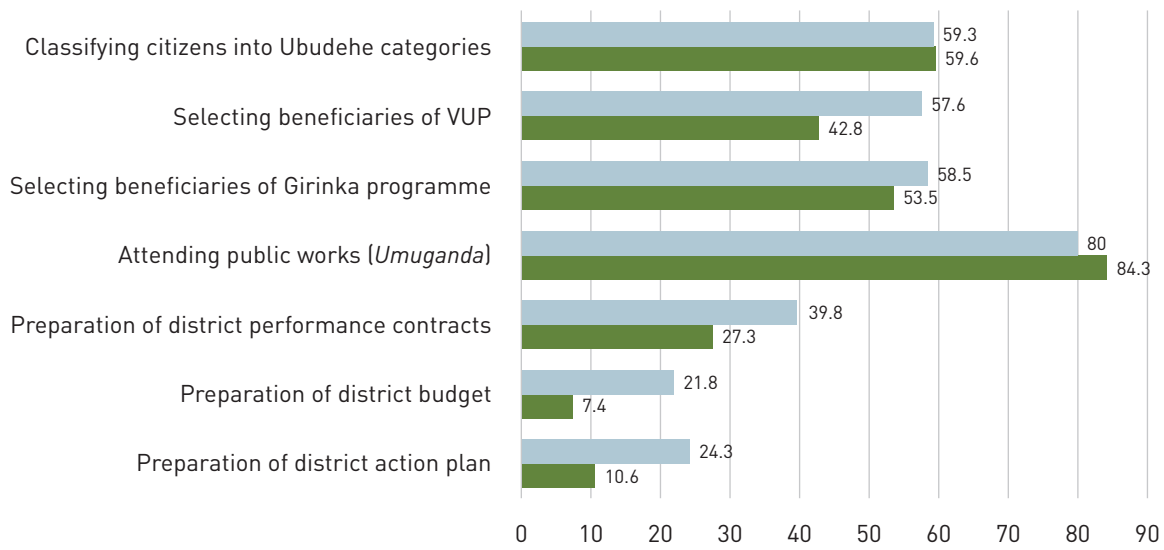
19 Conseil de Concertation des Organisations d'Appui aux Initiatives de Base (CCOAIB, Establish a Baseline of Monitoring Indicators on National Agricultural Extension Strategy (NAES) in Rwanda, Kigali, Rwanda, 2014

20 Government of Rwanda (GoR), Concept paper on *Imihigo* Planning and Evaluation, Kigali, February 2010

Figure 1. Imihigo: A Bottom-up Planning and Performance Management FrameworkSource: Ministry of Local Government (MINALOC) (2014)²¹

The process of setting *Imihigo* targets is meant to be participatory (Figure 1). Nevertheless, citizen satisfaction in the planning process including *Imihigo*, district action plans and budget is still low as shown in Figure 2.

21 MINALOC, Role of Decentralization in Fighting Malnutrition, MINALOC: Kigali, Rwanda, 2014

Figure 2. Levels of citizen participation in the planning process at district levelSource: Adapted from RGB (2016)²²

3. RESEARCH METHODOLOGY

3.1. Conceptual framework

The argument in favour of citizen participation frequently focuses on the benefits of the process itself.²³ Accordingly, participation is considered as a process to enhance social transformation and intended to produce better decisions. This results in better efficiency and is beneficial to the rest of society. Therefore, the notion of citizen participation brings two tiers of benefits: benefits of the process and benefits of the outcomes; and two categories of beneficiaries, namely the government and citizens. It is, therefore, important first to bring out the expected benefits of participation. In this context of social inclusion and mutual accountability, the benefits to promote will depend on the position of the source of interventions. For example, in the planning process, the government is very interested to see that plans are done well and are relevant to the needs of the citizen.

In the case of Rwanda, as already noted, citizen participation has received due attention in the long-term strategic planning of Rwanda known as Vision 2020. It is well highlighted in this vision that “participation at grassroots level will continue to be promoted through the decentralisation process, whereby local communities are empowered through their involvement in the decision-making process, enabling them to address the issues that considerably affect them”.²⁴ This is stressed further in the mid-term strategy namely the Economic Development and Poverty Reduction (EDPRS II) that “Citizen Participation in decentralisation includes consulting and listening to local people and being open to local innovation. It is also about letting citizens participate directly in decision-making at their local level”.²⁵

There is limited literature on the issue of citizen participation in the agriculture sector in Rwanda. A 2017 study by IPAR focused on the assessment of existing citizen participation mechanisms in the agriculture and social protection sectors. The study used existing secondary data complemented with some consultations at district and community level. In contrast, this study used primary data collected at household level to contribute to the understanding of how citizens participate and what are their perceived benefits from participating in decision-making in *Imihigo* planning and selection of priority crops along the overall policy planning cycle. We followed both Irvin and Stansbury²⁶ and IPAR²⁷ to draw our own analytical framework as proposed below. We started with the assumption that, once members of communities are well educated, informed and supported, their level of participation in decision-making will increase, which, in turn, will allow both sides to receive the benefits of citizen participation (citizens themselves and government or development agencies).

23 R.A. Irvin and J. Stansbury, *Citizen Participation in Decision Making: Is It Worth the effort?* *Public Administration Review*, 64(1), 2004, p.55

24 MINECOFIN, *Op. cit.*, 2000

25 MINECOFIN, *Op. cit.*, 2013

26 R.A. Irvin and J. Stansbury, *Op. cit.*, 2004

27 IPAR, *Op. cit.*, 2017

3.2. Study area and sources of data

This study was conducted in three districts, namely Nyamagabe and Huye in the South and Bugesera in the Eastern Province. A Q2-square method comprising both quantitative and qualitative techniques for data collection was used. Quantitative data were obtained from a structured survey administered among 421 households during October 2017, while qualitative data are views of 43 key informants, including officials of both central and local administration and 184 men and women who participated in 20 focus group discussions (FGDs).

The overall approach in the entire data collection process was participatory through engaging various stakeholders on various aspects pertaining to farmers' participation in *Imihigo* planning and selection of priority crops. The targeted audience included smallholder farmers, farmer cooperatives, agriculture scientists, policy-makers in the agriculture sector, and other local actors in the agriculture sector. In addition, a content analysis of relevant strategic documents helped researchers to understand the context and the scope of this study, which, in turn, informed the design of data collection tools along the terms of references proposed by International Alert in Rwanda.

3.3. Socio-economic characteristics of the sample respondents

This sub-section describes major socio-economic characteristics of sample respondents in terms of gender, level of education, age, marital status and main occupation of the respondents (mainly household heads and their respective partners). Descriptive statistics show that 44.7% of the sample respondents were male and 55.3% female. An estimate of 52% had upper primary education level, while 2.8% had upper secondary education against 17.8% who did not attend any formal schooling. A total of 81% of sample respondents were married. The main type of occupation recorded among respondents was farming as sustained by 83.6% of respondents – 86.3% for females and 80.3% for males. Clearly, off-farm activities and businesses are limited. Regarding Ubudehe²⁸ categories that classify households based on their socio-economic status under different poverty levels, the majority of respondents are in Category 1 (48.2%) and 34.4% are in Category 2 (see Table 1).

28 The word Ubudehe refers to the long-standing Rwandan practice and culture of collective action and mutual support to solve problems within a community. Today, the concept has been translated into a homegrown development programme whereby citizens are placed into different categories. Under the programme, households are put in categories based on their socio-economic status, and their property – in terms of land and other belongings – and what the families' breadwinners do for a living.

