What is forest tenure (in)security? Insights from participatory perspective analysis

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ABSTRACT

Over the past two decades, growing recognition of forest-based Indigenous peoples and local communities (IPs and LCs) sparked forest tenure reforms to formalize IP and LC rights to forests and forest lands through a variety of mechanisms. Nevertheless, tenure security, an intended objective of such reforms, has received less attention, despite being integral to the life and livelihoods of IPs and LCs and important for forests. Formal rights - a title, certificate or contract - is often used as an inadequate proxy for security, though the need to understand perception has been increasingly recognized. But understanding perceptions around tenure (in)security also raises the challenge of unpacking what people mean when they say they perceive tenure to be secure or insecure. This article explores perceptions of tenure (in)security using a novel approach – Participatory Prospective Analysis (PPA), a multi-stakeholder foresight scenario-building method. The research explores tenure security scenarios in Indonesia, Peru and Uganda drawing on results from a series of workshops implemented in 2015 and 2016 primarily at subnational level, with 177 government officials, practitioners and members of community level organizations involved in forest tenure reforms. Four women-only workshops (three subnational and one national) were organized in Peru and Uganda with an additional 87 participants. The results demonstrate the immense depth and complexity of tenure security and insecurity perceptions and the interplay of multiple factors driving toward and away from desirable futures. The method also demonstrates the benefits of PPA for bringing together different perspectives and promoting mutual understanding without reducing complexity. The article contributes to efforts to find common ground not only around how tenure (in)security is defined but also how it is being assessed; and points to the need to embrace more holistic approaches in practice for the future of forest dependent communities and forest landscapes.

1. Introduction

Important forest tenure reform processes around the world emerged from broad agreement that strengthening tenure security is a key element in resolving resource governance challenges, addressing deforestation and contributing to poverty alleviation (Sunderlin et al., 2008; Larson and Dahal, 2012). Forest tenure reforms involve the shift of rights, responsibilities and powers with respect to forest resources as a result of changes in statutory regulations in forests or forest lands (Larson et al., 2010; FAO, 2011). These changes entail redistributing rights over forests, previously held by the state, and giving formal recognition to those communities living in and around forests for generations (Larson and Dahal, 2012). Enhancing tenure security has

garnered attention in research and development, such as through the Voluntary Guidelines for the Governance of Tenure (VGGT), which call for all forms of tenure to provide all people "a degree of tenure security which guarantees legal protection against forced evictions" (Section 4.4, FAO, 2012). Tenure security has been defined in different ways with a strong emphasis on legal dimensions that identify at least three components – content of rights, their duration and their robustness (Doss and Meinzen-Dick, 2020) – with important efforts for formalization through demarcation and clarifying and registering rights (Aggarwal et al., 2021).

Formalization looks very different across contexts, from usufruct rights to co-management, short or long-term concessions or contracts, community reserves, individual or collective titles (Larson and Dahal,

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2012; Lawry and McLain, 2012). In practice, however, formalization – or the existence of a formal document that verifies rights – has often served as a proxy for tenure security, although this has long been recognized by tenure scholars as inadequate (e.g. Valkonen, 2021). Many scholars, such as Sikor (2006) and Peluso et al. (2013), have criticized the uniform application of land registration systems, pointing out how context – including political condition, or cultural and historical land tenure systems – influence how formalization policies operate on the ground; they call for more cautious approaches to registration and for acknowledging the nuances of how lands are symbolized and perceived by communities. Formalization as proxy for security is particularly inadequate in forest areas, in part because forest land and forest resources are often treated differently, and rights regimes – both customary and statutory – tend to be much more complex than they are, for example, on farmland.

Important progress has been made recently in measuring tenure security, with growing acceptance of the need to incorporate *perception*. Particularly significant is the inclusion of perception surveys in the official monitoring of Sustainable Development Goal Indicator 1.4.2, on the proportion of the adult population with secure tenure rights to land. Though it was challenging to get this incorporated (Land Portal, 2022; Katila et al., 2020), household surveys are now included to measure individual (sex-disaggregated) perception of tenure security (ODI and Global Land Alliance, 2018) through the Global Property Rights Index (PRINDEX).[1]

Tenure security has received global attention due to its significance as an enabling condition for social and economic development, and in the context of climate change (Arnot et al., 2011; Bromley, 2008; Kusters and de Graaf, 2019). Most research around tenure (in)security in forests discusses how insecurity influences resource use decision making on land and forest use, leading to deforestation and forest degradation (Chomitz, 2007; Robinson et al., 2014; Holland et al., 2017; Sunderlin et al., 2018). Less attention has been paid to understanding how people perceive the factors driving tenure security and insecurity: specifically, what do people mean when they say that tenure is secure or insecure? This article aims to address this gap, to further understand how tenure (in)security is defined from the perception of stakeholders, and proposing a holistic approach for doing so. The analysis focuses on research in three countries that have undergone forest tenure reforms: Uganda, Peru and Indonesia. It is based on a comparative study conducted from 2014 to 2019 led by the Center for International Forestry Research (CIFOR), using a novel approach. Participatory Prospective Analysis (PPA) is a foresight scenario method that uses participatory approaches to engage multiple stakeholders to learn about their interests and motivations on various issues - in this case to understand perspectives regarding tenure reform and collectively elicit perceptions around tenure (in)security (Bourgeois et al., 2017). Participants included groups that are involved directly in reform processes, including those that are often recognized as targets of reforms (e.g. communities) and those with roles in implementing the reform (e.g. governments and NGOs).

Our results demonstrate the immense depth and complexity of factors driving changes in tenure security and insecurity and how people incorporate these into their visions of the future. The approach contributes to further defining tenure (in)security and how it is being measured. Insights from this work take us to a new level of understanding of the meaning of tenure security in rural, forest landscapes – with implications for understanding the role of tenure security in enabling local communities' identity, local livelihoods and wellbeing. We use these results to expand on current definitions and propose a framework for analysis.

The results also demonstrate the benefits of PPA as a method: it provides a nuanced perspective and integrated understanding of a complex and highly political topic, bringing together multiple and often differing perspectives around forest tenure (in)security and promoting mutual understanding and collective visions.

2. Conceptual framing

Tenure security[2] is usually defined as "the degree of confidence that land users will not be arbitrarily deprived of the bundle of rights they have over particular lands" (FAO, 2002). As noted previously, security sometimes refers primarily to "legal protection," or as noted in the SDGs (target 1.4.2), "legally recognized documentation", as "the recording and publication of information on the nature and location of land, rights and right holders in a form that is recognized by government, and is therefore official."[3]

SDG 1.4.2 also refers to the importance of the perception of secure rights, and thus qualifies the point about legal documentation: "an individual's perception of the likelihood of involuntary loss of land, such as disagreement of the ownership rights over land or ability to use it, regardless of the formal status and can be more optimistic or pessimistic." The text goes on to note that although those with documentation are usually seen as protected, "there may be situations where documented land rights alone are insufficient to guarantee tenure security."

Leonard and Longbottom (2000) define tenure security as "the situation in which landholders consider their continued occupancy rights to be guaranteed whether by virtue of formal rights, customary rules or some other form of assurance. Conversely, insecurity of tenure describes the situation whereby tenure rights are considered precarious, due to the risk of dispossession by the actions of other individuals, communities, or the state." This definition combines the perception of the rightsholder with the existence of threats. It also notes that security may not come from the state but rather customary institutions, and that in some cases the state may in fact be the driver of dispossession rather than security.

Mwangi and Meinzen-Dick (2009: 310) refer to tenure security as the practice of rights: "the ability of an individual to appropriate resources on a continuous basis, free from imposition, dispute or approbation from outside sources". Robinson et al. (2014) and Holland et al. (2017) refer to the assurance that property rights are upheld by society, while Safitri (2010) emphasizes the perception of the assurance of rights.

Lund (2011) points out that in order for rights to be secure they need to be recognized by other actors. In other words, the perception of security refers not only to that of the rightsholder but also of others who may or may not see it as legitimate, and who have authority to uphold the claim or undermine it. Cronkleton and Larson (2015) studied perception of tenure security in indigenous and farmer communities in Ecuador and Peru and found that having a formal piece of paper (title or otherwise) was important, but social networks and community relations were important as well, for both groups (see also Gebara, 2018; Bambio and Agha, 2018; Broegaard, 2005; Toulmin, 2008; Sikor and Lund, 2009).

