Participatory Integrated Planning (PIP), Land Governance and Food Security

Insights from Burundi

Stefan Schűller

WAGENINGEN
UNIVERSITY & RESEARCH

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Burundi is confronted with a complex interplay of land scarcity and increasing land degradation, with large parts of the population having insufficient means to achieve food security and sustain their livelihoods. This situation is exacerbated by a history of conflict, displacement and land disputes between repatriates and incumbents. Over the past decade, efforts of the Dutch government and its partners have aimed to tackle both the dwindling resource base (through the Participatory Integrated Planning, or PIP, approach) as well as land-related conflicts and the difficult access to formal land administration (through Land Tenure Registration, or LTR). Despite the interrelationship between PIP and LTR, the two have been largely developed and refined in separation. Departing from promise that synergies between the two approaches are not only possible, but also highly desirable, the results of this research confirm that a mutually beneficial relationship exists, with various potentially synergistic interactions identified. The results however indicate that such synergies are not to be found in a simple succession, but rather a well-conceived intertwining of LTR and PIP interventions. With the complexity and context-specificity of each location in mind, this study suggest five sequential recommendations that are meant to provide guidance when aiming to integrate the two approaches.

Le Burundi est confronté à une interaction complexe entre la pénurie de terres et leur dégradation croissante et une grande partie de la population ne disposant pas de moyens suffisants pour assurer sa sécurité alimentaire et maintenir ses moyens de subsistance. Cette situation est exacerbée par un passé de conflits, de déplacements et de litiges fonciers entre les rapatriés et les populations en place. Au cours de la dernière décennie, les efforts du gouvernement néerlandais et de ses partenaires ont visé à s'attaquer à la fois à la diminution de la base de ressources (par le biais de l'approche de la planification intégrée participative, ou PIP) ainsi qu'aux conflits liés à la terre et à l'accès difficile à l'administration foncière formelle (à travers l'enregistrement de la propriété foncière, ou LTR). Malgré l'interdépendance entre le PIP et le LTR, ces deux approches ont été largement développées et affinées séparément. Partant de la promesse que les synergies entre les deux approches sont non seulement possibles, mais aussi hautement souhaitables, les résultats de cette recherche confirment l'existence d'une relation mutuellement bénéfique, avec plusieurs interactions potentiellement synergiques identifiées. Les résultats indiquent toutefois que ces synergies ne sont pas le fruit d'une simple succession, mais plutôt d'un entrelacement bien conçu des interventions de LTR et de PIP. En gardant à l'esprit la complexité et la spécificité du contexte de chaque lieu, cette étude propose cinq recommandations séquentielles destinées à fournir des orientations pour l'intégration des deux approches.

Keywords: Burundi, land disputes, land degradation, food security, land tenure registration, sustainable land management, land stewardship

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List of abbreviations

EKN	Embassy of the Kingdom of the Netherlands
FGD	Focus Group Discussion
LANDac	The Netherlands Land Academy
LAS	LAND-at-scale
LTR	Land Tenure Registration
MoFA	Dutch Ministry of Foreign Affairs (*Ministerie van Buitenlandse Zaken*)
PADANE	*Projet d'Appui au Développement Agricole pour la Nutrition et l'Entrepreneuriat*
PAGRIS	Soil Fertility Stewardship Project (*Projet d'Appui pour une Gestion Responsable et Intégrée des Sols*)
PAPAB	Supporting Agricultural Productivity in Burundi Project (*Projet d'Appui à la Productivité Agricole au Burundi*)
PIP	Participatory Integrated Planning
RVO	Dutch Enterprise Agency (*Rijksdienst voor Ondernemend Nederland*)
SCAD	Fanning the Spark Project (*Projet de Solidarité Communautaire pour l'Auto Développement*)
SLM	Sustainable Land Management
WENR	Wageningen Environmental Research

Executive Summary

Over the past decade, the Dutch government and its partners have supported various development projects in Burundi with the aim to advance food and nutrition security in the country. While some of those projects focussed on land tenure registration (LTR) and conflict resolution as a means to create a sound basis for improved agricultural production, others aimed at reversing land degradation and advancing resilience-based stewardship through the Participatory Integrated Planning (PIP) approach. Despite many overlaps and potential synergies, the two strategic approaches have so far been largely developed and scaled-up separately from one another. With potentially symbiotic interactions in mind, this study intends to shed light on the extent to which a combination of LTR and the PIP approach leads to greater results with regard to food security and associated livelihoods than any of the two approaches on its own. Focus group discussions were conducted in six different villages having undergone one (or both) of these approaches to (i) gain a better understanding on the potential role of LTR in improving agricultural production and food security, (ii) assess the perceptions and experiences of PIP farmers on (the absence of) different LTR interventions, and (iii) elucidate what the most effective and impactful sequencing could look like if the two approaches were to be combined.

In line with existing research, the results confirm that it is difficult to detect a direct relationship between LTR and increased production and/or improved food security. Testimonies from farmers revealed that there were other, supposedly more important factors (e.g. know-how on sustainable land management as provided through the PIP approach) encouraging them to start investing in their land. These findings indicate that LTR constitutes more of an enabling factor than a prerequisite for land-based investments. At the same time, PIP farmers shared a variety of experiences and sentiments that point to the positive impact that LTR can have on achieving PIP objectives and ensuring that land investments are secure and beneficial in the long term. The findings indicate that the relationship between LTR and PIP is reciprocal, with many potentially synergetic interactions suggesting combined implementation.

A closer look at the results however reveals that the biggest synergies are not to be found in a simple succession, but rather a well-conceived intertwining of LTR and PIP interventions. As the context-specificity of each location makes it impossible to come up with a blueprint of how the two should exactly be interwoven, this study concludes with a number of sequential recommendations that can provide guidance for donors and implementing actors on how to integrate the two approaches:

I. Discuss importance of land tenure security in PIP-focused awareness raising at community level.
II. Conduct a parallel inventory of existing tenure arrangements at village level and ensure interventions are needs based and fit-for-purpose.
III. In view of outcomes of (II), incorporate dissemination of knowledge on LTR into PIP trainings.
IV. Ensure embedding of LTR in village vision and accompanying action plan and use PIP momentum as a basis for LTR rollout.
V. Encourage and advice farmers to acquire land certificates (and take out a loan) only after they have developed their PIP, and closely monitor the subsequent effects.

Ultimately, an integration of the two approaches requires not only a carefully considered intertwining, but also a certain degree of flexibility and openness on the part of all actors (especially donors) to embrace complexity and design projects accordingly.

1 Introduction

The study 'Participatory Integrated Planning (PIP), Land Governance and Food Security - Insights from Burundi' has been commissioned by the Dutch Enterprise Agency (RVO). RVO is responsible for the implementation of LAND-at-scale[1] (LAS), a multi-year support programme funded by the Dutch Ministry of Foreign Affairs (MoFA) with the aim to advance just and fair land governance in the Global South. In Burundi, the goal of LAS is 'to improve tenure security of women and men, conflict resolution and to create the basis for improved agricultural production, access to justice and sustainable, climate smart agri-businesses' (RVO, 2021). In particular, LAS aims to scale up land tenure registration (LTR)[2] throughout Makamba province by building upon achievements and lessons learned from previous interventions funded by, among others, the Dutch government.

Next to LTR, RVO has also supported the piloting of the PIP approach by funding the 'Fanning the spark' project[3] (2013-2017). PIP has been developed by Wageningen Environmental Research (WENR) as an inclusive bottom-up approach 'to build a solid foundation for sustainable change toward enhanced food production and good land stewardship' (Kessler et al., 2020). By working with all stakeholders in a community, the main objective of the PIP approach is to advance resilience-based stewardship by motivating people to feel responsible for their land and invest in the resilience of their landscape.

Both LTR and the PIP approach have been promoted with the aim to contribute to MoFA's commitments to food and nutrition security in general, and the targets set for Burundi through the Embassy of the Kingdom of the Netherlands (EKN) in Bujumbura in particular. Likewise, both approaches have intended to stimulate sustainable land investments and contribute to inclusive and participatory management of natural resources, in particular land. Surprisingly though, they have been largely developed and scaled-up in isolation from one another, with PIP-based projects in Burundi putting little to no emphasis on LTR. Vice versa, LTR interventions have hardly included specific activities around land stewardship and improvement of agricultural production, assuming that such investments would follow naturally.

Taking into consideration that there is a growing body of literature stressing the importance of integrating work on land tenure with that on sustainable land management (SLM) (Chigbu et al., 2022; FAO & UNCCD, 2022; Kasimbazi, 2017), it is worthwhile investigating if and how synergies between LTR and PIP can be created to achieve various development objectives, in particular Sustainable Development Goal 2 on Zero Hunger[4]. A knowledge gap exists around how such interventions add up in real-life settings and a context like southern Burundi that has been influenced by both approaches over a sustained period of time provides an excellent setting to explore their interaction.