Table 1. Socio-economic characteristics of sample respondents per districts (%)

Variables	Categories	Bugesera (n=147)	Huye (n=134)	Nyamagabe (n=140)	Overall (n=421)
Gender	Female	31.3	35.2	33.5	55.3
	Male	39.4	27.7	33.0	44.7
Age group	20 to 30 years	20.4	19.4	17.9	19.2
	31 to 40 years	25.9	27.6	32.1	28.5
	41 to 50 years	21.8	17.9	26.4	22.1
	51 to 60 years	12.9	17.9	13.6	14.7
	> 60 years	19.1	17.2	10.0	15.4
Education level	None	19.7	19.4	14.3	17.8
	Primary 1-3	22.5	10.5	15.7	16.4
	Primary 4-6	37.4	50.0	40.0	42.3
	Primary 7-8	9.5	8.2	11.4	9.7
	Primary 1-3	7.5	6.0	8.6	7.4
	Primary 4-6	2.0	1.5	5.0	2.9
	Vocational	1.4	4.5	5.0	3.6
Marital status	Single	1.4	0.8	1.4	1.2
	Married	85.0	76.1	81.4	81.0
	Separated	3.4	3.7	7.9	5.0
	Divorced	0.0	0.0	0.0	0.0
	Widowed	10.2	19.4	9.3	12.8
Main occupation	Farmer	88.4	82.8	79.3	83.6
	Self-employed	0.7	2.2	5.0	2.6
	Trader	6.1	7.5	10.7	8.1
	Salaried job	2.0	3.0	1.4	2.1
	Other	2.7	4.5	3.6	3.6
Ubudehe category	Category 1	19.1	17.2	11.4	15.9
	Category 2	45.6	26.1	30.7	34.4
	Category 3	34.0	56.0	55.7	48.2
	Category 4	0.0	0.0	0.0	0.0
	None	0.0	0.0	0.0	0.0
	Don't know	1.4	0.8	2.1	1.4
Cooperative membership		21.8	50.0	33.6	34.7
FFS Group membership		25.9	13.4	30.7	23.5
% of farmer promoters		3.4	4.5	8.6	5.5
Members of marshland and/or hillside small irrigation scheme		4.8	19.4	3.6	9.0
Members of committee of farmers' representatives		6.8	12.7	20.0	13.1

Source: Primary data (October 2017)

4. RESULTS OF THE ASSESSMENT

This section presents the major results from the study analysis. The aim is to assess farmers' participation in the planning process of *Imihigo* with the focus on agriculture and the selection of priority crops to cultivate. In this section, we also present the current context of agricultural farming systems and the determining factors of farmers' choices about their farming; as well as their views on how to improve their participation, and mutual accountability in the *Imihigo* planning process; and the selection of priority crops to cultivate in their respective areas.

4.1. Mechanisms of farmers' participation

In this sub-section the aim is to present various mechanisms through which farmers are expected to participate in *Imihigo* planning in agriculture and in the selection of the priority crops. These mechanisms are presented along with various levels of administration from central government to the village level (see Table 2).

Table 2. Existing mechanisms

Administration level	Channel and how citizens are involved
Central	Through its implementing agencies (Rwanda Agricultural Board (RAB) and National Agricultural Export Board (NAEB)), the MINAGRI communicates priority crops and target areas for agricultural performance contracts (<i>Imihigo</i>) to districts' staff in charge of agriculture (Director of Agriculture and Natural Resources, Agriculture Officer and Cash Crop Office).
District	Districts' staff in charge of agriculture organise meetings with staff in charge of agriculture at sector level. Also, districts delegate their other staff to visit sectors where priority crops and agricultural <i>Imihigo</i> targets are communicated to farmers through meetings. All partners in agriculture participate in these meetings where they share and communicate their planned <i>Imihigo</i> targets.
Sector	Staff at sector level in charge of agriculture organise meetings with Executive Secretaries (ESs), Social Economic Development Officers (SEDOs) and FFS facilitators (<i>Abafashamyumvire b'Ubuguzi</i>) at cell level, where they communicate <i>Imihigo</i> targets and selected priority crops.
Cell	Officials at cell level organise meetings in which village leaders, farmer promoters (<i>Abajyanama b'Ubuguzi</i>), FFS facilitators, representatives of cooperatives and other leaders of farmer groups participate in order to communicate about cells' <i>Imihigo</i> targets and to select priority crops for each village.
Village	Through Village Councils (<i>Inteko y'Abaturage</i>), cell and/or village leaders, farmer promoters and farmers participate in the selection of agricultural sites for selected priority crops. At this level, districts' staff also communicate or give feedback on the planned agricultural <i>Imihigo</i> targets. Community work programmes (<i>Umuganda</i>) and visits to selected agricultural sites are other mechanisms through which farmers get information related to priority crops and agricultural <i>Imihigo</i> at village level.

Source: Information collected from FGDs and KIs under this study (October 2017)

This study found the village level to be the main level where citizen participation is observed. This is also consistent with findings from the IPAR study that “due to the ongoing decentralisation policy people’s participation in electing their leadership and contributing to their development has been increased and constantly enhanced”.²⁹ Specifically, with regard to agriculture, this study assessed from the farmers’ perspective prominent areas that are consistently reflected in the meetings at village level (Village Councils). Results in Table 3 show that the use of fertilisers, crop selection, seeds and inputs distribution are the main areas addressed in those particular meetings, among others. In addition to village meetings, there is a special meeting often organised at the beginning of each agricultural season in order to prepare for the coming season; and this may include farmers from more than one cell. For example, findings show that about 80% of the sample respondents attended the meeting in preparation for agricultural season A of 2018 (2018A). It was revealed that more men than women attend such meetings (84.7% against 76.3%). However, information obtained from FGDs supports the fact that these meetings cover various topics at once, making it difficult to confirm their effectiveness as far as citizen participation is concerned.

Table 3. Citizen participation in agricultural meetings and/or trainings (%)

Areas of focus	Bugesera (n=147)		Huye (n=134)		Nyamagabe (n=140)		Overall (n=421)		Overall
	Female (n=73)	Male (n=74)	Female (n=82)	Male (n=52)	Female (n=78)	Male (n=62)	Female (n=233)	Male (n=188)	
Land use consolidation	53.42	50.0	47.56	46.15	46.15	51.61	48.9	49.5	49.2
Crop regionalisation	50.68	55.41	34.15	42.31	46.15	35.48	43.4	45.2	44.2
Farming of selected crops	64.38	70.27	63.41	69.23	64.1	69.35	64.0	69.7	66.5
Utilisation of fertilisers	86.3	87.84	69.51	78.85	80.77	77.42	78.5	81.9	80.0
Seeds/Inputs distribution	60.27	67.57	63.41	69.23	69.23	56.45	64.4	64.4	64.4
Storage of products	60.27	58.11	37.8	46.15	29.49	33.87	42.1	46.8	44.2
Market for the produce	38.36	32.43	21.95	15.38	25.64	29.03	28.3	26.6	27.6
Credit facilities to farmers	34.25	40.54	26.83	28.85	28.21	30.65	29.6	34.0	31.6
Seasonal agricultural preparation	84.93	79.73	67.07	71.15	69.23	67.74	73.4	73.4	73.4
Meeting for 2018A									
Heard a meeting	71.2	67.6	68.3	69.2	66.7	61.3	68.7	66.0	67.5
Attended a meeting	84.6	94.0	78.6	69.4	65.4	86.8	76.3	84.7	79.9

Source: Primary data (October 2017)

4.2. Farmers’ participation in the planning of agriculture-related *Imihigo* targets

The analysis in this sub-section explores the participation of farmers in the planning of *Imihigo* related to agriculture. It describes the planning process at village level and the perception of farmers of *Imihigo* setting in the agriculture sector.

4.2.1. Planning process of *Imihigo* at village level

Generally, at village level, farmers operate their farming activities individually or through community-based organisations such as farmer cooperatives, associations and farmer groups known as '*Twigire Mubinzi*'. Farmers in those groups are provided with forms in which they provide information that reflects their *Imihigo* targets both in terms of priority crops and area to be cultivated, as well as quantity of fertilisers and seeds needed through the NKUNGANIRE programme. At village level, those forms are gathered by farmer promoters and leaders, while FFS facilitators and SEDOs gather them at cell level before they are channelled to sector level.

