Working Paper

Gendered space and quality of life: gender study of out-migration and smallholding agroforestry communities in West Java Province, Indonesia

Elok Mulyoutami, Desi Awalina, Eva Fauziyah,
Tri Sulistyati Widyaningsih, Betha Lusiana

World Agroforestry Centre

Gendered space and quality of life: study of out-migration and smallholding agroforestry communities in West Java Province, Indonesia

Elok Mulyoutami, Desi Awalina, Eva Fauziyah,
Tri Sulistyati Widyaningsih, Betha Lusiana

Working Paper 287

Correct citation:

Mulyoutami E, Awalina D, Fauziyah E, Widyaningsih TS and Lusiana B. 2018. *Gendered space and quality of life: study of out-migration and smallholding agroforestry communities in West Java Province, Indonesia*. Working Paper 287. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. DOI: http://dx.doi.org/10.5716/WP18024.PDF

Titles in the Working Paper Series aim to disseminate interim results on agroforestry research and practices and stimulate feedback from the scientific community. Other publication series from the World Agroforestry Centre include: Agroforestry Perspectives, Technical Manuals and Occasional Papers.

Published by the World Agroforestry Centre
Southeast Asia Regional Program
JL. CIFOR, Situ Gede, Sindang Barang, Bogor 16680
PO Box 161, Bogor 16001, Indonesia

Tel: +62 251 8625415
Fax: +62 251 8625416
Email: icraf-sea@cgiar.org; icraf-indonesia@cgiar.org
ICRAF Southeast Asia website: http://www.worldagroforestry.org/region/southeast-asia/

Working paper no. 287

About the authors

Elok Mulyoutami joined ICRAF as a researcher in 2003. She graduated from the Universitas Padjadjaran Bandung, Indonesia with a major in Anthropology and a master of science in Rural Sociology from Institut Pertanian Bogor. Elok focuses on gender, local knowledge and migration issues.

Desi Awalina is a research assistant in the study of gender and migration. She joined ICRAF in November 2013. She received her bachelor degree from the Department of Chemistry, Faculty of Science, Institut Pertanian Bogor. Her interests are in the field of social sciences.

Eva Fauziyah is an associate researcher in forest sociology. She graduated in 2003 from the Faculty of Forest Management Development, Institut Pertanian Bogor with a bachelor degree in Forestry. She obtained a master degree from Universitas Gajah Mada and held a master's degree of Forestry Sciences in 2009.

Tri Sulistyati Widyaningsih is a researcher in forest sociology. She obtained her bachelor degree from the Department of Sociology, Universitas Gajah Mada in 2003 and a master degree in 2009 from the Department of Forestry Sciences within the same university.

Betha Lusiana is a senior researcher at ICRAF Indonesia with bachelor and master degrees in Statistics from Institut Pertanian Bogor. Her doctorate was obtained from Hohenheim Universitaet, Germany, on computer modelling and natural resource management. Her research interests are trade-off assessment in agricultural development, farmers' livelilhoods and environmentals services using partisipative and quantitative methods, as well as modelling simulation, linking closely to gender and migration issues within communities.

Abstract

Understanding the dynamics of communities of migrants and land owners is important in order to portray impact on out- and non-migrant relationships, as well as changes in land use. The aim is to see clearly whether out-migration decisions will have any impact on land-use patterns. Another important aspect is understanding how out-migration contributes to changes in gender equality in families and the surrounding community. This paper describes the knowledge patterns created from each gender group's preferences and experience in managing land, which eventually determine the dominant gender. We emphasize leveraging inequality gaps between males and females contextually and situationally. Human well-being indicators, as well as the subjective perceptions of out- and non-migrants, are discussed to show how both gender groups perceive their current and previous conditions in relation to management of their land and resources.

A 'gender space' is based on the knowledge and preferences of each gender group and is strongly influenced by socio-cultural construction of responsibilities. Our study found a clear gender division between men and women in terms of participation levels. Gender divisions in farming and at home were closely related to the division of roles and responsibilities across a community. Women's responsibility for children created a domestic area in which to work. Women were able to contribute to farm activities without being burdened by other obligations outside the house. In addition, women preferred to work in areas in which they were physically capable and felt safe.

Overall, we found that women and men in the study villages had bilateral relationships that tended toward equality but conditions varied here and there. Women's rights needed to be strengthened and better rewards should be considered for women's active and passive contributions to households. Both women and men created strategies to develop their overall livelihoods. This could help women to see how they contributed to realizing the desired development. Men and women have different perspectives, knowledge and strategies in solving problems but are complementary to each other. Both parties need to work more effectively together to generate optimal results. Instead of creating a development design to make women become more active in areas in which they are uncomfortable, it would be more appropriate if if the design included enhancing knowledge, perceptions and strategies.

Keywords: Gender, space, migration, quality of life, equality

Acknowledgements

We are grateful for the close cooperation of ICRAF colleagues and Dian Diniyati, Maria Palmolina, Devy Priambodo Kuswantoro, Suyarno and Eyet Mulyati from BPTA Ciamis for their positive contributions when collecting data. We would also like to express our thanks to Sebastian de Royer for the constructive discussion during data collection and analysis process; to Rendy Savaringga, Ilyas, Melly Amalia and Nyima Nadya Izzati who helped with data collection related to farm production; and to Nining Erlina Fitri for her help with data entry. We express our deepest appreciation to all the leaders and members of both the villages who assisted with the research and allowed researchers to visit and spend nights in each of the villages. Appreciation also go to Delia Catacutan for her advice on research preparation and as the initial reviewer of this paper. The study was fully funded by the gender cross-cutting theme of the CGIAR Research Program on Forests, Trees and Agroroforestry.

Contents

List of Tables

List of Figure

Acronyms

BPN Badan Pertanahan Negara/State Land Agency

BRN Biro Rekonstruksi Nasional/National Reconstruction Bureau

GEI Gender Empowerment Index

GDI Gender Development Index

HDI Human Development Index

PHBM Pengelolaan Hutan Bersama Masyarakat/Community-Based Forest Management

1. Preface

Out-migration is one strategy to improve livelihoods when sources of income become scarce (Ellis 2003, Dharmawan 2006, de Haas 2008). Agricultural communities throughout Indonesia often carry out this strategy if farm results decline, if access to land is restricted or it is no longer possible to cultivate their farms (Mulyoutami et al 2014c). In addition, out-migration is a strategy to increase land area if land in the sending village is no longer productive, cultivable or available.

A decision to become an out-migrant is individual although sometimes the family also plays a role, with consideration of changes in gender patterns and relationships at home before and after migration (Mulyoutami et al 2014a). The decision to migrate also has an impact on the surrounding community and changes existing land use, especially, if the family relies on the land. There is a corresponding positive influence, both direct and indirect, on non-migrants who choose to stay and cultivate the land. Understanding the dynamics of communities of migrants and land owners is important in understanding impact on out- and non-migrants' relationships as well as changes in land use; whether out-migration decisions will have any impact land-use patterns. Another important aspect to understand is how out-migration contributes to changes in gender equality within families and the wider community.

This paper describes knowledge patterns created from each gender group's preferences and experience in managing land, which eventually determines the dominant gender. Male and female relationships are described as a structured pattern established in culture (Rocheleau and Edmunds 2007, Krishna 2004, Trauger 2004). Women and men complement each other in managing land and housekeeping (Colfer et al 2014, Kiptot and Frenzel 2012) through structured work sharing. There nonetheless remain an inequality gap between men and women in poorer families. This paper emphasizes leveraging the inequality gap between women and men, contextually and situationally.

Quality of life or well-being is best considered from both subjective and objective perspectives to better understand the reality of a situation (Costanza et all 2011) by sampling using multidimensional measurements (Alkire and Sawar 2009, Berenger and Verdier-Cauchane 2007). Costanza et al (2011) note that both perspectives and multidimensional combinations are important in interpreting patterns and relationships. The combination is needed to access human resources and address differences in a community as well as understand the gaps between women and men in various aspects of life, such as income, education, well-being and environment (Gartaula et al 2011).

The objectives of this paper are 1) to outline differences in gender roles and responsibilities of out-migrants and land managers (non-migrants) in communities in peri-urban areas; 2) share observations of various gender-and-land and gender-and-space relationships, as well as preferences in land use; and

3) identify human well-being indicators, including the subjective perceptions of out- and non-migrant communities in peri-urban areas.

2. Concepts and methods

This paper is an output of an exploratory study of out- and non-migrant communities in two sub-districts of Ciamis District, West Java, Indonesia, focusing on gender issues. The study sought to understand the daily lives of both women and men and describe the well-being status of both the targeted communities in relation to management of land use. In order to describe the differences between genders, we implemented a qualitative study to explore holistically. A quantitative study and statistical analysis were conducted to explain details of perceptions and differences between genders. The analysis also helped with visualization of the data.

2.1 Concept definitions

The terms ‘out-migration’ and ‘commutation’ in this paper refer to the definition of Abustam (1989) in his study of three village communities in South Sulawesi, Indonesia. ‘Out-migration’ refers to residents migrating out of a village semi-permanently or permanently (more than a month). Out-migration in the two studied sub-districts refers to moving to other parts of West Java, to the capital Jakarta, or to Lampung Province in the neighbouring island of Sumatra. The term out-migration is also used for permanent migration (more than a year).

‘Commutation’ refers to migration of less than one month, as little as several days. It is widely used of coffee farmers in areas managed under the Pengelolaan Hutan Bersama Masyarakat (PHBM/Community-Based Forest Management) scheme of Perhutani, a state-owned enterprise charged with managing areas of state forests. Perhutani allows communities in the surrounding state-forest areas to manage the land for smallholding coffee plantations. More detailed descriptions of the PHBM schemes are provided by de Royer (2015). The coffee gardens in state-forest areas are typically not too far from villages, so farmers visit periodically to manage the land. They may spend one day or as much as two weeks depending on their activities.

‘Out-migrant’ refers to someone who migrates or commutes. ‘Non-migrant’ or ‘stayer’ refers to those who choose to stay in their village. There are two types of out-migrant: 1) off-farm out-migrants who work in a non-agricultural sector (occupations other than farming); and 2) land-based out-migrants who work in the agricultural sector (farming). In the household survey, respondents were divided into out-migrant and non-migrant groups.

Socio-economic status was also divided into two groups: 1) low–middle; and 2) middle–up. The low–middle group was defined as individuals with low capital and limited skills. The middle–up were

individuals able to accumulate capital, who had more opportunities for alternative sources of livelihoods.

The studied out-migrant and land-manager or non-migrant groups mostly resided in peri-urban and peri-rural areas in the two sub-districts. The term ‘peri-urban’ refers to a village with post-village characteristics, as defined by Iaquinta and Drescher (2000). The definition refers more to socio-psychological changes where a village is geographically distant from a city but has an awareness of the city community. This category is mostly influenced by remittance flows and out-migration to the city as opposed to the socio-behavioural model and other non-economic resources.

2.2 Research areas

The research was conducted in two villages in Panjalu Sub-district and two villages in Rajadesa Sub-district. Both are in Ciamis District, West Java Province. Panjalu is in the northwest of the district and is the capital of Ciamis. Rajadesa is in the eastern of Ciamis. Both villages are categorized as agricultural communities which rely heavily on farming as their source of livelihoods.

2.3 Data collection and analysis

Data collection was implemented using focus groups and in-depth interviews. The household survey was conducted to add information and statistical and descriptive analyses to define each community’s typology and map their socio-economic status. Statistical analysis was implemented to define several relationships between the variables found in the communities, gender differences and out-migrant and non-migrant/stayer relationships.

Focus groups were conducted with representatives from out-migrant and non-migrant communities. The discussions were held separately according to gender but used the same sets of questions. They were held in parallel with four different groups, including female out-migrants, male out-migrants, female non-migrants and male non-migrants. We conducted another focus group to obtain a general description and basic information in each research location. In total, there were five different focus groups. The discussions took a whole day to complete with a maximum of 10 participants in each group. The average per group was 6–8 people.

Three data sampling patterns were used in the discussions: 1) ranking data analysis; 2) hierarchy process; and 3) group interview. Ranking data analysis is a discussion method using a certain amount of buttons or seeds (this study used 100 buttons) (Mulyoutami et al 2014b). The hierarchy process was that as implemented by Janudianto et al (2014). Participants were then asked to discuss their preferences for land use, plant types and other fundamental factors. The group interviews were carried out to gather an overall general description and the village’s history.

There were 25–30 out-migrant and 25–30 non-migrant respondents from each village, with a total of 120 people interviewed. One-to-four key respondents from each village were further interviewed to describe their past and present migration activities and the village's migration history.

Primary data collected from both the focus groups and household survey provided descriptive statistics according to the requirements and data type. The ratio of males to females was calculated using Mann-Whitney's non-parametric analysis to ensure good data distribution. We implemented the Principal Component Analysis to categorize a large amount of data to correspond with perceptions and decision making.

Secondary data was collected from various sources, such as *Sub-districts in Figures* and the Central Bureau of Statistics, Human Development Index (HDI), Gender Development Index (GDI) and Gender Empowerment Index (GEI). These data illustrated gender disparities at district and provincial levels.

2.4 Writing outline

This working paper describes three major aspects of out-migrant and non-migrant communities who managed farms. The first examines how various roles are separated based on gender (Section 4); the second, the space usage patterns of each gender group and other variables (Section 5); and the third, the welfare condition of each gender group based on existing resources (Section 6).

These three aspects are the subject of discussion in Section 7, which examines how inter-gender welfare conditions and imbalances occur between the two gender groups. Section 8 discusses ways to map the knowledge between women and men that determines space division in managing land and in migration.

3. General observations of research locations

The research was conducted in Hujungtiwu and Kertamandala villages in Panjalu Sub-district, and Purwaraja and Tigaherang villages in Rajadesa Sub-district. Hujungtiwu and Kertamandala had abundant resources with expansive land use mostly owned by non-villagers; land ownership ranged from those who possessed large and extensive land through to those who did not own any land. The research was also conducted in other villages, including Purwaraja and Tigaherang in Rajadesa, which had more limited land resources and less land ownership. Most of the villagers owned only small and narrow plots.

All the four research villages had diverse levels of population movements, ranging from low to high, and their models and patterns of movements were different from one another. Residents of Panjalu Sub-district mostly migrated to cities to sell secondhand products, as entrepreneurs or employees.

Their destinations included Bandung, Tasikmalaya and Jakarta. In Panjalu, the out-migration type was also referred to as ‘off-farm’.