The main objective of this study is thus to test the hypothesis that a combination of interventions geared towards LTR and those focused on SLM (i.e. working with the PIP approach) will yield better outcomes with regard to food security and associated livelihoods than any of the two interventions on its own. This hypothesis leads to the following **research question**:

To what extent does a combination of LTR and PIP interventions lead to better results with regard to food security and associated livelihoods than any of the two interventions on its own?

[1] For more information, visit: LAND-at-scale (rvo.nl).
[2] For more information on what is understood as Land Tenure Registration, see the textbox on page 6.
[3] For more information, visit: Project Database | Fanning the spark (in Burundi) (rvo.nl).
[4] For more information, visit: Goal 2: Zero Hunger - United Nations Sustainable Development.

This question is discussed by disaggregating it into three more concrete and researchable sub-questions:

- What is the perceived impact of LTR interventions on participating farmers (or lack thereof), especially with regard to improved agricultural production and food security?
- What perceptions and experiences do PIP farmers have with regard to (the absence of) different LTR interventions and their effect on achieving PIP objectives?
- What would be the most effective and impactful sequencing if LTR interventions and the PIP approach were to be combined?

It is important to mention that this study is not an impact evaluation of neither LTR interventions nor the PIP approach. Such impact studies have been conducted before in Burundi for both LTR (e.g. Arakaza, 2021; Veldman & Wennink, 2019a; Veldman & Wennink, 2019b; Wennink & Lankhorst, 2014) as well as for PIP (e.g. Kessler & van Reemst, 2018; Oxfam Novib, 2020). Rather, it aims to provide insights into the critical linkages between LTR and PIP and help shed light on potentially synergetic interactions. Given the qualitative nature of the study and limited means in terms of time and resources, the results of this study should be considered preliminary and require further in-depth research.

The rest of this research report is structured as follows. Chapter 2 will provide additional knowledge on LTR, its elaboration in the Burundian context, and its debated effects on food security and increased investments in agriculture. It will also elaborate in more detail on land degradation in Burundi, its implications for food security and the way the PIP approach is addressing those challenges. Chapter 3 then introduces the methodology used in this study, with Chapter 4 presenting the results in three sub-chapters. After that, Chapter 5 will discuss these outcomes by juxtaposing them to already existing research and outlines a number of recommendations. Finally, Chapter 6 will provide some concluding remarks and ideas for follow up, both in terms of research as well as the future work of development practitioners working on LTR and/or the PIP approach.

2 Background Information

The following two sub-chapters provide background information on the two central approaches being juxtaposed in this study, LTR and PIP. They focus specifically on the experiences in the Burundian context and mainly consider projects funded by the Dutch government (either via RVO or EKN) with involvement of WENR and/or ZOA, who have both been involved in the preparation of this study.

2.1 Land Tenure Registration in the Burundian context

Burundi is one of the smallest countries in Africa. At the same time, it is also characterized by one of the continents' highest population densities, with close to 500 people per km2 (World Bank, 2021). The vast majority of them (86%) live in rural areas, making it one of the least urbanized countries in the world (World Bank, 2021). With most Burundians making a living from subsistence agriculture, the pressure on the country's land and natural resources is immense. Most farms are small (often less than half a hectare) and frequently insufficient in size to support a households minimum subsistence means (Niragira et al., 2018). With few opportunities for off-farm income in sight, the property is sub-divided with each new generation, further exacerbating the problem. This situation is aggravated by the fact that the country's troublesome history of ethnic conflict has left many people displaced, with many repatriates asserting claims for land long occupied by new occupants (Tchatchoua-Djomo et al., 2020). The small farm sizes and competing entitlements (whether formal or informal) have led to a diversity of land-related conflicts, with Veldman and Wennink (2019a) reporting that in the rural areas they studied in Makamba province, land disputes exceeded 70% of all civil cases in magistrate's courts. While it is out of the scope of this research to elaborate on the history of land governance in Burundi in detail (for more in-depth information, see: de Satgé, 2021), it is important to highlight that 'the ensuing land disputes, still unfolding today, are sensitive and disruptive in nature' (Veldman, 2020: 6).

Dutch efforts on land governance (in Burundi)

It is in this light that the Swiss Agency for Development and Cooperation started a support programme for LTR in Burundi in 2008, which the Dutch Ministry of Foreign Affairs (MoFA) started co-financing via the EKN in Bujumbura a year later. The programme's overall objective was to 'contribute to the prevention and reduction of land tenure related conflicts as well as agricultural development through enhancing land tenure security and strengthening the legal framework' in the province of Ngozi (Wennink & Lankhorst, 2014: 8). This anticipated direct relationship between LTR and agricultural development has dominated the development sector for a long time, with tenure security among small-scale farmers being stipulated a perquisite for farm investments and rural development (Deininger, 2003; Prosterman, Mitchell & Hanstad, 2009; Stevens et al, 2020). The logic implies that once land rights are legally protected, farmers are more able and especially willing to invest in the productivity of their land, which in turn is expected to improve livelihoods and household food security. As a consequence, many development programmes have focused on advancing LTR over the last decades, with different projects and institutions highlighting different aspects of LTR (e.g. conflict resolution, land use policies, customary and indigenous land rights, etc.). Especially after the financial crisis in 2007/2008 and the subsequent 'global land rush', attention for LTR increased significantly (Salmeron-Manzano & Manzano-Agugliaro, 2023).

LAND TENURE REGISTRATION (LTR)

LTR is the most common approach proposed to solve issues of tenure insecurity. It describes the formal process of identifying land holdings and their owners, recording specific characteristics (location, size, boundaries, name of the rights holder, etc.) in a registry, and issuing a proof or certification to the rights holder. It can be done in an individual approach (so based on demand from individual landholders) or in a collective approach (with systematic registration of all parcels within a given geographic area).

In Burundi, a new Land Code (Code Foncier) was adopted in 2011, which recognizes previously titled land and also legitimizes customary land rights, as long as these are officially registered. It has made efforts to introduce a decentralised system of land administration in which land certificates are offered as a means for landholders to benefit from the protection of formal law.

In theory, LTR constitutes a highly suitable tool to advance land certification as a means to tackle tenure insecurity. In practice however, the lack of experiences with formal jurisprudence, the plurality of legal systems (formal and customary) and the perseverance of large numbers of land disputes are just some of the factors that make LTR endeavors ever more difficult. A summary of lessons learned from ZOA's efforts in Makamba Province, which largely followed a collective approach, can be found in Veldman (2020).

In that period, also the Dutch government - through MoFA - started investing more substantially in land governance, supporting national projects like that in Burundi, promoting multi-stakeholder actors like the International Land Coalition and the Global Land Tool Network, and subsidizing initiatives like the Netherlands Land Academy on Land Governance (LANDac). The most recent effort by the Dutch MoFA in that regard has been the launch of the LAS programme already mentioned in the introduction (and supporting this study), which in Burundi aims to build upon (and scale) successful LTR projects implemented by Dutch NGO ZOA in the province of Makamba in recent years[5]. Those projects (funded by the Dutch MoFA and USAID) have focused on, among others, (i) land ownership certification and an institutional framework for enhancing tenure security, (ii) conflict resolution and access to mediation mechanisms, and (iii) improved land rights for women. Given the complexity of the Burundian context (especially Makamba province with its large influx of repatriates), all of them have been accompanied by rigorous impact studies to monitor and help improve interventions (e.g. Arakaza, 2021; Veldman & Wennink, 2019a; Veldman & Wennink, 2019b). These studies have shown mixed results with regard to attainment of the projects' principal objectives, indicating that despite critical adjustments and subsequent successes throughout the years, various obstacles remain that still need to be overcome. High levels of land disputes for example continued to persist in the intervention area (especially between family members about land that has been registered, yet undivided), land transactions were under-recorded (below targets set) and the level of awareness on women's land rights (both customary and statutory) was improvable among beneficiaries. At the same time, one of the projects achieved that almost two thirds of all parcels targeted had been registered in co-ownership between husband and wife (Veldman & Wennink, 2019b).

Lack of knowledge on LTR and its effects food security and/or agricultural production

It is worth mentioning that those studies have put little to no emphasis on analysing the effects of LTR interventions on food security and increased agricultural investments specifically, despite most of the EKN funding coming from MoFA's budget on food and nutrition security. The evaluation of the EKN co-financed LTR project in Ngozi province (preceding and informing ZOA's work in Makamba province) did analyze these effects in more detail, with interviews indicating no causal relationship between LTR and agricultural investments (although an increased investment in perennial cash crops had been reported during FGDs) (Wennink & Lankhorst, 2014). The latest impact study on LTR in Burundi by Arakaza (2021) reported a potentially positive effect of women's land rights on household food security emerging from FGDs, while simultaneously indicating a lack of quantitative data to substantiate that claim.