Safitri (2010) and van Gelder (2010) suggest that tenure security is a combination of law, practice and perception: the normative (guaranteed by norm or law), actual (the empirical ability to realize property rights) and perceived (the opinion of the rightsholder). Simbizi et al. (2014) take this conceptual model a step further, looking at the interactions of people, institutions, rights, information and the land itself. Valkonen (2021) builds on Simbizi et al. (2014) to go deeper into the politics of interactions that affect sources of security, based on Lund's point regarding the importance of the perception of others (Lund, 2011). She draws from critical development literature to argue that the determinants of (in)security are based on authority relations (institutions),

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[1] PRINDEX initiative (https://www.prindex.net/about/). See also Dachaga and Chigbu, 2020, Locke et al., 2021.

[2] See Annex 1 for a short summary from the literature.

[3] See SDG Indicator metadata https://unstats.un.org/sdgs/metadata/files/Metadata-01-04-02.pdf.

state politics (especially political changes over time), social dynamics (common understanding, power relations, trust) and belonging ('us versus them') (Valkonen, 2021).

Our work agrees on the need to explore these complex interlinked relations and uses the results of participatory prospective analysis workshops to probe further about the factors influencing tenure security and insecurity.

3. Method

This research used Prospective Participatory Analysis (PPA), a foresight based co-elaborative approach that has been previously used to study land use change and planning in different country settings (Bourgeois and Jésus, 2004). The process engages participants in multi-day workshops over a two-to-three-month period with additional interactions in between. For this project, PPA was specifically adapted to study the future of forest tenure security and insecurity. The detailed discussion of the methodological approach and how it was applied for this study is provided in Bourgeois et al. (2017). A key feature of the methodology is that it allows for the engagement of multiple stakeholders (government representatives, non-governmental practitioners, academia and local communities) in open, participatory discussion over a period of time. Through a series of detailed steps, PPA aims to facilitate shared understanding and future joint actions.

PPA consists of a five-step iterative process (see Fig. 1). Step 1 starts by defining the system: what could be the futures of forest tenure security, where (applied to a specific geographic space), over how long (both time horizon and time frame), and with whom (important stakeholders related to the territory).[4] In step 2, participants identify *forces of change* – factors that in their opinion shape the future of land tenure in their particular setting. Participants identify as many factors as they choose, discussing and agreeing on definitions (hence, in the results presented here, definitions of the same factor will vary between case sites). These factors become the forces of change in the system. Forces of change can significantly transform the system: they can influence forest and land tenure both positively and negatively, favoring security or insecurity in the past, present, or future. In Step 3 participants assess how each of these factors influence each other, in order to identify *driving forces*. To assess influence, the PPA method uses structural analysis, which produces a series of graphs that display how the forces are distributed, according to the value of their weighted influence and dependence. Graphs distribute variables into four quadrants, categorizing forces across four types: drivers, leverages, outputs, and outliers. The driving forces are the most influential forces of change in the system and are usually identified from the "drivers" quadrant (Bourgeois et al., 2017:40). They differ from other forces because of the way they influence the system, having the ability to produce a "domino effect" on the other forces. These are the key driving forces of forest tenure security/insecurity in the process of scenario building and represent the most important influences on tenure (in)security from the perspective of the participants.

In step 4, determining the state of each of the driving forces identified in the previous step, participants first identify the state of each (positive, negative and intermediate) in different combinations; they then eliminate those with incompatibilities and select the most logical combinations (usually ending up with three to five scenarios). Participants then elaborate narratives for each scenario, representing different visions of the future. In PPA, scenarios are visions of the future that aim "to explore plausible transformations by identifying their driving forces" (Bourgeois and Jésus, 2004; Bourgeois et al., 2017). Finally, in Step 5 each scenario is then further characterized in order to develop an action plan to achieve the most desired scenario or scenarios (Bourgeois et al.,

2017).

3.1. PPA process and analysis

The PPA work was conducted through a series of guided workshops implemented in 2015 and 2016 at subnational levels in Indonesia, Peru and Uganda. The countries were selected to illustrate a broad range of active forest tenure reforms, one from each region (Africa, Asia and Latin America), representing a spectrum from full ownership by indigenous or customary communities, to shared rights and various co-management arrangements between the state and communities (Larson et al., 2019). Subnational sites were selected based on the locations of reform implementation, considering the most important types of reform by country as well as regional diversity (Myers et al., 2022). A total of 13 PPA workshops were conducted across the three countries in seven sites with 177 distinct people participating (46 women and 131 men, see Table 1).

Participants included diverse actors involved in and affected by tenure reform implementation, including community representatives, women's organizations, government officials from different sectors and governance levels, non-government officials, private sector representatives, and academia. The method relies on active participation, continued engagement and representation of multiple stakeholders. Unlike other participatory methods (e.g. focus group discussions), the method is not intended to portray the perspective of a particular social group, but rather to find common ground among diverse perspectives.[5] Fig. 2 summarizes workshop participants by sector across research countries.

Women's participation in mixed workshops was limited (See Fig. 3), across all countries and subnational regions. To address this problem, teams organized additional workshops in Uganda and Peru for women only – in Uganda, three subnational workshops were organized engaging 49 women from different sectors in Lamwo (16 women), Masindi (17) and Kibaale (16). In Peru, an additional workshop was organized at the national level, engaging indigenous women only (38 participants). In these cases, the workshops were limited to the first steps (1–3) of PPA, identifying the key forces of change and driving forces; participants did not develop scenarios but rather discussed those produced in the mixed workshops.

Additionally, as part of the study, two additional workshops were conducted at national level in Indonesia and Uganda and a series of feedback workshops were also conducted with a similar number of participants. Results in this article draw on the subnational PPA workshops and the national workshop with indigenous women in Peru.[6] The results from the four women-only workshops are reported separately from the mixed workshop results.

4. Introduction to the study sites

Table 2 provides a brief description of the countries and reform processes analyzed as part of this study. It provides a synthesis of main characteristics of the type of reforms.

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[4] An example of defining the system is asking the question: "what is the future of tenure security in Madre de Dios in 20 years' time?".

[5] Nor are the workshop results intended to represent the perspective of an entire region, and a workshop today, several years later (even with the same participants), would not necessarily produce the exact same scenarios. The results do, however, help us understand *how people understand tenure security and insecurity*.

[6] Workshop results have been published elsewhere, both at the national level (See Zamora and Monterroso, 2019; Mukasa et al., 2020; Liswanti et al., 2019), as well as at the subnational level (see Mshale et al., 2020a, 2020b, 2020c; Liswanti et al., 2017; Herawati et al., 2017; Zamora and Monterroso, 2017a, 2017b).
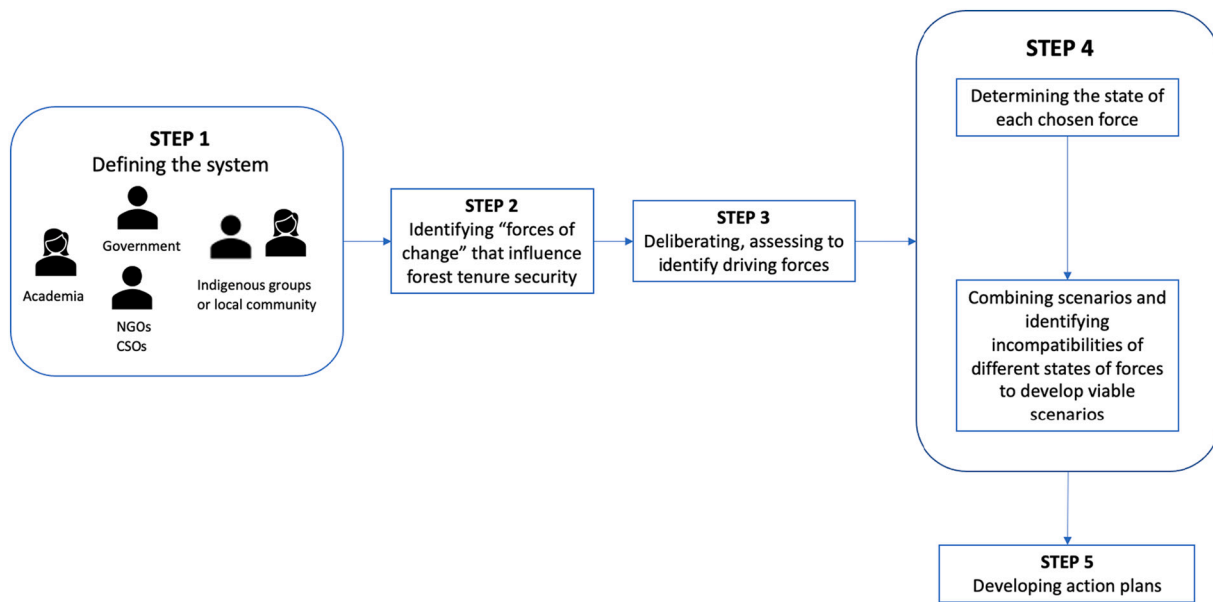
Fig. 1. Participatory prospective analysis process (adapted from Bourgeois et al., 2017).