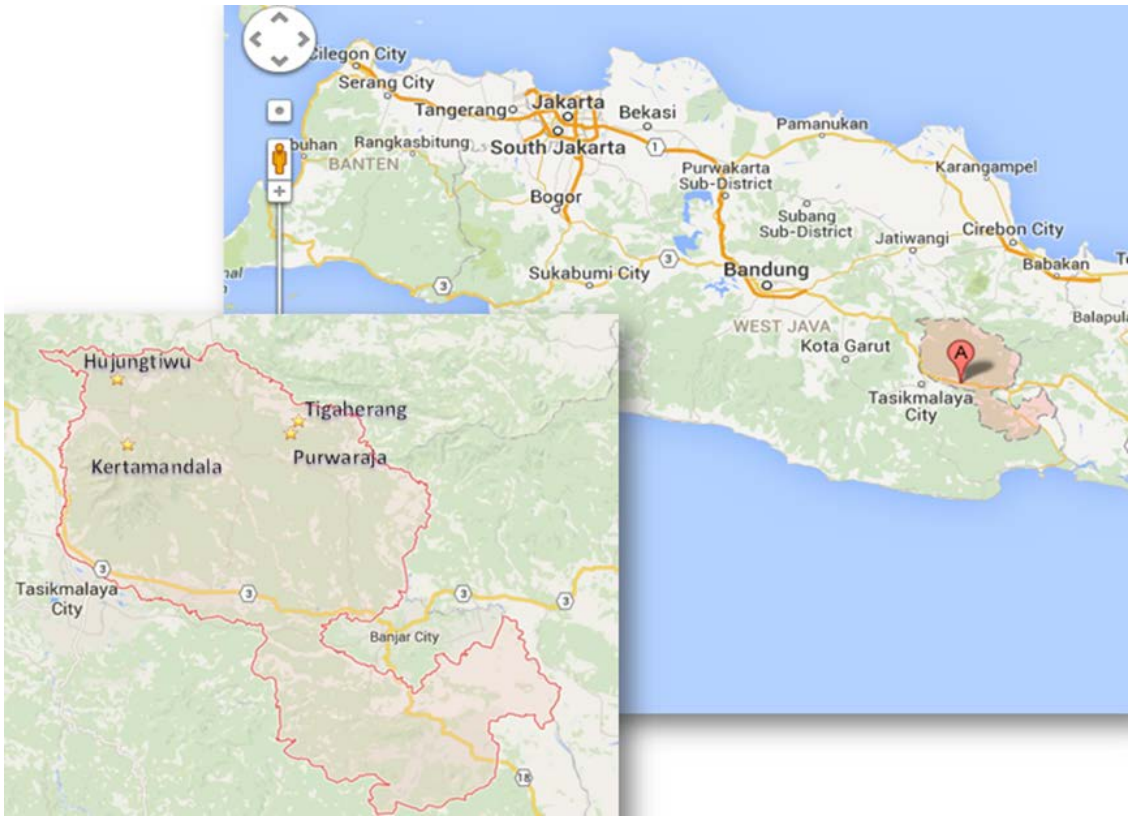


Figure 1. Research locations in Ciamis District, West Java Province, Indonesia

Table 1. General observations of research locations

	Panjalu		Rajadesa	
	Hujungtiwu	Kertamandala	Purwaraja	Tigaherang
Area (ha)	714	433	379	660
Altitude (m dpl)	800–850	600	700	600
Irrigated rice area (ha)	79	136	91	294
Farm area (ha)	384,77	235,55	410	362
Land ownership (ha)	0.07–2 Average 0.235	0.14–3 Average 0.3	0.14–2 Average 0.22	0.05–2 Average 0.28
State forest area	None	Perhutani Suaka Margasatwa Gunung Sawal	None	None
Out-migration rate	High (70%)	Medium (40 %)	High (60–70%)	High (60–80%)
Population	4865	4245	3719	5843
Population density (persons/km^2)	681	980	981	885

Source: Summary of various resources, village monographs and village profile, statistical data at sub-district level (BPS *2015a and 2015 b)*

Most villagers in Rajadesa chose to migrate to large cities, however, there were those who migrated to other nearby villages with higher potential for land. Some of them migrated to even more distant villages around Tasikmalaya in Central Java Province and to Sumber Jaya and Way Tenong in

Lampung Province in the island of Sumatra. Their main occupations after out-migrating were growing coffee and selling products. The off-farm out-migrants in this sub-district made up the largest composition (around 60%).

3.1 Demography

Table 1 shows high population density in each village. Hujungtiwu has the lowest density compared to the others regardless of it also being the largest in area. The out-migration rate is quite high in Hujungtiwu and medium in Kertamandala.

High and increasing populations in the villages was mainly caused by natality not by in-migration. Central Statistics Bureau data in 2013 showed that in-migration was only half of the total birth rate. The data from focus groups in 2000, 1990, 1980 and 1970 also indicated that in-migration was always lower than the previous year. However, the focus-group data showed that the birth rate was higher in some years before 2013. It can clearly be seen that there was an increase in population and not from the total number of in-migrants. A small number of residents who were not indigenous to the area also indicated that in-migration remained low.

There was a high increase of out-migration in Kertamandala from year to year, while the migration rate in Hujungtiwu was stable. The rate in Kertamandala was higher than other villages (possibility of over-estimation from focus-group participants). This data cannot show the amount of difference between Kertamandala and Hujungtiwu villages. The overall trend is changes in the rate of out-migration from year to year. The highest out-migration rate in Hujungtiwu village was in 1970 when a large number of out-migrants worked as secondhand iron sellers in the greater Bandung area.

Out-migration showed a tendency to increase from time to time in Rajadesa Sub-district although it was not as sharp as in Panjalu. In Rajadesa, out-migrants generally commuted to work in another area and then returned home (Mulyoutami et al 2014a, Fauziyah et al 2015) whereas in Panjalu most out-migrants stayed in the cities and returned to their villages once a year.

In summary, a village with high population density, complete infrastructure covering healthcare and education facilities and high accessibility in-and-out of the village is categorized as peri-urban, as described by Iaquinta and Drescher (2006).

3.2 Socio-cultural backgrounds

The out-migrant and non-migrant communities in Ciamis were mostly ethnic Sundanese. Only 3–4% were Javanese or other ethnic groups. Nearly 95% were Muslim.

Minahan (2012) described Sundanese culture as strongly influenced by the neighbouring Javanese, the most dominant ethnic group in Java yet Sundanese culture has a somewhat more egalitarian style compared to Javanese. However, it's hierarchical model is seen clearly in 'undak usuk', which refers to the different tiers of the Sundanese language spoken depending on age and respect groupings.

Sundanese culture has also been strongly influenced by Islam. Minahan (2012) noted that with the growing influence of Islam, the animistic belief system was no longer embraced by communities. Sundanese core culture revolves around the agricultural cycle of rice farming.

In general, Sundanese apply bilateral principles (Indrawardana 2011) in which the father and mother's lineages are equal. However, Indrawardana (2011) also reinforced the statement of historian Ekadjati (2005) that the inheritance pattern of Sundanese people featured the principle of 'lalaki nanggung, awewe nyuhun' or 'lelaki memikul, wanita menyunggi', that is, following Islamic law, boys receive a double portion of inheritance because they have to work harder ('memikul') whereas girls bear a less heavy load on their heads ('menyunggi').

3.3 Livelihoods and land-use patterns

The four villages had livelihood patterns that were almost identical, with some variations in land-use patterns. Primary livelihoods relied on out-migration or farm management.

In 2014, about 29% of Panjalu residents worked outside the village as labourers and approximately 5% as business operators. They generally worked in the off-farm sector (not related to farming), such as selling secondhand iron. About 11% of the community pursued off-farm activities in other rural areas. Activities included establishing workshops, public transportation, sales, and government employment.

Fauziyah et al (2014) observed that in Panjalu, horticulture, the main land use, had been decreasing in proportion from year to year but the percentage of people relying on it as their source of livelihood remained the same. Meanwhile, the proportion of timber plantations was increasing while the percentage of people managing coffee plantations remained the same from year to year (7–9%). There was a sharp rise in establishment of coffee plantations over the past 10 years. However, the number of people relying on the plantations had tended to decline (in 1990 it was about 7% compared to only about 2% in the study period). Coffee plantations were mainly found in Hujungtiwu. In Kertamandala, the PHBM scheme from Perhutani was used to establish coffee plantations. The plantation managers were mostly migrants from surrounding villages; only 5% were from Kertamandala. De Royer et al (2014) explained that most of the residents of Kertamandala did not implement the PHBM scheme directly by themselves because they had no expertise in cultivating coffee.

Figure 2. Livelihoods' sources in various time periods (every 10 years)

In 2014, 9% of farmers in Rajadesa out-migrated to off-farm work: 4% as labourers and 5% who established various non-agricultural businesses. The percentage of out-migration in Panjalu to cultivate new farms in other areas, such as in Kertamandala (Panjalu Sub-district), Kuningan, Cilumping in Central Java, and Lampung, totalled around 24.5%. Around 2% worked abroad as Indonesian Migrant Workers. Working abroad had begun in the last decade.

There were not many changes in those who managed horticultural land and irrigated rice fields in Panjalu but we found a decreasing number in Rajadesa even though land use remained the same. Irrigated rice was the main source of livelihoods.

Fauziyah et al (2015) noted that in Rajadesa, abandoned land had reduced significantly from year to year and there were an increasing number of mixed tree farms as well as coffee plantations. These

points are in concordance with sources of livelihoods' data shown in Figure 1, where the percentage of people who cultivated mixed tree farms and coffee plantations was increasing. Most communities in the district managed timber and cardamom (timber-based mixed tree farms), timber and coffee (coffee-based mixed tree farms), coffee and cardamom (coffee-based mixed tree farms), as well as timber, coffee and cardamom (mixed tree farms). Monocultural coffee plantations were also increasing in number.

3.4 Out-migration patterns

Out-migration pattern in Panjalu and Rajadesa sub-districts was described in more details in Mulyoutami (2014a) and Fauziyah (2015). The pattern consists of three models.

1) Off-farm out-migrants without capital

This group of out-migrants have low–middle economic status with relatively low levels of land ownership. They usually tried to find work and generate money to meet their daily needs as well as accumulate capital in order to cultivate their own farms. Their migration destinations were mostly urban areas, such as Bandung, Jakarta and Tasikmalaya, where they became shop employees or sold secondhand iron. This kind of out-migration model can be found both in Panjalu and Rajadesa sub-districts. The out-migrant group generally consisted of some family members (either women or men). However, most out-migrants were usually male. Women who were out-migrants were typically mostly unmarried. When they married, they usually chose to stop working in the city, preferring to take care of their children and the household instead. Other family members who did not migrate and chose to remain in their village usually maintained their businesses and/or cultivated their farms.

2) Off-farm out-migrants with capital

This group of middle–up out-migrants owned medium-sized areas of land. They usually had capital from previous work, from sale of crops, or by inheritance. This out-migrant model usually featured entire families migrating to cities, who would only return to their village of origin for holidays. Most of the out-migrants were male. If there were women who out-migrated, they usually went with other family members. Pandjaitan (1990) described the condition of Rajadesa Sub-district in the 1990s when the number of women who migrated independently was small because most migrated along with their families. This out-migration model was mostly found in Panjalu rather than Rajadesa. Their target areas were typically urban areas, such as Bandung, Jakarta and Tasikmalaya. They usually pursued the same business of selling secondhand iron. The success of previous out-migrants in this line of work, as well as the networks created, attracted others in their village to do the same.

3.4.1 Land-based out-migrants

This out-migrant type was only found in Rajadesa. Their destination was Sumber Jaya, Lampung Province, to grow coffee. This migration pattern had been in existence for 30 years. They usually migrated around April–May to harvest coffee and returned to Rajadesa in September.

Land clearing has been increasing as coffee has become more popular. This trend appears in Lampung, villages in Rajadesa and other areas. Most of the farmers accessed PHBM land managed by Perhutani — mostly in Kertamandala village, Panjalu Sub-district, Kuningan District, and Cilumping and Banyumas in Central Java — or bought land in other areas. In this model, most of the men usually out-migrated once a month or as necessary. Farmers out-migrated during the peak season for harvesting coffee (around May–August) when the demand for labour was high. Nearly all family members out-migrated to help.

One important thing that distinguishes the out-migration pattern in Panjalu and Rajadesa is that they had already migrated before. People in Rajadesa have been known to out-migrate to Sumatra in order to grow coffee, either as a labourer or to cultivate their own land. However, most of the people in Panjalu were looking for off-farm work.

It is interesting to further explore the sustainability of early migration in Rajadesa. One of the respondents stated that out-migration began during the conflict period (1949–1965) of Darul Islam/Tentara Islam Indonesia (House of Islam/Islamic Armed Forces of Indonesia) in order to find more secure farming locations. There was also a successful transmigration program to Lampung with most migrants originating from West Java. Kusworo (2014) stated that migrants in Sumber Jaya came from Ciamis, Tasikmalaya and surrounding areas. This out-migration was originally the result of the Biro Rekonstruksi Nasional (National Reconstruction Bureau) program in the 1950s. The government relocated war veterans to cultivate land. However, the out-migrants from West Java were not all veterans, as noted by Heeren (1979); some were farmers. The program inspired spontaneous migration from West Java that occurred continuously throughout the 1980s–1990s.

Out-migrants, typically over 30 years-old, left and moved to cities to earn money so that they could start their own farm businesses afterwards. They could farm in their own villages if they owned land or outside by following the PHBM schemes. Others bought land outside a village for cultivating coffee plantations. In this migrant group, women and men out-migrated in a typical pattern. Men usually out-migrated to cultivate land but sometimes all family members also out-migrated as labourers to help harvest.

3.4.2 Land ownership structure

This study tried to trace any land ownership as well as legal evidence of the ownership status. We interviewed 125 households who owned a combined 1409 plots of land. The average land ownership in Panjalu per household was 5.6 plots and in Rajadesa was 5.8 plots. The documentation of land owners in each household can be seen in the table below. The percentage of female land owners was

around 17% of their male counterparts, with an almost same average land area. Men dominated land ownership. Around 28% of the land owned by men was obtained through purchase and 26% was inherited. The percentage of women who owned land through purchase was only 2% and from inheritance almost 9%. Land that was owned collectively (respondents chose not to differentiate whether the land was owned by both women or men) by purchase was about 14.5% and from inheritance was about 7.5%.