This lack of clear data supporting the theoretical assumption on LTR's effects on food security and improved agricultural production is increasingly reiterated in a growing body of scientific literature, with a variety of studies indicating that the supposed causal relationship is everything but straightforward (Holden & Ghebru, 2016; Lavinge Delville, 2010; Lawry et al., 2017; Singirankabo & Ertsen, 2020). As Lawry et al. (2017) points out, this is particularly true for Sub-Sahara Africa, where two factors are noteworthy reasons for low

[5] For more information, visit: Project Database | LAND-at-scale Burundi: Amahoro @ Scale – An integrated approach towards improved tenure security and land governance in Burundi (rvo.nl).

investment and productivity gains following LTR: (i) the wealth/income effect, indicating the low economic status of many African farming households and (ii) the 'Africa effect', describing the unique, yet frequent prevalence of customary tenure arrangements preceding formalization attempts on the continent. In cases where those informal arrangements are well-established, the formalisation of rights through LTR might have only limited effect (Atwood, 1990). Such a plurality of land rights has also been discussed by Lavinge Delville (2010), who challenges the standard logic that titles to private property lead to more security and credit access (with the title and land as collateral), all of which then stimulate investment and productivity gains. For him, not only the conception of tenure security is questionable in that logic, also the determinants of investment are often much more complex than indicated in theory. A similar conclusion has been drawn by Holden & Ghebru (2016: 25) in their review of literature addressing the relationship between tenure security and food security: 'tenure security is an important but insufficient condition for the existence of conservation and investment incentives'.

For Burundi, very little research has been done on that specific linkage between tenure security and either land investments or food security. An exception is a study by Beekman & Bulte (2012) that looks at the link between social norms, tenure security and soil conservation in Burundi. Interestingly, the tenure security they assessed was almost exclusively of a customary nature, with little to no formal registration being available in rural areas at the time. The results showed a consistently positive correlations between tenure security and investments in erosion management, suggesting that there is a linkage between tenure security and investments in SLM. At the same time, it also suggests that synergies between the two are possible without necessarily opting for the formal LTR route.

Amahoro@Scale - A first project linking LTR with PIP

With those insights and lessons learned in mind, the Amahoro@Scale project was launched in 2021 as the principal LAS project in Burundi. Interestingly, it is the first LTR project that has clearly incorporated a PIP component[6], despite ZOA staff having emphasized the need to integrate LTR with concrete activities to intensify agricultural production (most notably in the form of PIP) and create synergies repeatedly over the years (Betge et al., 2017; Betge, 2022; Sorensen, 2023). Until recently however, such a holistic (or integrated) approach was depended on different projects and implementing organisations operating in the same intervention area. It also required acknowledgement and willingness by donors to financially support a joint focus on LTR and the PIP approach. And finally, it needed (and still needs) more knowledge on how such a joint implementation should look like in practice. Before exploring what the outcomes of this study have been in addressing this knowledge gap, it is important to provide some background information on the PIP approach and its effects in Burundi.

2.2 Land degradation effecting food (in-)security in Burundi

As already outlined in the previous section, factors like the increasing population density in Burundi are putting enormous pressure on the country's precious natural resources. People are increasingly forced to venture into more marginalized areas (often on steep slopes) in order to find sufficient land for cultivation. Coupled with increasingly frequent torrential rains and unsustainable farming practices, this situation leads to unprecedented rates of erosion, with Burundi's highlands reaching estimated annual amounts of soil loss of up to 100 tons ha^{-1} (MINAGRIE, 2012 in Ndagijimana, Kessler & Asseldonk, 2018). As a result, most of Burundi' smallholder farms are characterized by low agricultural productivity to the extent that they are insufficient to give households sufficient means of subsistence (Niragira et al., 2018).

The deteriorating natural resource base as well as unpredictable and insufficient crop yields have a strong effect on household food security, with Burundi being ranked 108 out of 113 countries on the Global Food Security Index (2022). More than 50% of children under the age of 5 are stunted and dietary intakes of key foods and nutrients are insufficient. Tackling land degradation and sustainably intensifying production are therefore key for improving food security in Burundi.

[6] Outcome 5 of the Amahoro@Sacle project intends to achieve 'improved land use management and land use planning for agriculture, housing and protection of natural resources in a just, inclusive and sustainable way' for a relatively small target population of 2400 households (ZOA, 2021).

A brief history on the PIP approach

The Participatory Integrated Planning approach, mostly often used in its abbreviated form – PIP – has been introduced to Burundi in 2013 through the 'Fanning the Spark' project[7], hereafter called SCAD (acronym for the project's French name '*Solidarité Communautaire pour l'Auto Développement*'), as a way to improve agricultural practices through technical assistance, helping farmers to tackle soil erosion and improve the fertility of their land. It was followed up by the (partially parallel) 'Supporting Agricultural Productivity in Burundi' (PAPAB) project[8] (2015-2020), funded by EKN in Burundi, which helped to further scale the PIP approach throughout the country. In the latter, ZOA was involved as one of the implementing partners, helping to scale the PIP in, among others, Makamba province. Both SCAD and PAPAB had the aim to foster resilience-based stewardship among famers by helping them implement different SLM practices and create both a vision as well as a plan for their farm. In addition to that, they also focused on stimulating collective action at the village level by engaging whole villages in sustainable land stewardship. After having reached almost 60.000 households with the PIP approach, the PAPAB project was followed up by two EKN funded projects, (i) the 'Soil Fertility Stewardship Project' (PAGRIS) project[9] (2020-2024), which continues to work with PIP farmers from the PAPAB project on three levels (plot, slope, and institutional or organisational) to achieve ecologically sustainable land management, and (ii) the '*Projet d'Appui au Développement Agricole pour la Nutrition et l'Entrepreneuriat*' (PADANE)[10] running until 2025, which intends to link the PIP work on inclusive value chains, nutrition security and opportunities for youth employment, among others. It is unclear why EKN decided to follow up on PABAB with two projects (PAGRIS & PADANE) rather than with one integrated project.

PARTICIPATORY INTEGRATED PLANNING (PIP)

The PIP approach, developed by WENR in 2013, is an inclusive bottom-up approach to tackle land degradation and build a solid foundation for long-lasting change. Based on three foundation principles (motivation, stewardship, resilience), it aims to generate motivated stakeholders (especially smallholder farmers) who become responsible stewards of the land and invest in social-ecological resilience. These foundation principles are complemented by three guiding principles (empowerment, integration, collaboration) that stimulate farmers to believe in their own ability to change reality, innovate and apply diverse opportunities, and seek partnerships to advance faster (see also the PIP tree in Figure 1).

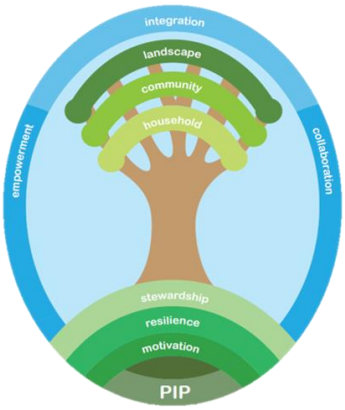

Figure 1 *PIP tree.*

It centres around a vision and a plan that that farmers create for their farm (household level) as well as a village vision and collective action by groups of farmers (*colline level*) to advance sustainable land stewardship. Key components include the dissemination of knowledge through farmer-to-farmer exchanges, the enhancement of social cohesion (within and among households), the creation of short-term visible impact and tangible improvements and focus on intrinsic motivation rather than external incentives. For more information, see Kessler et al. (2020).

Effects of the PIP approach on tackling land degradation and improving food security

Similar to ZOA's efforts regarding LTR, also the PIP approach has been evaluated through impact studies, although to a lesser extent. While the impact of SCAD project was evaluated by WENR itself (Kessler & van Reemst, 2018), the PIP component of the PAPAB project was assessed in detail by a team from Oxfam Novib (2020). In addition to that, there have also been various scientific papers in relation to different aspects of the PIP approach (e.g. Kessler et al., 2016; Ndagijimana, Kessler & van Asseldonk, 2018). Both impact studies have shown that PIP farmers are generally more motivated, more resilient and better stewards of the land. What this means more concretely is that there is a significant change in farmers'

[7] For more information, visit: Project Database | Fanning the spark (in Burundi) (rvo.nl).
[8] For more information, visit: Supporting Agricultural Productivity in Burundi (PAPAB) – IFDC.
[9] For more information, visit: Soil Fertility Stewardship Project (PAGRIS) – IFDC.
[10] For more information, visit: PADANE | SNV.

motivation and mind-set to undertake concrete actions to improve the quality of their land and farm. It also means that PIP-farmers report greater levels of household resilience and feel better equipped to handle external shocks than non-PIP households. And finally, it indicates that PIP-farmers are more knowledgeable about various aspects of SLM than those that have not been trained (especially on the why and how to implement different agricultural practices). Interestingly, the PIP impact study from the PAPAB project also showed positive effects of PIP beyond the three foundational principles, namely on perceptions of sales/income as well as food security. PIP farmers reported an increase in sale of produce (and subsequent income) and improvement in food availability, especially during the lean season. At the same time, the impact studies also revealed various points for improvement (e.g. paying more attention to tools and skills that can help producers diversify their production), many of which has been delt with in the follow-up project, PAGRIS.

