

Extended abstract

Social Differentiation In Collective Tenure Regimes: Women Rights And Forest Tenure Reforms

Iliana Monterroso, Anne Larson, Esther Mwangi, Nining Liswanti, Tuti Herawati,

Centre for International Forestry Research, CIFOR

This article analyses how gender and social inclusion have been addressed in the drafting of different types of reforms in Indonesia, Uganda and Peru. Reform types include social forestry schemes in Indonesia, community based and collaborative management in Uganda and indigenous titling in Peru. Results focus on two aspects. First, we analyzed to which extent the design of laws and policies behind reform processes have incorporated gender considerations in the drafting of implementation provisions. Second we analyzed the local regulations including existing customary arrangements around reform processes to assess how these affect women and men in terms of access and control of resources. Research is based on extensive research on forest tenure reforms. Information was collected for 55 sites across five different tenure regime types. At the community level, key information interviews (133) and focus group discussions (162) provided information of the origins and nature of reform outcomes. Results evidence sex-differentiated outcomes of reform processes across these three countries.

Key words: Forest tenure reform, social differentiation, gender, implementation processes, Uganda, Peru, Indonesia

Introduction

Recent data analyzing changes in statutory regimes in land and forests, evidence that globally around 18% of land is formally recognized under some type of collective tenure regime either owned by or designated for indigenous peoples and forest-dependent communities (RRI, 2015; Wily, 2011). In practice, while these changes in statutory laws provide the basis for accessing resources essential to develop livelihoods, they do not guarantee automatic benefits from exercising newly acquired rights (Seymour et al., 2014). Forest tenure reforms stem from changes in institutions, often statutory regulations, that (re) define the bundle of rights and responsibilities over who uses, manages and controls forest resources and how (Sunderlin et al. 2008; Larson 2010; Larson et al. 2010a, b). Shifting rights to resource users may lead to improve resource management and improve livelihoods (Mai et al., 2011). However, realization of rights is influenced by the institutional mechanisms governments choose to formalize rights and implement reform processes (Almeida, 2015). Additionally, at the local level, social class, gender, ethnicity, and other factors embedded in customary rules and practices also influence communities' institutional arrangements, limiting the outcomes vulnerable groups could obtain from these reforms processes.

While existing research around recent reform processes in forestlands under collective tenure arrangements focus in the analysis of the devolution process (Agrawal and Ostrom, 2001; Larson et al., 2010), less is known about how internal distribution of resource rights plays out in practice within these collective tenure systems (Mai et al., 2011). Gender inequality has been identified as a key aspect in effective design and implementation of development interventions around forest landscapes as "social differentiation along caste, gender, and wealth status influences community forestry implementation processes" (Mai et al., 2011:249; Agarwal, 2010¹; Agarwal 2009). Recent works

¹Mai, Y.; E. Mwangi and M. Wan. 2011 Gender analysis in forestry research: looking back and thinking ahead. *International Forestry Research* 13(2) 245-258

Agarwal, B. 2010a. Does women's proportional strength affect their participation? *Governing local forests in South Asia*. *World development* 38 (1): 98-112; Agarwal, B. 2009. *Gender and forest conservation: The*

analyzing women's rights to community forests in statutory law (Keene and Ginsburg, 2017) and policy implications of lessons learned behind ongoing formalization processes (Giovarelli, et al., 2016) have evidenced how distribution of tenure rights could affect social groups within collectives. However, lack of understanding on how gender and social inclusion are addressed both in laws and local arrangements that regulate reform processes around collectives risks perpetuating internal social differentiation with direct impact on the outcomes especially tenure security but also livelihoods and forest conditions.

This paper analyses how gender and social inclusion concerns have been addressed in the drafting of different types of reforms in Indonesia, Uganda and Peru and how existing provisions or lack thereof shape gender perceptions around outcomes at the local level. Reforms analyzed include social forestry schemes in Indonesia, community based and collaborative management in Uganda and indigenous titling in Peru. The paper is organized in three sections. Next, we review the link between collective tenure and gender. Following the methodological approach includes a brief overview of forest tenure reforms implemented in each country; data collection tools and the empirical model used in the analysis. The third section presents results.

Results are organized around three issues. First, we analyze the extent to which legal provisions around devolution of collective rights to forests take into account gender considerations in the design and implementation of reforms. Second, we weigh the implications of the implementation of formal regulations at the local level, we analyzed the extent to which the devolution of rights to the collective has affected men and women and other vulnerable groups differently. Third, at the village level, we analyze to what extent is gender a factor that influences perceptions that women and other vulnerable groups on the benefits these have derived from the devolution processes. Results assess gender-differentiated outcomes around participation in rule making around forest use and access. Fourth, other factors influencing women and men perception towards reforms outcomes are also explored. The discussion section analyses these changes to discuss lessons on how implementation processes can improve or hinder social differentiation within collective tenure regimes as well as identifying recommendations on how can the rights of women be recognized and secure within collective tenure arrangements.

Exploring tenure and gender links

During the last ten years, there has been increasing attention to women's rights and gender equality with important discussions around the link between gender, land, ownership and tenure issues. Important advances at the international level include human rights instruments such as the Convention on the Elimination of All forms of Discrimination against women (1979) the UN Declaration on the Rights of Indigenous Peoples (2007), the Convention concerning Indigenous and Tribal Peoples in Independent Countries (1989). More recently, goal 5, of the sustainable development goals calls for closing the gender gap by promoting equal rights to economic resources, ownership and control of land as a way to address social inequity and poverty (Bose et al., 2017). These international instruments include specific calls on States to make the appropriate reforms to eliminate discrimination against women; ensure equal treatment and recognition of rights including those that relate to land and other assets; and include specific provisions to ensure that indigenous women will be protected from discrimination and that particular attention will be paid to their rights. There has also been substantial progress with regard to constitutions and national laws.² According

impact of women's participation in community forest governance. *Ecological economics* 68 : 2785–2799.