Table 2. Land ownership structure for each land-use practice

Land type	Shared		Men		Women		Total	
	% plot	Average area	% plot	Average area	% plot	Average area	% plot	Average area
Mixed garden	10.86%	0.29	29.12%	0.45	4.24%	0.21	44.21%	0.39
Fish pond	4.82%	0.02	10.42%	0.03	1.94%	0.01	17.18%	0.03
Homegarden	4.10%	0.03	10.28%	0.04	2.44%	0.03	16.82%	0.03
Irrigated paddy	5.97%	0.12	12.94%	0.14	2.88%	0.08	21.78%	0.13
Total	25.74%	0.16	62.76%	0.25	11.50%	0.11	100.00%	0.21

As in most other rural areas in Indonesia, only a few people had Badan Pertanahan Nasional (BPN/National Land Agency) land-title certificates: around 3.7% of the 125 respondents in both sub-districts. Approximately 75% had a Letter C or Certificate of Rent Paid from the Dinas Pendapatan Daerah Provinsi (Local Revenue Management Agency) of West Java. Table 3 shows detailed information about the land ownership supporting letters in both sub-districts with data disaggregated between men and women. Data in tables 2 and 3 also show that female land ownership has been well recognized although legal ownership under female names is only about 16%. BPN rules allow the inclusion of female names as land owners, however, family agreements usually choose males over females as the designated title holders. Men support the household economy, which was the main reason given why male names predominantly appeared on land titles as the owner.

Table 3. Land ownership legality

Legality	Shared	Men	Women	Total
Deed of Sale and Purchase	2	5	-	7
Letter C*	267	664	127	1058
Land ceritificate**	19, under male names	29	4	52
Testament	-	-	2	2
None	73	189	28	290
Total	361	887	161	1409

Note: * Letter C (locally called 'girik') is not considered evidence of land ownership. This letter is issued by the head of the relevant sub-district/village (lurah/kepala desa) to the 'land holder' evidencing their payment of local land taxes or to the tax authority, that is, the Land and Building Tax (PBB)

** Land certificate issued by land agency or BPN as evidence of land ownership

4. Differences in gender roles

Discussions on the differences between gender roles mainly focused on activities in timber and non-timber plantations or land management. Differences in gender roles can be clearly seen in timber farming. In farms in which the production of timber predominated, men did 80% of the work while women contributed to maintenance: spreading fertilizer (‘mupuk’) and weeding (‘ngored’ in Sundanese). Women had smaller roles in managing timber farms because as the trees have grew they required less and less care. Timber farms were rarely managed intensively, only needing fertilizing and weeding. Timber harvesting was usually done by a contractor or timber buyer. At harvest time, both men and women usually worked together to collect dry twigs for firewood. Harvesting trees was very hard work and men were 90% responsible for it.

The role of women was substantially greater in non-timber and coffee plantations and land cultivation, including cardamom. Women played significant roles in harvesting and post-harvesting coffee, including sales. Women were substantially involved in coffee harvesting in Rajadesa, a phenomenon in keeping with the high out-migration rate to Lampung and other areas where coffee plantations were located (Perhutani area in Kertamandala village, Panjalu sub-district and Kuningan regency).

From June to August, both men and women usually harvested crops on their own farms or helped other people as farm workers. Harvesting was usually done by both husband and wife as well as other unpaid family members. However, some hired their neighbours or relatives living nearby. Women worked more in post-harvesting activities, such as peeling and drying, while men were responsible for overall management.

Women also took a greater part in cultivating cardamom. Cardamom can be harvested three times at a year and women have bigger roles in maintaining, harvesting and sales.

Both men and women worked together in applying fertilizer. However, very few women (approximately 5%) played any role in applying pesticide because doing so required specific skills and the areas were usually far from the homestead. Women also stated that they did not fully understand plant diseases and were willing to help more in weeding, as paid workers or family helpers. Women and men both acted as family helpers and paid workers. Working hours for paid workers were generally half day (7 am to 1 pm) or full day (until 3 pm). Women generally worked half days, receiving a salary of IDR 20,000–25,000 per day, including one meal. Men generally worked full days, receiving IDR 45,000–50,000 per day, including one meal and cigarettes.

The roles of women in timber and coffee plantations were land clearing, planting, fertilizer application, harvesting and post-harvesting. Men’s duties were to clear land, dig planting holes, spread fertilizer, pesticides and herbicides, and harvesting and post-harvest processing of crops. Men received higher salaries because they worked longer hours; most women did not work in the

afternoons even though they did almost the same type of work. Further, as stated before, women rarely applied pesticides.

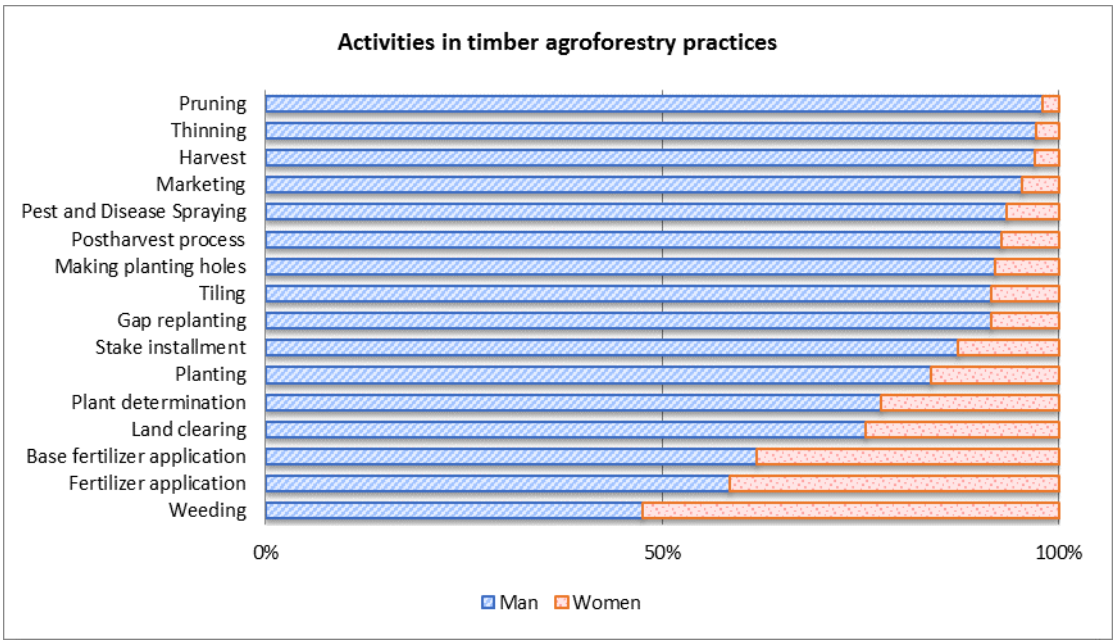


Figure 3. Gender roles in timber agroforestry

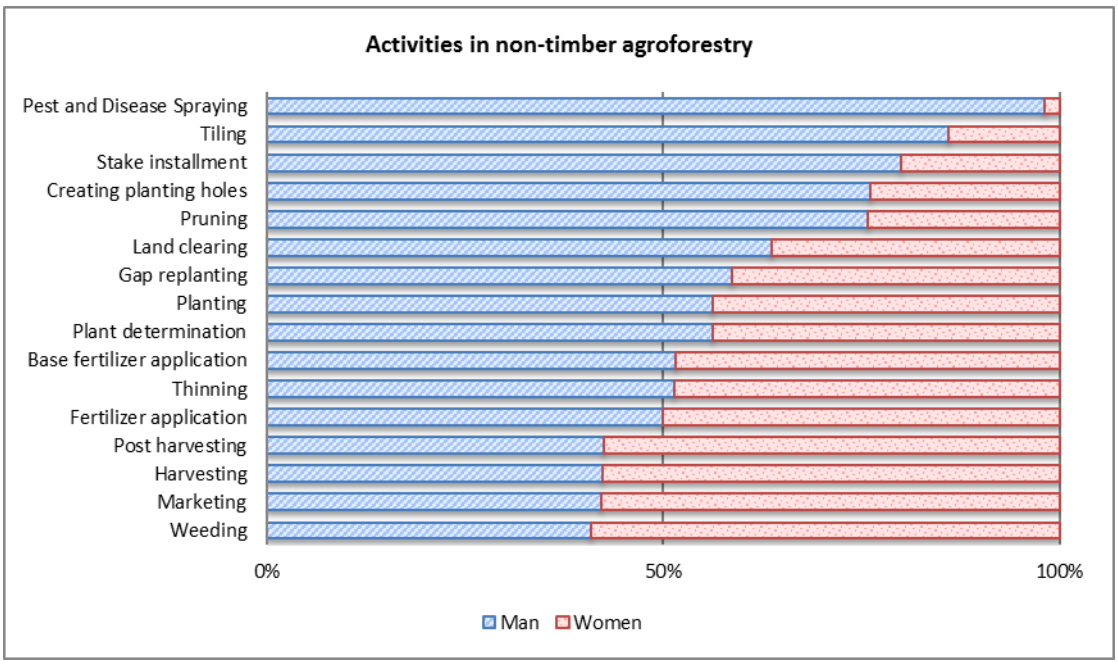
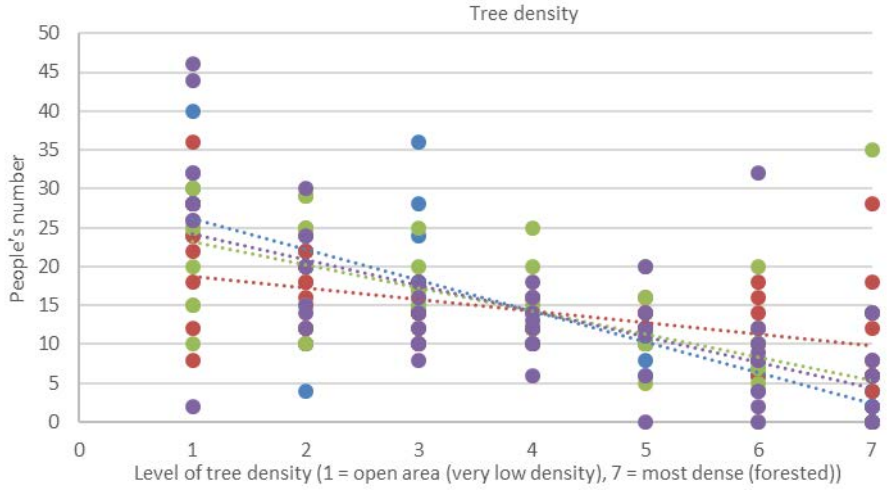


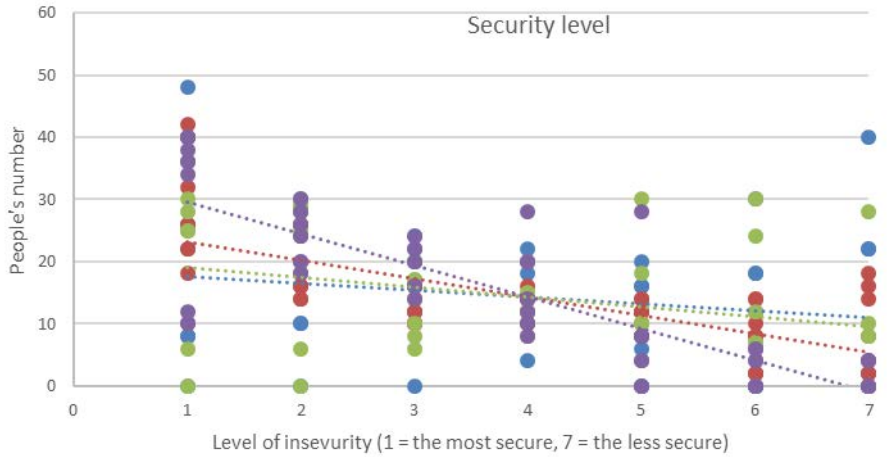
Figure 4. Gender roles in non-timber agroforestry

5. Gender and space

To understand the livelihoods of peri-urban citizens for whom spatial patterns determine gender movements, Krishna (2004) introduced the concept of a ‘genderscape’, that is, a gender space defined by cultural practices carried out today in managing the land, water resources, crops and forests. Krishna emphasized that the practice is closely related to social structures in space and time through a variety of social processes. Rochealau and Edmunds (1997) also looked closely at the relationship of women, men, land and its ownership using space and place proportions.

Focus groups were carried out to assess the impact of spatial patterns between genders and between out-migrant and non-migrant groups. The figures below show scatter diagrams of each group compiled from the discussion process, linked to 1) tree density; 2) security level; and 3) field distance from housing areas.





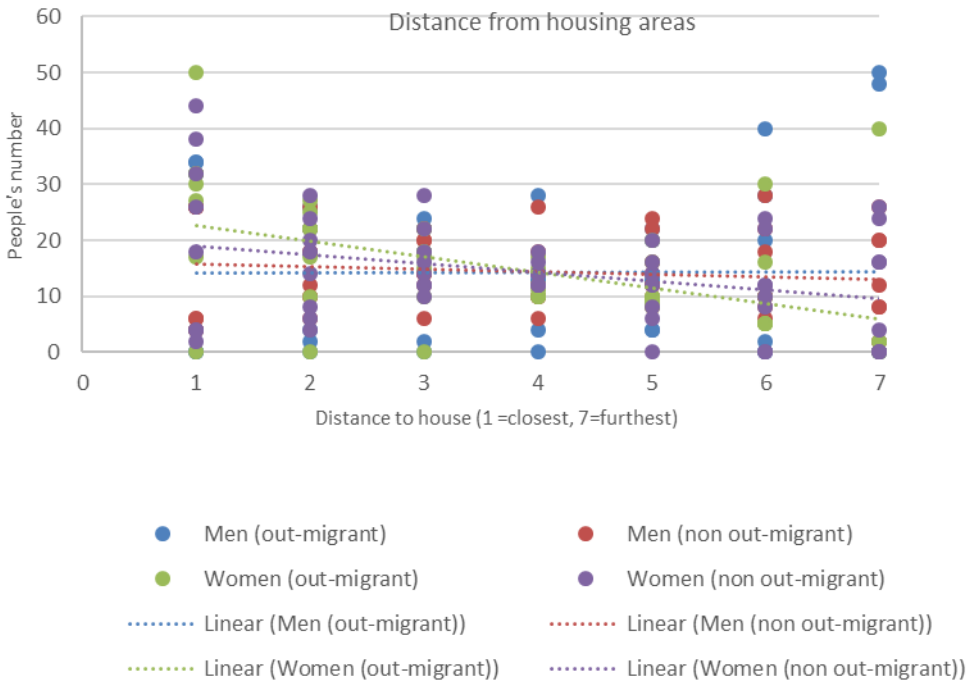


Figure 5. Spatial patterns between genders and communities correlated with 1) tree density; 2) security level; and 3) field distance from housing areas

5.1 Numbers of people working in each land-cover type

The relationship between land-cover type and the number of people working therein is strong, especially in non-migrant communities. The greater the density of land cover, the less people will work it. The relationship between land-cover type and the number of women's activities is closer compared to men. In addition, the density of land cover in the villages was limited for security reasons, so there were less activities. The forest proportion in Panjalu was only 2.27% and in Rajadesa less than 1%. Most people in Panjalu Sub-district worked on mixed timber farms while those in Rajadesa Sub-district worked mostly in mixed cocoa-timber farms. Both discussion groups agreed that if the area was covered with dense forest cover there would be very few activities able to be done. People who out-migrated had less activities in areas with dense forest cover than those who did not migrate; migration and non-agricultural activities were prioritized as viable sources of livelihoods.