The role of LTR in the PIP approach

While the link between LTR and the PIP approach seems logical at first sight, tenure security in general and LTR specifically have so far received little attention in the PIP approach. None of the PIP modules addresses tenure arrangements in detail and also the two impact studies did not pay attention to land tenure (in-)security as a factor potentially affecting the achievement of PIP objectives. The only PIP-related study that did look into land registration indicated that although farmers were apparently aware of the benefits of LTR, most of them did not register their land as they thought that the tenure right was automatically acquired through inheritance from father to son (Ndagijimana, Kessler & van Asseldonk, 2018). It also found that while during FGDs farmers did express an influence of LTR on investments in SLM, there was no statistically significant connection from survey results in that same study.

Seeing the limited and inconclusive knowledge on the linkage so far, it is of importance to gain more insights into if and how LTR and PIP could be mutually beneficial. As Betge (2022) points out in his plea for an integrative approach taking into consideration both, creating synergies between the two has the potential to provide for long-term sustainability and help tackle human induced soil erosion in Burundi and elsewhere. The following section will explain in more detail the methodology used in this study to derive a better understanding on how such an integrative approach could look like.

3 Research methodology

Given the exploratory nature of this research and the limitations in terms of both time and resources, it was decided to focus on qualitative research and the use of focus group discussions (FGDs) as the main mode of data collection. Not only have FGDs shown to be more efficient than one-to-one interviews with regard to time and the number of people able to interview, they also entail a number of key advantages particularly relevant for the objectives of this research. FGDs promote self-disclosure among participants to gain knowledge and understanding of their thoughts and emotions and have proven to be effective in ascertaining people's opinions and sentiment about the interventions of a programme (Krueger & Casey, 2000). Ideally, they are conducted in an environment that feels comfortable and permissive, allowing participants to react to and build up upon one another's opinions. As Krueger & Casey (2000: 11) points out, 'the focus group presents a more natural environment than that of an individual interview because participants are influencing and influenced by others – just as they are in real life'.

Selection of target villages

In close collaboration with the Burundi office of the NGO ZOA, a total of six FGDs have been conducted in six villages (*collines*)[11] with a limited number of farmers. Those villages have been selected and sub-divided based on a number of specific characteristics. While on the one hand they have been selected based on the sort of interventions they have experienced in recent years (either on LTR or on PIP), on the other they have been screened on the enabling factors prevalent in terms of (potential) socio-economic development (well-situated vis-à-vis more marginalized). Eventually, this led to the selection of two villages that have only experienced LTR interventions in the past (Munonotsi in the commune of Makamba and Gasaba in the commune of Nyanza-Lac), two villages in which only the PIP approach has been introduced (Muhuzu in the commune of Rumonge and Mugumure in the commune of Nyanza Lac) and two villages in which both LTR and PIP have been implemented (Kinoso in the commune of Makamba and Rangi in the commune of Nyanza Lac).

Of those six villages, the three in the commune of Nyanza Lac (Gasaba, Mugumure & Rangi) are relatively well-situated when it comes to, among others, their agro-ecological zone, socio-economic conditions and market access. The commune is relatively urbanized and partly located in the Imbo plain, a region more favourable for agriculture production and characterized by cash crop production (especially oil palm) by better off households (FEWS NET, 2021).

The other three (Munonotsi, Kinoso & Muhuzu) are in turn more marginalized, sparsely populated and erosion prone, with all of them being situated in high altitude relatively far from major roads. Muhuzu was chosen as the only *colline* outside of Makamba province due to the impossibility of finding a village within this province (yet outside the relatively well-situated Nyanza lac commune) in which the PIP had been introduced, yet no LTR activities implemented.

[11] In Burundi, Communes are sub-divided into *collines*. *Colline* literally means 'hill' in French (one of the official languages of the country) and is derived from the country's mountainous topography. In this study, it is used synonymously for a village.

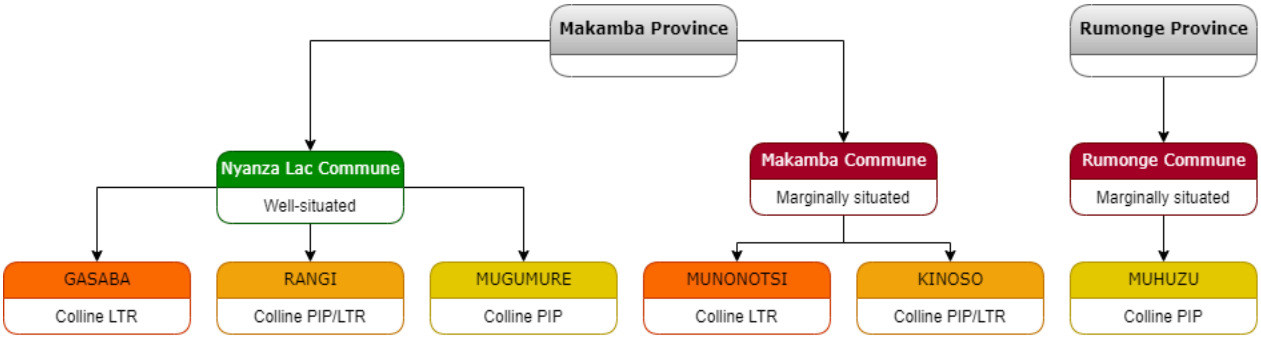

Figure 2 *Selection of collines for FGDs based on their characteristics.*

Research setup

In each village, the local ZOA field staff was asked to select a total of 12 farmers (of which half female) with different involvement in and exposure to project activities on LTR and/or PIP to join the FGDs. The number of farmers was based on specific pre-selection criteria (regarding exposure and involvement) and the assumption that not every farmer would be able to show up on the day of the FGDs. With occasional and unexpected changes, this led to a total of around 75 participating in the FGDs (of which approximately half female).

The FGDs lasted 90 to 120 minutes followed by a short break and another 30 minutes of discussion with women only. The latter was to ensure that gender-sensitive information could be gathered, with women invited to share additional information they were hesitant to share in the larger group setting. The field research took place over a period of five days in early August 2023 with a team of Burundian research assistants. Participants were met in a public building in the centre of each *colline*, with other villagers being kindly requested to keep distance for the time of the FGD. Women were also informed that after the meeting with the full group, there would also be another moment for them to share reflections in a women only FGD. The FGDs followed Krueger & Casey's (2000) recommendations for a pattern to introduce the group discussion (welcome, overview of the topic, ground rules and first question) followed by a specific sequence of questions prepared for each FGD based on the characteristics of each village[12].

In addition to FGDs, also a number of interviews with key experts on PIP and LTR in general and the Burundian context in particular have been hold to validate and substantiate insights stemming from the field research. The reflections of those experts have been incorporated into the results and discussion section of this study.

[12] As is usual with FGDs, the prepared questions were only used as a guide and deviations were made depending on the course of the interview. An overview of the questions per village is available on request.

4 Results

The results section is largely structured around the three sub-questions that this study aims to address. It first focusses on investigating LTR activities and their perceived effect on farmers, especially regarding improved agricultural production and food security. Next, it looks at the views of farmers trained in PIP on the role of LTR in achieving their PIP objectives. And finally, with the third question it looks at what the most effective and impactful sequencing could be if LTR and the PIP approach are to be implemented in the same intervention area. Taken together, the responses will help shed light on the main research question, namely the extent to which a combination of LTR and PIP interventions can lead to better results with regard to food security and associated livelihoods than any of the two interventions on its own.

4.1 The perceived effects of LTR on improved agricultural production and food security

Before diving into the outcomes of the FGDs with regard to the perceived effects of LTR on improved agricultural production and/or food security, it is worth noting the complexity of measuring this supposed causality. As Singirankabo & Ertsen (2020) showed in a systematic review of 85 studies on the relations between land tenure security and agricultural productivity, most of the methods used were insufficient to tackle the complexity on how tenure security affects agricultural productivity. Successful attempts to quantify this causality have been made in Ethiopia, where several studies indicated significant positive effects of LTR on the adoption of SLM practices and agricultural investments in general (Holden, Deininger & Ghebru, 2009; Melesse & Bulte, 2015). Melesse & Bulte (2015) however point out that the Ethiopian case is special, with no customary land laws existing prior to large-scale certification programmes. This is an exception, rather than the norm on the continent (Lawry et al., 2017). With methodological challenges and the importance of context specificity (especially in conflict-stricken Burundi) in mind, we zoom into Makamba province and the four villages of Munonotsi (LTR) and Kinoso (LTR/PIP) in Makamba commune and Gasaba (LTR) and Rangi (LTR/PIP) in Nyanza-Lac commune. Presenting the results of FGDs in each of the four villages, we first look at the overall experiences of farmers with LTR, then at the specific effects on agricultural productivity, and finally at the perceived food security effects.