² World Bank, Food and Agriculture Organization of the United Nations (FAO) and International Fund for Agricultural Development (IFAD), *Agriculture and Rural Development: Gender in Agriculture – Sourcebook* (Washington, D.C., World Bank, 2009), module 4: Gender issues in land policy and administration.

to UN Women (2011) (cited in OHCHR 2013), “at least 115 countries specifically recognize women’s property rights on equal terms with men”.³

The Beijing Declaration and Platform for Action, from 1995, 2000, 2010 and 2015⁴ endorses the call for equal access to economic resources including women’s right to inheritance, land and property ownership. Other instruments, including the Voluntary Guidelines on the Responsible Governance of Tenure of Lands, Fisheries and Forests in the Context of National Food Security, adopted in May 2012, reiterate the principle of gender equality, calling upon States to “ensure that women and girls have equal tenure rights and access to land, fisheries and forests independent of their civil and marital status” including in customary tenure systems and in decisions affecting tenure (UN 2013: 10). On collective tenure and indigenous women specifically these guidelines establish that “indigenous peoples and other communities with customary tenure systems that exercise self-governance of land, fisheries and forests should promote and provide equitable, secure and sustainable rights to those resources, with special attention to the provision of equitable access for women. Effective participation of all members, men, women and youth, in decisions regarding their tenure systems should be promoted through their local or traditional institutions, including in the case of collective tenure systems” (FAO, 2012).⁵

Gender inequality when it comes to land and other productive resources is intimately related to women’s poverty and exclusion. However, according to the ICRW (2015) only one percent of women in the world own land. The obstacles which prevent women from effectively enjoying these rights are complex and to a large extent context-specific. Still, many overarching similarities are apparent. Barriers which prevent women’s access to, control and use of land and other productive resources often include inadequate legal standards and/or ineffective implementation at national and local levels, as well as discriminatory cultural attitudes and practices at the institutional and community level. Rural women also feel that secure land rights in particular increase their social and political status, and improve their sense of confidence and security. By diminishing the threat of forced eviction or poverty, direct and secure land rights boost women’s bargaining power in the home and improve their levels of public participation.

There is wide agreement that clear, secure rights over land and natural resources are key components for addressing poverty and food insecurity, and that women often face different risks as tenure reforms are implemented (Namubiru-Mwaura, 2014; Mai et al., 2011; FAO, 2010; FAO, 2002). An assessment of women’s land rights by the OHCHR (2013:3) states, “A major part of the remaining challenge revolves around implementation and enforcement. Even in countries where good laws exist, women frequently do not enjoy their rights to access and control productive resources.” Not only is their access and control over resources often tied to their relationships with male relatives, but also they tend to be heavily dependent on forest resources (Meizen-Dick et al, 1997; Bose, 2011; Agarwal, 1993). These issues are highly relevant as conventional approaches for promoting gender equality around land and resources rights emphasize titling of individual private property (including joint titling) (Gelbspan and Nagaraj, 2012)⁶. Land distribution programs are implemented with the assumption of a unitary male-headed household, and titles are granted mainly to men. This

³ UN Women, *Progress of the World’s Women 2011–2012: In Pursuit of Justice* (2011).

⁴ <http://www.unwomen.org/en/digital-library/publications/2015/02/beijing-synthesis-report>, accessed Jan 22, 2016

⁵ FAO, *Governing Land for Women and Men: A Technical Guide to Support the Achievement of Gender-equitable Governance of Land Tenure*, Governance of Tenure Technical Guide No. 1 (Rome, 2013). Available from www.fao.org/docrep/017/i3114e/i3114e.pdf (accessed 19 June 2013).

⁶Thea Gelbspan and Vijay K. Nagaraj, “Seeding hope? Land in the international human rights agenda: Challenges and prospects”, Working Paper (International Network for Economic, Social and Cultural Rights (ESCR-Net), 2012).

discourse contradicts many traditional and indigenous understandings of land rights, which view land not as a financial commodity to be privatized and sold, but as a resource that is managed collectively and individually. But even if situations when collective tenure is recognized women are often marginalized and participate much less than men in decisions regarding land and forest use, management and benefit distribution (Sunderland *et al.* 2014, Coleman and Mwangi 2015).

Land property is a critical entry point for women's empowerment; it defines social status and political power in the village, and it structures relationships both within and outside the household (Agarwal 1994:2). In legal terms, women have struggled for and won fairly extensive rights to inherit and control land; but in practice there still are major gaps between de jure and de facto protection of women's rights which calls for better understanding the effectiveness of the recent reforms at strengthening women's rights to forest and tree resources. As reinforced by the Special Rapporteur on adequate housing "In many countries, women's rights are legally protected, but in practice, women are socially and economically disadvantaged and face de facto discrimination in the areas of housing, land and inheritance rights" (A/HRC/4/18, annex I). Women continue to be disadvantaged by insecure access and property rights to forest, trees and land resources (Quisumbing *et al.* 2001, Meinzen-Dick *et al.* 2010) and by exclusion from decision making at all levels from local to national.

Overview of forest tenure reforms analyzed

This section examines the type of forest reforms that these three countries have implemented during the last forty years. All countries have undertaken reforms to recognize collective rights to forestlands and devolved authority to intermediate levels between the community and the state. Reforms implemented in Uganda (Table 1) and Indonesia (Table 2) stem mainly from changes in regulations in the forests and environmental sector. They involve recognition of management and use rights to forest resources through permits and authorizations. These are recent processes taking place after the 1990s involving the devolution and decentralization of authority over forest or protected areas to lower levels of governance including community-based organized groups and local governments. In Uganda, reforms are tied to conservation interests; while in Indonesia social mobilization to access forests has promoted the establishment of varied social forestry schemes. In Peru (Table 3), efforts to colonize the Amazon promoted around the agrarian reform in the 1970s and indigenous mobilization allowed the recognition of indigenous communities, and their territorial claims formalized through communal land titling.

Table 1. Uganda: Types of reforms analyzed

Type of forest reform	Description	Legal basis
Reforms in non-gazetted (Private) forests (70% of forests)		
Customary lands	Lands controlled by traditional institutions. Reforms allowed to register them under Certificates of Customary Ownership	Constitution 1995
Communal land associations	Common Land Use Scheme that allow to establish community-based forest management (CBFM) through the establishment of communal land associations and which certificates are registered and awarded customary ownership.	Land Act Sections, 15, 23, 24, 25, 26
Reforms in Gazetted (Public) forests (30%)*		
Collaborative forest management agreements	These agreements are arrangements between the National Forestry Authority and communities living near Central Forest Reserves (CFR) and Local Forest Reserves (LFR) to increase benefits for local people. National Forestry Authority (NFA) and Local Government (District Forestry Services) manage CFR	National Forestry and Tree Planting Act, section 15.

	and LFR.	
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*Other reforms in gazzeted forests include Community resource management arrangements between communities and government in wildlife conservation areas and national parks

Source: Mwangi, 2017; Naluwairo, 2015

While Indonesia and Peru, are forest-rich, with 94 and 68 million hectares of forest, respectively, representing just over half of the land area; Uganda, is forest-poor, with just under 3 million hectares of forest, representing 23% of the land area. Population densities are very low in Peru (23), and very high in Indonesia (125) and Uganda (161). Each of the cases traces the history of forests, forestland and related rights, pointing out key moments of reform, the drivers for change and current challenges. In Peru, forests are the property of the state, though important areas of the Amazon have been included in indigenous territory titles under usufruct rights.