5.2 Land-to-home distance and the total number of people involved in activities

Differences on this subject were quite noticeable between the male and female discussion groups. Women (both those who migrated and those who did not) expressed a very strong relationship with land-to-home distance. The discussion group of men saw a close relationship between the two. For men, choosing the working space was highly dependent on the availability of land and the area of their work. Men still had to manage their farms even if their farms were at a considerable distance from their homes. Women always considered their working location because they were responsible

for the care of children and for household activities. Thus, they had have less farm activities if their land was far from their home. Likewise, out-migrants considered proximity to home and family. Choosing to out-migrate eventually meant bringing the whole family except for those who were not married.

5.3 Security and working space preferences

Security factors, such as being safe from criminals, civil disturbance and related risks had the greatest influence in determining the total number of men and women who accessed land, especially, in out-migrant families. If the location or work space was not secure there would be less people willing to access the land.

We found a different relationship in the out-migrant community between security and the total number of people working on the land. Security was not seen as crucial, especially, if they were working communally.

5.4 Factors determining the working space

Women and men's responsibilities at home and in the community, their security, the land-to-home distance and physical conditions all determined their working space (Figure 5). Responsibilities at home included caring for children, cooking and cleaning; in the community they included attending funerals and weddings and engaging in community work. Security factors included the feeling of being safe from criminals, bad weather and malevolent spirits. Figure 5 shows that the physical factor was the main consideration for both men and women. In relationship to land management, physical abilities were the number one asset in determining sources of livelihoods. The second was responsibilities at home and in the community, determining where work would be carried out the most. Women considered the domestic as their main responsibility while men considered theirs to be community. Both roles were significant. Safety came fourth before land-to-home distance.

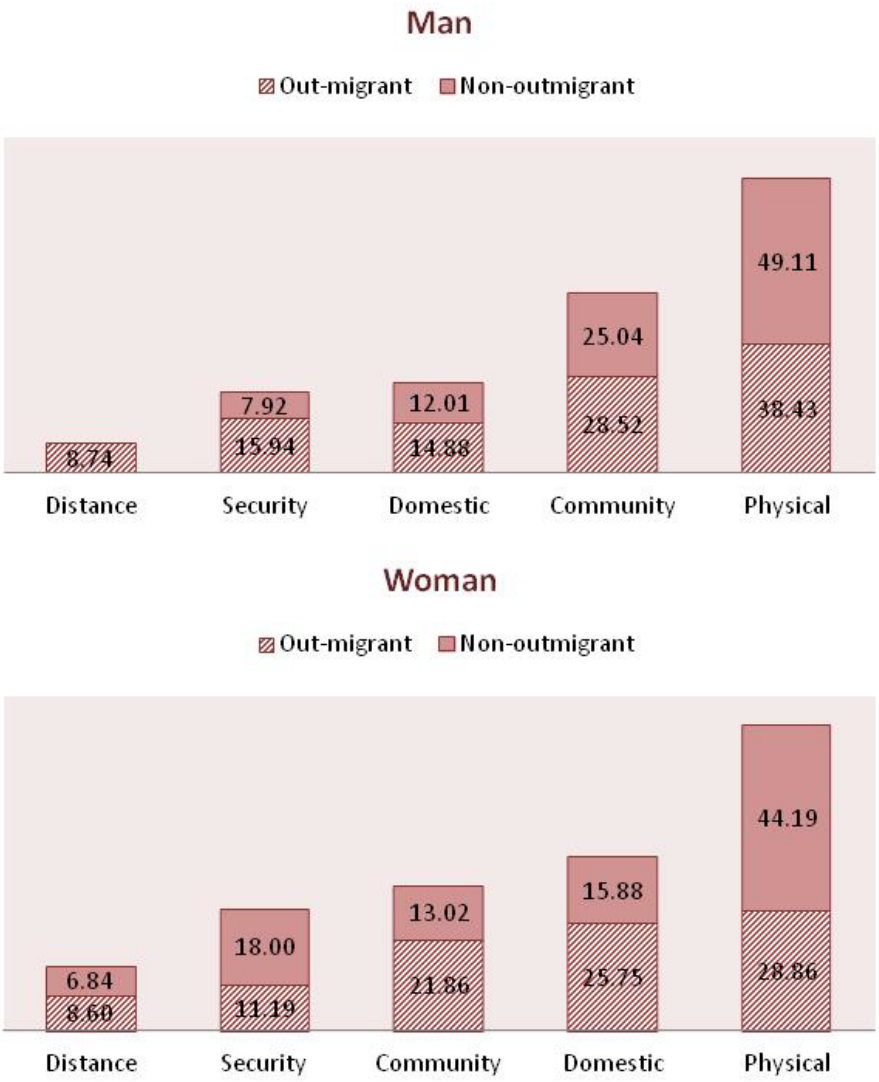


Figure 6. Factors defining gendered preferences in space for work

5.5 Gender preferences for land

In order to gain understanding of the land-type preferences of each gender group, we conducted group discussions and household surveys. Using the analytic hierarchy process (Janudianto et al 2014), the discussions were held to see how each gender in the typology of citizen determined how they would replace their land type with a more economic and productive land use. The method was used to find the exact eigen score to help them determine which land had to be replaced. The highest eigen score shows their tendency to change land.

The results of the household survey are shown in figures 6 and 7. They show that both men and women had similar preferences: shrub land, grass land (pasture) and other areas that resembled forest (old shrub land) would be the first to be converted to other more productive land uses.

People in Kertamandala (Figure 6) considered that because there were less forested areas they would convert grass and shrub land. In Rajadesa, women chose shrub land to be converted and men mostly

chose old shrub land. Figure 7 shows the consistency in the out-migrant and non-migrant typology insomuch as women would conver non-productive or shrub land whereas men would convert more productive land, such as forested areas for firewood to grass land to raise cattle. Men tended to consider land fertility as most important because forest soil usually produced better crops compared to shrub soil. Further, if they converted from grass and shrub land they would need to consider the cost of management because these land types' soils were not sufficiently fertile. In other words, men chose land based on economics.

There was a major difference between the two sub-districts based on their perceptions of planting crops. In Rajadesa, horticulture was not their main source of livelihoods so farmers would convert land, including cardamom gardens, to plant more productive crops. Income from off-farm activities was used to clear the land for planting coffee because it had become in demand. In Kertamandala, horticultural plots were still maintained adequately although farmers preferred mixed farms. The results of the discussion groups and household survey showed that farmers still maintained their fish ponds and irrigated rice fields in both districts. This can be seen from the typology of out-migrants and non-migrants in Figure 7. Irrigated paddy rice fields were very important for the community as their main source of staple food, as well as being a well-recognized symbol of prosperity. In Kertamandala, 70% of the citizens owned an irrigated rice field with average area of 0.5–2.0 ha whereas in Rajadesa 60% owned such with average size of 0.5–1.0 ha. Ninety per cent (90%) also owned a fish pond, which was considered an important asset in Sundanese culture because it could produce daily staple food and products for sale.

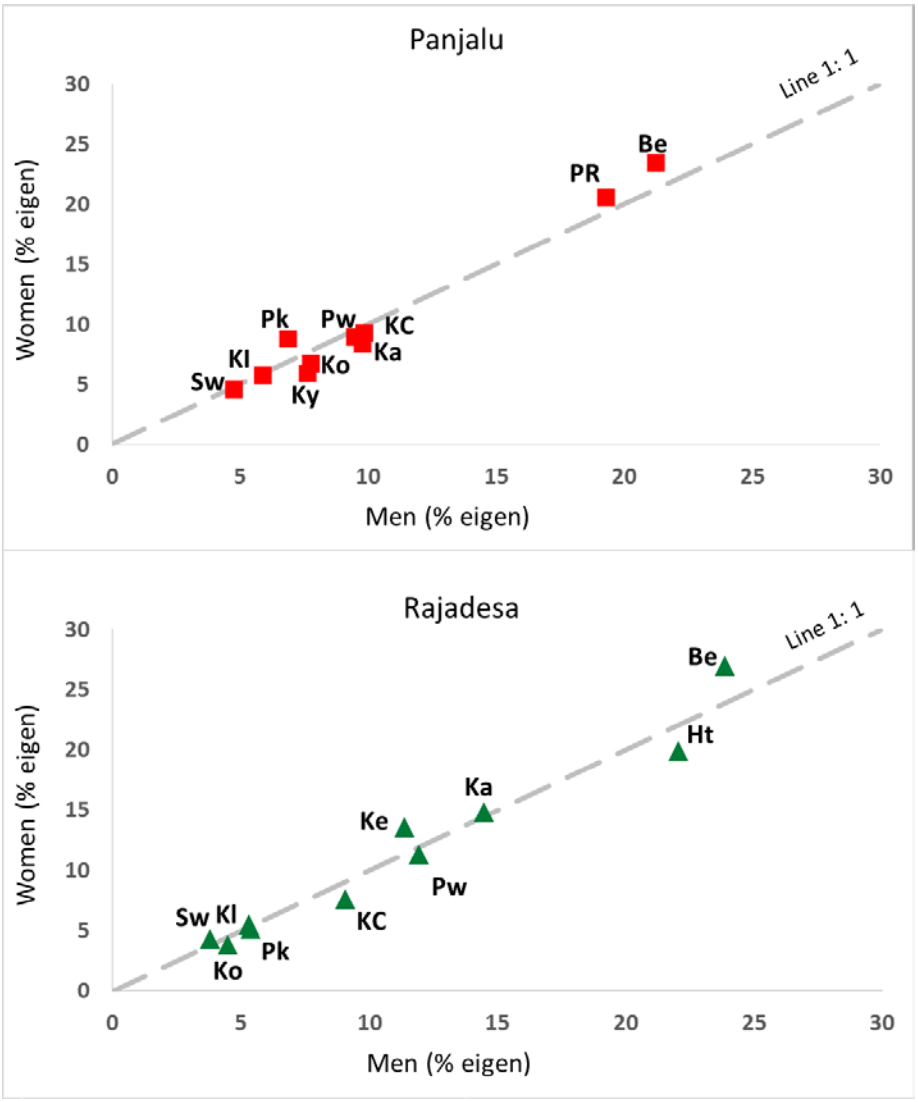


Figure 7. Land preferences between gender groups in two sub-districts of Ciamis District

Note: Line 1:1 indicating women's perceptions is exactly the same as men's perceptions.
Sw = irrigated paddy, Kp = coffee, Kl = fish pond, Pk = homegarden, Ky = timber farm plot, KC = mixed farm plot, Ke = coconut, Rp = grass land, Bl = shrub land, Ht = forested area

Homegardens were sufficiently maintained in both sub-districts. In Kertamandala (Figure 6), homegardens were only mentioned in the female group. Female groups gave higher values for homegardens; they were low in the male groups. The homegarden value in Rajadesa was balanced in the male and female groups. Homegardens were still maintained and were not converted because they produced daily harvests without having to spend much money.

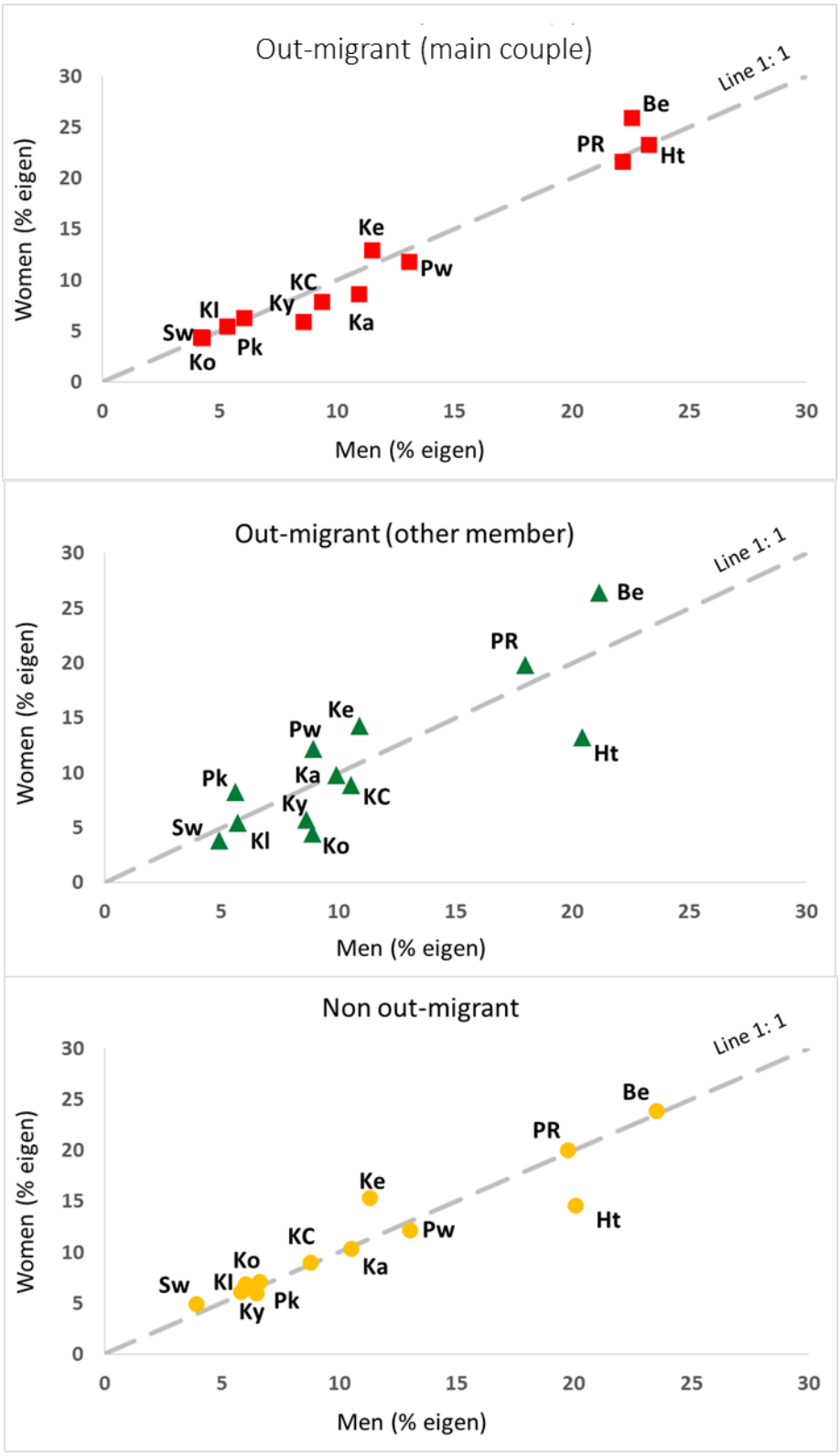


Figure 8. Gender preferences for converting land based on migration typology (both out-migrant and non-migrants)

Note: Line 1:1 indicating women's perceptions is exactly the same as men's perceptions.