Information from FGDs and KIIs shows that the agricultural *Imihigo* targets are the result of three steps of the *Imihigo* planning process: (i) the first relates to *Imihigo* targets that come from the MINAGRI to districts through its implementing agencies (RAB and NAEB); (ii) the second is related to *Imihigo* targets from village level to districts through sector level; and (iii) the final step comprises compilation, harmonisation and final selection of *Imihigo* targets at district level.

The setting of agricultural *Imihigo* targets at sector level is carried out through a meeting of representatives from cells (including ESs, SEDOs and FFS facilitators) and chaired by the sector agronomist. Types of decisions made at these meetings include:

1. Agreement on agricultural sites on consolidated lands depending on the number and types of priority crops to be cultivated per season;
2. Quantity of inputs (fertilisers and seeds) to be distributed through the NKUNGANIRE programme.

Some *Imihigo* targets, such as different crops coverage, are supposed to be set at household level based on what each household plans to grow on a given surface, and need to be documented on forms signed by the household head (Figure 1). Households are also required to have *Imihigo* booklets (in which they indicate their planned *Imihigo* targets in the areas of agriculture or other sectors, such as health, development, etc.). However, it was revealed in this study that household agricultural *Imihigo* are not compiled and are not directly connected to villages', sectors' or districts' *Imihigo* targets, but are only set for household planning purposes. In fact, household *Imihigo* targets are generally set after *Imihigo* targets have been set at district/sector/village level, which is supported by farmers' perceptions of the current process of planning *Imihigo* (see Table 5). Findings revealed that 66% and 26.6% of the sample households had *Imihigo* booklets for the year 2016/17 and 2017/18, respectively (see Table 4). The difference in booklets ownership is explained by the fact that citizens were still getting booklets or they found it of low importance to own them as their individual *Imihigo* are disconnected from villages and other higher levels of administration, among others. In the same two periods, 55.8% and 29.7% of the sample households indicated that they set agricultural *Imihigo*. For those who were able to set their agricultural *Imihigo* targets, 61.6% and 32% of them indicated they had communicated them at village level in 2016/17 and 2017/18 respectively, not through exchange of booklets, but through collective meetings. Individual or household agricultural *Imihigo* targets are limited to the increase of production and productivity of priority crops with the focus on types of crops and area to be cultivated; use of fertilisers and seeds; and management of existing crops such as banana and cash crops. Findings revealed that there are other agriculture-related targets that are decided at district level, which include soil and water conservation measures such as bench or radical terraces, irrigation, mechanisation and agroforestry, due to skills and investment that are needed at planning level, and these are beyond individual farmers' capacities.

Table 4. Agricultural *Imihigo* planning at village level

Variable	Year	2016/17		2017/18	
	District	n	%	n	%
<i>Imihigo</i> booklet	Bugesera	147	48.3	147	24.5
	Huye	134	79.1	134	20.2
	Nyamagabe	140	72.1	140	35.0
	Overall	421	66.0	421	26.6
Setting of household agricultural <i>Imihigo</i> targets	Bugesera	147	47.6	147	24.5
	Huye	134	53.7	134	23.9
	Nyamagabe	140	66.4	140	40.7
	Overall	421	55.8	421	29.7
Communication of household agricultural <i>Imihigo</i> targets to the village leaders	Bugesera	67	50.8	13	36.1
	Huye	75	64.0	5	15.6
	Nyamagabe	90	67.8	22	38.6
	Overall	232	61.6	40	32.0
Received feedback on agricultural <i>Imihigo</i> targets communicated at village level (through Village Councils)	Bugesera	17	50.0	8	61.5
	Huye	29	60.4	3	60.0
	Nyamagabe	32	54.5	16	72.7
	Overall	143	54.6	27	67.5
Participation in the planning of agricultural <i>Imihigo</i> at village level	Bugesera	147	12.9	147	7.5
	Huye	134	20.9	134	11.9
	Nyamagabe	140	27.1	140	11.4
	Overall	421	20.2	421	10.2

Source: Primary data (October 2017)

Table 4 shows that the overall mechanism used to set targets and share feedback information is the meetings at village level, which do not focus solely on an agriculture-related agenda but also on other diverse topics.

4.2.2. Farmers' perception of agriculture-related *Imihigo* targets

About 84.3% of the sample farmers agreed that there is little citizen participation in the meetings (see Table 5). Part of the reasons provided include the structure of the meetings, which tend to be comprised more of leaders' speeches than of facilitating a discussion for farmers to express their concerns and needs.

Furthermore, there is no adequate mechanism for compiling individual *Imihigo* targets at village level. Their perceptions are that the planning process should be revised to meet farmers' individual opinions (97.6%), suggesting that every household should plan for and communicate agricultural *Imihigo* targets at village level (96.4%), and a system for compilation should be put in place for informing district *Imihigo*. To sum up, farmers are not satisfied with the current process of setting agricultural *Imihigo*, and findings suggest the need to improve the process to ensure farmers' views are considered, i.e. with more focused village meetings and promoting dialogue between farmers and authorities.

Table 5. Perceptions of farmers on the process of setting agriculture-related *Imihigo* (%)

Stated statement	District	Gender	Strongly agree	Agree	Disagree	Strongly disagree
The planning of agricultural <i>Imihigo</i> is good but badly organised	Bugesera (n=147)	Male	31.1	37.8	29.7	1.4
		Female	12.3	46.6	41.1	0.0
		Total	21.8	42.2	35.4	0.7
	Huye (n=134)	Male	30.8	40.4	26.9	1.9
		Female	29.3	43.9	25.6	1.2
		Total	29.9	42.5	26.1	1.5
	Nyamagabe (n=140)	Male	41.9	38.7	17.7	1.6
		Female	30.8	34.6	33.3	1.3
		Total	35.7	36.4	26.4	1.4
	Overall (n=421)	Male	34.6	38.8	25.0	1.6
		Female	24.5	41.6	30.1	0.9
		Total	29.0	40.4	29.5	1.2
The planning of agricultural <i>Imihigo</i> is good but there is little citizen participation	Bugesera (n=147)	Male	23.0	51.4	25.7	0.0
		Female	21.9	52.1	26.0	0.0
		Total	22.5	51.7	25.9	0.0
	Huye (n=134)	Male	38.5	46.2	13.5	1.9
		Female	42.7	48.8	7.3	1.2
		Total	41.0	47.76	9.7	1.5
	Nyamagabe (n=140)	Male	50.0	40.3	9.7	0
		Female	33.3	57.7	7.7	1.3
		Total	40.7	50	8.6	0.7
	Overall (n=421)	Male	36.2	46.3	17.0	0.5
		Female	33.1	52.8	13.3	0.9
		Total	34.4	49.8	15.0	0.7
The planning of agricultural <i>Imihigo</i> should be revised to meet farmers' individual opinions	Bugesera (n=147)	Male	48.7	46.0	2.7	2.7
		Female	53.4	45.2	1.4	0.0
		Total	51.0	45.6	2.0	1.4
	Huye (n=134)	Male	57.7	38.5	3.9	0.0
		Female	64.3	32.9	2.4	0.0
		Total	61.9	35.1	3.0	0.0
	Nyamagabe (n=140)	Male	59.7	40.3	0.0	0.0
		Female	57.9	41.0	1.8	0.0
		Total	58.6	40.7	0.7	0.0
	Overall (n=421)	Male	54.8	42.0	2.1	1.1
		Female	58.8	39.5	1.7	0.0
		Total	57.0	40.6	1.9	0.5
Not all citizens attend the meeting for planning of agricultural <i>Imihigo</i> targets	Bugesera (n=147)	Male	31.1	35.1	31.1	2.7
		Female	27.4	46.6	26.0	0.0
		Total	29.3	40.82	28.6	1.4
	Huye (n=134)	Male	32.7	30.8	32.7	3.9
		Female	24.4	56.1	19.5	0.0
		Total	27.6	46.27	24.6	1.5
	Nyamagabe (n=140)	Male	25.8	40.3	32.3	1.6
		Female	21.8	41.0	34.6	2.6
		Total	23.6	40.7	33.6	2.1
	Overall (n=421)	Male	29.8	35.6	31.9	2.7
		Female	24.5	48.1	26.6	0.9
		Total	26.8	42.5	29.0	1.7
It would be better for every farmer to plan for and share agricultural <i>Imihigo</i> at village level	Bugesera (n=147)	Male	50.0	46.0	2.7	1.4
		Female	45.2	50.7	4.1	0.0
		Total	47.6	48.3	3.3	0.7
	Huye (n=134)	Male	59.6	38.5	1.9	0.0
		Female	48.8	46.3	4.9	0.0
		Total	53.0	43.3	3.7	0.0
	Nyamagabe (n=140)	Male	53.2	46.8	0.0	0.0
		Female	55.1	39.7	3.9	1.3
		Total	54.3	42.9	2.1	0.7
	Overall (n=421)	Male	53.7	44.2	1.6	0.5
		Female	49.8	45.5	4.3	0.4
		Total	51.5	44.9	3.1	0.5