Diversity of experiences with LTR

Responses in relation to the overall impression of LTR in the four villages are varied, with both positive as well as negative experiences coming to the fore during FGDs. While the vast majority of participants appreciated the various LTR interventions, for many they also felt incomplete. Important to note in this regard is that in Munonotsi and Kinoso, activities had long been completed, with ZOA's main registration activities having been concluded in the fall of 2018. In Gasaba and Rangi however, LTR activities (beyond sensitization and awareness raising) had only started as late as March 2023 as part of the Amahoro@Scale project (aimed at finalizing LTR in Makamba province), which is still ongoing. The feeling of imperfect implementation therefore needs to be differentiated between the villages in Makamba commune and those in Nyanza Lac.

In general, participants in all FGDs reported that soon after the introduction of LTR activities, the amount of land-related conflicts initially increased significantly, before slowly decreasing again. This pattern is consistent with responses gathered during the previously mentioned impact studies, which reported a similar swift increase and subsequent decline in land disputes over the project period. The main reason here is that once the delimitations of parcels are being drawn up, divergencies start surfacing that had previously been dormant. And once the moment comes that tenure rights are being officially registered, people try their best not to come off second best when uncertainty arises. Interestingly, this pattern was also visible in Rangi and Gasaba where LTR activities had only started recently, indicating that while the initial increase in disputes is probably inevitable, many conflicts had been solved in a relatively short period of time. Taking into

consideration that Nyanza Lac commune is notoriously known for the high number of land related disputes due to the large number of repatriates and internally displaced persons, this suggests that ZOA's approach of sensitisation prior to[13] and during the Amahoro@Scale project as one of the several important lessons learned from other regions has had a positive effect, even in a very short time. However, this assumption needs further inquiry.

During the FGDs, participants raised concerns about various forms of land-related disputes. An important differentiation needs to be made between disputes occurring between families (or households[14]) and those appearing within them. Inter-household land disputes are more superficial in nature, often related to disagreement regarding property boundaries. LTR has been reported to eventually help solve many of those over time. Intra-family (or household) conflicts however are much more difficult to be solved by LTR alone. Especially concerns regarding ownership succession and disputes between residing and absent family members have been mentioned repeatedly as conflicts that continue to persist, especially in Nyanza Lac commune (Rangi and Gasaba). Prominent examples include gender-related succession disputes (with patriarchal social structures often preventing women from gaining neither customary nor statutory tenure rights) and those between a household and the extended family (with registration still often happening under the name of the family head rather than the household head). Another complex, yet frequently occurring form of conflict that LTR can less effectively solve or prevent is that between incumbents and repatriates wishing to resettle on their native land.

These disputes have reportedly delayed or even obstructed both the registration as well as certification process, with various personal stories from FGDs participants reiterating their detrimental effects on LTR efforts. Similar findings have also been reported by Veldman & Wennink (2019b), which analysed these effects in more detail. As they summarize, 'regardless of registration, without changes to the factors driving such disputes, strengthened legislative and policy frameworks, and enhanced capacity of courts and competent institutions, the levels of these disputes are unlikely to go down (2019b: 17).

A final important finding regarding the perceived overall effects of LTR is in relation to land certification, where responses by FGD participants have shown varying degrees of knowledge about the potential benefits of land certificates. In Kinoso and Munonotsi, for example, some participants had already obtained certificates in order to get a loan from the bank, while others did not even know that a land certificate can be a prerequisite. Similarly, also in Gasaba and Rangi participants had different ideas levels of knowledge about how the process of acquiring a certificate looks like and why someone should consider. Whereas for the latter two villages the lack of knowledge can probably be explained by the fact that the Amahoro@Scale project is still ongoing, for the former two the findings indicate that activities were probably completed too early with follow-up being necessary. This is also something that was raised by FGD participants in both Kinoso and Munonotsi, who felt that interventions should have been longer to ensure sufficient understanding among community members and enable all land within the *colline* to be registered. At the same time, it is important to keep in mind that land still under conflict cannot be officially registered and that project deadlines make it difficult to wait until such conflicts have been resolved. Finally, also the cost of acquiring a certificate was mentioned as a serious bottleneck, with various participants in Munonotosi sharing their frustrations about the high cost of obtaining a land certificate.

Little evidence on the effects of LTR on improved productivity

Looking at the specific linkage between LTR and production increases, the research has revealed very little concrete evidence. In the two villages in which only LTR activities had been implemented (Munonotsi and Gasaba), FGD participants were cautious to report direct productivity increases due to LTR. Responding to the question whether LTR had positively influenced their agricultural practices, participants in Munonotsi elucidated that no noteworthy changes in production had been observed. Likewise, also in Gasaba participants did not perceive LTR as remedy for tackling erosion and improving or diversifying their agricultural production. While this does not rule out the possibility that LTR has had a positive impact on the

[13] With funding from USAID, ZOA had also focused on land conflict resolution for two years in Nyanza-Lac district (2016-2018) while the 'full' LTR package was being implemented in Makamba district. At the time, the authorities in Nyanza-Lac considered it too early to also carry out LTR in Nyanza-Lac due to the high level of conflicts.

[14] In the Burundian context, the family is often considered a much larger unit than the household, with tenure conflicts frequently occurring between family members from different households. Often, they are succession related and a result of land fragmentation by the family head that leaves descendants with unsatisfactory and/or insufficient land to make a living from.

latter (in indirect and less obvious ways), it does show that the link is anything but simple for beneficiaries to comprehend (especially in the short term). Overall, discussing the linkage felt more like a theoretical exercise rather than something that participants had clear personal experience or evidence on.

On the contrary, the discussion shifted when speaking about the prevalence (and lack) of existing skills with farmers. In both villages, considerable importance was attached to the need to acquire knowledge about sustainable production, with participants in Munonotsi conveying resentment over the sentiment that their *colline* has been left out of agricultural development programmes. It might be that testimonies in relation to agricultural support were exaggerated with the hope that doing so would trigger an appropriate response from ZOA and other local NGOs, but the introduction of the FGD attempted to make clear that this was not the intention of the convening. In summary, the responses indicate that the linkage between LTR and productivity increases is not straightforward at all, with knowledge on SLM and improved agricultural practices instead being highlighted as an important requirement to stimulate land investments. The only anti-erosion measures implemented on a larger scale in both Munonotosi and Gasaba had been initiated in a rather top-down manner via the local administration. In Kinoso and Rangi, the two villages that had also seen the PIP approach prior to the introduction of LTR, the situation looks quite different. Before elaborating on their experiences in more detail in the following section, we briefly look at the responses of FGD participants to question of what they have done with their credit or would like to do if credit were available to them.

Overall, the number of respondents who paid and collected a land certificate (roughly a third of all participants in Kinoso and Munonotsi) and then chose to apply for credit (only a few individuals) was limited. This issue is not distinct to the FGDs in this study, but a general challenge attributed to the costs of a certificate and long journey to the municipality (ZOA, 2021). Two participants in Kinoso that had managed to secure a land certificate indicated that they were planning to get a credit to purchase cattle (of a modern breed), something that was echoed by many participants in other FGDs as a wish when being asked the hypothetical question of what they would use a credit for if they were given one. Interestingly, for many, the prospect of cow manure was the main reason for choosing cattle as a choice of investment, with knowledge on its role in improving soil fertility being wide spread. Although it seemed that this option was more popular among PIP farmers than non-PIP farmer, it would be premature to draw conclusions from this. Despite the integration of livestock being a central pillar of PIP trainings, it is not a new thing in Burundi and has also been promoted through other development programmes. It was out of the scope of this to study to analyse in detail the perception of farmers on bank credits vis-à-vis other forms of financial service (e.g. micro-credit schemes), but Ndagijimana, Kessler & Asseldonk (2018) indicated that considerable differences exist regarding the question of who is able to access what (financial services) under which conditions (personal as well as dictated by the financial institution). As very little literature was available how access to credit markets in rural areas plays out in the Burundian context, this is a topic that requires further research.

The importance of a positive mindset

This final section dealing with the perceived effects of LTR looks specifically at the food security situation of households that have engaged in LTR interventions. The FGDs painted a clear picture in that regard: Munonotsi and Gasaba as 'LTR only' villages had the most desperate sentiment in general, and about their food security situation in particular. As a response to the question of whether people would experience food insecurity, the participants of Gasaba collectively responded 'It's famine here!'. Some of them indicated that they would only eat one meal a day and that their production would be insufficient to produce enough for the household, let alone sell surplus on the market. It became quite clear that the mindset of participants hadn't been positively affected, unlike in the PIP villages, where participants in general had a much more hopeful and proactive attitude. Whilst in Munonotsi and Gasaba participants repeatedly described their situation in terms of shortcomings (a lack of knowledge, a lack of production and a lack of financial capital), in the PIP villages participants put more emphasis on achievements and future opportunities. Although they also referred to a multitude of challenges (expectedly emerging from specific questions asking about those), their attitude was much less one of hopelessness, but rather one of self-confidence and gratitude about (recent) achievements. This difference in mindset and subsequent agency stemming has been one of the most striking revelations during the FGDs. While the attribution of this finding solely to the PIP should be treated with caution, there can nonetheless be a preliminary conclusion that the PIP approach has (at least partly) had a positive effect on the attitude of those participants. Those findings area also in line with the earlier mentioned PIP impact studies (Kessler & van Reemst, 2018; Oxfam Novib, 2020).