Sw = irrigated paddy, Kp = coffee, Kl = fish pond, Pk = homegarden, Ky = timber farm plot, KC = mixed farm plot, Ke = coconut, Rp = grass land, Bl = shrub land, Ht = forested area

Male groups tended to prefer maintaining more productive land uses, such as timber, coffee and mixed farm plots. They stated that if the land area was limited then they would be able to cultivate it in such a way as to increase production. Women usually had a tendency to maintain land which could produce daily and staple food, such as irrigated paddy fields, fish ponds, horticultural plots and coconut groves. It was quite clear that men tended to think more about production whereas women tended to think more about sustainability.

Figure 7 indicates that non-migrant group considered that land values were closer to each other than those of the out-migrant group (both individual out-migrants and out-migrant families). This group had alternative off-farm incomes that were not directly related to agriculture. The non-migrants were usually farming so that all land types were equally important for them without any significant differences between the male and female groups.

6. Resources and well-being

The quality of life in its various aspects has been measured to map development results. A lot of measurements have been used and standardized in each area to compare both the welfare level and their quality of life based on cultural, social and community backgrounds. However, because the measurement used is standardized and applied in varying regions, sometimes, it does not describe exactly the level of life quality. This study used the measurement standards of the Human Development Index (HDI), Gender Development Index (GDI) and Gender Empowerment Index (GEI). However, subjective and locally specific measurements were also used to provide a more complete description of gender conditions.

6.1 Gender disparities in development

The Central Statistics Agency (Biro Pusat Statistik/BPS) and Women's Empowerment Agency issued a publication on gender disparities in Indonesia using data released by BPS for the HDI, GDI and GEI. This paper specifically examines gender disparities in Ciamis District, West Java.

The HDI is a success measure of human development in various dimensions. The first dimension is an opportunity to live a healthy and long life as measured by life expectancy at birth. The education dimension is measured by literacy rates in adults combined with the length of formal education (average period of schooling). The last dimension is well-being as understood financially through living standards measured by expenditure per capita. The GDI uses the same dimensions and index numbers as the HDI but uses data disaggregated by gender. The important difference to note is measurement of financial resources. HDI uses the decent living standard whereas GDI uses income contributions. This index indicates whether each indicator is spread widely in each gender group. A high HDI shows that development undertaken has been able to improve the quality of living. It can

also be seen in the GDI. The difference between the two indexes show whether the ongoing development will improve both gender groups' quality of life or not. A large gap shows that development had a high disparity in which only one gender group was successfully able to improve its quality of life.

The GEI is to understand each gender's participation in political activities, decision-making and economic resources (income management). One indicator used is female and male proportions in parliament, female and male proportions of professional workers, technicians and leaders, as well as income estimation in female and male groups. A high GEI score shows that men and women both participate at the same and equal levels.

Figure 8 shows the gender disparity in human development based on the HDI, GDI and GEI data in the cities of West Java. The first quadrant is a city group which has a higher HDI and GDI gap than the national standard of 4.77 and GDI score lower than the national standard of 70.07. Gender disparity can also be seen in the role of women in parliament and decision-making. It shows that their contribution is still lower than the national standard in general. Ciamis District, Bandung (provincial capital) and West Java residents were in this quadrant. Ciamis District scored better in gender equality than Bandung and other cities of West Java Province. However, female representation in parliament was still seen as low. Depok showed a better score than any other city and district. Gender representation was almost equal (nearly 80%).

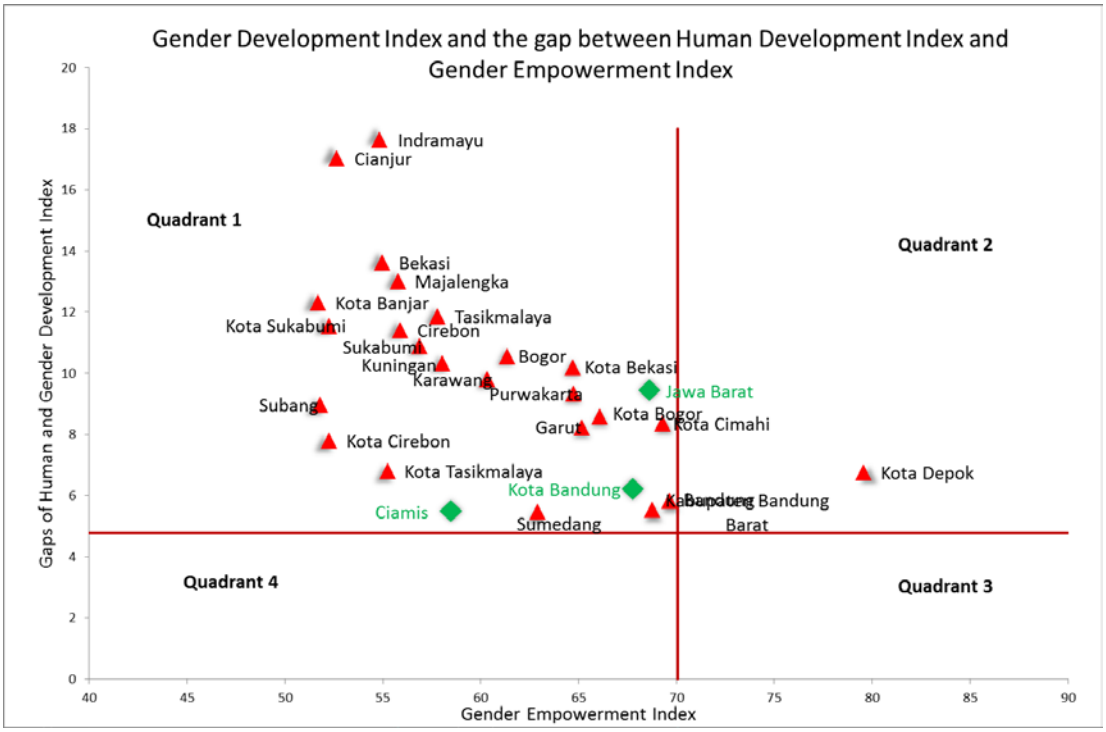


Figure 9. Gender disparity scores of HDI, GDI and GEI in West Java Province

Data source: Central Statistics Bureau and Ministry of Women Empowerment and Child Protection, 2012.

If the index is dissected into each indicator, it shows lower GDI score mainly because of the low contribution of women to generating income. Women's contribution reached 33.81% whereas men contributed higher with 66.18%. In Ciamis District and big cities or provinces, the Angka Harapan Hidup (AHH/Life Expectancy Score) for women was higher than men's. AHH for women was 69.50 years and for men was 65.55 years. Men tended to have a higher literacy rate and longer school hours in a year, however, the gap was not great. The literacy rate in men was 99.15% and in women was 97.12%. Most of the men studied for 7.88 years and women for 7.44 years.

6.2 Quality of life measurement and current conditions

We mentioned above that the quality of life measurement in the community is subjective and needs to look at their quality of life and gender disparity. This study was conducted to see the specific area measurement used to determine the community's quality of life in the form of satisfaction and happiness. This subjective quality of life is a cultural manifestation in the process of community and its relation to the environment (natural, physical and social) (Sumarti 1999:32).

We found that quality of life was often perceived as welfare. Further, the term 'quality' can also mean well-being in each person. Results of disaggregated group discussions linked to migrant and non-migrant status showed several differences in determining the quality of life subjectively. Each measurement stated by the discussion participants was calculated using the hierarchical process analysis (Janudianto 2014) to check the eigen score. A high eigen score determines different factors seen as important in the community.

Figure 10 is the result of factor grouping analysis to measure quality of life. Men and women, both out-migrants and non-migrants, had different emphases on quality of life measurement factors. Education was a direct and indirect factor agreed on by both men and women. Men had a higher score than women in land and income factors. An important factor found in the female discussion group was assets. Women often assumed that an asset comes in the form of owning a house, car or other household stuff. Assets are seen as an indicator of a high quality of life. Having an occupation was also a factor agreed on by both genders but it was not seen as a major factor by men.

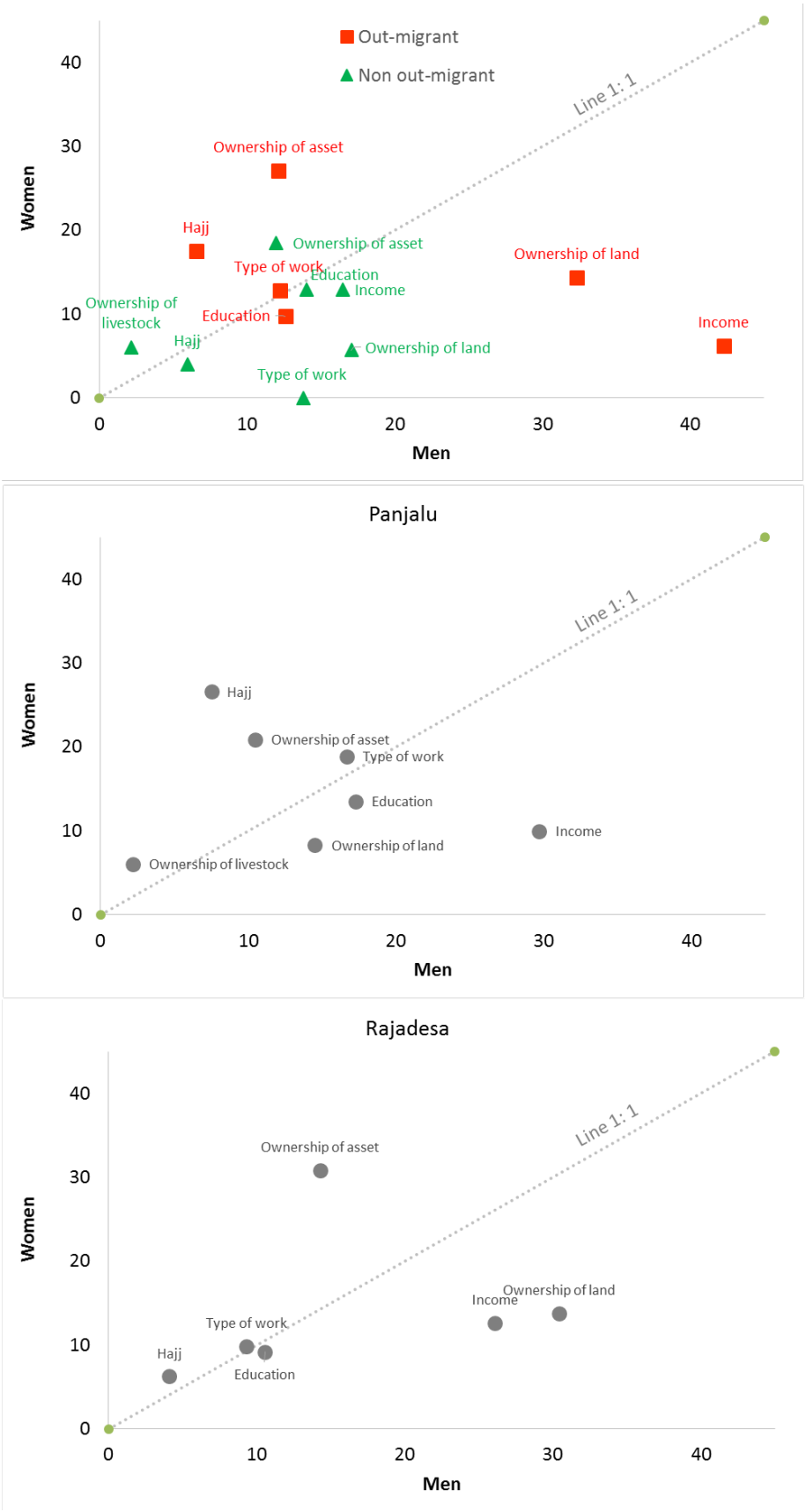


Figure 10. Factors defining subjective quality of life measurement

Figure 10 is the result of factor grouping analysis to measure quality of life. Men and women, both out-migrants and non-migrants, had different emphases on quality of life measurement factors. Education was a direct and indirect factor agreed on by both men and women. Men had a higher score than women in land and income factors. An important factor found in the female discussion group was assets. Women often assumed that an asset comes in the form of owning a house, car or other household stuff. Assets are seen as an indicator of a high quality of life. Having an occupation was also a factor agreed on by both genders, but it was not seen as a major factor by men.

In Panjalu Sub-district, opinion grouping on welfare measurement was linked more closely to the same out-migration status. Both male and female out-migrants agreed that education was an important factor. Income was another important measurement even though non-migrant groups did not see it as the main factor. Out-migrant groups emphasized work and land-owning aspects; some also saw assets as important.

In Rajadesa Sub-district, each gender and typology status in the out-migrant groups varied greatly. However, Figure 10 shows that land and revenue were the two main factors in measuring the quality of life or welfare.