Table 1
Summary of PPA workshops conducted in countries of study.

| Countries	Level	Regions	PPA workshop							
			Year	# participants by gender		Total	# participants by sector			Total
				Men	Women		Gov. officials	Practitioners	Communities	
Indonesia	Sub-national	Maluku	2015–2016	13	6	19	12	5	2	19
	Sub-national	Lampung	2015–2016	13	6	19	12	5	2	19
Peru	Sub-national	Madre de Dios	2016	16	7	23	10	6	7	23
	Sub-national	Loreto	2016	31	9	40	25	8	7	40
	Sub-national	Kibaale	2015	15	11	26	14	9	3	26
Uganda	Sub-national	Lamwo	2015	22	4	26	14	10	2	26
	Sub-national	Masindi	2015	21	3	24	13	6	5	24
Total				**131**	**46**	177	**100**	**49**	**28**	177
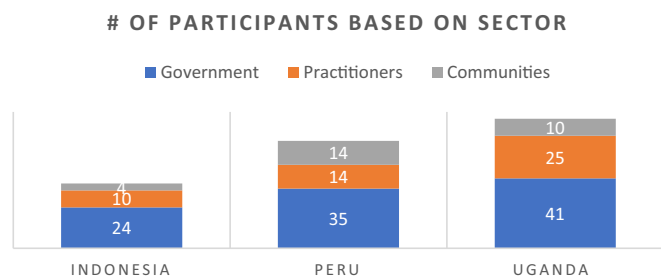
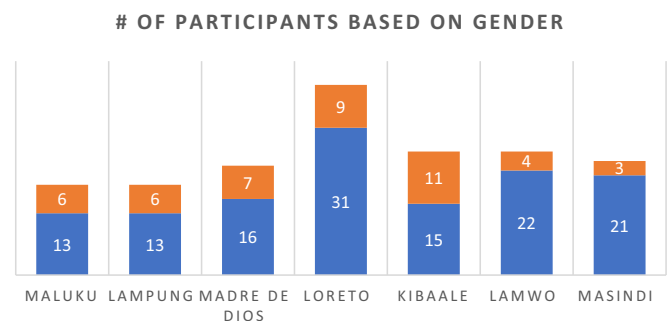**Fig. 2.** PPA workshop participants by sector.

Fig. 3. PPA workshop participants based on gender.
Key: Women (orange) and men (blue).

4.1. Peru

The PPA workshops in Peru were carried out in two regions, Loreto and Madre de Dios, both regions with important portions of Amazonian forests.

Loreto represents 50% of Peru's forest area. Madre de Dios is the most biodiversity-rich region with 60% of land dedicated to conservation and under protected area categories (Monterroso et al., 2019a). In both regions, forests, agriculture, hunting and fishing are important for rural livelihoods. In Loreto, local trade is dominated by timber, palm fruits and wild game, while in Madre de Dios extraction of timber and brazil nuts are important (Cruz-Burga et al., 2019; Monterroso et al., 2019a). Natural resource-based extractive industries, including oil and gas exploitation in Loreto (Monterroso et al., 2019a, Gonzalez, 2013) and mining in Madre de Dios (Pineiro et al., 2016), are important sources of income. Gold mining drives internal migration from the highlands to Madre de Dios (MINEM, 2013).

With increased national interest in REDD+ and Peru's commitment to reduce greenhouse gas emissions, land tenure has received a great deal of attention in part due to national climate commitments. Some 1000 native communities have been legally recognized, and 12 million ha of titles have been distributed by the Peruvian Government since 1974 (Monterroso and Larson, 2018). Still, 2016 data shows that 65% of

Table 2
Countries and type of reforms analyzed.

	Indonesia: social forestry schemes and customary lands	Peru: titling of native communities	Uganda: collaborative forest management, customary ownership
Content of rights granted by reform	Use and decision-making rights for social forestry schemes and customary land (e.g. private or individual rights). The state holds carbon rights.	Use and decision-making rights (over lands classified as agriculture) including alienation rights, State retains rights over sub-soil (petroleum and mining).	Use rights, State retains rights over forest management and sub-soil (petroleum and mining).
Consideration of livelihoods	Communities are able to benefit from forest management activities both for subsistence and commercial purposes, but may require further approval from government.	Restricted to subsistence, management and commercialization require following different legal procedures.	Restricted to subsistence.
Conditionality on forest resources access and use	Forest permits for social forestry are for 35 years with possibility for renewal	Collective titling rights do not prescribe, however rights to lands classified as forest are only granted under usufruct.	Varies across types, mainly short term.
External pressures and conflict over resources	Conversion of forests to large commercial plantations, population pressure due to migration into forest areas.	Overlapping rights on subsoil resources, expansion of illegal activities, infrastructure initiatives.	Uncontrolled migration, presence of extractive industries, fires, and increasing demand for forest resources.

Source: Based on Myers et al. (2022), Herawati et al. (2019), Liswanti et al. (2019), Monterroso et al. (2019a),Nsita et al. (2020), Mwangi (2020), Banjade et al. (2017) and Larson et al. (2019).

forests were under the ownership of the state with only 17% designed for Indigenous peoples (Monterroso et al., 2017). Loreto has the highest number of formally recognized Indigenous communities in the Amazon but also the largest number of communities still pending titling (Monterroso et al., 2019b). In Madre de Dios, although most indigenous communities had received formal recognition, they still faced challenges in deriving benefits and resolving conflict due to the presence of mining and petroleum interests (see Monterroso and Larson, 2018). Conflicts and overlapping land rights are considered to be a source of tenure insecurity by local communities in both regions (see Cruz-Burga et al., 2019).

4.2. Indonesia

Research in Indonesia focused on two regions: Maluku and Lampung Provinces. Maluku Province covers an area of 712,480 km^2, but only 7.6% is land and the rest is ocean. Seram is the largest island (18,625 km^2 with 625,000 people). It is a biodiversity-rich island and home to 14 endemic bird and 9 endemic mammal species (Siscawati et al., 2017). Forest conversion to both local and larger commercial plantations (cloves, nutmeg, cocoa, coffee, coconut, and fruit trees) has supported local economic development. Most of the forested area in Maluku is considered to be customary forest and is managed under customary

systems (de facto). Migrants who settle in the area need permission from the customary leader and are given the usufruct rights to a parcel of customary land. Nevertheless, many of these customary forest areas have not yet received legal recognition from the state and thus are still formally considered to be state forest (*Kawasan hutan*). The state thus plays a key role in determining forest land use and allocation of rights. Overlapping land rights among customary communities, private companies, migrants and the state have become a prominent source of conflict.

Lampung Province is located in southeast Sumatra and has an area of 33,015 km^2. About 30% of the total area is forest, and 85% of people are immigrants due to the government's resettlement programs (during the Dutch colonial era and in the 1950s through the transmigration program) and voluntary migration. Unclear forest boundaries following the postcolonial era has led to local communities' perception that the forest is "nobody's land". Forest clearing for permanent agriculture has been developed by the communities, while the state has granted a large number of forest concessions to private companies. In 1998, following local communities' demands for forest rights, the Ministry of Forestry introduced Decree No. 677 on *hutan kemasyarakatan* (HKm), or community forestry, which granted rights to local communities to manage state forest areas. The first ever HKm program in Lampung has made progress in improving communities' livelihoods and conservation outcomes, but there are still obstacles such as unclear boundaries and overlapping claims among forest users (Siscawati et al., 2017).

4.3. Uganda

In Uganda, the PPA workshops were conducted in three regions, Kibaale, Masindi and Lamwo. Agriculture is one of the main income generating activities in all three regions and has led to forestland conversion, along with other activities such as uncontrolled migration and increasing demand for forest resources.

Prior to 1993, forest management in Uganda followed a centralized management system with no involvement from forest-adjacent communities (Mshale et al., 2020a, 2020b, 2020c; Mukasa et al., 2020). A high rate of deforestation and Uganda's ratification of the Rio Declaration led to a major change in forest sector governance (Banana et al., 2014). In 2003, the government enacted the *National Forestry and Tree Planting Act* (NTFPA), which reclassified all of the country's forests and aimed to achieve sustainable forest management, secure forest tenure for local communities and improved local livelihoods. The reform opened various management regimes for the benefit of local communities, such as collaborative forest management on state forest reserves, community forest management, private forest ownership and customary forest management (Mshale et al., 2020a, 2020b, 2020c; Mukasa et al., 2020).