Source: Primary data (October 2017)

4.3. Farmers' participation in the selection of priority crops

4.3.1. Process of crop selection

Farmers in FGDs indicated that there are crops that are prioritised in their villages, mainly maize and beans, and they have to cultivate them. Information from KIIs substantiated the fact that crops were prioritised for each agricultural region during the inception phase of the CIP in Rwanda by the MINAGRI back in 2007 to ensure crop suitability, effective land use consolidation and economies of scale. Those crops that are not prioritised can still be cultivated in unconsolidated land. However, it is worth mentioning that farmers themselves select what crop to plant, among the priority crops, on the sites already identified, with some guidance by sector agronomists or farmer promoters and FFS facilitators. This is consistent with the understanding of a high-level official in the agriculture sector who stated that:

“There are reasons why crops were selected. One of them is that when agricultural inputs are used, the yield increases. That is a very important reason, people like to compare maize and sorghum, but it is known that, even if you apply a high quantity of fertilisers to sorghum, its yield does not change; there is a limit for its yield. You can't go beyond 2t/ha. But if you appropriately apply fertiliser on maize, it is possible to get 6t/ha. If you want to grow sorghum, it can be grown on unconsolidated land. We can't grow sorghum on a big land; also we don't forbid anyone to grow it around his/her home. Sorghum is not forbidden, but it does not give high revenues. Grow other crops on unconsolidated land because Rwanda is suitable for various crops, maize can't be grown alone in the country.”

Furthermore, the following quotation from a KII supports the fact that farmers participate in the selection of agricultural sites where to plant priority crops:

“Farmers do not participate in the selection of priority crops, but they participate in the selection of agricultural sites in which priority crops may be grown.”

The above quotes show that the selection of priority crops is carried out at two levels:

(i) Selection at central level: This was done by experts from the MINAGRI and its implementing agencies (namely the RAB and the NAEB). Farmers do not participate in this selection. In the inception phase of the CIP, six crops were – and are still now – prioritised, namely maize, rice, Irish potato, beans, wheat and soya beans.

(ii) Selection at village level: This is concerned with the selection of crops among the priority crops based on some of the factors discussed above. Through Village Councils, farmers choose agricultural sites and crops to grow.

Information from FGDs and KIIs indicated that crop selection mostly focuses on maize and beans. According to the RAB, the advent of CIP in 2007 made the maize commodity a major national food crop, a contributor to food security and enhancement of national economy, whereas the common bean (*Phaseolus vulgaris*) is one of the most important staples in Rwanda for its high nutritional value.³⁰ The analysis in this study compared cultivation of priority crops between

agricultural season 2017B and 2018A in order to assess the likelihood of priority crops being selected and grown by farmers. Results in Table 6 indicate priority crops under the CIP (selection at central level), which were planted where a higher proportion of sample households grew maize, ordinary beans and climbing beans in season 2018A than in season 2017B. Table 3 indicates that 66.5% attended the meeting in preparation for the 2018A season, while Figure 3 indicates that 75.5% of the sample households grew prioritised crops in 2017B. This increased to 83.5% in 2018A.

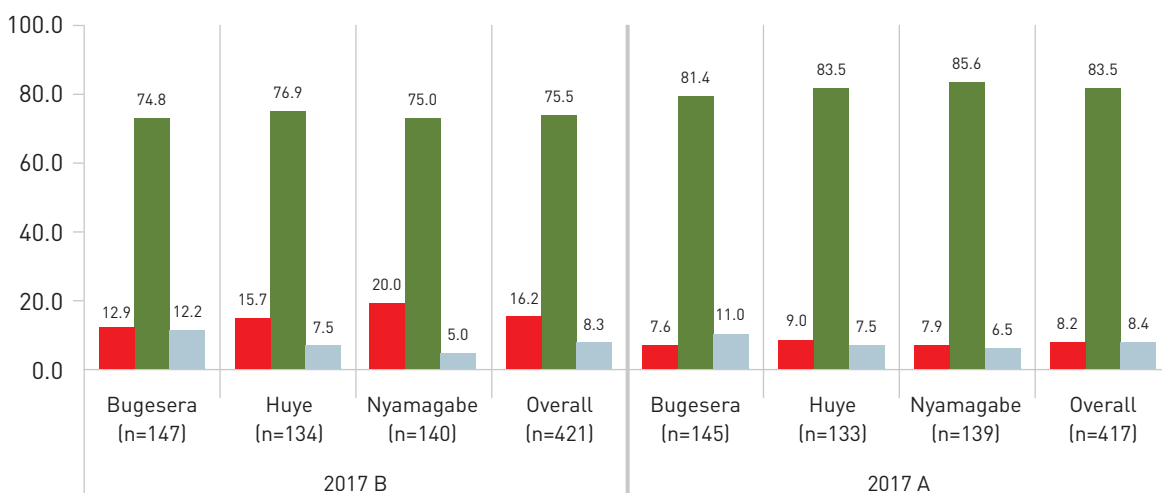
Table 6. Adoption of priority crops in the CIP by farmers (%)

Main crops	Agricultural season 2017B				Agricultural season 2018A			
	Bugesera (n=109)	Huye (n=96)	Nyamagabe (n=98)	Overall (n=303)	Bugesera (n=118)	Huye (n=111)	Nyamagabe (n=118)	Overall (n=347)
Maize	62.4	14.6	7.1	29.4	61.9	18.0	9.3	30.0
Irish potato	0.9	2.1	6.1	3.0	0.9		5.9	2.3
Cassava	2.8	2.1		1.7	7.6	0.9		2.9
Rice		1.0	1.0	0.7				
Ordinary beans	33.0	50.0	7.1	30.0	28.8	57.7	12.7	32.6
Climbing beans	0.9	30.2	53.1	27.1	0.9	23.4	72.0	32.3
Wheat			25.5	8.3				

Source: Primary data (October 2017)

Figure 3. Distribution of respondents by the growing of prioritised crops (%)

Source: Primary data (October 2017)



Was the main crop grown among the selected ones? ■ No ■ Yes ■ Don't know Source: Primary data (October 2017)

Results in Figure 3 indicate that there are farmers who still grow crops that are not selected. About 24.5% and 16.5% of the sample farmers planted unselected crops during 2017B and 2018A, respectively, which is translated into farmers' deviation from selected crops (i.e. crops that were planted in agricultural sites where they were not supposed to be grown). For example, it was observed that farmers preferred growing maize, beans and sorghum in farmlands where they were not supposed to be grown (see Table 7). Ordinary beans and sorghum are the most common crops grown in cases of farmers' deviation from growing selected prioritised crops for different reasons highlighted above and in Table 9.