Table 2. Indonesia: Types of reforms analyzed

Type of forest reform	Description Region	Legal basis
Reforms in state forests		
<i>Hutan Kemasyarakatan</i> HKm (Community forests)	Permits given within state forest to promote forest restoration and achieve community empowerment. Rural institutions form a cooperative. Duration 35 years. Rights recognized include use and management rights of timber (in production forests only) and NTFPs (both production and protection forests).	Forest Law No. 41, 1999 Forest Regulation 6/2007 Regulation Number P.88/Menhut-II/2014
<i>Hutan Tanaman Rakyat</i> HTR (Community plantations)	Permits allocated within state forests used to establish local people's planted forest with the aim to provide raw material to timber industry and develop local community livelihoods. Duration up to 35 years. Rights granted to local communities include use and management rights for timber production and use and permit is issued only in production forest zones	Government Regulation 6/2007 Regulation Number P.23/Menhut-II/2007
<i>Hutan Desa</i> HD (Village forests)	Village forest permits are issued for State forests in areas that have not been managed by companies for production or protection. They aim to promote village-based institutions. Duration is 35 years.	Forest Law No. 41, 1999 Regulation Number P.89/Menhut-II/2014 Ministerial Regulation No. 89/2014
Partnership Schemes	There are three types of partnership arrangements. (1) <i>kemitraan</i> : a partnership between government owned forestry company and a local community; (2) <i>plasma</i> : a partnership between a private company and a local community; (3) PHBM (<i>pengelolaan hutan bersama masyarakat</i> : joint forest management between the State Forestry Agency and the local community).	Ministry of Forestry Decree P.39/2013
Reforms in titled (private) forests*		
Customary forest (<i>butan adat</i>)	Land and forests within ancestral territories of indigenous peoples (<i>masyarakat hukum adat</i>)	Constitutional Court Ruling 35/PUU-X/2012

* Village own forests (*utan milik desa*) or forests in the property (private) of customary-based villages is another form of titled forest.

Source: Based on Banjade et al., (2016) and Siscawati et al., (2017).

At the local level, despite formalization of tenure rights customary arrangements continue to be very important institutional arrangements. In Uganda customary tenure has been recognized in the 1995 constitution, although it is not well documented (Naluwairo, 2015; Mwangi, 2017). In Indonesia, a 2012 court ruling recognized customary forests for the first time, however, the recognition of customary territory in practice is still limited. In contrast, Uganda recognizes private land and grants

the landowner the forest ownership rights. In spite of these differences, their histories demonstrate common challenges for forest-based communities.

Table 3. Peru: Types of reforms analyzed

Type of forest reform	Description Region	Legal basis
Native community lands	Lands claimed by indigenous populations, mainly in the Amazon, demarcated and titled to registered communities. Areas classified as agricultural lands are formalized under a communal land title; areas classified as forest lands are formalized under a usufruct contract	Law Decree No. 22175. Law of Native Communities and Promotion of Agriculture in the Lower and Upper Rainforests Law No. 29763 Forest and Wildlife Law
Peasant* Riverine community lands	In the Amazon, it refers to riverine communities those “established along riverbanks throughout the Amazon, usually referred to as “peasant riverine” that maintain a communal organization of land use typical of peasant communities”.	Law No. 24656. General Law of Peasant Communities Law No. 24657. Law of Demarcation and Titling of Territories of Peasant Communities

* Other reforms recognizing collective recognize lands claimed by indigenous populations, in the coast and highlands, demarcated and titled to registered communities registered as "peasants".

Source: Monterroso et al., 2017; Baldovino, 2016; IBC, 2017

Methodological approach

In their analysis of gender-focused forestry research Mai et al., 2011 identify the need to further assess the impacts of forestry reforms on women's rights and access. They point out the need to "establish the implications of reforms on women's rights and ultimately on the security of their rights and access, including related outcomes such as livelihoods and forest sustainability" (p.253). In existing literature, few empirical studies have analyzed gender-differentiated outcomes of right devolution processes (Sun et al. 2011; Agrawal 2001; Mwangi et al., 2011). Existing works address how different gender composition impacts forest governance in regards to rule enforcement; conflict and adoption of sustainable forest practices (Sun et al., 2011). Gender differentiation has been identified as a critical variable influencing not only resource use, incentives for sustainable management, access and benefit distribution (Mai et al., 2011; Sun et al., 2011; Agrawal, 2001). This paper reviews how gender dimensions should be accounted in the analysis of collective tenure regimes addressing the following research questions:

1. How has the gender dimension been approached in reform design and implementation?
2. Has the devolution of rights to the collective affected men and women and other vulnerable groups differently?
3. To what extent is gender a factor influencing perceptions around reform outcomes?

Data Collection

Research is based on extensive research on forest tenure reforms by the Center for the International Forestry Research in Uganda, Peru and Indonesia taking place between 2014 and 2018. It uses a mixed method approach, combining quantitative and qualitative data collecting and analysis tools both at the household, communal and national level. At the local level, information was collected for sites across different tenure regimes, including situations where communities are not legal right holders but are beneficiaries of reforms and situations where even though tenure is defined individually, forests are managed under collective institutional arrangements (See Table 4).

Information was collected for 54 villages and household level (over 1,300 households, 2,705 respondents). Intra-household surveys collected information about household characteristics and assets, tenure security/insecurity, livelihoods and production, forest condition, institutions and governance as well as conflicts and threats. Detailed information on gender and membership distribution across countries is found in the Appendix.

Table 4. Distribution of household respondents across countries and regions of analysis

Tenure regimes	Uganda	Indonesia	Peru	Total # of sites
State land designated to/use by communities	Kakumiro • 4 communities	Lampung: • 5 communities West Kalimantan: • 2 communities		11
State land used by companies		Lampung: • 2 communities West Kalimantan • 2 communities		4
Land owned by communities	Masindi • 4 communities	Sulawesi: 1 community*	Madre de Dios: • 10 communities Loreto • 8 communities	22
Owned by individuals	Kibaale: • 4 communities			4
Customary lands (different levels of formalization)	Lanwo: • 4 communities undergoing formalization	Maluku • 5 communities (not formalized)	• Loreto: • 4 communities (not formalized)	13
Total # of sites	16	17	22	54
Total # of observations	688	1011	1006	2705

*In Sulawesi community only qualitative information was collected (KII and FGD).