The forest tenure reforms included in the research are customary forest (Lamwo), communal forest management (Masindi) and collaborative forest management (Kibaale). In Kibaale, 80% of the forests are found on private land under the *mailo* tenure system.[7] In Masindi, forest management regimes are mixed, including private forests, forest managed by the National Forestry Authority, forest managed by the Uganda Wildlife Authority, local forest reserves managed by the local government and community forests (Nabanoga et al., 2012). In Lamwo, forests have been managed by customary institutions through which land allocations are regulated by the clan chief (locally known as *rowdy*) (Mshale et al., 2020a).

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[7] Tenure system that confers freehold rights granted during the colonial government in exchange for political support under the 1900 Buganda Agreement (Musinguzi et al., 2021).

5. Results

This section presents the results from the PPA workshops in Peru, Indonesia and Uganda. We begin with the scenarios then examine the driving forces behind them. Findings from the study shed light on factors influencing forest tenure security/insecurity as summarized by the mix of stakeholders involved in the workshops.

5.1. Scenarios

From the PPA workshops, a number of scenarios emerged showing positive and negative visions of the future. While the number of scenarios differ across the sites,[8] for the purpose of this article we present the two most contrasting scenarios (most and least desired) from each subnational site. This illustrates the range of driving forces and the importance of understanding the multidimensional nature of tenure (in) security. As stated in one workshop analysis, "The process transcends the bundle of rights granted to include the actual institutions and processes necessary for the rights to be guaranteed. Tenure security comprises governance dimensions that are embodied in rights implementation and processes that are anticipated to generate value/ income from the rights that are held" (Liswanti et al., 2017). Tables 3, 4 and 5 highlight the desired and undesired scenarios.

In Madre de Dios and Loreto (Table 3), scenarios show that tenure security in native communities extends beyond the recognition and titling process (Zamora and Monterroso, 2017a, 2017b; Zamora and Monterroso, 2019). According to local actors, insecure tenure is a result

Table 3
Visions of forest tenure security in Peru.

	Madre de Dios	Loreto
Positive scenarios	**"All good"** • Congruence between national policy and local and regional realities • Existing political will leading to improved coordination and communication between government and local communities • Adequate capacities of local communities, subnational governments and private sector • Adequate monitoring and controls	**"The ideal"** • Indigenous issues are central to the political agenda • Subnational and national government coordinate effectively and the regulations are suited for context • Titling process follows transparent processes with highly efficient and motivated staff • Subnational government staff has sufficient capacities and funding • Autonomous communities
Negative scenarios	**"Everything bad"** • No leadership from the central government causing each region to formulate its own rules, leading to stakeholders' failure to coordinate • Laws change that serve economic and political interests rather than guaranteeing security for people • NGOs receive no support from the government • The rights of communities are contingent upon the will of the subnational governments	**"Going back on progress"** • Lack of government support for indigenous issues with no enforcement of communities' tenure rights • All solutions and efforts to development, including funding, are concentrated in large cities • Corruption prevails at high levels and flows to the lowest-level entities • Bureaucratic processes

Sources: Summarized by the authors from Peru results.

[8] Multiple scenarios developed during PPA subnational and national workshop exercises are published elsewhere (see Footnote 5).

Table 4
Visions of forest tenure security in Indonesia.

	Maluku	Lampung
Positive scenarios	**"The desirable forest tenure reform"** • The government is transparent and participatory, ensuring bottom-up implementation and emphasizing economic growth and job provision • Local government has sufficient resources to implement forest reforms – prioritizing empowerment and incentives for local community • Government recognizes and respects customary rights and institutions, communities are able to participate in decision making related to forests; a local regulation (PERDA) exists to strengthen customary institutions • Indigenous women become more powerful and support community efforts to manage forests and resources	**"A road to a diamond"** • The policies and regulations are consistent and transparent with clear, equitable and less bureaucratic procedures to access forest resources • Government support leads to improvement of communities' capacity and knowledge; community facilitation is provided to equip them with knowledge about tenure reform and forest conservation • Development efforts foster economic growth and autonomous communities • Sufficient funding to support and ensure sustainability of activities • Adequate number and capacity of staff involved
Negative scenarios	**"Lost sovereignty"** • Frequent change and overlapping policies • Inadequate budgets • No spatial planning or local regulations for customary rights, which benefits investors and politicians • Marginalization of indigenous women with no access to forest land • Weak customary institutions and abandonment of values and local wisdom • Local regulations inclined toward investor and bureaucrats' interests; this also leads to the absence of livelihood benefits for local community • State holds control over customary land and forest, instead uses it as a tool that serves political interests	**"No access for the community"** • Collaborative forest management scheme is non-existent • Worsening forest condition, due to unsustainable forest management practices, which causes the government to limit communities' access to forest • State holds full authority • Poor coordination at regional level • No budget allocated for the development of forestry sector • Human resource capacity of government is low

Sources: Summarized by the authors from Indonesia results.

of inefficiencies in government that limit the fulfillment of its roles – due to poor resources and capacities, the low priority of indigenous issues in the political agenda, incoherence between regulations and local realities and lack of community empowerment. Scenarios show the relationship among the community's quality of life, the ability to acquire capacities and resources to exercise acquired rights, and the important role of government actors – across sectors and governance levels, in their recognition of indigenous concerns.

In Indonesia (Table 4), visions of the future were linked to the progress of social forestry schemes and the respect of customary institutions (Liswanti et al., 2017, Herawati et al., 2017). Across all scenarios, support from multiple stakeholders is important, but coordination among government actors is essential. The capacity of those implementing reforms is also a key factor, especially the capacity to work with communities and to support them. Results highlight that their visions of tenure security required constant negotiation and the ability to acquire capacities and skills both from government and community stakeholders. Scenarios also emphasized the importance of

supporting skills for the implementing officials, in order for implementation to progress. A unique characteristic of both negative scenarios was conflict escalation, while both positive scenarios highlighted the importance of deriving benefits and improving livelihoods. In addition, Maluku is one of the few sites in which scenarios incorporated concerns specific to women.

In Uganda (Table 5), scenarios reflect similar concerns regarding government and community capacity and resources as well as local communities' ability to participate in the decision making related to tenure issues (Mshale et al., 2020a, 2020b, 2020c; Mukasa et al., 2020). The ability to benefit from management and use of forest resources and from other incentive mechanisms are seen to be key in securing community forest tenure. Within communities, the scenarios highlight the importance of discussing women's tenure rights as well as local practices that may favor or limit their exercise of rights. The scenario exercise in Uganda confirmed that not all community members share the same level of recognition or protection of their tenure rights, with women having less secure rights than men (Mukasa et al., 2020).

5.2. Driving forces behind forest tenure (in) security

Each scenario above evolved from the assessment of the forces of change (Step 2) and selection of driving forces (Step 3) identified in the workshops across the seven subnational regions (See Fig. 1). The forces of changes included social, technical, environmental, economic, and political dimensions. To simplify the summary of results across the sites, here we focus on the driving forces – and further group them into a set of common categories (See Table 6). Although these groupings are convenient for analysis, they mask the many distinct ways in which

Table 6
Synthesis of categories based on analysis of driving forces.

Category	Definition according to PPA exercises
Governance and government	Policy and implementation, especially government's role in strengthening (or undermining) community tenure security.
Government/ implementer knowledge and capacities	Adequate number of staff with sufficient knowledge, budget and technical capacities for improving tenure reform implementation.
Customary/ local community rights	Ability of local communities to exercise their customary rights, especially after reform.
Women's participation/ empowerment	Efforts to include women, role of women in forest tenure, as well as challenges to include women in reform processes.
Community knowledge and capacities	Community capacity to realize forest tenure reform, including awareness of their rights and whether capacity building is provided.
Other contextual factors (economics /support from outside/other factors)	Factors enabling / blocking provision of income derived from the reform; presence/ role of outside parties (NGOs, donors, companies) in supporting/ challenging forest tenure rights or reform.

Sources: Elaborated by the authors based on National PPA results (Zamora and Monterroso, 2019; Mukasa et al., 2020; Liswanti et al., 2019) and subnational PPA results (see Mshale et al., 2020a, 2020b, 2020c; Liswanti et al., 2017; Herawati et al., 2017; Zamora and Monterroso, 2017a, 2017b).

these topics were defined in the workshops; further detail on forces of change per site is provided in Annex 2. Each of the categories is discussed in turn, with a final section on driving forces identified in women-only workshops.

Table 5
Visions of tenure security in Uganda.