Based on these subjective measurements, the citizens were asked to give a general assessment of the quality of life in their villages. Figure 10 also shows the estimated proportion of women and men in each typology for each level of life quality, that is, low, medium or high. Most women (45.6%) possessed a low quality of life in the three measuring factors of land owning, income and education. Forty-one per cent (41%) of men had a medium quality of life and 29% had a high quality of life.

From the community subjective assessment, the poor quality of life in women was owing to lower income compared to men. There seemed no difference in land owning between male and female groups, even though men had a tendency to own bigger areas of land compared to women. It is also important to note for further analysis that these data do not indicate the legal status of landowners' names written in certificates, only the normative ownership status. However, this is in line with some of the findings in the household interviews, that is, that land ownership by women is often well recognized, especially, land obtained from inheritance. The data of education level can be compared with data obtained from the household survey. The education level of women in general was lower than men but the difference was not significant.

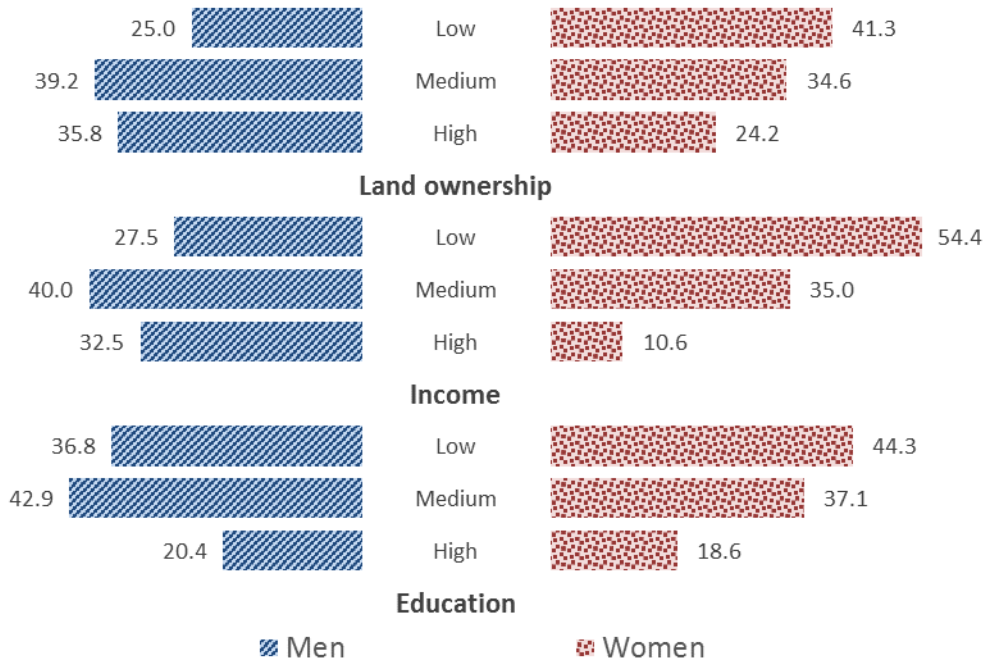


Figure 11. Community perceptions of quality of life in each primary measurement

6.3 Subjective assessment of quality of life

This section describes how men and women responded to their welfare conditions. This response is very important to see whether gender stereotypes indeed occur in communities in West Java, specifically, in the out-migrant and non-migrant communities. The overview of social welfare and how they responded to their conditions was able to demonstrate the gender-specific quality of life. This study also highlighted the distinctive differences, if any, between genders regarding the circumstances and welfare background. This is useful in providing information on how development patterns are more gender-friendly now and that the impact of such development on both men and women is more balanced.

This overview begins by drawing out welfare conditions in each typology group in different categories of basic life aspects, such as education, health, environment, income, social and religious life. The respondents' perceptions are indicated by their level of satisfaction on every aspect of welfare condition. In addition, their happiness in response to their welfare conditions was also studied. Lastly, they were asked their level of optimism on whether their current conditions would lead to a better future. The level of trust from their responses and discussions was about 85%, considering that interviewers' questioning techniques and the interview circumstances can greatly influence respondents' answers.

6.3.1 Education

Overall, the education level of men in the research sites was higher than that of women. These data were calculated from their total study hours. Statistically, the total study hours between men and

women differed significantly (using the Mann Whitney) in the out-migrant groups of Rajadesa Sub-district (Table 4). It seemed that the educational opportunities given to men were higher than for women in Rajadesa. However, in the non-migrant groups, women had a tendency to go to school longer than the men. These women from non-migrant groups had more opportunities to go to school longer because they did not migrate. However, the men in non-migrant groups tended to work (farm or off-farm).

Figure 12 shows that the total school days in each age group was different. From year to year, women maintained their formal education at school longer than men. This indicates that women have begun to have the same opportunities for studying at school. Awareness of gender equality grew in the community. However, if you look at the data for each sub-district, the increasing opportunity for women started from the age group of 16–20 years-old. In Panjalu, the increasing opportunities for women had already started earlier and now they were 36–40 years old. Further analysis of this condition may be needed to see whether it was the result of different out-migration patterns.

Table 4. Length of time spent in formal schooling

Category		Men (Years)	Women (Years)	Significant differences (Mann Whitney)
Each Sub district	Panjalu	7.03	6.9	
	Kecamatan Rajadesa	7.43	6.97	Yes
	Total	7.14	6.88	
Community typologies	Individual out-migrant	7.3	6.79	Yes
	Family out-migrant	7.48	7.38	
	Non-migrant	6.73	6.77	

Respondents' responses to the circumstances of their educational experience was generally very similar between men and women. The levels of satisfaction, happiness and optimism were about the same. From the results of field observations and review of the *Kecamatan Dalam Angka 11* (Sub-District in Figures 11) data (BPS 2015a, 2015b), there were good educational facilities up to high-school level in every sub-district. Some people even chose to send their children to schools with higher reputations, even though they were far from where they lived, especially if the household had a higher welfare level.

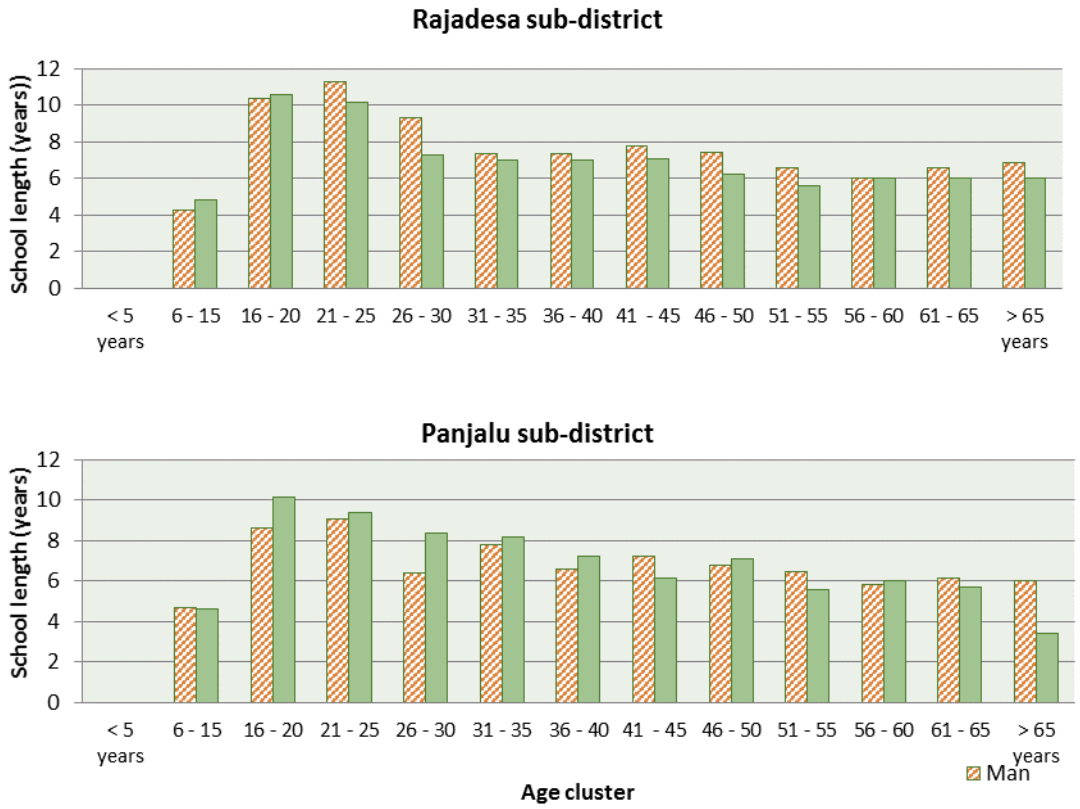


Figure 12. The differences of school length in each age category and sub-districts

6.3.2 Health

The data that describes public health conditions in both districts were obtained from all household respondents. In the past year, 51.59% of the total female household respondents accessed public health services, such as village midwives, health centres, nearby general practitioners and hospitals. Data in both districts also show a quite interesting difference, such as in Panjalu, men (53.37%) accessed health facilities more whereas in Rajadesa, women were the main accessers (57%).

If divided into age groups, as shown in Figure 13, health facilities were accessible to all people 19–60 years-old. In Panjalu, it was clear that women and men in the age group 41–60 mostly accessed health facilities when suffering from illness or accident. In Rajadesa, women 19–40 years-old accessed health facilities a lot, however, there was not much difference between men and women 41–60 years-old who accessed health facilities.

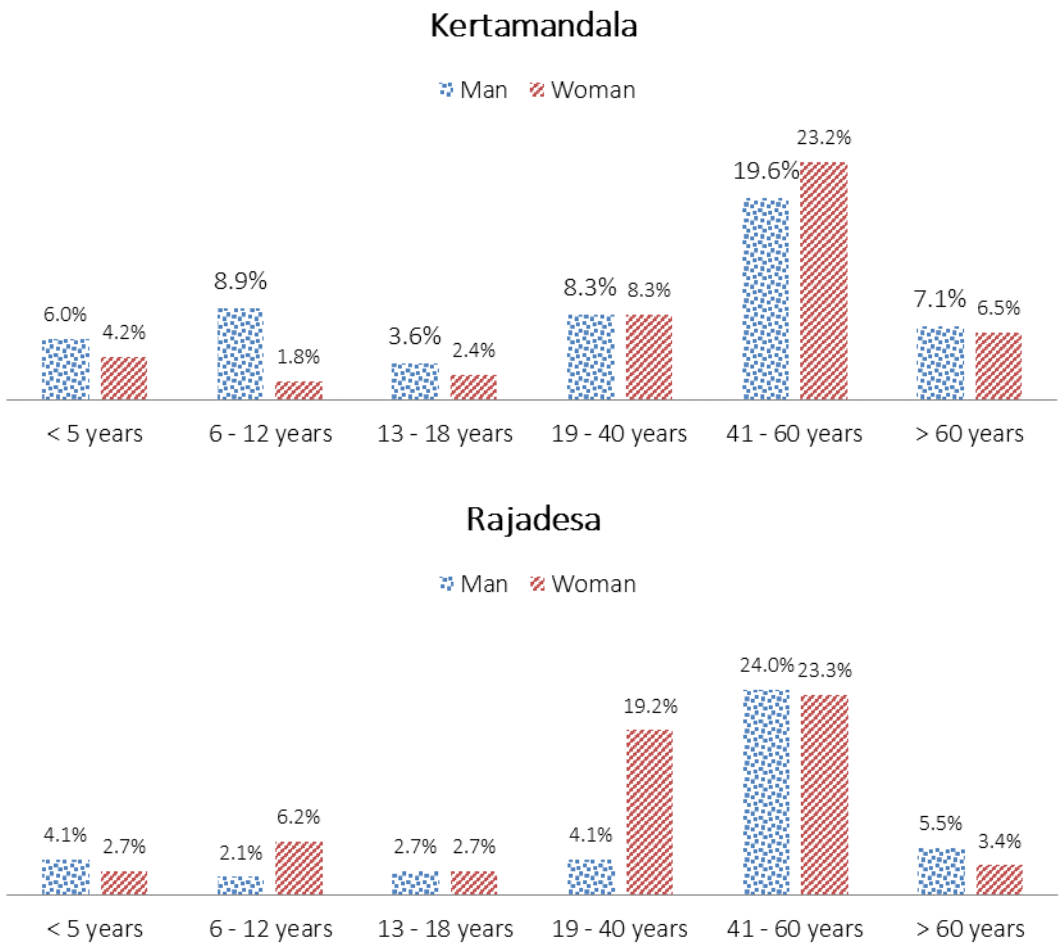


Figure 13. Percentage of members of respondent households accessing health facilities within a year, based on age cluster

Female and male respondents' satisfaction regarding their health and supporting facilities were different. In general, women felt more satisfied than men. This result be found also in the out-migrant, individual migrant and non-migrant groups. The level of happiness in response to their health condition was not significantly different between women and men. A significant difference in optimism was seen more in the non-migrant group. However, the data in each district showed no considerable difference.

Some men felt less satisfied with low-quality health services despite the easy access to them. They expected better health facilities nearby. The majority of respondents stated that if they wanted to access better health facilities, they needed to travel farther. However, it specifically depended on the illness. If a person's condition was worsening, or in the case of an accident, health services in the village or sub-district were seen as not sufficient. This opinion was stated not only by female respondents. Most expected that if they wanted access to better health facilities, they would have to go farther and pay higher costs.

6.3.3 Environment

Observation and in-depth interviews found that the natural environment in both sub-districts was in good condition. Seventy-one per cent (71%) of respondents stated that the soil condition in their village was quite fertile; 14% stated that their land was infertile. In terms of air quality, 71.95% of the respondents stated that the air condition in their village was quite good; and 21% said that it was very good. In terms of biodiversity, 54.7% of respondents considered that plant types in their villages were quite diverse and abundant. Approximately 22.65% considered that the existing plants in their villages had been less diverse; other respondents found that biodiversity had been reduced significantly.

Both men and women had the same views of the environment; there was no significant difference, although women generally had higher satisfaction, happiness and optimism levels for a better environment. There was a different appreciation between women and men in Panjalu. Women who had been living longer in the villages felt closer to the environment than men who out-migrated.

6.3.4 Social life

Village activities are forms of social asset that allow villagers as a community to work and cooperate together and solve social problems. Various discussions mentioned that social activities were stronger in rural than in urban areas where people are more heterogeneous.