Additionally, at the community level, key informant interviews (N=133) and focus group discussions (N=162) provided information of the origins and nature of reform outcomes. These tools addressed separately women, men, youth and adults to elicit their actual and perceived impacts of forest tenure reforms. At the national level, legal and historical analysis of key regulations around reforms provided background information on the type of institutional arrangements promoted and evidenced the type of provisions required for implementation. Additionally a survey targeted to government officials assessed reform implementation (Heriwati et al., 2017), for this paper we draw on results that analyzed the extent to which women are involved in reform processes as implementing agents and the extent to which gender considerations are perceived as important reform objectives.

Quantitative analysis: the household survey

A random-systematic sample was used to select 25 households per village. Data collection took place from October 2015 to August 2016. In selecting households for this survey, it was paid attention to proportional representation of male and female headed households; households that are members and non-members of reform processes analyzed; near and far households with reference to the

village center; and households engaging in various livelihood strategies. The final sample includes 2,705 respondents (1011 in Indonesia, 1006 in Peru and 688 in Uganda). Intra-household survey collected information on: (1) Household characteristics (2) collective tenure rights (3) local rules that govern local forest access and use (4) level of participation in the drafting of local rules about forest product harvest, use and management (4) level of involvement of forest management activities and organization and (6) the perception of reform in improved tenure security and livelihood conditions. Respondents of intra-household surveys is proportional representation of male and female headed households (See Table 5 and Table 6); near and far households with reference to the village center; poor and non-poor households and households engaging in various livelihood strategies.

The empirical analysis

The first part of our empirical analysis used descriptive statistics and cross-tabulations to examine differences in perceptions of men and women. Table 5 and 6 shows the variable description and summary statistics by country. Socioeconomic variables (eg. economic status, education level, access to land) demographic (eg. number of years living in villages) were collected. Additionally, resource and forest-related variables were selected to determine which might influence gender-differentiated perceptions. These variables included access to land and forests (eg. size of land, distance to the nearest forest, involvement in forest management). These variables were also analyzed to capture women and men perceptions in their ability to accrue livelihood and tenure security benefits from reform processes.

Table 5 and 6 shows the variable description and summary statistics by country of both independent and dependent variables. Further analyses of results by gender and membership status are provided in the Appendix.

Table 5. Descriptive statistics results at the country level: independent variables

Independent Variables	Answer	Indonesia		Peru		Uganda	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Socio-economic and demographic variables							
Gender of the respondent	1=female, 0= male	0.50	0.50	0.49	0.50	0.58	0.49
Years in school completed	Years	8.22	3.55	6.59	3.73	6.20	3.88
Years living in the village	Years	32.10	16.41	29.18	17.11	22.87	17.60
Economic situation	01=very poor/poor; 0=no poor	0.27	0.44	0.07	0.25	0.53	0.50
Identifying vulnerable groups by age	1= men and women equal or older than 65 & women 18 or younger; 0=otherwise	0.04	0.20	0.08	0.27	0.07	0.26
Resource tenure and tenure security							
Size of the land farmers can use	Hectares	2.46	2.72	3.72	6.26	3.57	7.72
Involved in a land/forest related conflict	1=Yes, 0=No	0.05	0.21	0.19	0.40	0.19	0.39
Forest-related variables							
Distance from the household to either the forest or the plots they use	Minutes	0.94	1.30	2.05	5.05	1.17	1.96

Household obtains any commercially valuable forest products	1=Yes, 0=No	0.45	0.50	0.62	0.49	0.15	0.36
Involvement in new forest management activities	1=Yes, 0=No	0.33	0.47	0.35	0.48	0.40	0.49
Attending meetings about forest use, management	1=once or more; 0=never	0.31	0.46	0.82	0.38	0.44	0.50
Member of local forestry-related organization	1=Yes, 0=No	0.37	0.48	0.20	0.40	0.27	0.44
Reform Process							
Formalization process	1=Reform implemented, 0= No reform implemented	0.71	0.46	0.83	0.38	0.76	0.43
Source: Survey results, Indonesia n=1011, Peru n=1006, Uganda n=688							

Dependent variables (See Table 6) were organized to understand outcomes of reforms in regards to:

- (1) Communal governance: this include variables that assess respondents' participation in rule making and enforcement (monitoring, sanctioning and arbitrating disputes), perception on whether these rules are clear, easy to understand and fair;
- (2) Forest sustainability: these variables assess respondents' perception on forest conditions and whether respondents have adopted sustainable technologies or are currently involved in forest management activities;
- (3) Tenure security: these variables assess respondents' perception on the confidence over rights acquired,
- (4) Changes Livelihoods: assess the extent to which respondents perceive that new rights have been adequate to change their livelihood conditions.

Table 6. Descriptive statistics at the country level: dependent variables

<i>Dependent variables</i>	Answer	Uganda	Indonesia	Peru
		%	%	%
Communal governance: Perception around rules, rule making and rule enforcement				
Perception of forest product extraction rules	Have no opinion	10.32	13.65	29.72
	More restrictive now	65.41	40.55	58.15
	Same as before	16.42	37.88	11.43
	Less restrictive now	7.85	7.91	0.7
Rules about forest access and use are easy to understand (<i>rules are clear</i>)	Have no opinion	7.7	16.42	11.13
	Disagree	17.59	10.78	20.97
	Neither agree nor disagree	5.52	11.87	13.82
	Agree	69.19	60.93	54.08
Rules about forest access and use are well-known by most people in the village (<i>rules known</i>)	Have no opinion	9.59	16.42	11.43
	Disagree	19.48	10.48	18.59
	Neither agree nor disagree	8.72	12.56	16.9
	Agree	62.21	60.53	53.08
Rules about forest use and access are fair (<i>decisions fair</i>)	Have no opinion	10.17	16.22	11.93
	Disagree	17.73	13.65	28.63
	Neither agree nor disagree	8.28	14.64	13.32
	Agree	63.81	55.49	46.12
Participated in making rules about	Have no opinion	55.52	3.26	0.4