Table 7. Farmers' deviation from selected crops (%)

Main crops grown	Agricultural season 2017B				Agricultural season 2018A			
	<i>Unselected crops, which were grown</i>							
	Bugesera (n=19)	Huye (n=21)	Nyamagabe (n=28)	Overall (n=68)	Bugesera (n=11)	Huye (n=12)	Nyamagabe (n=11)	Overall (n=38)
Maize	21.1		7.1	8.8	36.4		27.3	20.6
Irish potato			3.6	1.5				
Cassava	10.5			2.9	9.1			2.9
Ordinary beans	15.8	61.9	3.6	25.0	36.4	66.7	27.3	44.1
Climbing beans		9.5	17.9	10.3		16.7	36.4	17.7
Sweet potato	5.3	4.8	10.7	7.4		8.3	9.1	5.9
Sorghum	15.8	23.8	50.0	32.4	9.1			2.9
Other	31.6		7.1	11.8	9.1	8.3		5.9

Source: Primary data (October 2017)

Information from KIIs substantiated that farmers grow unselected crops because they do not participate in meetings at village level, and because of the mind-set of some of the farmers that leads to a reluctance to grow selected crops in areas where their plots are located. On the other hand, farmers in FGDs indicated that they may not grow selected priority crops due to delays in the supply of agricultural inputs, and shortage of rain, which may delay the planting period. For example, in case of delayed supply of agricultural inputs, mainly seeds and fertilisers, farmers may choose to grow beans instead of maize as earlier planned. In addition, prior to this study, some of the farmers from Bugesera and Huye districts had opted to grow beans instead of maize due to delays in rain (see Table 7). In addition to these reasons which hinder growing selected crops, there is a problem of private individuals who buy plots and leave them fallow. According to one KII, "People from Kigali and other cities come here to buy plots of land for future uses. Those people do not attend village meetings, the same for those who keep their plots. Therefore, it is difficult for us to persuade them to grow selected crops."

There are crops that farmers are willing to grow, but they cannot grow them because they are not part of the priority crops at district level. Results in Table 8 show that those crops include sweet potatoes mainly in Huye district (44%) and Nyamagabe district (31%), sorghum mainly

in Bugesera district (55.6%), and cassava mainly in Huye district (28%) and Bugesera district (23.8%). Farmers want to grow those crops for different reasons, mainly improving household food security (see Table 9). Other reasons include usual cultivation, and crop suitability as well as their marketability; location of their main plots, which restricts the cultivation of these crops; and limited access to inputs such as seeds/seedlings.

Table 8. Crops which farmers are willing to grow (%)

Crop grown	District			
	Bugesera (n=63)	Huye (n=75)	Nyamagabe (n=58)	Overall (n=196)
Maize	1.6	5.3	6.9	4.6
Irish potato	4.8	22.7	27.6	18.4
Cassava	23.8	28.0	15.5	23.0
Rice	0.0	5.3	0.0	2.0
Ordinary beans	0.0	2.7	0.0	1.0
Climbing beans	1.6	1.3	0.0	1.0
Sweet potato	15.9	44.0	31.0	31.1
Sorghum	55.6	12.0	17.2	27.6
Soya beans	3.4	7.8	6.8	6.2
Other	13.1	22.1	21.1	19.0

Source: Primary data (October 2017)

Results in Tables 8 and 9 indicate that sweet potatoes and sorghum seem to be the most preferred crops by farmers, although they are not considered priority crops under the CIP and in the PSTA 3. Consequently, this study suggests further assessment of why these crops remain important in farmers' perception of their potential to improve their livelihoods, and this calls for a reflection about including them among priority crops.

Table 9. Reasons why farmers want to grow the preferred crops (%)

District	Crop grown	Reasons				
		Usual cultivation of the same crop(s)	Crop suitability on plot	Being a crop selected in cooperative	Improved household food security	Crop marketability
Bugesera	Cassava (n=11)		45.45	9.09	45.45	
	Sweet potato (n=10)	10	20		60	10.0
	Sorghum (n=34)	32.35	20.59		32.35	14.71
Huye	Cassava (n=21)	4.76	19.05		71.43	4.76
	Sweet potato (n=33)	3.03	9.09		84.85	3.03
	Sorghum (n=8)	12.5			62.5	25.
Nyamagabe	Cassava (n=7)		14.29		57.14	28.57
	Sweet potato (n=18)		5.56		94.44	-
	Sorghum (n=10)	30	20		10	40.0
Overall	Cassava (n=39)	2.56	25.64	2.56	61.54	7.69
	Sweet potato (n=61)	3.28	9.84		83.61	3.28
	Sorghum (n=52)	28.85	17.31		32.69	21.15

Source: Primary data (October 2017)

4.3.2. Determinants of crop selection in the study area

This sub-section describes factors that are likely to influence farmers' decisions about their farming systems, and hence crop selection as highlighted by participants in FGDs and KIIs. They are within the four main categories, namely physical factors (e.g. land size and location of the plot), personal factors (e.g. agricultural education), economic factors (e.g. income and access to agricultural inputs), and institutional factors (e.g. markets, cooperative membership).

(1) *Land size:* Per capita land size is increasingly reducing in Rwanda and particularly in the research area. The mean land holding for this sample population was 0.29 ha. Overall, more than 65% of the respondents have less than 0.3 ha, while only 16.4% have more than 0.5 ha. This has some implication in terms of crop selection and the entire farming system (mono-cropping vs inter-cropping), which are constrained by the available land size coupled with inefficient use of existing land.³¹

(2) *Location of main plots:* This study found that main plots for the majority of households (91.5%) are located on hillside. This situation is explained by the fact that marshlands are state owned and are mainly exploited by farmers' associations/cooperatives.

As linked with the size of the land and its location, dominant agricultural practices observed in the research areas are mono-cropping, row planting and inter-cropping combined with the use of fertilisers, in order of high to low dominance (see Table 10 and Table 11). Furthermore, farmers

31 A. Bizoza, Population Growth and Land Scarcity in Rwanda: The Other Side of the 'Coin', University of Rwanda, Kigali, Rwanda, 2014; IPAR, Op. cit., 2017

apply inter-cropping, crop rotation and agroforestry more on hillsides than in marshlands. On the other hand, irrigation and mechanisation, row planting and the use of fertilisers are applied more in marshlands than on hillsides.

Table 10. Application of BAPs based on the size of the main plots of households (%)