This section examines the communities and how households take part. Almost all villagers in Panjalu and Rajadesa engage with their community. The main activities in the villages are building together public facilities, participating in religious groups (‘yasinan’, ‘qasidah’ and routine Islamic recitation), youth sports groups, farmers’ groups of various sorts (coffee farmers, timber farmers, pond farmers and breeders), women’s gatherings, formal and non-formal institutions, as well as Pembinaan Kesejahteraan Keluarga (PKK/Family Welfare Development agency).

In general, women's involvement in social groups was lower than men’s. This was especially the case for activities of farmers’ or professional groups in which their involvement was only about 22%. There was only one farmers’ group that was specifically for women and overall women's representation was quite low, reflecting the relatively small roles played by women in land and plantation management. The percentage of women as representatives in village governments and various other rural development organizations was even smaller: 14.81%. Village government officials were predominately men. Women were officials but held administrative positions; none filled strategic positions.

The PKK group was a special group where women were fostered through various training activities related to cooking, crafts and parenting skills. Not all of them were involved in PKK and only some were actively involved. Women's involvement in religious activities in both sub-districts was quite high compared to men’s. Routine Islamic recital was mostly done in the mornings at times when it was possible for women to participate.

Levels of satisfaction, happiness and optimism in women regarding their social life were higher than those of men. However, the difference (using the Mann Whitney) was not statistically significant.

6.3.5 Income

The study aimed to examine the contributions of women and men to overall household income. In most interviews both women and men were reluctant to disaggregate their income as female- or male-only contributions, stating that they were shared. Nonetheless, this section will discuss how large was each gender's contribution based on respondents' perceptions. Shared contribution is an income that comes from both genders and we found that approximately 12% of household income comes from women and 53% from men, with the rest as shared income.

For household income, the contribution of women was thought to be sufficiently large although in many cases the value of their contribution was still small. Household income derived from agroforestry or mixed farming activities was generally considered as being provided by men (mentioned by 38.7% of respondents) and/or shared income (mentioned by 38.8% of respondents). Only 16.3% of respondents said that this income was contributed by women.

The income contribution from women generally comes from rice or horticultural crops, non-agricultural activities — such as working in salons and shops, and selling jewelry — or as farm labourers. Most gender observers noted that women were more suitable for farm work near their homes and dealing with food crops whereas men were more suitable for work managing commodity crops. Male income was mostly from non-agricultural work, such as running a workshop, large-scale trading activities (selling coffee and other commodity crops, mainly wood), motorcycle taxi driver or other transportation businesses, which were in accordance with work generally accessed by men.

The data showed that the value of male income was greater than that of females. The average annual income of men in Panjalu was IDR 6,539,531 and that for women was half —50.82% — or approximately IDR 3,250,000. Men's work generated higher total income whereas women worked to support the men. Women cultivated irrigated rice for household consumption and sale if there was an excess.

Women and men generally were equal in their satisfaction level regarding their income but there were different and significant responses from each sub-district. In Rajadesa, men were more satisfied (with values for satisfaction of 2.25) than women (1.93), with a significant difference statistically (alpha of 0.05). In Panjalu, women were more satisfied, with values greater (1.79) than men (2.15), showing a significant difference. The values for happiness and optimism in men and women were not significantly different.

Table 5. Gender contributions to household income based on community typologies

	Panjalu						Rajadesa						Total					
	Men		Women		Shared		Men		Women		Shared		Men		Women		Shared	
	n	Mean	N	Mean	n	Mean	n	Mean	n	Mean	n	Mean	N	Mean	n	Mean	n	Mean
Individual out-migrant	24	20,036,250	16	9,334,375	6	10,863,333	58	17,387,784	43	6,341,209	61	17,638,303	145	5,126,190	45	2,710,778	83	3,299,410
Out-migrant (other household members)	36	16,270,486	17	4,938,471	21	9,357,143	12	13,130,000	10	3,803,100	9	8,594,556	192	7,757,091	111	3,802,000	185	6,168,197
Non-migrant	48	18,923,563	26	5,982,596	36	16,470,833	22	16,611,818	14	7,068,929	26	11,907,712	187	6,811,716	79	3,221,677	214	4,217,526

Table 6. Gender contribution to household income based on livelihood source types

	Panjalu						Rajadesa						Total					
	Men		Women		Shared		Men		Women		Shared		Men		Women		Shared	
	n	Mean	N	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n	Mean
Agriculture	61	2,370,410	21	945,238	57	3,753,596	12	1,918,333	18	1,480,833	95	2,226,558	73	2,296,095	39	1,192,436	152	2,799,197
Forest/ agroforest	75	3,505,533	18	708,333	34	3,594,118	70	5,060,879	34	1,161,206	142	6,713,187	145	4,256,390	52	1,004,442	176	6,110,639
Livestock	33	3,816,167	8	306,563	28	5,291,071	22	3,166,818	16	970,750	48	1,560,927	55	3,556,427	24	749,354	76	2,935,191
Off-farm	75	5,197,067	39	5,711,641	7	18,740,714	59	10,203,898	38	7,597,632	15	8,686,667	134	12998582.09	77	6,642,390	22	11,885,682
Non-farm	30	5,417,167	11	2,558,636	3	6,983,333	30	3,791,000	9	2,498,889	8	2,421,000	60	4604083.333	20	2,531,750	11	3,665,273
Remittances	28	4,971,429	20	5,145,000	32	6,818,438	29	12,717,241	3	5,600,000	13	5,653,846	57	8912280.702	23	5,204,348	45	6,482,000

7. Men and women: inequality versus well-being

Addressing gender issues in Indonesia is different from other countries with a high gap of inequality between men and women. As in India, women have less opportunities compared to men. In Indonesia, particularly in this study, women and men may have a bit differ opportunity, but they did not show significant inequality. Sundanese people have a bilateral system based on Islamic values with a fair and proportional division of labour. Both men and women complement each other in the household and on farms as their main source of livelihood.

Nevertheless, there were still some aspects that were less supportive and a gap or disparity in regional development still exists between men and women, especially, in certain groups. Understanding gender disparities in these groups can help clarify issues that could then be addressed in development programs.

7.1 Out-migration as an alternative source of livelihoods

Out-migration is a domestic strategy to improve economic life. Elmhirst (2008:69) in her study on transmigrants in Lampung introduced the concept of multi-locality. She explains that out-migration occurs because there is an interconnected network among the household and farmers' groups in a community both in the origin and destination areas.

While out-migration was seen as an alternative way of increasing household income, the discussions revealed that women often experienced heavier burdens because they had to migrate along with their family members.

We attempted to understand this situation from a different perspective. Mulyoutami (2014a) in the same area observed a typology of three out-migrant groups: 1) land managers; 2) off-farm migrants with capital (running businesses); and 3) off-farm migrants without capital (usually working as labourers for out-migrants running their own businesses).

Out-migrant groups with their own businesses had more capital and were in the middle-to-high socio-economic status group whereas the out-migrant farm workers' group fell into the low-to-middle category.

In order to understand the gender-related changes and differences in the out-migrant community, we need to examine all three typologies.

Fauziyah et al (2015) conducted a study that paralleled this study. The results indicated that, in general, men mostly made the decisions about a variety of farm and land-based activities; women made decisions related to the fulfillment of domestic needs (Fauziyah et al 2015). Mulyoutami (2012) reported similar results from other parts of Sulawesi. The differences in decision-making are in line

with the work division pattern, which we see as quite proportional. Work related to coffee plantations and mixed farm plots was mostly men's responsibility even though women also contributed. Migrant family decision-making patterns may differ depending on their out-migration model. To understand more about the differences in gender roles in migrant families, the discussion will examine two groups: land-manager migrants and off-farm migrants.

7.1.1 Out-migrant families in the agricultural sector

The role divisions were quite proportional in out-migrant families who managed coffee plantations or agricultural land in other places. Migration was undertaken seasonally and provides a clear picture of the division of work. Women out-migrated only during harvest times; they did not need to participate in taking care of the land or crops. Women and men together harvested coffee cherries, peeled the skins and dried them. If they did not migrate, women were fully responsible for managing the family and other domestic activities. Most of them worked in the fields and others would sell food and goods in the markets.

Proportional work division was also found in the work space division of women and men. Because women were still responsible for domestic activities, they preferred workplaces that were not far from their homes and were easy to access. Thus, women were responsible in managing productive work proportionally.

In out-migrant families, making agricultural decisions was solely the responsibility of men. Women could make decisions on certain occasions, when necessary. Seasonal out-migration caused delays in land management until the men returned to their village of origin.

7.1.2 Out-migrant families who do business in town

This migrant group was generally intensive in capital. They had more resources compared to others. They usually owned larger expanses of land, which was directly managed by the family or other relatives who lived in the village. This group's family members usually out-migrated and the type of their migration was permanent. Gender relations remained the same before and after migration.

7.1.3 Seasonal or temporary out-migrant families

This type of family was usually a new household or from a lower economic status. Off-farm work was needed to generate more income. Most usually managed a community farm plot. Work division was less proportional. Women who did not out-migrate had greater responsibility in managing their own farms. Although the majority of men still made decisions about agriculture, women were responsible for management. Women were also responsible for domestic activities while also devoting their attention to their farms. If they could not do the farm work themselves, they would obtain outside assistance by hiring farm workers.

The burden women have to bear becomes increasingly heavy with household division that is no longer proportional and when their income from the farm is still owned under the man's name despite the working hours spent by the women. This indicates less regard paid to women's circumstances despite their contribution.

The work division showed a disproportion that was neither preferred nor inevitable. One thing that could reduce this disproportion was if the community and women themselves would better appreciate their contribution to generating income. Thus, as mentioned by Colfer et al (2014), a strong gender understanding in the community and good cooperation between genders can be the basis of recognition. Increasing appreciation of women's contributions as farmers would further narrow gender disparity.

7.2 Land as a symbol of welfare (well-being)

Land is one of the most important factors that can measure the quality of life in an agricultural community. Out-migrant groups continued to perceive land as a symbol of well-being, although it was not regarded as highly as in the non-migrant, land-owning group. The community dependence on land as well as an 'urban' lifestyle has shifted understanding of their need for land. However, there were a few out-migrant groups who accumulated capital and bought land that will be managed by their families in their villages.

The importance of ensuring women have the right to land ownership has been emphasized in various parts of the world (Agarwal 1995, Rocheleau and Edmunds 1997, Kiptot 2012, Mulyoutami 2012). In the Sundanese community in West Java, for example, Mugniesyah (2007) found that the percentage of land owned by women was more than that of men. The fact that fewer numbers of female names appear on legal land ownership documents shows that awareness of gender equality is still lacking.

In various individual interviews for this study, it was found that ownership under a woman's name is recognized but not explicitly. If a family buys land, they prefer to use the man's name. The main consideration is that the man is the head of the family, along with a variety of other administrative reasons, such as it being easier for credit management. This indicates that a broader awareness is needed in various aspects of life that women have the same right as men to be landowners.

Low awareness and unclear landownership status made the situation worse. The majority of landowners (70%) only possessed a tax certificate and not a land-ownership certificate. There were still a lot of people who did not manage their land because there was an uncertainty over the legal status and/or they did not really care.

7.3 Invisible or inrecognized contributions of women to household income?

Women make considerable contributions to household management. However, this contribution is still not often taken into account. More importantly, women's contributions to farming are also not sufficiently appreciated. This issue was emphasized by Kiptot (2012), in a study of women's participation in agroforestry in Africa, and by Mulyoutami (2012) regarding Sulawesi. Lack of women's contributions to household income (shown in the BPS data) generates low GDI and GEI scores, indicating less appreciation of women's roles. By contrast, the field data shows that women contribute to household income, especially, from their coffee plantations and mixed cardamom and timber plots.

At the community level, their contribution also appears not to have been taken into account. Both women and men were more comfortable mentioning that income from coffee plantations and mixed farm plots were from men rather than shared. The study highlighted that women contributed up to 40% in generating income from the two land types, which should be recognized. Women were seen as supporters, a reason why their contributions have not been taken into account even though they are essential for improving farm productivity.

7.4 Who is more prosperous?

Quality of life is slightly different from welfare (well-being). Determinants of quality of life and well-being are often considered interchangeable. So it is not easy to determine who is more prosperous. Satisfaction, happiness and optimism in response to situations do not directly indicate whether someone is more prosperous or has a higher quality of life but they can show how people judge their lives, whether they view their lives positively or negatively, and whether they have any targets for creating a better household economy.

From the study, it appears that women tend to be less positive when picturing their future and how they accept their way of life while men seem to be more judgmental and want to change their situation. Women often see something in more short-term views; as long as they have their current needs met they are satisfied and think more positively about their lives. Men have to support their wives and children and, thus, think more of the future. These different point of views affect the strategies for facing life's problems in both men and women, and they complement each other.

In almost every group discussion, it was found that women were seen as not prosperous because they did not own as much land and effects as their male counterparts. This was because land ownership and assets were recorded more frequently under the man's name; it could seem that women did not own anything. The expression 'shared income' was often used in discussions to refer to income that was actually shared by both men and women.

Researcher: When we look at land ownership, how many women are categorized as having low, medium and high welfare status?

Discussant: How can we address that? Because both men and women own the land together.... ours is shared, right?

Researcher: If it is seen to belong to both parties then how about a woman who does not have a husband or family, for example, a widow? How many of such women can we categorize as having low, medium and high welfare in terms of owning land?

Discussant: Oooh... then it means their welfare must be low... because there are so many poor widows.

Some women stated that their income was low. The data used to analyze human and gender development indicators showed little contribution of women to household income. Their contribution to agricultural activities was calculated as the woman's income only, which usually came from sale of crops, low-value farming sector, or 'shared' (from coffee, cloves, and other commodity crops). Totalled, it showed that women's contributions to agricultural activities can reach approximately 51%, slightly higher from the men.

Women, subjectively, did not seem to be prosperous but that was more because of the subjective perspectives of the community in understanding the concept of well-being and quality of life. When we see women and men as two separate entities and count women's active and passive contributions, we will see that women and men are almost equal.

The interview extract above demonstrated that widows (female-headed household) tended to be less wealthy from the perspective of land ownership. It also indicated that widows generally were poorer than other groups because of less choice of livelihoods. The welfare condition in each household was different. From observation and discussions, it became clear that low-to-high levels of welfare were present in widows' families, families with both wife and husband but poor, and families with both wife and husband in the middle–up group. Mulyoutami et al (2015) stated that the difference in women's condition and involvement determined how they adopted knowledge and succeeded or not in a farmers' groups.