4.2 The (potential) effects of LTR on PIP objectives

For the second question aimed at better understanding the potential effects of LTR on PIP farmers and their objectives, we look at the results of the FGDs in the four villages that have been exposed to PIP activities, Kinoso (LTR/PIP) in Makamba commune, Muhuzu (PIP) in Rumonge commune and Rangi (LTR/PIP) and Mugumure (PIP) in Nyanza-Lac commune. Comparing villages that have undergone both LTR and PIP activities vis-à-vis those that have only been exposed to PIP helps shed light on the perceptions and experiences of PIP farmers with regard to different LTR interventions (or the lack thereof). Finally, we also look at the effects of LTR on social cohesion within families and the colline.

Experience of LTR/PIP farmers on prevalence of LTR

This section focusses specifically on the two villages of Kinoso and Rangi where both LTR and PIP have been introduced. While in Kinoso LTR was introduced shortly after the PIP approach (only a few months difference), in Rangi the sequencing has been the same, yet with a much larger time gap (almost five years). It would have been preferable to include two villages with reversed sequencing in the sample, but this was not possible due to non-existence of a village in which LTR had been implemented prior to PIP. Nonetheless, the large difference in timing of LTR/PIP activities between Kinoso and Rangi has been interesting to investigate and will be further elaborated upon in the third and final part of the results section.

Looking at overall perceptions on the usefulness of LTR and PIP in general, and the prevalence of LTR for the achievements of PIP objectives in particular, FGD participants in both villages have clearly recognized the value of combining the two. Various examples were mentioned about the added value of LTR for PIP, e.g. in reducing potential conflicts between neighbours about the trespassing of property boundaries during the digging of contour trenches, or the mitigation effect on family members stopping you from practicing PIP on land that has not yet been divided within the family. Similar to the latter example, a woman in Kinoso indicated that as her families' land had not been partitioned yet, she was living in fear that one day the division would be realized, and that the land that she had invested in significantly as part of her PIP plan would be given to someone else within the family.

This shows that the mitigating effects of LTR in relation to conflict (especially through increased awareness and 'legal literacy') is also highly relevant for the achievement of PIP objectives, with (potentially) positive effects[15] having been reported both within as well as between households. Whereas the former concerns, among others, family disputes about who reaps the benefits of land investments (especially in relation to succession between male and female family members), the latter is often related to possible conflicts between neighbouring PIP and non-PIP farmers. For all those relationships (intra- and inter-household), the lack of knowledge about PIP, its objectives and concomitant benefits can add to the likelihood of new conflicts arising. Ensuring that knowledge on both PIP and LTR is wide-spread within the *colline* is therefore of paramount importance. In summary, the FGDs have indicated that with the right level of awareness in the community, LTR has the potential to affirm PIP farmers that no one will interfere with their plans, providing them with the reassuring prospect that their investments will pay back in the long-term.

Experience of PIP only farmers on the absence of LTR

Having elaborated on the experiences of farmers in Kinoso and Rangi where both LTR and PIP have been implemented, we now turn to Mugumure and Muhuzu where ZOA has only intervened with PIP related activities. Interestingly, reports on the risks of (formal) land rights being absent have been largely similar to those villages where PIP had been followed up by LTR. Participants reported the same inter- and intra-household conflicts, with new evidence including repatriates (re-)claiming and getting allocated land that PIP farmers had already started investing in, and the issue of lease agreements being iniquitously revoked by the landowner after seeing PIP-related investments improving the quality of the land. Despite broad overlap in the issues at hand, it became evident that various aspects of the LTR process (and its associated benefits) were much less known to FGD participants here, especially women. There was more uncertainty about what options are available to mitigate and/or overcome land related disputes and while participants in both villages knew about the necessity of a land certificate in order to gain access to bank

[15] (Potentially) is deliberately put in brackets here as it is has not always been possible to verify during the FGDs whether statements had been based on actual experiences or on presumptions and subsequent reservations. Substantiation therefore requires further inquiry.

credit, little was known about the procedures of doing so. One woman in Mugumure for example stated that she thought that land registration and certification were only 'a thing for rich people'. Subsequentially, neither land certificates nor bank credits where prevalent among participants in Mugumure and Muhuzu. At the same, they unanimously responded positively to the question of whether or not LTR interventions would be appreciated in their collines. These findings are consistent with the expectation that LTR activities are just as relevant for PIP farmers as they are for non-PIP farmers, as both are experiencing land tenure related challenges.

Effects of LTR on social cohesion within families and the colline

The final aspect this study focused on the effects of LTR on social cohesion within families and the *colline*, something that the PIP approach deliberately works on by following the three guiding principles of *empowerment*, *integration* and *collaboration*. In doing so, it aims to establish the right social conditions to enable sustainable change. Aspects of social cohesion are found at household level (in between family members, especially women and men) as well as at village level (between community members). As those guiding principles are ultimately about *how* the PIP approach should be implemented, we look at whether aspects of land tenure (in-security) and the prevalence (or absence) of LTR have any implications on the effectiveness of these principles.

As Kessler et al. (2020: 5) point out, 'at the individual level, *empowerment* concerns a process in which people gain control over their lives, develop a sense of self-determination, and eventually believe in their capability to change their own realities'. At the collective level, it means that cooperation among community members enables them to achieve their goals faster. *Integration* also has a strong social component, in the sense that people start valuing personal diversity, seek support from various actors and institutions (to the extent that they are in place), and integrate continuous exchange and learning into their habits. And finally, the third principle of *collaboration* actively builds social capital of farmers to work with and learn from one another, fostering a sense of 'togetherness' and trust that reinforces solidarity at family and village level (Kessler et al, 2020).

Although the two impact studies (Kessler & van Reemst, 2018; Oxfam Novib, 2020) did not pay specific attention to the aspect of social cohesion, it became clear from the FGDs that generally, people appreciated the positive effects they noted the PIP approach was having on social cohesion, both within and among farming families. Testimonies were almost unanimously affirmative, especially for women. In Muhuzu and Mugumure (PIP only villages) for example, most women felt that the PIP approach was more beneficial for them than to their husbands and many of them felt that their voice was taken much more into account in household decision making. In several instances, men even indicated that the PIP process had made them realize their own, often lavish behaviour toward household income, with several of them having reduced or even stopped consumption of cigarettes and alcohol since then. Instead, they explained that they were now engaging in joint saving, planning and decision making with all household members, often working toward a common goal. Similarly, also at *colline* level an increased level of collaboration was testified by most respondents. Collective activities had been (and in several instances continued to be) implemented on a regular basis, saving groups had been set up and the village vision continues to be a road map for village development. Interestingly, even higher productivity increases by some village members over others were not perceived as a threat or potential factor increasing inequality within the *colline*, but rather something benefiting everyone through the increased availability of produce on the local market.

Looking at the LTR effects on social cohesion, the overall picture is positive as well, albeit with certain reservations. Participants reiterated the earlier mentioned increase in land disputes shortly after LTR, but also indicated that in the long term land registration resulted in a considerable decrease in land-related conflicts, especially between neighbours. There was more certainty among households about the boundaries of their properties and the *collaborative* process of land registration (with neighbours witnessing and signing off on each other's demarcation) was experienced by several as an enriching experience. Equally, sensitization sessions were attended by many villagers and aroused joint enthusiasm, although to a lesser extent than PIP sessions (which received more praise in Kinoso and Rangi, where participants experienced both). At the same time, the positive effect of LTR was much less pronounced when discussing social cohesion among family members. While participants alluded for example to the fact that they had participated in a number of sensitization sessions on the opportunity of co-ownership of land, in many cases

this had not materialized. Reasons were plentiful, from the prevalence of cultural barriers maintaining patrimonial land ownership to the persistence of (succession-related) land disputes between and among families. Consequentially, such conflicts continued to dampen the mood and cloud the overall effects of LTR on social cohesion, especially for women. Although many of them recognized the potentially *empowering* nature of land (co-)ownership, they also stressed a lack of knowledge on how exactly this could be achieved. Some women even responded that they had little to no information on how (and by whom) their household land had been registered during the LTR process. On *integration*, the responses from participants provided little insights into the potential effects of LTR. What is worth mentioning though is that in Mugumure, the PIP only village in Nyanza Lac commune, LTR had already been integrated in the village vision as a joint objective without any comprehensive LTR sensitization campaign having reached the *colline* yet. Likewise, in Rangi, a farmer reported that he had integrated the family tree as drawn in PIP trainings in the LTR process, eventually registering the land in the name of both him and his wife.