forest product harvesting, use and management	Yes	16.86	8.9	40.36
	No	27.62	87.83	59.24
Participated in sanctioning rule breakers	Have no opinion	56.1	3.17	0.4
	Yes	12.06	6.13	33.8
	No	31.83	90.7	65.81
Participated in monitoring compliance to forest use and management rules	Have no opinion	56.1	3.07	0.3
	Yes	17.73	6.53	26.94
	No	26.16	90.41	72.76
Participated in arbitrating disputes	Have no opinion	56.1	2.97	0.6
	Yes	11.34	4.65	33.7
	No	32.56	92.38	65.71
Reform Outcomes: Forest Sustainability				
Perception of forest conditions	Have no opinion	6.4	1.58	3.28
	Worse	39.97	46.09	50.6
	The same	32.41	25.82	25.35
	Better now	21.22	26.51	20.78
Participated in monitoring forest condition	Have no opinion	54.22	1.88	0.4
	Yes	27.91	38.28	25.55
	No	17.88	59.84	74.06
Compared to when I first joined the [scheme/program], the condition of forests have improved	Have no opinion	74.27	51.43	22.27
	Disagree	3.78	9.2	15.21
	Neither agree nor disagree	3.05	12.46	17.5
	Agree	18.9	26.9	45.03
Since joining the scheme I have adopted different technologies and practices for protecting, maintaining and improving the forest	Have no opinion	73.98	53.02	22.27
	Disagree	5.23	9.4	22.27
	Neither agree nor disagree	1.74	16.32	18.19
	Agree	19.04	21.27	37.28
Reform Outcomes: Tenure Security				
Ever since I joined the [scheme/program] I feel that my rights and access to land and forests is strong and secure	Have no opinion	74.71	52.32	21.37
	Disagree	3.05	3.36	4.77
	Neither agree nor disagree	1.45	11.37	6.76
	Agree	20.78	32.94	67.1
If I have a dispute about forest use and access, I feel confident that my rights will be protected and enforced	Have no opinion	73.98	24.43	21.07
	Disagree	2.91	4.65	6.16
	Neither agree nor disagree	3.2	12.66	8.15
	Agree	19.91	58.26	64.61
I am not concerned that someone might dispute my rights to access, use, manage or own this land/forest	Have no opinion	73.11	21.86	21.67
	Disagree	15.99	55.79	37.67
	Neither agree nor disagree	2.03	15.23	13.62
	Agree	8.87	7.12	27.04
Reform Outcomes: Livelihoods				
Ever since I joined the	Have no opinion	74.56	51.63	21.87

[scheme/program], my income and livelihoods have improved	Disagree	5.67	8.01	13.02
	Neither agree nor disagree	4.36	12.46	21.17
	Agree	15.41	27.89	43.94
Perception of change in income from agriculture/farming	Have no opinion	4.94	25.52	12.62
	Decreased	41.86	25.62	18.09
	Did not change	20.49	26.31	30.82
	Increased	32.7	22.55	38.47

		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Problems satisfying food needs of the household	1=more than 6 months food insecure	0.17	0.37	0.17	0.38	0.21	0.41

The Model

In order to evaluate selected variables, we used logit and multinomial logit models (MNL) specifications given that responses to the questions are multinomial and nominal. MNL models were used in cases where responses about perceptions and participation are categorical (e.g. have no opinion, disagree, neither agree or disagree). Logit Models were used to explain the effects of the independent variables on the probability of choosing between two alternatives (e.g. yes, no). In order to make valid statistical inferences we first verified that the models satisfy the underlying assumptions of logistic regression. We conducted several specification tests, that told us that they are the right link functions to use, have the relevant predictors and that the independent variables are measured without error. Since the interpretation of the estimated coefficients in these models is not straightforward⁷ marginal effects were used. These results helped us to see the change in the predicted probability when one or more independent variables vary.

Qualitative analysis

Following grounded theory analysis, we use coding for analyzing qualitative data (Charmaz, 2006). Codes or nodes allow organizing and analyzing qualitative datasets according to labels that allocate units of meaning to the descriptive information obtained during a study. The qualitative data set generated during this research included reports from Key Informant Interviews (KII) and Focus Group Discussions (FGD) at the local level at different sites in Indonesia, Peru and Uganda (see Table X). In total, 294 documents of which 162 were reports of FGD workshops and 132 were interview reports were generated and incorporated in the coding process.

For managing qualitative data, we used the program Atlas ti for the pre-coding process and Nvivo 10 for the actual coding. Before introducing coding, each document was coded. The full list of codes used for this analysis is included in the Appendix.

Results and discussion

1. How has the gender dimension been approached in reform design and implementation?

We address this question drawing on two different analyses. First we analyzed the extent to which gender considerations are mainstreamed in the regulations that guide right devolution processes

⁷ The interpretation in this model is more difficult than in ordinary linear regression because the relationship between the predicted probability and the independent variables is nonlinear.

drawing on results from existing socio-legal analyses (See Mukasa et al., 2012; Banana et al., 2012 for Uganda, Siscawati et al., 2017 and Banjade et al., 2017 for Indonesia and Monterroso et al., 2017 and Baldovino, 2016 for Peru). Second, to understand how gender is being approached in implementation, we drew from survey results that assessed perspectives of national and subnational officials involved in implementation (Ojwang, 2017 See also Nsita et al., 2017 and Indonesia Brief for national level results). Here we selected relevant results from the survey that relate to: (1) whether women participate in implementation; (2) the extent to which women, the poor and other vulnerable groups are considered beneficiaries of existing reform programs and whether there exists programs that target these groups specifically; (3) the type of service provision that women at local levels receive and (4) whether gender mainstreaming is being considered as part of capacity building activities.

All three countries have ratified international conventions including CEDAW, UNDRIP and the VGGTs that enshrined gender justice and equity considerations favoring vulnerable groups. Additionally, in national regulations across the three countries, gender justice and equity are considered as principles at the constitutional level with some specific considerations in sectorial regulations. Uganda's Forest Policy (2001) stands out in its support of gender equity. It is explicit about increasing tenure security for women, encouraging their active participation in decision making, resource management and benefits sharing, and promoting changes in attitudes and organizational cultures in order to break down gender barriers (Banana, et al., 2012). But, a study revealed that although the Forestry Policy, Forestry Act and Forestry Plan all address gender and women's specific needs, none of these are backed up by relevant regulation and strategies for ensuring compliance (Mukasa et. al. 2012). In Peru, the National Forest Law and the Law of Subnational Governments adopted equity and social inclusion, as important principles but there are no specific guidelines and directives on how to mainstream these in implementation processes. Therefore, these protections at the constitutional and sectorial level however specific provisions on how to implement them in practice to address clearly how women should be accounted and informed to be able to participate more effectively during the different steps of the implementation procedures risking the possibility to protect adequately women's rights to collective lands and forests.