	Kibaale	Lamwo	Masindi
Positive scenarios	**"An ideal situation"** • Transparent, accountable and informed political leadership • Participation of all stakeholders (including women and cultural leaders) in formulating forest tenure related laws and policies • Sufficient funding coupled with adequate and well-trained government staff for reform implementation • Community members have adequate knowledge and positive attitude toward forest tenure reform • Community members, especially women, know and exercise their forest tenure rights • Corruption-free environment without negative political interference • Provision of services related to forest tenure rights and capacity development for local community to be able to participate in sustainable forest management	**"Ideal forest governance situation in Lamwo District"** • Local communities are empowered and well informed about forest tenure rights and participate actively in decision making related to forest tenure reform • Corruption-free, transparent, accountable, well-equipped and adequately staffed district and sub-county governments • The existence of respected cultural institutions that recognize and promote the rights and roles of women and youth in forest tenure rights issues • Increased NGO participation that works to inform and equip local people with the knowledge, skills and resources they need to protect their forest tenure rights • A faster and more affordable forest registration process that results in more people securing their forest tenure rights • Cross-border collaboration between the local governments of Lamwo to address forest threats (e.g. fire, illegal trade)	**"Forestry sector paradise"** • Collaboration between communities and government • Enactment of clear policies and laws to support and strengthen forest tenure security • Increased funding to forestry sector • Well established community groups manage forest resource and benefit from incentives for forest conservation efforts • Increased women's participation in decision making • Well governed and supportive cultural institutions working with other stakeholders promote FTS while preserving the indigenous knowledge
Negative scenarios	**"Disenfranchised communities"** • Unclear policies and laws on forest tenure security with poor enforcement • Insufficient budget • No participation from local community in forest management • Communities have limited and conflicting information about tenure security • Presence of political favors that take advantage of unclear migration and resettlement policies • Corrupt and unaccountable officials • Lack of support from district government for communities to exercise forest tenure rights	**"Failed government policies and customary and cultural institution"** • Corrupt and selfish district government officers, preventing the empowerment and involvement of local people and NGOs to implement reforms. • Local communities having inadequate knowledge of their forest tenure rights and their roles in implementing reforms • The abandonment of cultural institutions with tenure rights of women and youth being unrecognized • The above results in increasing conflicts over forests and land, and eventually the outbreak of civil war	**"Forest tenure security at stake"** • Implementation of contradicting policies that do not recognize communities' ownership of forests • Marginalization of women and youth from forest governance • Lack of funding for forest tenure security and payment for ecosystem services • New policies implemented lead to allocation of communities' land to oil and gas company causing displacement of people, inequitable distribution of benefits and other social problems

Sources: Summarized by the authors from Uganda results.

5.2.1. Governance and government

Governance and government summarize the driving forces referring to policy and implementation, specifically the role of government and the many ways in which it strengthens (or undermines) community tenure security. It is an important driving force of tenure (in)security mentioned in all regions, although the mechanism varies by context.

In Peru, despite progress in recognition and land titling, insecurity emerges because of the large number of communities still pending formalization. In Madre de Dios, while most communities have been titled, incongruence of national regulations with local and regional realities of Amazonian communities increases insecurity. In Loreto, participants referred to different development visions between the State and native communities. Insecurity is also described as an absence of leadership by the central government, which leads to a lack of policy coordination and to each region developing its own rules. Both regions refer to the importance of political will for the state to respond to indigenous concerns and to include these as part of the political agenda. In this regard, differing or contradictory priorities in subnational political agendas undermine tenure security. The absence of political will is exemplified by government policies that favor extractive activities and interests opposing indigenous concerns rather than addressing their needs and supporting reforms that benefit them; the existing overlaps with mining concessions affecting indigenous communities in Madre de Dios are an example of this.

In Loreto, less bureaucracy led to more effective and transparent titling procedures.[9] Bureaucracy, as defined by participants, is the level of ease or difficulty of undertaking titling procedures. Leaving this unaddressed leads to slow and complicated procedures, putting communities' tenure security at risk. Bureaucracy was perceived by participants as a national level problem in Peru that is magnified at subnational level. A decentralization process beginning in 2000 specifically modified authority for land titling, however handing over these powers and functions to subnational government has been marked by onerous procedures (see also Notess et al., 2020).

In Indonesia, PPA workshops in Lampung highlighted good leadership as well as better coordination and communication between government agencies and non-government actors as key success factors for improving tenure security. Excluding communities from land use planning processes and limiting dialogue spaces involving subnational governments create conflict and limit the ability to overcome existing obstacles and negotiate access to forest resources. In Maluku, in the absence of progress on reform implementation during the period of study, customary and traditional systems were still important and legitimate. However, due to increasing pressures on communities and their forests, including in-migration and overlapping land rights between the state and customary peoples, participants perceive that legally recognizing customary tenure is important to strengthen their position against external actors.

In Uganda, factors influencing tenure (in)security differed across the three regions. With regard to the role of government, participants in Kibaale recognize the need to enforce forest laws and policies, as well as sustained political will and support to forest governance processes. This is especially important in the context of increasing migration and of resettlement policies that are perceived as potential threats to communities and forests. Tenure security, according to participants, requires having transparent, accountable, and informed political leadership, free of corruption and pervasive political interference. Lamwo PPA also highlights the need for a corruption free environment to enhance tenure security as well as simpler and more affordable forest registration processes. Participants agree that good forest governance encourages an increased demand for and supply of forest products – positive market

forces – that can lead to improved livelihoods. In Masindi, the role of government agencies, in particular a strong forestry sector, was mentioned as an important driving force of tenure security. Clear policies and laws supporting and strengthening scenarios of secure forest tenure security enhance collaboration between communities and government.

5.2.2. Government/implementer resources and capacities

Linked to the previous category, sufficient resources and capacities were mentioned in all regions and countries except for Lamwo, Uganda. Capacities refer to knowledge and skills, specifically for reform implementation, but also in terms of understanding the specific context, issues of social inclusion and, in some regions (especially Peru and Indonesia), the ability to work in intercultural contexts. Resources refer both to the availability of funding, including government budgets, and sufficient, skilled human resources to work on reform processes. Resources and capacities of both governments and actors such as NGOs are important, as both play a role in supporting local communities in the forest tenure reform process.

Capacities were mentioned as a driving force in both regions in Peru, Lampung in Indonesia and Kibaale in Uganda. In Lampung specifically, workshop participants stressed having an adequate number of staff to implement the reform. In Peru, Madre de Dios and Loreto PPA participants stressed the need to strengthen operational and technical capacities, including budgeting, management, and project planning skills of agents of implementation, whether they were working in subnational governments or in NGOs. An increased number of unqualified staff, resulting from political favoritism and corruption prevailing at both national to subnational levels, was identified as a major driving force of tenure insecurity, particularly affecting titling processes.

Available financial resources were mentioned as an important driving force in four regions, Maluku and Lampung in Indonesia, Loreto in Peru and Masindi in Uganda. In Loreto and Masindi, financial resources and sufficient budget for capacity building (especially enhancing subnational government capacities) was key to ensure leadership, implementation and adequate support staff. In Masindi, channeling financial resources through, for instance, the Masindi District Biodiversity Fund was seen as key to promoting actions that increase forest cover. In Loreto, participants argued that having funds earmarked for an "indigenous fund" along with its own legal framework would be key for supporting projects that benefit local communities.

The failure to invest financial resources in supporting local rural communities – used instead for other priority investments (e.g. urban areas) – was also perceived as a major driving force that can result in tenure insecurity. In Maluku and Lampung, sufficient funding for regional government is perceived as crucial to provide not only incentives that lead to empowerment for local communities (in Lampung) but also for conducting participatory mapping or customary forest boundary demarcation (in Maluku) as the basis for the process of clarifying rights. In Lampung, where local communities have been granted permission to practice agroforestry in state forests, higher budgets were also perceived as important for increasing the technical capacities of extension workers.

5.2.3. Customary/local community rights

Customary and local communities' rights were mentioned in all regions in Indonesia and all regions in Uganda; this driving force is perceived as the ability of local communities to exercise their customary rights. Customary rights in this category refer to both formalized and non-formalized rights, stressing the ability of customary groups to securely exercise their rights when facing external threats (e.g. through formal recognition) as well as the ability of customary institutions to promote territorial governance. Although the specific force was not named as such in Peru, this force of change is perceived as intertwined with other categories – especially as all sites are undergoing different processes of reform implementation (see Governance and government).

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[9] In addition, education policy is a context-specific driving force in Loreto, which was perceived as important due to its role in strengthening communities' identities, and influencing behavior and leadership skills.