Important to mention here is that the study was not able to distinguish between the negative effects coming from land disputes more generally and those being awaken or fuelled through the introduction of LTR. While questions were often specifically in relation to LTR, it is likely that participants interpreted them as questions about land-related conflicts more broadly, which means that the picture might have been painted more negatively than actually experienced. In any case, the testimonies on the social cohesion effects of both PIP and LTR reveal that there is great potential for activities to be interwoven in order to create effective synergies. The next section looks in more detail on the perceptions of FGD participants on how this could best be achieved.

4.3 Aspects of sequencing between LTR and PIP interventions

As the previous two results sections dealing with the first two sub-research questions have shown, there is a clear indication that LTR and PIP interventions can be mutually reinforcing. In this final section (on the third and last sub-research question), we look at aspects of sequencing between LTR and PIP interventions and analyse responses from all six FGDs to better understand what ideas exist among participants.

Actual sequencing in ZOAs interventions
To recall, the actual sequencing in both LTR/PIP villages (Kinoso and Rangi) has been the same, with the PIP approach having been implemented prior to LTR activities. A core difference however has been the timeframe, with LTR having been implemented in Rangi several years after PIP (vis-à-vis only a few months in Kinoso). For the other four villages, it is unclear if and when the second approach will be implemented, although it is likely that the PIP only village in Nyanza Lac commune (Mugumure) will eventually be included in the Amahoro@Scale project (aimed at scaling LTR throughout all of Nyanza Lac commune). Despite only two villages actually having experienced both interventions, questions about preference were also asked in the two PIP only villages (Mugumure and Muhuzu) as the main aspects of LTR were known to participants. The LTR only villages (Munonotsi and Gasaba) however did not receive similar questions on sequencing as it would have taken simply too much time to explain what exactly the PIP approach entails.

People's perception and preference
When participants were asked about their preference in terms of sequencing (either to start with the PIP approach or LTR activities), FGD participants were quite confused. It took several rounds of explanation in order for them to understand what the intention of the question was. The main reason for the lack of certainty was the fact that participants were having a hard time imagining how a situation could be different to the one they had actually experienced (i.e. PIP preceding LTR). The hypothetical nature of the question meant that they had to envision a fictitious situation based on their own understanding of both PIP and LTR. Once the exercise was well explained, the subsequent discussion was comprised of vivid exchanges.

Overall, the majority of participants opted in line with the prevailing theory for LTR preceding a SLM related approach like PIP. Many of them indicated that LTR would lead to both a reduction in land-related conflicts as well as tenure security, which they considered a notional prerequisite for the implementation of their PIP. Having tenure rights would mean that people could implement their plan without fear that someone would disrupt their efforts (whether from within or outside the family). In addition to that, some stated the

prospect of inquiring a credit could eventually help you in realizing your PIP plan. However, the fact that participants in Kinoso and Rangi had actually experienced the exact opposite (with PIP preceding LTR) meant that responses were much more nuanced and well-considered, with some participants initially objecting the consensus with relevant arguments in favour of the way things had actually happened. One male farmer in Kinoso for example stressed that only because of the PIP he has started to better plan for himself and his household, having come up with several well-considered projects that eventually would require funding. Starting with LTR, especially the process of certification and credit enquiry, for him would only make sense if people had changed their mindset through the PIP approach, planning well ahead and making well-considered investment decisions jointly as a household. A female farmer in Rangi testified that she liked the way things went because only through the income gained through increasing her production with PIP she is able to afford expenditures like a land certificate. And finally, another male farmer in Rangi highlighted that the PIP approach has truly stimulated collaboration among the community members, a fact that is making the whole LTR process much more easy. For him, the social cohesion aspect of PIP is preventing a lot of ongoing or dormant conflicts from further escalating.

In the two villages where only the PIP approach had been implemented (Mugumure and Muhuzu), FGD participants were very aware of the dangers that the lacking legal certainty regarding land was bringing along. With land-related conflict being the most prevalent concern, almost all of them stated a preference for LTR being initiated prior to PIP, so as to reduce the risk of PIP investments being unexpectedly ruined. Especially the issue of contracts about hired land being revoked once investments would bear fruits was repeatedly stressed as a concern and is something that needs further investigation, especially as it is unclear how LTR can solve this issue. Important to mention here is that it was not always clear whether statements by FGD participants where based on actual experiences by themselves, by others or just general fears. While the actuality of those statements should thus be treated with caution, they nonetheless describe a certain sentiment that is inevitably affecting people's action.

5 Discussion

Having presented the results of this study based on the three sub-research questions, we know look at what the results mean for the overall research question on the extent to which a combination of LTR and PIP interventions lead to better results with regard to food security and associated livelihoods than any of the two interventions on its own. It is divided into two parts, (i) one looking at what the results of the FGDs mean in relation to the earlier presented theory on the linkage between LTR and SLM approaches like PIP, (ii) the other elaborating on what an effective combination of the two could look like in practice.

5.1 Focus Group Discussions reaffirming critical theory

The aim of the first sub-question was to gain more insight into the perceived effects of LTR on increasing agricultural production and improving food security. In line with what the scientific literature suggests (Holden & Ghebru, 2016; Lawry et al., 2017; Singirankabo & Ertsen, 2020), also in this study it has proven challenging to identify any direct relationship between LTR and either of the two factors. The causal chain of LTR → Incentives to invest → Reduced land degradation → Increased productivity → Food security should therefore be treated with caution in the Burundian context. What became clear is that while formal tenure security can constitute an enabling factor, it is by no means a prerequisite for land investments. Hearing the testimonies of many of the PIP farmers that participated in the FGDs, it looks like there have been other, supposedly more important factors encouraging them to start investing in their land. As Holden & Ghebru (2016: 25) point out in their literature review investigating the same causal linkages, it is worthwhile investigating other related pathways, for example: Poverty reduction → Strengthened ability to invest → Increased investment → Reduced land degradation → Increased land productivity. While this is certainly an interesting one, it still leaves open the question of how this poverty reduction can come about?

How PIP principles can guide LTR interventions

While part of the solutions lies in the creation of various external factors that are generally recognized to help communities flourish (basic infrastructure and functioning public institutions, access to markets and finance, etc.), another part also lies in the change of people's mindset and the willingness to become one's own agent of change. This change of attitude is at the core of the PIP approach and has been affirmed as a gamechanger by many PIP farmers, both in the earlier cited impact studies (Kessler & van Reemst, 2018; Oxfam Novib, 2020), as well as during the FGDs conducted as part of this study. Whereas in the 'LTR only' villages the spirit was largely one of desperation, PIP-trained farmers showed a much more proactive sentiment to bring about change (both at the individual and the community level) and not wait for external support or incentives. Although this study was not able to establish exactly how much of this observation can be attributed to the PIP approach (there might have been other influences), it was nevertheless a noticeable finding. An additional, crucial factor coming to the fore during this study was the importance of agricultural knowledge. Reports on the increases in production through improved technical knowledge on different crop and soil management practices were plentiful among PIP farmers, with 'LTR only' farmers stating a lack of the very same as one of the biggest obstacles in changing their food security situation. And finally, a third important factor (next to a change in mindset and improved knowledge) is the increase in social capital, with strengthened cooperation, trust and reciprocity among household, family and community members being continuously mentioned by FGD as crucial factors to improve livelihoods.

What this implies is that LTR interventions alone are unlikely to lead to any significant increases in agricultural production and food security. Rather, they should form part of a more integrated and holistic approach that is aimed at helping people to develop a long-term prospect of secure and resilient livelihoods. The study suggests that an adherence to the guiding principles of the PIP – *empowerment*, *integration* and *collaboration* – can be equally relevant for LTR interventions, with great potential to not only help improve food security, but also empower community members (especially women) and prevent conflict within and among households.

LTR amplifying the effects of PIP

What the second sub-question showed however is that this relationship between LTR and PIP is reciprocal. Not only have PIP principles and activities shown to be beneficial for LTR objectives, also tenure security was considered an important enabling factor for PIP farmers. FGD participants referred to many examples where tenure insecurity was hampering or even annihilating their PIP plans. While Beekman & Bulte (2012) were able to show that strong correlation between tenure security and soil conservation is also possible when (for the most part) only customary land titles are in place, they did not assess in detail the effects of land disputes on either of the two factors. It is exactly that complex interplay between land tenure and conflict resolution that ZOA has aimed to address with its LTR projects. Taking into consideration the limitations of customary tenure and conflict resolution mechanisms in Burundi (van Leeuwen, 2010) and the perseverance of many conflicts, there is a strong need to improve tenure arrangements in Burundi. It has been out of the scope of this study to assess in detail what the right, fit-for-purpose tenure arrangements should look like in practice, but it became clear from the FGDs that a formalization (or at least more binding system) of land rights can be beneficial for farmers to implement their PIP.