In regards to reform design, which groups benefit from devolution processes is influenced by who is recognized as the subject of reforms (Keene and Ginsburg, 2017). This will depend on national regulations and policies that determine the type of the reform, who will count as member of the collective, the distribution of rights granted and the institutional regime and the mechanism chosen to formalize it (eg. land title, forest permit, forest authorization, partnership agreement, etc). Who represents the collective and how rights are distributed at the communal level will also depend on existing customary practices (Wily, 2011). In Uganda the subjects of reforms are user groups, men or women belonging to the same or different households that may belong to the same or different communities. In Indonesia Hkm and Htr regulations define forest user groups, composed of households as the subject of reforms in which "household heads" mostly men are convened. In the case of Peru, regulations on native communities recognize rights to all village members, establish important provisions for community participation but they leave it to the community to define how men and women within the community participate in the new organizational structure created within the law. In Indonesia social forestry regulations determine membership based on household representation, limiting membership status of the schemes to only one household member. Thus, these categories are affected by the definition of membership status: who is a villager, who can be a user group member and in the case of gender - is the member the traditional idea of a single, usually male, head of household. At the local level, institutional arrangements around membership are central to understand outcomes of reforms. Who is a member with voting rights, with rights to resources may depend on the type of reform, national regulations, customary systems or all of the above.

In regards to reform implementation, across the three countries there is very low participation of women in the drafting of reforms. Survey results indicate that across national and subnational government officials there are more male (81%) than female (18.5%) reform implementers (Ojwant, 2017; Herawati, et al., 2017). The highest proportion is found in Peru (29%) and in Indonesia (24%), the lowest in Uganda (19%). These results also highlight that there is very little recognition among reform implementers to the consideration of rights of special groups such as women in the objectives of reform. Only 23% of Uganda reform implementers consider gender as important in defining the objective of reform, while in Indonesia and Peru less than 5% of officials interviewed consider the recognition of these special groups as an objective of the reforms being implemented. Generally, vulnerable groups including the poor and women are not considered beneficiaries of reform across the three countries. In total only 13% of Ugandan implementers surveyed consider women as beneficiaries; 11% of Indonesia implementers and none in Peru. Regarding whether poor are considered beneficiaries of reform process the situation is quite similar, only 10% implementers surveyed in Uganda and 18% in Indonesia consider the poor as beneficiaries, compared to none in Peru. However, Uganda among the three countries is the only country that has promoted special reforms that target women groups (Reference to the Briefs; Banana and Mukasa) 90% of implementers aware of these special reforms. According to 54% reform implementers in Indonesia, special reforms target the poor and 50% of reform implementers in Peru argue that special reforms target indigenous groups. Uganda is also the only country that considers youth as special target groups of reform in comparison to Indonesia and Peru.

Regarding the type of services provided by implementing officials to women at the village level, survey results indicate that these include according to the proportion of respondents: (1) training and capacity building (68% of respondents in Uganda and 58% of respondents in Peru); (2) support in the implementation of forest management practices (32% of respondents Indonesia and less than 10% in Peru and Uganda); (3) rights recognition and protection (32% of respondents in Indonesia, less than 17% in Peru and Uganda); (4) conflict management and resolution (reported by 40% of implementers in Uganda and 28% of respondents in Indonesia). Access to market and credit are reported as the services least provided by less than 10% and 5% of implementers to women. Gender mainstreaming including the consideration of strengthening women, youth and other marginalized groups in decision making is ranked among the last in the areas of training considered relevant by reform implementers to safeguard rights granted to communities. Very few implementers consider that gender norms are social factors that influence reform implementation, the highest portion in Uganda (17% of respondents) while none Indonesia and Peru. These results evidence that women, the poor, indigenous peoples are not considered beneficiaries unless specific programs that targets them exist. Most services addressed to women focused on training and capacity building, less services are provided that address livelihood needs, such as access to markets.

2. Has the devolution of rights to the collective affected men and women and other vulnerable groups differently?

Agrawal and Ostrom, suggest that to better understand the outcomes of reform, it is important to examine the extent of rights that are transferred to actors at lower levels (2001). Mwangi et al., also argued that the extent of rights held during implementation processes will likely influence "the burdens and benefits of resource appropriation" (2011:207). These authors suggest looking at the extent of rights transferred and whether these differ across men and women groups. To address this research question our analysis uses Schlager and Ostrom approach on the bundle of rights⁸ to

⁸ The bundles of rights determine 'who is allowed to use which resources, in what way, for how long and under what conditions, as well as who is entitled to transfer rights to others and how' in forests (Larson 2010:80 based on Schlager and Ostrom, 1992 and Ostrom and Agrawal, 2001). These bundles are made up

analyze how local arrangements, and the extent to which women participate in decision making including their involvement in rule making around land and forest resources, monitoring and sanctioning. The selection of governance variables follows the work of Mwangi et al., (2011) which considered participation in rule making, internal enforcement. We also explored how perception of rules varies in regards to gender and membership of reform i.e. whether respondents are members of reform, whether they are being formalized (i.e. sites undergoing reform and sites undergoing no reform). We draw mainly on results from descriptive statistics and the use of tests to determine whether statistical significance exist between these variables as a way to determine whether gender, economic status and membership status are significant factors affecting respondent's responses. Detailed results are available in the Appendix.

Participation in rule making about forest product harvesting, use and management

Across the three countries there is very little participation of both women and men in rule making at the local level. Nonetheless, regardless membership status, men participate more than women. Important gender differences exist between the portion of male and female respondents that participate in rule making about forest harvest use and management. In Uganda only 17% of respondents participate in rule making. Among members a larger proportion of men (35%) than women (22%) have participated in rule making. Participation among non-members is less than members, women (12%) participate more than men (7%). Indonesia is the country with the smallest portion of respondents participating in rule making only 9% of respondents. Men (19%) who are members of reform are the ones that participate the most, in relationship to non-member men (2%) and men in non-reformed sites (5%). In general women participate very little. Only 2% of women respondents indicate they have participated in rule making in reformed sites (members and non-members). No women in non-reformed sites report participation in rule making. Of the three countries, Peru reports the highest participation levels in rule making (40%). Although important gender differences exist in reformed sites, 55% of men participate in rule making versus 37% of women. The percentage of participation reduces considerably only 14% of men and 15% of women in non-reformed sites report participation in rule making. Across the three countries, results from chi.sq test indicate that there is a statistically significant difference (at 99%) between gender (p -value = $9.864e-12$), economic status (p -value < $2.2e-16$) and membership status (p -value < $2.2e-16$) and those respondents that have participated in rule making.