In Indonesia, recognition of customary rights and respect for their institutionalization through the recognition of access rights to forest resources were respectively mentioned as key driving force of tenure security in Maluku and Lampung. Participants also highlighted that existing, strong customary institutions and governance systems, reinforced by PERDA (peraturan daerah, or customary rules), which recognize the needs of local communities, have been a key enabling factor for sustaining tenure security. However, some participants argued that customary systems will likely be affected by the emergence of PERDA favoring outside investors and political interests, as well as spatial planning processes that prioritize large investments. In Lampung, government plans to limit community access to forests due to declining forest conditions were seen as driving insecurity.

In Lamwo, participants mentioned the existence of "cultural institutions", a force defined as the involvement, roles, and practice of cultural institutions that enhance forest tenure security, not only for communities in general but also for women and youth. Additionally, cultural institutions are noted as promoting conservation activities, for instance local arrangements that establish rules for planting trees along water sources. Finally, such institutions are key for enhancing community behaviors and practices that respect cultural sites. Similarly, cultural institutions were also identified in Masindi as forces shaping forest tenure security; this referred to norms and beliefs, defined as individual and collective views based on customs and practices that influence perspectives on forests. In this region, participants also mentioned women's rights to land and inheritance issues as examples of institutions that can shape security. Participants described tenure insecurity as the abandonment of cultural institutions by local communities, which would cause them to lose cultural ties to land and forests.

5.2.4. Women's participation and empowerment

Driving forces related to women's participation and empowerment were mentioned only in Maluku, Indonesia and Masindi, Uganda. These driving forces refer to efforts that include women and the recognition of their role in forest tenure, as well as addressing challenges to include women in reform processes. In Maluku, empowerment of indigenous women requires, according to participants, the need to enhance capacity development for women to encourage their active participation in forest and resource management. In contrast, tenure insecurity can increase when women are marginalized and lose access to forest land, for instance through norms i.e. inheritance rules that restrict land rights for women. In Masindi district, this force was linked to the recognition of women in forest management, as well as the need to secure their access to land and forest management activities. They defined tenure security as the ability to ensure women's participation by adding quotas for women's engagement in decision making.

5.2.5. Community knowledge and capacities

All regions recognize communities' knowledge and capacities as an important driving force behind forest tenure security. According to participants, knowledge and capacities refer not only to access to training, but most importantly to communities' awareness of their rights and the ability to exercise their rights in practice. For instance, in Loreto and Madre de Dios, Peru, participants mentioned adequate capacities of local communities to engage in decision making, improving leadership, recognizing the need to improve their ability to negotiate with other actors, and strengthening internal governance mechanisms. In Loreto capacity refers to empowering communities but also to enhancing the skills of their representative bodies, Indigenous Peoples federations. These federations are key for mobilizing demands for the recognition of rights and securing their ability to benefit all members. In this case, community capacity is also seen as key driving force for improving livelihoods as well as having the skills to negotiate with external actors.

In both regions in Indonesia, community knowledge, awareness and empowerment are key for strengthening capacity development and the facilitation of activities that equip communities with technical knowledge for forest and natural resource management as well as reform processes. In Lampung, key to achieving tenure security is ensuring capacities that enable communities to develop sustainable economic activities, thus avoiding unsustainable practices.

In Kibaale, Uganda, this driving force was defined as the "level of awareness and attitude" as well as "communities' participation in forest management". The former refers to the ability to be informed about tenure reform processes, whereas the latter refers to the skills to ensure community involvement in forest management law and policy. Having access to information, including translations in local languages is key to promoting awareness and developing capacities to engage in tenure reform implementation. It also influences positive attitudes toward reform processes. Awareness is a first step to the recognition of rights and also encourages changes in perspectives around forest management that are important for adopting harvesting and other technologies that promote tree planting and restoration of degraded forests. In Lamwo, capacity building was framed as awareness of rights, while in Kibaale, participants also highlighted the importance of using appropriate mechanisms for disseminating information. In Masindi, participants stressed the need to enhance community participation in forest management, defined as involvement of communities in decision making, planning, implementing and monitoring decisions related to the tenure security of forest dependent people. Positive visions of tenure security included well-organized communities able to manage forest resources and share benefits equitably. Some management activities included tree planting, patrolling, and information systems that allow the tracing of illegal activities.

5.2.6. Other contextual factors (both enabling and disabling)

A number of other contextual factors were mentioned as supporting or hindering the exercise of rights or reform implementation. They include economic considerations, as well as the presence and role of outside parties (NGOs, donors, companies). These were explicitly mentioned in all regions in Maluku, Indonesia; Loreto, Peru; and Lamwo and Masindi in Uganda. In Maluku, Indonesia, tourism activities emerge as the choice for alternative income. To achieve tenure security, participants expressed the need of support for collaboration between communities leading initiatives and local governments and the private sector. In Loreto, participants referred to outside support for identifying and developing viable economic activities as important.

In Uganda, these driving forces are not only related to economic benefits - as they are identified in Kibaale and Lamwo - but also as linked to external factors such as increasing pressure from industrial interests and activities that threaten community tenure security. In Lamwo, participants mentioned the role of NGOs, the ability to control forest fire threats and market forces. According to participants, NGO presence is important for the provision of training for local communities and financial support. Management of forest fires is also perceived as an enabling factor to avoid forest degradation and conflict. In Masindi, such driving forces included the presence of oil and gas and other industries that both pose both threats and opportunities for tenure security. Participants described these as "the nature and impact of industrial activities on livelihoods, environment and forest tenure security".

5.2.7. Driving forces from women's perspectives

Findings from the women-only PPA exercise showed both similarities and differences with the mixed group PPA results. In Uganda, for instance, similarities included: technical capacity and awareness of key stakeholders, including local communities and women; political will and support from local and national government; the role of customary institutions; access to financial resources; and the implementation of forest governance and other specific policies related to tenure security (e.g. migration and resettlement policies). Likewise in Peru, similarities included lack of funding, limited community capacities and incongruencies between the national level and the interests of Indigenous Peoples.

The differences included more emphasis on gender and women's specific needs and vulnerabilities. Women participants in Uganda identified the main driving forces negatively affecting their forest tenure security, such as the negative attitudes of men toward women using or owning forest resources, women's rights being conditional on their relationships with men, and patterns of land allocation and ownership that favor men. In Masindi, participants argued that women's concerns are often overshadowed by the needs of "the community". In Lamwo, participants said that women are in a vulnerable position in relation to tenure issues. For example, tree tenure changes according to its economic value: a tree planted by a woman is "hers" when it has little economic value; but a mature tree, when the value has increased, becomes "ours"; and once the benefits are extracted (the timber is sold, for example) it is then "his". Women in Lamwo also acknowledged their limited participation in financial decisions. This was similar in Kibaale. Additionally, women noted that clan leaders allocate land to men, whereas women access land through male relatives who have decision making power over all the assets. (Tree planting was not mentioned in the mixed PPA workshops).

The women-only workshops in both countries emphasized interactions and relationships at the domestic level (husband/wife, wife/in-laws, children and parents) including partner violence, as well as at community level (clan, group, community, political and technical staff). Women also mentioned violence in relation to extractive activities in communities, strengthening identity and values within the family and the community as a mechanism that enhances governance of territories. Finally, women argued that reform policies should incorporate both men's and women's perceptions to achieve gender equality in implementation.

6. Discussion: unpacking forest tenure (in)security

This article presents the results of a very inductive exercise to understand tenure security and insecurity. The findings highlight the myriad nuances of tenure relations and reform mechanisms, many of which have been captured in different ways in other approaches, some more practical and some more conceptual. This article attempts to bridge these and also take them a step further. This exploration furthers our understanding not only of what tenure (in)security is but also of how to measure it, and, in particular, what it *means*, especially for rural communities. We begin with a short summary of lessons from the review of results then move to the discussion of concepts, and propose a simplified model of tenure (in)security.

6.1. Lessons from the analysis

A number of lessons can be drawn from the results. Most notably, it should be clear that security and insecurity are far more complex than the simple presence or absence of paper documentation, whether this is a title or another form of formal recognition. Despite increasing agreement that understanding perceptions of tenure security is key to identifying the main barriers to strengthening security, and greater efforts to use perception to assess tenure security outcomes (Zhou et al., 2018; Robinson et al., 2018; van Gelder, 2010), land policy continues to prioritize a formal, legal and administrative approach to bringing "clarity to rights, address land disputes and guarantee rights" (Valkonen, 2021; Toulmin, 2008). Yet an approach that focuses on formalization and legal clarity can disrupt social dynamics and instead create more conflict within communities (see Ege, 2017).

Our findings suggest several points to highlight:

- Determinants of security and insecurity are very specific to context.