Best agricultural practices (BAPs)	Land category			
	Less than 0.30 ha (n=275)	Between 0.30 and 0.50 ha (n=77)	More than 0.50 ha (n=69)	Overall (n=421)
Bugesera (n=147)				
Mono-cropping	72.5	63.6	56.5	68.0
Inter-cropping	51.7	48.5	43.5	49.7
Crop rotation	26.4	27.3	8.7	23.8
Agroforestry	11.0	0.0	8.7	8.2
Irrigation/mechanisation	2.2	0.0	4.4	2.0
Grid/row planting	52.8	42.4	60.9	51.7
Use of fertilisers	63.7	60.6	69.6	64.0
Other (fallowing, use of improved seeds, construction of terraces, mulching)	1.1	9.1	4.4	3.4
Huye (n=134)				
Mono-cropping	73.3	73.1	77.8	73.9
Inter-cropping	51.1	42.3	22.2	45.5
Crop rotation	24.4	19.2	22.2	23.1
Agroforestry	4.4	15.4	5.6	6.7
Irrigation/mechanisation	5.6	11.5	16.7	8.2
Grid/row planting	56.7	38.5	50.0	52.2
Use of fertilisers	22.2	30.8	27.8	24.6
Other (fallowing, use of improved seeds, construction of terraces, mulching)	0.0	0.0	0.0	0.0
Nyamagabe (n=140)				
Mono-cropping	86.2	77.8	89.3	85.7
Inter-cropping	43.6	33.3	25.0	38.6
Crop rotation	24.5	16.7	21.4	22.9
Agroforestry	10.6	16.7	10.7	11.4
Irrigation/mechanisation	0.0	0.0	3.6	0.7
Grid/row planting	64.9	78.8	78.6	69.3
Use of fertilisers	35.1	44.4	14.3	32.1
Other (fallowing, use of improved seeds, construction of terraces, mulching)	1.1	0.0	7.1	2.2
Overall (n=421)				
Mono-cropping	77.45	70.13	75.36	75.77
Inter-cropping	48.73	42.86	30.43	44.66
Crop rotation	25.09	22.08	17.39	23.28
Agroforestry	8.73	9.09	8.70	8.79
Irrigation/mechanisation	2.55	3.90	7.25	3.56
Grid/row planting	58.18	49.35	65.22	57.72
Use of fertilisers	40.36	46.75	36.23	40.86
Other (fallowing, use of improved seeds, construction of terraces, mulching)	0.73	4.05	4.41	1.92

Source: Primary data (October 2017)

Results in Table 11 indicate that farmers have understood the importance of mono-cropping over inter-cropping with 75.8% of sample farmers using a mono-cropping system compared to 44.7% who used inter-cropping. As the land size increases, the proportion of farmers who used inter-cropping decreases. This is explained by the fact that farmers with small plots tend to mix crops mainly around their homes, while those with big plots tend to do plot portioning.

Results in Table 11 are consistent with information from FGDs and KIIs conducted for this study. According to one KII, it is during agricultural season A or B that maize is mostly grown in marshlands and lower hillsides, due to availability of water, although it is not restricted on upper hillsides. It is usually grown in rows and farmers grow beans between rows of maize. For this reason, fertilisers (NPK, Urea and DAP) are used more in marshlands than on hillside where crops that are not in the NKUNGANIRE programme are grown. According to farmers in FGDs, beans cultivated in between rows of maize help them to ensure food security as they can eat their leaves (known as *Umushogoro*), and they harvest them before the maize is harvested. They further indicated that inter-cropping is allowed on upper hillsides (areas around their homesteads), where they can grow various crops such as vegetables, groundnuts, peas, fruits, etc. This is to allow farmers to have diversified crops for their improved food security.

Table 11. Application of BAPs based on the location of the main plots (%)

BAPs	Plot location			
	Hillside (n=385)	Marshland (n=11)	Both (n=25)	Overall (n=421)
Mono-cropping	75.32	72.73	84.00	75.77
Inter-cropping	45.97	27.27	32.00	44.66
Crop rotation	24.16	9.09	16.00	23.28
Agroforestry	8.83	0.00	12.00	8.79
Irrigation/mechanisation	3.12	9.09	8.00	3.56
Row planting	57.66	72.73	52.00	57.72
Use of fertilisers	39.48	54.55	56.00	40.86
Other (fallowing, use of improved seeds, construction of terraces, mulching)	1.84	9.09	0.00	1.92

Source: Primary data (October 2017)

(3) *Access to agricultural training*: Results indicate that 40.6% of the respondents received training on BAPs, with men being the more trained (44.1% against 38% of women).

(4) Areas of training received in BAPs include mono-cropping (89.5%), row planting (87.7%) and use of fertilisers (53.8%); and the proportion of trained women is less than the proportion of trained men across those areas (see Table 12). KIIs indicated that inter-cropping is clearly discouraged in terms of ongoing extension services, although some farmers are still practising this, especially those with small plots that are also located on hillsides.

Table 12. Distribution of trained respondents (%) per BAPs

BAPs	Bugesera (n=58)			Huye (n=50)			Nyamagabe (n=63)			Overall (n=171)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Mono-cropping	88.57	69.57	81.0	90.0	92.9	92.0	96.2	94.6	95.2	91.6	87.5	89.5
Inter-cropping	2.86	4.35	3.5	13.6	21.4	18.0	11.5	8.1	9.5	8.4	11.4	9.9
Crop rotation	11.43	21.74	15.5	18.2	10.7	14.0	42.3	24.3	31.8	22.9	19.3	21.1
Agroforestry	0	0	0.0	9.1	3.6	6.0	8.1	0.0	4.8	2.4	4.6	3.5
Irrigation/ mechanisation	5.71	4.35	5.2	27.3	21.4	24.0	0.0	5.4	3.2	9.6	10.2	9.9
Row planting	88.57	82.61	86.2	90.9	67.9	78.0	100.0	94.6	96.8	92.8	83.0	87.7
Use of fertilisers	91.43	100	94.8	22.7	32.1	28.0	38.5	35.1	36.5	56.6	51.1	53.8
Other (fallowing, use of improved seeds, construction of terraces, mulching)	0	0	0.0	0.0	3.6	2.0	0.0	0.0	0.0	0.0	1.2	0.6

Source: Primary data [October 2017]

(5) *Expected agricultural income*: Farmers choose to cultivate crops with high income potentials (e.g. maize, etc.), which, in turn, vary between the two main seasons (A&B) for priority crops and across the three districts. Generally, farmers get good agricultural production in season A due to the assumption that in this season there are favourable climatic conditions for agricultural production.

(6) *Agricultural season (A, B & C)*: Information from FGDs and KIIs substantiate the fact that farmers in some areas do not grow maize in season A (e.g. farmers from Rilima sector), and others do not grow maize in season B (e.g. farmers from Kaduha sector) due to climatic factors. Based on season, farmers generally rotate cereals (mainly maize and sorghum) and beans between agricultural season A and B, while they generally grow vegetables during agricultural season C.

(7) *Access to agricultural inputs and extension services*: Information from FGDs and KIIs substantiate the fact that farmers participate in the selection of specific agricultural sites where prioritised crops are grown (selection at village level). But they grow crops that are not prioritised in their villages in cases of recurrent and/or unaddressed concerns about delays in the supply of agricultural inputs, among other factors. According to farmers in FGDs, the same situation happens in remote areas where farmers think that the agronomists at all levels do not frequently visit them. For example, fertilisers and seeds were still being distributed in Mbazi sector of Huye district during this survey (9–11 October 2017), and men farmers in an FGD declared that it was too late for them to grow maize. The same case was observed in Kaduha sector of Nyamagabe district. In addition, women farmers in an FGD in Kaduha sector said that they were not able to grow maize on time due to delays in rain; and one KII from Nyabisindu cell of Kaduha sector pointed out that farmers from that cell, and other neighbouring cells, are not frequently visited by extension agents due to the cells' location in remote areas. Consequently, farmers grew sorghum in Rukarara marshland.

The survey also asked about the frequency of farmers' meetings with extension agents. Table 13 shows that the number of contacts between farmers and extension agents is still low. About 43.5% of the respondents highlighted that they met with an extension agent (farmer promoter, agronomist, etc.) once in a season, while 19% of them met them once in more than one season. This is an indication that farmers' participation in the selection of priority crops is limited in cases of limited visits by extensionists.