Participation in sanctioning rule breakers and monitoring compliance to forest use and management rules

There is little participation in rule sanctioning across three countries (lowest portion in Indonesia followed by Uganda, largest of the three Peru). Across the three countries men participate more than women. Although no larger gender difference exist in Uganda, in Indonesia and Peru larger differences between men and women that participate in rule sanctioning. Interestingly in Peru participation in sanctioning rule breakers in untitled communities is larger than in titled communities. Only 12.06% of total respondents in Uganda report participation in rule sanctioning. Of this, men who are members of reform (25%) participate more than women (17%) members. Among non-members, similar proportion of women and men (7%) report participation in rule sanctioning. Indonesia is the country with the smallest level of participation in rule sanctioning, only 6.13% of total respondents. Men (19%) that are members of reform report the largest level of participation (although still limited participation) in comparison to non-member men (2%) and men in non-reformed sites (5%). Women participate very little, making no difference if they are members or non-members (both 2%). No women in non-reformed sites report participation in rule making. Peru reports the largest proportion of respondents that have participated in sanctioning rule breakers (33.8%). Nonetheless, in reformed sites more men (73%) report this in comparison to women (57%).

of user rights (access, use) and decision-making rights (management, exclusion and alienation) and "rights are the product of rules" (Schlager and Ostrom, 1992:250).

In non-reformed sites the proportion of men that report participation in sanctioning rule breakers is higher (82%) than women (55%). Across the three countries, results from chi.sq test indicate that there is a statistically significant difference (at 99%) between gender (p-value = 0.01043), economic status (p-value < 2.2e-16) and membership status (p-value < 2.2e-16) and those respondents that have participated in sanctioning rule breakers.

Regarding participation in monitoring rule compliance the levels of involvement are low across the three countries. Men participate more than women in Uganda and Indonesia when they are members. In the case of Uganda, among non-members women participate more than men. In Indonesia, no significant difference exists between men and women when they are non-members regarding their participation in monitoring compliance to forest use and management rules. In Peru women participate more than men in titled communities, but the proportion of female participate is even larger in untitled communities. Participation in rule monitoring and compliance is limited among Ugandan respondents (17.73%). Men participate more (29%) when they are members in comparison to women (22%) and also in relation to non-members (9%). Nonetheless the proportion of women that participate in monitoring compliance is larger than men among non-members (16%). Indonesia reports the smallest proportion of respondents (6.53%) participating in rule monitoring and compliance. In reformed sites, men members (16%) report significantly more participation than women (2%) members. Non-members report very limited participation both among men (3%) and women (2%). In non-reformed sites, more men (8%) than women (1%) report participation. Peru reports the higher proportion of respondents that have participated in rule monitoring and compliance (26.94%). Interestingly more women both in reformed (30%) and even higher proportion in non-reformed sites (41%) report participation in rule monitoring and compliance in relationship to men in reformed (24%) and non-reformed (13%) sites. Across the three countries, results from chi.sq test indicate that there is a statistically significant difference between gender (p-value = 0.02364, at 95%), economic status (p-value < 2.2e-16, at 99%) and membership status (p-value < 2.2e-16, at 99%) and those respondents that have participated in monitoring rule compliance.

Perception on rules

To analyze perception on rules, we differentiated whether respondents consider existing rules as clear, whether they were well known by most people in villages and whether rules were perceived as fair. Rules in this case referred to existing arrangements either formally established in communal by-laws or in statutory regulations and provisions. In regards to the perception around the clarity of rules across the three countries larger portions of male respondents that are members of reforms perceive rules as clear in comparison to women member respondents. More significant differences reported in Peru. Among non-members, no gender difference in Uganda, slight difference in Indonesia more significant differences in Peru. In Uganda 69% of respondents perceive rules are clear, the largest portion among the three countries analyzed). Higher proportions of women (77%) that are members of reforms perceive rules as clear in comparison to men (74%). Among non-members the proportion decreases, although no significant differences among men (65%) and women (65%). In Indonesia 61% of respondents perceive rules as clear. In reformed sites, no significant differences between men (68%) and women (62%) who perceive rules as clear. Perception on rules among non-members is significantly lower both among men (22%) and women (33%). Interestingly in Indonesia the proportion of men (69%) and women (66%) that perceive rules as clear is higher in non-reformed sites. Peru reports the lowest portion of respondents perceiving rules as clear (54%). Larger proportion of male members (66%) perceives rules as clear in comparison to women members (43%) in titled communities. Gender differences also exist in non-reformed sites where 57% of male perceive rules as clear in comparison to 47% of women. Across the three countries, results from chi.sq test indicate that there are statistically significant differences (at 99%) between gender (p-value = 2.146e-09***), economic status (p-value = 1.969e-15***) and membership status (p-value = 0.01617***) and those respondents perceiving rules as clear.

Regarding whether rules are perceived as known across the three countries, slightly larger portions of women in reformed sites perceiving rules as known in comparison to men. Among non-members in Uganda and Indonesia more women than men will perceive rules as known. In Peru, there are important gender differences, higher portion of women report knowing the rules in comparison to men. In Uganda 62.21% of respondents perceive rules as known, the largest proportion across the three countries. Among members, a slightly larger proportion of women (76%) perceive rules as known in comparison to 72% of men. Among non-members this proportion of women (63%) that perceive rules as known is larger than men (43%). In Indonesia, 61% of respondents perceive rules as known. While no significant differences exist between men (63%) and women (64%) that are members who perceive rules as known. Among non-members the proportion of women (37%) is larger than men (22%) but both represent a significant less portion that perceive rules as known. In non-reformed sites there is no significant different among men (68%) and women (67%) although the proportion that perceive rules as known is larger in relationship to both members and non-members of reform. In Peru 53% of respondents perceive rules as known, the lowest portion across three countries studied. In titled communities, the proportion of women (57%) that perceive rules as known is slightly larger than those men (55%). More significant gender differences exist between women (51%) and men (29%) in non-reformed sites that perceive rules as known. Across the three countries, results from chi.sq test indicate that there is a statistically significant difference (at 99%) between gender ($p\text{-value} < 2.2e-16^{***}$) and membership status ($p\text{-value} < 2.2e-16^{***}$) and those respondents perceiving rules as known. No statistically significant difference between economic status and those respondents perceiving rules as known. When doing this analysis at the country level, statistical significance between economic status and perceiving rules as known is reported in Indonesia and Peru but not in Uganda.