We used a comparative method that drew on workshops organized at the subnational context, fostering collective discussion to elicit the driving forces influencing tenure security and insecurity. This approach

encouraged participants to think broadly, but also to incorporate concerns and challenges that were specific to their experience in the region. The PPA method's built-in assessment of structural analysis compares across factors, providing a consistent way to calculate the level of influence and thus narrowing down those driving forces that have the largest influence for transforming the system (Bourgeois et al., 2017). Participants identified dozens of factors, across social, economic, political, cultural and ecological dimensions. For the purpose of research and practicality, we are forced to group, simplify and search for commonality, but the PPA process and results make it clear how each specific context defines the challenges and opportunities.

- Determinants of security and insecurity are also specific to different actors (e.g. women).

The data taken from the workshops was also useful to identify gaps both in terms of relevant issues and of missing perspectives and potential vulnerabilities of certain groups. Although we were not able to consider other subgroups in this analysis, women are a clear example, pointing to specific vulnerabilities in influencing processes of reform implementation, both at the community and subnational level. On the one hand, several of the mixed groups identified driving forces of (in)security relating to the rights and voice of indigenous women and cultural norms, especially those affecting women's participation but also inheritance and the right to own land. On the other hand, women-only groups identified some of the same driving forces as the male-dominated groups but added a few distinct factors, demonstrating much greater attention to community-level violence, domestic violence, relations between men and women, policies promoting gender equality and indigenous identity and values.

Women's experience (perception, types of driving forces) of tenure (in)security, even when they are members of groups that are being recognized under reforms, bring in these additional dimensions relating to their membership in the group (mediated by group norms and social practices) and their household relations. This has also been explored elsewhere, drawing on data from this project and others (see Meinzen-Dick et al., 2021; Jhaveri et al., 2020; Monterroso et al., 2019b), drawing new attention to assessing women in collectives. These findings are just one dimension of the intersections of identity within collectives, or in community arenas more broadly, where age, ethnicity, migration status and other factors are likely to bring out such distinctions.

- Tenure (in)security is multi-dimensional.

Results highlight that tenure security is defined not only by focusing on its legal dimension but also social, political, economic, ecological, cultural, technical and capacity dimensions. It includes livelihood security in the long term, awareness of rights, understanding of land registration, and perspectives on land use practices and on benefit sharing, among many others. How these dimensions interact and influence tenure insecurity is tied to specific contextual conditions. Although some of these dimensions have been brought out in previous literature, narrow perspectives on formalization and the tendency to simplify masks this multi-dimensional complexity. The extent to which a particular dimension is prioritized is also linked to the discipline of the researcher or practitioner, with an overall bias toward the legal (titling) and economic (the property rights school, e.g. Deininger et al., 2014) dimensions among practitioners, while scholars have emphasized social and political priorities (Simbizi et al., 2014). Focusing on different types of reform processes allowed the research to focus on the role of these practitioners, particularly during implementation (Myers et al., 2022), while bridging the discussion with communities themselves, as well as with NGOs and others.

The introduction of perception surveys presents a large step forward (e.g. PRINDEX) with the potential to mainstream the importance of measuring perception (thus going beyond the legal situation alone). But

solving the problem of tenure insecurity requires getting to the many factors influencing perception. For instance, further understanding threats and other challenges to people's ability to exercise their rights requires more than asking whether they feel their rights are secure, or assured into the future. We also need to unpack people's perspectives regarding how they feel about the land they live on and their ability to extract a livelihood from it, defend their way of life or feel empowered.

- The PPA process helps us take a much deeper look at tenure (in) security.

The PPA method is designed as an iterative process that allows researchers and practitioners not only to explore the details, but also to foster interaction among multiple stakeholders from different sectors. This allows spaces for sharing information and fostering mutual understanding, and when discussing highly contested issues, it allows for divergent viewpoints to surface. Further, this study focused on the comparative analysis of forest tenure reforms, thus assessing processes where a regulatory change to formalize land and forest rights was already in place (Larson et al., 2019; Larson et al., 2010); this allowed for a comparative assessment of context in reform implementation. This was valuable for identifying factors of tenure (in)security as well as challenges and barriers to implementation. Although PPA has been used mainly to support processes of development, its adaptation to the exploration and understanding of tenure (in)security proved invaluable.

6.2. Furthering the conceptual debate

As Valkonen (2021) notes, the three-part approach to tenure from van Gelder (2010) "enables us to define tenure security [perception]; … to attend to practices of securing tenure [legal security]; and … to highlight sources of tenure (in)security [de facto situation]." Simbizi et al. (2014) broadens the focus from tenure as either economic, legal or social, as viewed from these different schools of thought, to take a systems approach that sees security as "an emergent property of a land tenure system." In their model, people and institutions and their interactions are at the core, addressing land rights recognition, protection, legitimization and empowerment.

Valkonen rightly identifies a major gap in the literature, taking the interactions in Simbizi et al. further to examine the politics behind those interactions. As noted previously, for Valkonen (2021) determinants of (in)security are based on authority relations (referring in particular to the institutions that should protect the rights granted), state politics (with an emphasis on political changes over time), social dynamics (negotiations among people, households, communities) and belonging (as a basis for claiming rights).

The results of our PPA workshops add value to this conceptual discussion but with several additions, contributing to its evolution. In particular, we focus on the idea that perception is necessarily an indication of tenure security and that reform implementation should consider both the politics of interaction and practicalities. We also emphasize the contribution of this research to understanding what tenure security means for communities.

First, in moving beyond the presence of a title or other legal recognition as a proxy for tenure, most scholars and practitioners support the idea "that people are secure if they perceive to be so" (Simbizi et al., 2014). Although very important, just as land documents may be, perception is not always accurate. In fact there are many threats to tenure rights that people may be unaware of (e.g. a new mining concession) or simply are not yet seen as relevant (e.g. climate change), or that people do not consider when asked this perception question (e.g.

which is the appropriate institution or authority to engage with in case of conflict). That is, a simple question gets a simple answer. But perception is most useful if it is unpacked, providing a basis for diving deeper into the multiple dimensions of tenure, to further explore the drivers of security and insecurity.

Second, our data shows that although relationships and interactions – and the politics of those – are central (as per Valkonen, 2021), so are resources and capacities. The implementation of tenure reforms – rights recognition through titling, establishing contracts or permits, etc. – involves extensive practical, operational challenges, especially on the part of government, e.g. through the different sectorial and governance level practitioners involved. In our cases, competent and trained government staff and sufficient resources and budgets were as important as political will, coordination, transparency and respect for local rights. Knowledge resources and capacities were also important for communities, regarding knowledge of their rights, capacity to participate in the reform process and community governance and leadership, as well as technical capacities for resource management.

Fig. 4 summarizes our understanding of tenure (in)security, bringing together the results of this study with the conceptual contributions of Valkonen (2021) and others. Like Simbizi et al. (2014), we see tenure (in)security as an emerging property, specifically of the various relations in which actors are embedded; however, we see the "system" as much larger. Like Valkonen (2021), we believe that social and authority (power) relations permeate all interactions, from within the community (belonging) to broader government level (state politics), and in-between (social dynamics, authority relations); the figure brings together these ideas (Valkonen, 2021 does not present a graphic model) with the grounded variables and patterns emerging from our fieldwork, thus defining the main arenas of interaction.

The variables in the graphic represent a combination of the priority driving forces of (in)security identified in the PPA workshops, together with broader analytical work based on the global comparative study on forest tenure reform and some aspects adapted from Valkonen (2021). The two doubled circles on the margins summarize and elaborate the main categories of driving forces identified in PPA: (1) the role of government, with the distinction between implementing agencies (which sometimes involves others outside government such as NGOs) and the broader government (as noted in Valkonen's authority relations and wider state politics); the importance of government capacities/ knowledge (and resources) and the often contradictory goals of policies and regulations; and (2) the "role of communities" (adjusting the results category for clarity), including customary communities and Indigenous Peoples. Within this circle we have highlighted capacities and knowledge but also economic benefits as one of the central priorities, as well as cultural norms especially as they affect women. We do not use the term governance, but within and between these primary circles, governance is overarching.

Although the driving forces mentioned above can have both positive and negative effects, the starburst shapes at the top and bottom of the figure represent some of the largest threats to reform emerging from the PPA workshops and the broader research. A lack of such threats fosters greater tenure security. Outright opposition to reform, and to indigenous and community rights, represents one of the biggest challenges, as well as competition for resources. Opposition and competition both extend from government to other actors (not named in the graphic, such as the private sector), including the overall vision of "development" (see Larson and Springer, 2016), as well as to communities themselves, which may have both internal competition and 'outsiders' with different interests.