Table 13. Frequency of visits by extension agents (%)

Visits frequency	District			
	Bugesera (n=147)	Huye (n=134)	Nyamagabe (n=140)	Overall (n=421)
Once a season	42.86	35.07	52.14	43.47
Twice a season	12.93	11.94	15.71	13.54
Three a season	10.88	14.18	5.71	10.21
More than three times a season	8.84	20.15	12.86	13.78
Zero times or once in more than one season	24.49	18.66	13.57	19.0

Source: Primary data (October 2017)

(8) Perceived importance of food crops in terms of food security: Information from FGDs and KIIs revealed that farmers choose some of the food crops based on the importance they attach to them in terms of improving food security and increasing household income as they are easily marketable. For example, maize is grown for both household income and food security, while sweet potatoes, sorghum and vegetables are mainly grown for improved household access to food. One KII from Mbazi sector of Huye district said that “*Maize harvest has different uses: (i) it can be sold fresh or dry, (ii) it can be eaten fresh and dry, and (iii) it can be eaten in the morning as porridge, and lunch or supper as bread or Ugali*”; and that maize can be eaten from Monday to Friday: “*Monday as roasted fresh maize, Tuesday as porridge, Wednesday as boiled corns, Thursday as flour in form of Ugali, and Friday as grains cooked with beans (known as Imvungure)*”. A mother from Kinazi sector of Huye district said, “*We feel secured when our small children have sweet potatoes taken together with porridge in the morning, because they do not eat too much at lunch.*”

(9) Type and suitability of crops: As highlighted in the crop regionalisation policy, crops were selected based on the soil characteristics of the regions under which they are suitable. During village assembly, farmers are allowed to select agricultural sites that are suitable for crop cultivation in terms of soil type and climatic conditions. Again, the seasonality plays an important role in choosing crops to grow in given sites.

(10) Market access and prices: As indicated during KIIs, crops with high market potential (e.g. maize in Bugesera and Huye district, and Irish potato in Nyamagabe district) are highly preferred. “*Farmers are aware of crops with high revenues. Therefore, it is difficult to influence them in the selection of crops. They prefer maize more than other food crops,*” said one KII. Farmers in the household survey indicated that they grow sorghum because it is marketable (see Table 9), which was also supported by farmers in FGDs.

(11) *Previous seasonal experience:* Farmers and various officials at all levels have confirmed that it is difficult to sensitise on the selection of crops after extreme events such as drought, incidences of pest and diseases (e.g. Nkongwa '*Busseola fusca*' for maize, mosaic for cassava), etc. Also, the same situation happened in the case of low prices during previous agricultural seasons.

(12) *Linkage between agricultural Imihigo and selection of priority crops:* There is a linkage between *Imihigo* and crop selection. Selection of priority crops is part of the programme of land use consolidation, which is a big component of districts' annual performance contracts. One KII declared, "*Selecting priority crops partially means planning agricultural Imihigo; while growing them equals achieving our targets.*" This implies that, if farmers do not select crops to grow in line with village/cell/sector's *Imihigo* targets, agricultural *Imihigo* will not be achieved. Therefore, the selection of priority crops is important in the planning of agricultural *Imihigo* where the NKUNGANIRE programme plays an important role in linking these two components.

4.4. Farmers' perceptions on current farming systems

This sub-section presents the views of sample farmers on the advantages and disadvantages of two main farming systems, namely inter-cropping and mono-cropping, as well as a description of factors explaining their adoption.

4.4.1. Farmers' perceptions on mono-cropping system

The main perceived advantages of the mono-cropping system include: (i) improved agricultural production and productivity (90.5%); (ii) optimisation of agricultural operations on the farmed land (35.2%); (iii) easier and more straightforward cultivation of one kind of crop (32.8%); (iv) facilitation of the use of agricultural inputs (21.9%) and facilitation of harvesting (15.9%). On the other hand, its main perceived disadvantages include: (i) limited food options for farmers (61.8%); (ii) possibility of high yield losses in case of severe circumstances, such as floods, droughts, pests, diseases (59.9%); (iii) fast spread of diseases and pests (8.8%); and (iv) extensive use of fertilisers (8.8%).

4.4.2. Farmers' perceptions on inter-cropping system

In the study areas, farmers highlighted three main advantages of the inter-cropping system: (i) some crops serve as insurance against losses/failures of other crops (81.7%); (ii) they give additional yields per unit area over mono-cropping (62.2%); and (iii) they provide shade and support the other crops (10.9%). However, sample farmers also indicated that this system has disadvantages including: (i) reduced yield for the main crop (74.4%); (ii) high competition among inter-cropped crops for light, soil nutrients and water (52.3%); (iii) limited use of agricultural inputs (24.7%); and (iv) difficulty in harvesting (18.1%).

4.4.3. Preferences of farmers between mono- and inter-cropping systems

The adoption of farming systems by farmers depends on a number of factors. The predominant ones observed in this study include the location and size of farmers' plots. Table 11 indicates

that 75.8% of the sample respondents applied mono-cropping against 44.7% who applied inter-cropping as the farming system as part of best farming practices. In assessing the preference between mono-cropping and inter-cropping in reference to perceived advantages, results indicate that 61% of the respondents would choose mono-cropping and 39% the inter-cropping system (see Table 14). Generally, the majority of both men (63.3%) and women (59.2%) prefer the mono-cropping system. However, more women than men prefer inter-cropping systems (40.8% against 36.7%). This is because women perceive that the inter-cropping system provides more options for household consumption, while men perceive that it reduces crop production and productivity.

Table 14. Farmers' preferences between mono- and inter-cropping systems (%)

District	Gender	Farming systems	
		Mono-cropping	Inter-cropping
Bugesera (n=147)	Male	56.8	43.2
	Female	50.7	49.3
	Total	53.7	46.3
Huye (n=134)	Male	55.8	44.2
	Female	54.9	45.1
	Total	55.2	44.8
Nyamagabe (n=140)	Male	77.4	22.6
	Female	71.8	28.2
	Total	74.3	25.7
Overall (n=421)	Male	63.3	36.7
	Female	59.2	40.8
	Total	61.0	39.0

Source: Primary data (October 2017)

4.5. Farmers' perceptions for their improved participation in the planning of agricultural *Imihigo* and the crop selection

Information obtained from the household survey, KIIs and FGDs revealed a number of challenges affecting farmers' participation in the planning of *Imihigo* and in the selection of priority crops in the study areas. These include limited consultation of citizens during the planning of *Imihigo* at village level; lack of direct connection between household and districts' *Imihigo* targets; low capacity of farmers in the planning of individual *Imihigo* targets; recurrent delays in supply of agricultural inputs (seeds and fertilisers); unregistered farmers in the NKUNGANIRE programme; and the mind-set to adopt priority crops by some farmers. In response to these challenges, farmers suggest pathways for their improved participation as detailed in Table 15. They indicated that more efficient consultations of farmers (81%), providing feedback on adopted agricultural *Imihigo* to farmers (42%), and strengthening seasonal agricultural preparation meetings (29.7%) would enhance their participation in the planning of agricultural *Imihigo* and in the selection of priority crops in their villages. In addition to this, participants in FGDs and KIIs indicated that timely provision of fertilisers and improved seeds would reduce farmers' deviation from growing selected crops.