Regarding fairness of rules there are differences across the three countries. While no gender difference is reported among female and male respondents in Uganda, in both Indonesia and Peru, larger differences exist. A higher portion of male respondents tend to perceive rules as fair in comparison to female respondents who are members of reform in Indonesia and Peru, larger differences in Peru. Interestingly in both Uganda and Indonesia larger portions of women who are non-members of reform perceive rules as fair in comparison to men, although the proportion is far smaller than women who are members of reform. In Uganda 64% of respondents perceive rules as fair, the largest portion across three countries. Among members more women (72%) than men (71%) perceive rules as fair. Among non-members the proportion of women (64%) that perceive rules as fair is larger than men (52%). In Indonesia 56% of respondents perceive rules as fair with significant differences regarding membership status and gender. Among members of reform, there are more men (61%) than women (54%) who perceive rules as fair. Among non-members a larger proportion of women (29%) perceive rules as fair in comparison to men (15%), although the proportion of respondents diminishes. In non-reformed sites a slight larger proportion of women (66%) perceive rules as fair in comparison to men (64%). The proportion of women and men in non-reformed sites that consider rules as fair is larger in non-reformed sites in comparison to both members (although not significantly larger) and non-members. In Peru, 46% of respondents perceive rules as fair, the lowest across three countries. Significant differences in reformed sites where a larger proportion of men (58%) consider rules as fair in relation to the proportion of women (36%) that agree with this statement. In non-reformed sites the proportion of women that perceive rules as fair is larger (45%) in relationship to men (35%). Across the three countries, results from chi.sq test indicate that there is a statistically significant difference (at 99%) between gender ($p\text{-value} = 5.859e-09^{***}$) and membership status ($p\text{-value} < 2.2e-16^{***}$) and those respondents perceiving rules as fair. No statistically significant difference between economic status and those respondents perceiving rules as known. When doing this analysis at the country level, statistical significance between economic status and perceiving rules as fair is reported in Indonesia and Peru but not in Uganda.

Perception of forest product extraction rules

Larger number of respondents perceives that more restrictive rules exist after reform in both Uganda (65%) and Peru (58%), with larger portion of male respondents perceiving rules as more restrictive in comparison to women. Generally, non-members will perceive rules as more restrictive in comparison to members. In Indonesia gender differentiation is more significant among non-members where larger portions of men perceive rules as more restrictive in comparison to women. In Uganda 65.41% of respondents perceive rules as more restrictive now. A higher proportion of male that are members of the reform (74%) think that rules are more restrictive in comparison to women (68%). Gender differences among non-members are stronger (75% of men and 73% of women) - although in general these do not perceive extraction rules as more restrictive. A higher proportion of non-member men 67% perceive rules are more restrictive now in relationship to non-member women 56%. In Indonesia only 41% of respondents perceive rules as more restrictive now. Among members, slight larger portion of women (43%) perceive rules as more restrictive in comparison to men (41%). Higher proportions of non-members male respondents (54%) consider rules to be more restrictive in comparison to 34% of women. In non-reformed sites, the proportion of women (43%) that perceive rules as more restrictive is larger in comparison to men (38%). In Peru 58% of respondents perceive rules as more restrictive now. Gender differentiation is deeper in Peru where 72% of male members in titled communities consider rules to be more restrictive now versus 60% of female members. A higher proportion of female 46% in non-reform sites expressed no opinion in regards to extraction rules.

Discussion: To what extent is gender a factor influencing perceptions around reform outcomes?

These results indicate that formalization as a way to secure tenure rights is an ongoing process, issuing legal provisions is just a first step, the challenge is on implementing them i.e. putting them into practice on a steady process in a way that ensure tenure security and improve livelihood conditions and sustainable forest management practices. At the local level, despite formalization of tenure rights, customary arrangements (including communal by-laws, traditional practices and cultural beliefs) continue to be very important institutional arrangements when discussing who has access and can use and control resources within the collective. Sun et al., (2011) argue that devolution processes are associated with the establishment of rules that are reflective of local needs and knowledge leading to more efficient enforcement i.e. monitoring and sanctioning. However, across the three countries, limited participation of both men and women in rule making and enforcement evidences the need to review existing provisions to promote involvement of target groups in the implementation of regulations around forest use and management at different governance levels.

In the context of customary tenure societies, local organizations play a central role in women's access to productive projects and their benefits. Women's participation in communal governance structures is also dependent from communal considerations of membership status. Qualitative data evidence that across sites women are not always considered full members with decision-making power. For instance, in sites across our three studied countries, while men are lifetime members, women may have to leave their village upon marriage or widowhood. For instance, in West Kalimantan only husbands are allowed to attend HkM meetings, in cases where they are unable to participate their wives may attend meetings but they will not be able to take any decision. Only men may compose communal governance structures, or positions such as elders and chiefs may only be attributed to men. So even in cases when they are part of communal assemblies or in new organizational structures such as boards or committees men continue to be in the decision-making positions, their views around forests and rules are rarely capture "Women left out when it comes to making rules (CFM, Uganda). Some progress exists, some women may be in leadership positions, although rarely related to forests. Efforts to formalize and recognize customary tenure systems are not always taking into account existing arrangements and practices around forests use and control. In Peru for instance

communal by-laws follow the standard statutes provided by lawyers and non-governmental organizations, not necessarily reflect the communal practices on how they use and control forests. More importantly the format these formalization promotes has resulted in people losing knowledge on their rules and practices (FGD, Madre de Dios).

Our findings evidence that having a reform in place does not necessarily make rules about forest access and use clear, known and fair. Nonetheless, processes of right devolution can influence internal debate on how existing rules affect men and women differently while allowing new forms of organizing within the community that could empower women at the local level - with direct impact on outcomes of reform. Differences across men and women exist while women acknowledge the rules and perceive them as clear they do not necessarily perceive them as fair. Limited participation of women in decision making is also supported by qualitative data evidencing that women lack platforms for participating and when existing this women committees or organizational structures created are new and rarely related to forests. Women may know the rules, they may participate in meetings, they may participate in forest management activities but they have more limited rights to make decisions around forests (FGD, Masindi, Uganda; FGD, Lampung, Indonesia). Our results indicate that across the three countries, young and old women, are the most limited to participate in rule making. A key implication of the low participation of women and other groups in the formulation of access and use rules is that decisions are less sensitive to women's concerns and needs. Limiting their participation in rule making could also affect the ability of women and other vulnerable groups to benefit from rights granted to the collective. State interventions in reform implementation such as convening processes that address household heads only, or mapping exercises that do not involve different groups may risk formalizing or perpetuating existing internal forms of social differentiation.

Formalization process has a strong association with the responses in Peru and Indonesia. Furthermore, in Indonesia the effect is not one would expect, given that the likelihood that people perceive that these rules are not clear or fair when there is a reform in place is higher, also in comparison to results in Uganda and Peru. In Uganda respondents that are members of reform are more likely to perceive rules are known, clear and fair. Nonetheless, the fact that in some cases people feel more secure without reforms, that the rules may be seen as clearer and more fair without reforms, suggest that recognizing tenure rights can introduce new problems, although it may be solving others. The findings also suggest there is differentiation under reforms not only based on gender but also on economic status. These results argue for the need to rethink the role of state institutions after certificates, titles and or contracts are established.