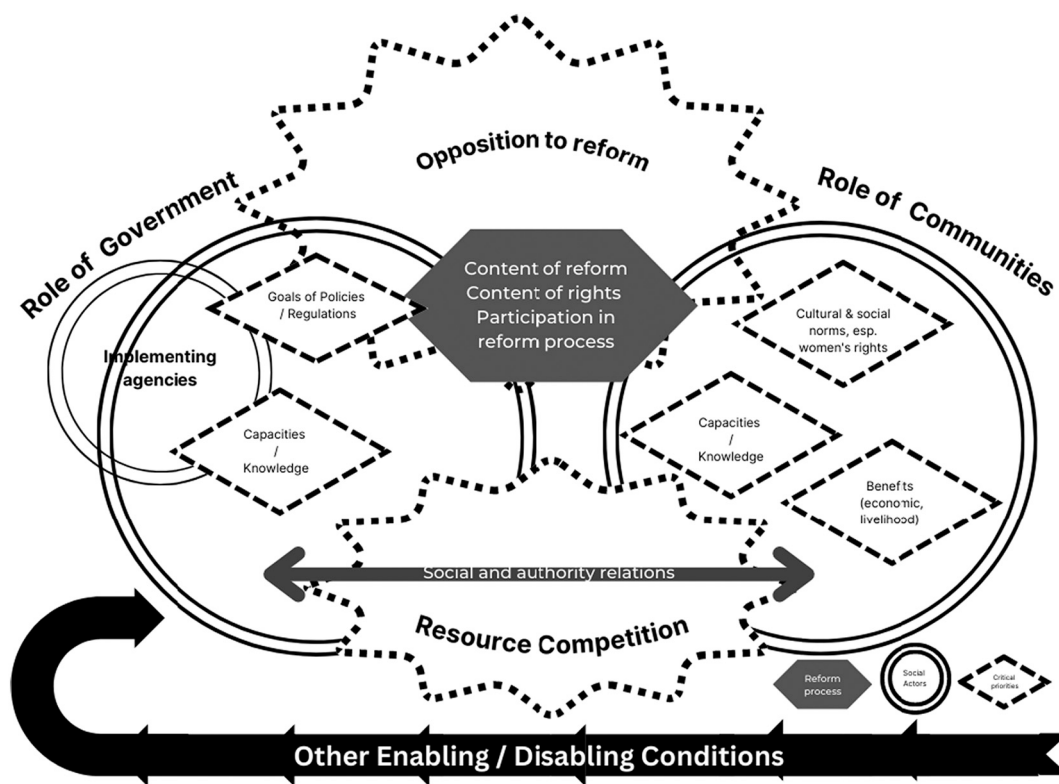The dark hexagon between the primary circles represents the main

Fig. 4. A conceptual model of driving forces of tenure (in)security.

substance of reforms – including the extent and bundle of rights, and community participation in those processes, especially during implementation, in relation to interactions between communities and the state. The two-sided arrow highlights the social and authority relations that are central to the process and to Valkonen's conceptual model, although we would argue that these permeate all arenas of interaction, including within communities. The thicker black arrow along the bottom of the figure reminds us of a number of other enabling/ disabling factors (e.g. the role of NGOs, natural conditions, markets and finance, and strategic alliances) mediating community relations with competing users and the state.

7. Conclusions

The PPA approach promotes the integration of different views of forest tenure security, presenting a variety of potential future scenarios, and inviting discussion on the possibility and feasibility of actions to address tenure insecurity. The process fosters mutual understanding across the many different dimensions of (in)security among the relevant actors on the ground, helping unpack the layers surrounding forest tenure security issues.

A more complex and holistic approach such as PPA brings out a whole new way of understanding the meaning of tenure rights. PPA brings out the point that secure resource access is the basis for the future of the way people live in rural areas: rights, and security of rights, are one piece of a much more complex puzzle about rural livelihoods, wellbeing and the empowerment of rural peoples.

Our conceptual model organizes the empirical results, and at the same time provides a conceptual and methodological framework to assess tenure (in)security in multiple contexts. While tenure security is about recognition and protection of rights, it is also about political recognition by the state, and giving priority to Indigenous or local community concerns. It is about being seen and being respected by a political and economic system that has historically marginalized Indigenous Peoples and other local communities – and even more so for women, who may also suffer discrimination within their communities as well. It is about the conservation and sustainable management of landscapes where these efforts are as important as a community registering its land. Enhancing tenure security means ensuring the ability to engage in sustainable livelihood activities, by law and in practice. It is also about community empowerment and agency in reform processes, strengthening leadership capacities and cultural identities.

Such exchange and integration of perspectives is much needed to find common strategies to move forward and mobilize action toward strengthening community rights over their land and resources for more secure futures.

CRediT authorship contribution statement

Anne M. Larson: Funding acquisition, Supervision, Project administration, Conceptualization, Visualization, Writing – original draft, Writing – review & editing. **Iliana Monterroso:** Supervision, Project administration, Methodology, Investigation, Visualization, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. **Nining Liswanti:** Methodology, Visualization, Investigation, Data curation, Writing – original draft. **Ade Tamara:** Formal analysis, Data curation, Writing – original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Annex 1

Synthesis of literature review.

Elements of tenure security	Authors
Government political will including provision of funding, capacity development and supporting regulation	Vélez et al., 2020 Gebara, 2018 Resosudarmo et al., 2019 Dahal et al., 2017 Chomba et al., 2015 Banjade et al., 2017 Broegaard, 2005 Notess et al., 2020
The state of customary institution and its perceived legitimacy, local communities' capacity and awareness of rights	Gebara, 2018 Moeliono et al., 2017 Resosudarmo et al., 2019 Berry, 2020 Toulmin, 2008 Sikor, 2006 Lund, 2011 Peluso et al., 2013
Economic improvement derived from the reform	Dahal et al., 2017 Moeliono et al., 2017 Resosudarmo et al., 2019 Holland et al., 2017 Vélez et al., 2020 Robinson et al., 2014 Banjade et al., 2017 Monterroso and Barry, 2012 Barrow et al., 2016
quality of governance including corruption, transparency, inclusion	De Royer et al., 2018 Grant and Le Billon, 2020 Banjade et al., 2017 Broegaard, 2005
Bundle of rights	Moeliono et al., 2017 Gebara, 2018 De Royer et al., 2018 Banjade et al., 2017

Annex 2

Driving forces in different countries and regions.

No	Categories	Driving forces						
		Peru		Indonesia		Uganda		
		Madre de Dios	Loreto	Maluku	Lampung	Kibaale	Lamwo	Masindi
1	Governance and government	-National policy congruence with local and subnational realities -Subnational govt political will to address indigenous concerns -Monitoring and control of the institutions across government agencies involved in reform implementation	-Government priorities - Transfer of functions through decentralized government agencies establish clear and transparent procedures (combined with policy coherence) -Existing procedures are adapted to reality -bureaucracy (including attitude of officials toward indigenous issues) -education policy	-Regional governance -Land conversion and spatial planning -Local regulation	Coordination and communication across government institutions – around existing regulatory frameworks (including regulation of forest products value chains)	-Enforcement of forest laws and policies -Political will and support to forest governance -Migration and resettlement policies	Forest Governance	Role of government agencies
2	Customary/ local community rights			Customary rights and institutions	Community access to forest resources	Extent of property rights and access to forest benefits	Cultural institutions	Cultural institutions, norms and beliefs

(continued on next page)

Annex 2 (*continued*)

No	Categories	Driving forces						
		Peru		Indonesia		Uganda		
		Madre de Dios	Loreto	Maluku	Lampung	Kibaale	Lamwo	Masindi
3	Women's Participation/ empowerment			Strengthening indigenous women				-Role of women in forest management -Women's access to land and forest activities
4	Government/ implementer knowledge and capacities	Operational and technical capacity of government institutions	-Regional government capacity -Finance	Local government budget	-Human resource quantity and quality -Regional budget support	Capacity of stakeholders		Access to financial resources
5	Community knowledge and capacities	Native communities' operational and technical capacities	Community empowerment	Community knowledge, awareness leading to community empowerment	-Stakeholder roles (including community awareness) -Creative economic opportunities for communities	-Community awareness around reforms and attitudes toward reform processes -Community participation in forest management	Capacity building (community awareness)	Community participation in forest management including the role of women*
6	Enabling environment (economic forces/support from outside/ other factors)		Empowerment of/ support for communities to be able to earn a living after reforms	Potential of tourism			-Market forces -Role of NGOs -Fire	Oil and gas and other industries as clear obstacles
7	Women-specific PPA responses	-Violence in communities due to extractive industries -Indigenous identity and values in family and community -Gender equality in policy implementation				-Women's physical security -Women's access to finance	-Men's attitudes toward women -Domestic relations -Equity in land ownership	-Supportive men and domestic relationships -Rights of future generations

Data availability

The vast majority of the data is available in existing publications from our research.

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