5.2 What could an effective combination of LTR and PIP look like?

Anticipating that synergies between LTR and PIP are not only possible, but also highly desirable for the achievement of greater food security outcomes, this study also included questions for FGD participants on the preferred sequencing if LTR and PIP were to be introduced in a village over the same period of time. While the majority opted for LTR preceding the PIP approach, the results showed that this conclusion was far from unequivocal. Various responses controverted the general consensus with relevant and thought-provoking statements, indicating that the joint and somehow sequential implementation of LTR and PIP activities needs careful consideration. They also insinuated that the biggest synergies are not to be found in a simple succession, but rather a well-conceived intertwining. The context-specificity of each location however makes it impossible to come up with a blueprint of how the two should exactly be interwoven. Factors like pre-existing (customary) tenure arrangements, levels of conflict, socio-economic conditions and social cohesion at *colline* level all need to be taken into consideration. Instead, this section outlines a number of sequential recommendations that can provide guidance when starting to operate in a new intervention area.

Recommending a well-conceived and stepwise approach

Awareness raising is a pivotal exercise in the intervention logic of both LTR and PIP, with activities at community level elucidating the target audience being scheduled prior to any technical implementation. The PIP approach is initiated by at least six sessions at community level in which the villagers reflect and discuss their current and future situation and brainstorm on how to bring about sustainable change. As a **first recommendation** (i), those awareness raising sessions at village level could offer a perfect opportunity to also discuss the importance of land tenure security, LTR and women's land rights with participants (if necessary by adding one or two session). Subsequentially, those discussions could feed into the process of developing a village vision and encourage the community to collectively develop plans and mechanisms at *colline* level for securing (women's) land rights and mediating conflict. As the elaboration of the village vision is based on a participatory mapping exercise, it could also include land tenure related characteristics (what is private land, what is public land, where are disputes over land, etc.).

A parallel **second recommendation** (ii) would be to use these discussion as an opportunity for project staff to gain better understanding of the initial situation in the target villages. Do customary tenure arrangements exist in the village? Is the village particularly prone to conflict? And are there already community structures present working on land disputes and/or sustainable land management? Answers to those question will help finetune follow-up interventions at *colline* level and make those geared toward the household (or group of households) more context-specific and aligned with local needs in relation to LTR.

A **third recommendation** (iii) would be to incorporate additional awareness raising on LTR in the PIP trainings for farmers, stimulating them to discuss aspects of land tenure within the household and wider

family and integrate them in the planning process. How can LTR be of benefit to the household and why is it important for household members to join forces in registering their land? Using the PIP family tree for example to visualize and discuss succession rights could help prevent intra-family conflicts during the LTR process and serve as a backing for women when stressing their desire to become a (co-)holder of land rights. It would also encourage neighbours to discuss potential boundary conflicts prior to PIP implementation, reducing the chance of conservation or restoration efforts being thwarted at a later stage.

The study results suggest that these initially PIP-focused activities offer great potential to create a sound basis for LTR implementation. In a joint roll-out of LTR and PIP activities, the **fourth recommendation** (iv) would thus be to start with the actual registration process only after various awareness raising and planning sessions (as described in the PIP process) have been conducted at *colline* and household level. The study has shown that doing so offers potential to help reduce inter and intra-household conflicts, increase trust among community and family members, foster farmers' motivation and agency, and make sure that LTR is considered part of a bigger plan (the PIP) aimed at enhancing productivity and eventually improving livelihoods.

Having such a plan should be considered a basis for the final **fifth recommendation** (v), namely to encourage and facilitate community members to acquire land certificates and opt for credit application as a last step only after they have elaborated (and started working on) their PIP plans. While information on land certificates and credit access should already be introduced much earlier, ensuring that farmers understand the interplay between LTR and land certification and incorporate it in their PIP, the actual support should only come after the different activities and steps outlined above. The underlying reasoning is the positive effect that a PIP plan can have on motivating farmers to attain a credit for investments in their land. Not only does it stimulate farmers to make deliberate investment decisions based on an increase in knowledge and understanding, it also prompts farmers to save money, acquire a land certificate and be able to obtain a credit in the first place. The latter describes the endogenous character of tenure security, namely that a positive correlation between tenure security and investments is also able to arise because people make conscious investments to become tenure secure (Holden & Ghebru, 2016). This links to the various testimonies of 'LTR only' farmers indicating that they simply lack the means of acquiring a land certificate, a prerequisite for LTR objectives that a PIP plan can help contribute to. At the same time, it is also relates to the conclusion by Ndagijimana, Kessler & Asseldonk (2016) that access to credit significantly influences investments in sustainable land management, which reiterates the relevance of LTR and land certification for PIP objectives. Interventions should therefore also help improve financial literacy and (access to) the financial infrastructure in rural areas. Given the lack of knowledge and understanding of the link between LTR, land certification and credit access in the Burundian context, more project monitoring and research is needed on the extent to which loans are attained through land certificates and what the associated opportunities, but above all risks are.

In summary, this study makes the following five chronological recommendations to help create synergies between LTR and the PIP approach, namely:

I. Discuss importance of land tenure security in PIP-focused awareness raising at community level
II. Conduct a parallel inventory of existing tenure arrangements at *colline* level and ensure interventions are needs based and fit-for-purpose
III. In view of the outcomes of (ii), incorporate dissemination of knowledge on LTR into PIP trainings
IV. Ensure embedding of LTR in village vision and accompanying action plan and use PIP momentum as a basis for LTR rollout
V. Encourage and advice farmers to acquire land certificates (and take out a loan) only after they have developed their PIP, and closely monitor the subsequent effects

Important to mention here is that those recommendations are by no means a silver bullet to achieve better results with regard to food security and associated livelihoods. As indicated earlier, context-specificity might require implementing actors to adjust the sequence and comprehensiveness of different activities and put more emphasis on one objective than another. LTR and the PIP approach also entail additional targets (beyond improved food security) that might put another complexion on these recommendations. Together however, they build on the insights gained from this study and are intended to provide guidance on how to create synergies between LTR and the PIP in future projects.

6 Conclusion and learnings

This research report started with the thought-provoking observation that despite many overlaps between LTR and the PIP approach, the two were developed, refined and implemented largely separate from one another. With the growing body of literature stressing the importance of integrating work on land tenure with that on SLM in mind, this study aimed to shed light on the question if and how a combination of LTR and PIP interventions can lead to better results with regard to food security and associated livelihoods than any of the two interventions on its own. Similar to previous research, it proved difficult to establish a direct relationship between LTR and increased production and/or improved food security as other factors (particularly knowledge on sustainable land management) where deemed equally, if not more important. PIP farmers not having been exposed to any formal protection of land rights were the living prove that LTR does not necessarily constitute a prerequisite for land investments.

At the same time, it became clear that land tenure registration is able to serve as an enabling factor, with a multitude of shared experiences and sentiments indicating the positive effect that an incorporation of LTR aspects can have for the achievement of PIP objectives, assuring that land investments will be secured and beneficial in the long-term. The outcomes of this study suggest that integrating work on secure and fertile land can offer many benefits to enhance the resilience of livelihoods in a sustainable manner.

A critical question remains on how a combination of LTR and the PIP approach is supposed to look like in practice. The importance of context-specificity in this regard suggests that the intertwining of the two approaches requires careful consideration. What this means is that depending on the reality in a *colline* (socio-economic status of households, market access, levels of conflict, etc.), implementing organisations would need to consider a different scope (and possibly sequence) in which the different steps of an integrated approach would need to be implemented. It would also require them to move away from blanket approaches and instead opt for adapted methods of LTR, conflict resolution and the PIP approach for different localities. Doing so would add to the complexity of project design and most likely require additional time and resources. In order for such an integrated approach to be successful, donors would therefore need to show willingness to provide the right kind of support. More specifically, they should embrace complexity and context specificity and provide implementing organisations with sufficient time and manoeuvring space to learn, adjust and improve such an integrated approach along the way. Likewise, coordination and collaboration between Burundian institutions should be enhanced in order to break silos and create synergies wherever possible. This study has elaborated a number of recommendations that are supposed to help in this endeavour.

It also showed that more research is needed on various aspects of such an integrated approach. It is for example necessary to more systematically assess how tenure security (be it formal or informal) affects land investments and/or food security, something that this study was not able to clearly demonstrate. Likewise, it would be important to better comprehend how the interplay between land certification and credit access works in the Burundian context (especially when PIP planning is involved) and how land lease agreements, which are increasingly common in Makamba province, can be better protected.

Ultimately, however, it is the actual execution of a combined approach that will create the most relevant insights and lessons learned. The Amahoro@Scale project represents a great opportunity in this regard and this study hopes to provide interesting food for thought.

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