Table 15. Farmers' perceptions (%) on how to improve their participation

Areas of improvement	Bugesera (n=147)			Huye (n=134)			Nyamagabe (n=140)			(n=421)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Participation in agricultural <i>Imihigo</i> can be enhanced												
Through more efficient consultations of farmers	83.8	78.1	81.0	71.2	81.7	77.6	82.3	85.9	84.3	79.8	82.0	81.0
By strengthening seasonal agricultural preparation meeting	28.4	23.3	25.9	36.5	31.7	33.6	25.8	33.3	30.0	27.8	29.6	29.7
By organising meetings for providing feedback on adopted agricultural <i>Imihigo</i> to farmers	32.4	39.7	36.1	53.9	50.0	51.5	35.5	42.3	39.3	39.4	44.2	42.0
Through mutual accountability: provide farmers with a room where they can ask an accountable person for justification of decisions made	9.5	6.9	8.2	15.4	19.5	17.9	16.1	18.0	17.1	13.3	15.0	14.3
By strengthening farmers' representative committees to monitor the implementation of agricultural <i>Imihigo</i>	14.9	15.1	15.0	19.2	22.0	20.9	21.0	19.2	20.0	18.1	18.9	18.5
By distributing written documents of adopted agricultural <i>Imihigo</i> (brochures, notices at village office, etc.)	4.1	1.4	2.7	0.0	3.7	2.2	1.6	1.3	1.4	2.1	2.2	2.1
By providing training concerning agricultural <i>Imihigo</i> planning/setting	29.7	41.1	35.4	0.0	2.4	1.5	4.8	1.3	2.9	13.3	14.2	13.8
Other ways	1.4	2.7	2.0	3.9	3.7	3.7	6.5	6.4	6.4	3.7	4.3	4.0
Participation in selection of priority crops can be enhanced												
Through more efficient consultations of farmers	94.6	91.8	93.2	69.2	82.9	77.6	83.9	83.3	83.6	84.0	85.8	85.0
By strengthening seasonal agricultural preparation meeting	39.2	32.9	36.1	51.9	57.3	55.2	51.6	53.9	52.9	46.8	48.5	47.7
By providing incentives for model farmers in villages	0.0	1.4	0.7	5.8	4.9	5.2	1.6	7.7	5.0	2.1	4.7	3.6
Through mobilisation and considering farmers' opinions	2.7	1.4	2.0	3.9	1.2	2.2	1.6	1.3	1.4	2.7	1.3	1.9
By increasing the number and capacity of farmer promoters	4.1	6.9	5.4	1.9	3.7	3.0	6.5	1.3	3.6	4.3	3.9	4.0
Other	0.0	0.0	0.0	3.9	6.1	5.2	4.8	1.3	2.9	2.7	2.6	2.6

Source: Primary data (October 2017)

4.6. Advantages and constraints of citizen participation

Tables 16 and 17 show some of the key advantages and constraints linked to citizen participation. These are described both at the level of process and at the level of outcome. They are also described at four levels of programme or project implementation, namely the planning phase, implementation, monitoring and evaluation (M&E), and accountability and feedback.

Table 16. Advantages of citizen participation for citizens and government

Area of participation	Advantages for citizens		Advantages for government	
	Process	Outcome	Process	Outcome
Planning/Programme design	<ul style="list-style-type: none"> • Citizens are aware of government plans and programmes; • Citizens propose and share agricultural <i>Imihigo</i> targets 	<ul style="list-style-type: none"> • Citizens get involved in the planning process and this increases their level of activity ownership 	<ul style="list-style-type: none"> • Local leaders communicate and recommend government's <i>Imihigo</i> targets to citizens 	<ul style="list-style-type: none"> • Good and realistic agricultural <i>Imihigo</i> targets • Government plans are effective
Policy/Programme implementation	<ul style="list-style-type: none"> • Citizens easily implement government plans and adopt new initiatives or policy options • Close and good collaboration between local leaders and citizens during implementation 	<ul style="list-style-type: none"> • Effective and efficient involvement of citizens • Increased socio-economic benefits for citizens 	<ul style="list-style-type: none"> • Effective implementation of government plans and initiatives • Improved governance of community-based organisations and institutions such as cooperatives and FFS 	<ul style="list-style-type: none"> • High performance of <i>Imihigo</i> targets • Participatory development and empowered local institutions
M&E of policy/programme	<ul style="list-style-type: none"> • Citizens are aware of the progress and know areas to improve 	<ul style="list-style-type: none"> • Greater impacts are observed • Citizens' livelihoods are improved 	<ul style="list-style-type: none"> • Government plans are achieved 	<ul style="list-style-type: none"> • Improved people's livelihoods • Reduced implementation costs due to collective actions by citizens
Accountability and Feedback	<ul style="list-style-type: none"> • Persuade and enlighten government • Local leaders inform citizens' priorities chosen through the meetings organised at local level 	<ul style="list-style-type: none"> • Citizens' priority needs are reflected in government plans • Citizens receive feedback on <i>Imihigo</i> targets proposed (at village level) 	<ul style="list-style-type: none"> • Government plans reflect the needs of citizens 	<ul style="list-style-type: none"> • Government redesigns its policies and implementation process

Source: Primary data (October 2017)

Table 17. Constraints of citizen participation for citizens and government

Constraints for citizens	Constraints for government	Outcome
<ul style="list-style-type: none"> • Time consuming • Limited capacity of citizens (e.g. in planning of <i>Imihigo</i>, in investing in agricultural activities, etc.) • A culture of speeches of authorities instead of discussions/dialogue • Citizens with good socio-economic status may influence others 	<ul style="list-style-type: none"> • Time consuming • Costly • Use of volunteers (e.g. farmer promoters, FFS facilitators) without adequate capacity and facilities • National priorities that inform district plans including <i>Imihigo</i> 	<ul style="list-style-type: none"> • Limited understanding about agricultural policies/programmes • Some farmers' priorities are missed out and resulting limited citizen satisfaction • Farmers' reluctance towards adoption and implementation of agricultural policies/programmes • Government policies reflect needs of some individuals who are not necessarily representative of the majority

5. CONCLUSION

This study sought to determine the extent to which the process of selecting priority crops is inclusive of farmers who grow those crops and assess their level of participation in agriculture-related performance contracts (*Imihigo* targets). It also set out to explore farmers' perceptions of their participation in *Imihigo*, the targeting and selection of priority crops in their respective communities, and to collect and document their views on the preference between mono-cropping and inter-cropping farming systems to inform future development of the agriculture sector in Rwanda.

The study was conducted in three districts, namely Huye, Nyamagabe and Bugesera. Information was obtained through structured survey and qualitative information from FGDs and KIIs conducted during October 2017. Major findings of the study reflect the current status of farmers' participation in both *Imihigo* planning in the agriculture sector and in selection of priority crops for their cultivation; existing conducive mechanisms and determinants of farmers' participation in crop selection and overall farming system; and existing challenges and proposed pathways towards inclusive planning of agriculture-related *Imihigo* and crop selection.

This study revealed that meetings at different administration levels and the use of farmer promoters and FFS facilitators are the main mechanisms for farmers' participation in channelling their views and feedback with regard to the choice of agriculture-related *Imihigo* targets under the performance contracts and in the selection of priority crops. Village Council meetings (also known as *Inteko z'Abaturage*) emerged as the prevalent mechanism for participation. However, they take various topics at once, making it difficult to confirm their effectiveness as far as citizen participation is concerned.

Through Village Councils, farmers' participation in the planning of agricultural *Imihigo* targets is limited to the planning of crop coverage (cultivated area, types of crops, seeds and fertilisers). A small proportion of households own *Imihigo* booklets in which they indicate their targets, but these are not directly connected to villages', sectors' or districts' targets. With regard to the selection of priority crops, the selection is done at national level; farmers' participation is limited to the selection of agricultural sites where priority crops are grown with some guidance by sector agronomists or farmer promoters and FFS facilitators. Although a high proportion of farmers may grow prioritised crops, farmers deviate from growing prioritised crops due to a number of factors, including recurrent delays in inputs supply, limited attendance at village-level meetings, a risk-averse mind-set and weather variability – extreme events. In this case, sweet potatoes and sorghum are the most preferred crops by farmers, despite not being prioritised in the CIP and in the PSTA 3, largely because households view them as important in improving household food security.

A number of other factors, including land size, plot location, access to agricultural training, expected agricultural income, agricultural season, access to agricultural inputs and extension services, etc., influence farmers' choices in selecting different crops to grow and farming systems. Farmers would like the existing planning process revised to meet their opinions through more efficient consultations, the provision of feedback on adopted agricultural *Imihigo*, and strengthening seasonal agricultural preparation meetings in their villages.

Some of the key challenges undermining farmers' participation in *Imihigo* include time constraints and cost on the side of authorities and limited motivation on the side of farmers due to the structure of meetings, which do not encourage farmers to express their views.

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ISBN: 978-1-911080-87-9

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