8. Men and women: knowledge and gendered spatial division

Gender space is based on the knowledge and preferences of each gender group. It is strongly influenced by socio-cultural construction. This study showed a clear gender division between men and women. Gender divisions in farming and at home were very closely related to the division of roles

and responsibilities rooted in the community. Women's responsibilities were to look after the children and manage the domestic space. Women could contribute or not to activities on their farms without burdening themselves with other obligations outside the house. In addition, women also preferred to work in areas where they were physically capable and felt safe.

Massey (2001) referred to the symbolic meaning of space and messages associated with gender, using the division of the household into private and public domains and identities to portray women and men. Meanwhile, Rotman (2006) argued that women and men have dynamic and fluid lives and, hence, the division of private and public domains is less relevant. This study found that space division outside home included the farm area and was dependent on the commodity and distance from home to work.

The homegarden is a woman's domain and is found in most parts of Indonesia. Soemarwotto and Conway (1992) explained that homegardens were found mainly in areas that adopted matrilineality and bilateral systems, such as among the Minang people of Padang, and in Aceh and West Java; with only a few are found in patrilineal North Sumatra. In the latter, homegardens are mostly found at the back of homes while the front yard is used for meetings. In Ciamis, the front yard must always be clean because it is the place where children play and all family members and their neighbours gather. The homegarden is a place for all interactions involving everybody, as well as a meeting place for guests and neighbours.

Men had a tendency to change to improve their land's productivity whereas women tended to change less productive land, such as homegardens and coconut groves. In this decision-making process, women tended to have a willingness to contribute to production systems in areas dominated by women, such as in homegardens and certain farm plots. This demonstrates the importance of homegardens for women as a place to interact directly with the environment, as well as their families.

Timber and coffee plantations and mixed farm plots were more dominated by men but they were not a prioritized land use. These land uses were not converted in only one period but gradually. Timber intercropped with commodity crops, such as coffee and cardamom, was slowly replaced with new crops. Likewise, crops which were no longer productive would be replaced with new plants in mixed farm plots.

Villamor (2014) in her study explained that women had a higher tendency to change the land than men. In West Java, we can find almost the same trend but in a different condition. What we found was similar to the finding of Trauger (2004) that women were more involved in sustaining land and less involved in fertilizer application; men tended to focus more on productive land. Some highlights in these findings are similar to Trauger's, such as men seek to increase farm production whereas women seek to manage their homegardens at a lower intensity (i.e. applying lower dosages) or non-chemical fertilizers that can be easily accessed within their fields, such as manure and compost. Moreover, men prefer to change the land to yield more with less cost. Women focus on increasing work efficiency, such as converting to shrubs that require less labour, as well as gradually planting crops in their

homegardens to increase land revenue. Women have a tendency to replace unproductive coconut groves to plant new crops. In brief, women also focused more on short-term solutions and men more on the long term. Although the nearby home area is dominated by women and farther from home area is dominated by men, the principles are still bilateral, which means that women and men are equal. Men and women have an equal position when considering buying, selling and converting land. Land conversion and sales cannot be done without the woman's consent. This study has divergent interpretation with Villamor (2014) finding that women's participation in decisions will often lead to land conversion. To include women in decision-making is important and can help strengthen their access to, and understanding of, land use. Communication patterns in a family are important in creating a basic understanding of gender divisions regarding land.

9. Way forward

Overall, the study has shown that women and men in the researched villages had bilateral relationships albeit with a tendency more to the patriarchal side. Women and men's relationships in the communities were close to equal but there were some conditions that needed to be considered, as follows.

1. Woman's rights need to be strengthened. There should be increased understanding on both sides that women should also have a legal role in land ownership to prevent any misunderstanding. The higher value of male inheritance compared to female can also be seen as a disservice to women.
2. Better rewards should be given for women's active and passive contributions to households. Both women and men can create strategies to develop their overall livelihoods and this can help women to see how their contributions can realize the desired development.
3. Men and women have different perspectives, knowledge and strategies in solving problems but they are indeed complementing each other. There has to be a development effort from both parties to generate the right results. Instead of creating a development design to make women become more active in uncomfortable areas, it is better if the development program includes expanding their knowledge, perceptions and strategies.

Reference

[BPS] Biro Pusat Statistik. 2015a. Panjalu dalam Angka. Statistics Bureau Ciamis.

[BPS] Biro Pusat Statistik. 2015b. Rajadesa dalam Angka. Statistics Bureau Ciamis.

[BPS] Biro Pusat Statistik and Kementrian Pemberdayaan Perempuan dan Perlindungan Anak. 2012. *Pembangunan manusia berbasis gender tahun 2005–2011*. Gender-based human development, 2005–2011. Jakarta, Indonesia: Biro Pusat Statistik and Kementrian Pemberdayaan Perempuan dan Perlindungan Anak.

Abustam MI. 1989. *Gerak Penduduk: pembangunan dan perubahan sosial. Kasus tiga komunitas padi sawah di Sulawesi Selatan*. Population in motion: development and social change. The case of three wetland rice communities in South Sulawesi. Jakarta, Indonesia: Penerbit Universitas Indonesia.

Agarwal B. 1995. *A field of one's own: gender and property in South Asia*. Cambridge: Cambridge University Press.

Alkire S, Sarwar M. 2009. *Multidimensional measures of poverty and well being*. Working Paper for European Commission. Brussels: European Commission; Oxford, UK: Oxford Poverty and Human Development Initiative, University of Oxford. http://ec.europa.eu/regional_policy/archive/policy/future/pdf/7_alkire_final_formatted.pdf.

Berenger V, Verdier-Chouchane A. 2007. Multidimensional measures of well-being: standard of living and quality of life across countries. *World Development* 35(7):1259–1276.

Colfer CJP, Achdiawan R, Adnan H, Moeliono M, Mulyana A, Mulyoutami E, Roshetko JM, Yuliani L, Balang, LEPMIL. 2014. Preparing the ground for better landscape governance: gendered realities in southern Sulawesi. *Forests, Trees and Livelihoods* 24(1):59–83. DOI: 10.1080/14728028.2014.951002

Costanza R, Fisher B, Ali S, Beer C, Bond L, Boumans R, Danigelis NL, Dickinson J, Elliot C, Farley J, Gayer DE, Glenn LM, Hudspeth T, Mahoney D, McCahill L, McIntosh B, Reed B, Rizvi AT, Rizzo DM, Simpatico T, Snapp, R. 2007. Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological economics* 61(2):267–276.

De Haas H. 2008. *Migration and development: a theoretical perspective*. Working Paper 9. Oxford, UK: International Migration Institute.

De Royer S, Pradhan U, Fauziyah E, Widyaningsih TS. 2014. *Community Based Forest Management (PHBM): Who is benefiting? CBFM, coffee and migration patterns in Ciamis Regency, West Java, Indonesia*. Brief 44. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

Dharmawan AH. 2006. *Pendekatan-pendekatan pembangunan pedesaan dan pertanian: klasik dan kontemporer*. Rural and agricultural development approaches: classical and contemporary. Presentation at Appreciation of Regional Agricultural Development Planning, Bogor, Indonesia, 19-25 November 2006.

Ekadjati ES. 2008. *Pancakaki, asal usul dan maknanya*. Pancakaki, its origin and meaning. http://indoculture.wordpress.com/2008/03/19/pancakaki-asal-usul-dan-maknanya/.

Ellis F. 2003. *A livelihoods approach to migration and poverty reduction*. London, UK: Department for International Development.

Elmhirst R. 2008. Multi-local livelihoods, natural resource management and gender in upland indonesia. In: Ressureccion BP, Elmhirst R. *Gender, environment and natural resource management: new dimensions, new debates*. London: Earthscan. pp 67–86.

Fauziyah E, Widyaningsih TS, Mulyoutami E, Awalina D, Lusiana B. 2014. *Dinamika penelitian gender di hutan rakyat: pengalaman penerapan metode di Kecamatan Panjalu, Ciamis, Jawa Barat*. Dynamics of gender research in people's forests: experience of applying methods in Panjalu Sub-district, Ciamis, West Java. Presentation at National Agroforestry Seminar, Ambon, November 2014. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

Fauziyah E, Widyaningsih TS, Mulyoutami E, Awalina D, Lusiana B. 2016. *Dinamika Pengambilan Keputusan pada Komunitas Perantau dan Pengelola Kebun di Jawa Barat*. Working Paper no. 246. Bogor, Indonesia. World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. 45p. DOI: http://dx.doi.org/10.5716/WP16162.PDF

Gartaula HN, Visser L, Niehof A. 2011. Socio-cultural dispositions and well-being of the women left behind: a case of migrant households in Nepal. *Social Indicators Research*. http://link.springer.com/article/10.1007/s1120501198839/fulltext.html.

Heeren HJ. 1979. *Transmigrasi di Indonesia*. Transmigration in Indonesia. Jakarta, Indonesia: PT Gramedia.

Iaquinta DL, Drescher AW. 2000. Defining the peri-urban: rural-urban linkages and institutional connection. In: Groppo P. *Land reform: land settlement and cooperatives.* Rome, Italy: Economic and Social Development Department, Food and Agriculture Organization of the United Nations. http://www.fao.org/docrep/003/x8050t/x8050t02.htm.

Indrawardana I. 2011. *Sunda Wiwitan dalam dinamika zaman*. Sundanese Wiwitan in dynamic times. International Conference on Sunda Culture II: the Revitalization of Sundanese Culture: Opportunities and Challenges in the Global World, 19–22 December 2011. http://xa.yimg.com/kq/groups/2636369/1184717381/name/KIBS_ira_indrawardana.pdf

Janudianto, Dewi S, Martini E, Setiawan A. 2014. Understanding gender perspectives in selecting tree species and farming systems using analytic hierarchy process. In: Catacutan D, McGaw E, Llanza M, eds. *In equal measure: a user guide to gender analysis in agroforestry*. Los Baños, Philippines: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. pp 59–66.

Kiptot E, Franzel S. 2012. Gender and agroforestry in Africa: who benefits? The African perspective. In: Nair PKR, Garrity D, eds. *Agroforestry: the future of global land use.* Rotterdam: Springer. pp 463-496.

Krishna S. 2004. *Livelihood and gender: equity in community resource management*. Delhi, India: SAGE Publications.

Kusworo A. 2014. *Pursuing livelihoods, imagining development: smallholders in Highland Lampung, Indonesia*. Canberra, Australia: ANU Press.

Martini E, Tarigan J, Purnomosidi P, Prahmono A, Surgana M, Setiawan A, Megawati, Mulyoutami E, Meldy BD, Syamsidar, Talui R, Janudianto, Suyanto S, Roshetko JM. 2012. *Agroforestry extension needs at the community level in AgFor project sites in South and Southeast Sulawesi, Indonesia*. ICRAF Working Paper 159. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

Massey D. 2001. *Space, place and gender*. Minneapolis, USA: Minnesota University Press.

Minahan JB. 2012. *Ethnic groups of South Asia and the Pacific: an encyclopedia*. Santa Barbara, USA: ABC-CLIO.

Mugniesyah SSM, Muzuno K. 2007. Access to land in Sundanese community: a case study of upland peasant households in Kemang village, West Java, Indonesia. *Southeast Asian Studies* 44(4):519–544.

Mulyoutami E, Fauziyah E, Widyaningsih TS, Awalina D, Lusiana B. 2014a. *Perantau dan pengelola kebun sebuah kajian migrasi di Kabupaten Ciamis, Jawa Barat.* Migrants and plantation managers: a study of migration in Ciamis District, West Java. Presentation at National Agroforestry Seminar, Ambon, November 2014. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

Mulyoutami E, Khususiyah N, Martini E, Suyanto S. 2014b. Gender-specific assessment of natural resources using the pebble game. In: Catacutan D, McGaw E, Llanza M, eds. *In equal measure: a user guide to gender analysis in agroforestry*. Los Baños, Philippines: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. pp 29–34.

Mulyoutami E, Martini E, Khususiyah N, Isnurdiyansyah, Suyanto. 2012. *Gender, livelihood and land in South and Southeast Sulawesi*. ICRAF Working Paper no 158. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.

Mulyoutami E, Roshetko JM, Martini E, Awalina D, Janudianto. 2015. Gender roles and knowledge in plant species selection and domestication: a case study in South and Southeast Sulawesi. *International Forestry Review* 17 S4):99–111.

Mulyoutami E. 2014c. *Jaringan dan keputusan migrasi untuk penguasaan lahan. Kajian komunitas petani coklat migran Bugis di Sulawesi Tenggara. Network and migration decisions for land tenure. Study of the Bugis migrant farmers' cocoa community in Southeast Sulawesi*. Thesis. Bogor, Indonesia: Institut Pertanian Bogor.

Padjaitan NK. 1990. *Gerak penduduk wanita pedesaan pada komunitas pertanian lahan kering (casus sebuah dusun di Desa Purwaraja, Kecamatan Rajadesa, Kabupaten Ciamis, Jawa Barat). The movement of rural female population in dry farming community (case of a hamlet in Purwaraja Village, Rajadesa Sub-district, Ciamis District, West Java)*. Thesis. Bogor, Indonesia: Institut Pertanian Bogor.

Rocheleau D, Edmunds D. 1997. Women, men and trees: gender, power and property in forest and agrarian landscapes. *World Development*25(8):1351–1371.

Rotman D. 2006. Separate spheres? *Current Anthropology* 47(4):666–674.

Soemarwoto O, Conway GR. 1992. The Javanese homegarden. *Journal for Farming Systems Research-Extension* 2(3):95–118. http://www.ciesin.org/docs/004-194/004-194.html.

Sumarti TMC. 1999. *Persepsi kesejahteraan dan tindakan kolektif orang Jawa dalam kaitannya dengan gerakan masyarakat dalam pembangunan keluarga sejahtera di pedesaan. Perceptions of welfare and collective action of the Javanese in relation to community movement for the development of prosperous rural families*. Thesis. Bogor, Indonesia: Institut Pertanian Bogor.

Trauger A. 2004. 'Because they can do the work': women farmers in sustainable agriculture in Pennsylvania, USA. *Gender, Place & Culture* 11(2):289–307.

Villamor GB, Desrianti F, Akiefnawati R, Amaruzaman S, van Noordwijk M. 2014. Gender influences decisions to change land use practices in the tropical forest margins of Jambi, Indonesia. *Mitigation and Adaptation Strategies for Global Change* 19(6):733–755.

Zelinsky W. 1971. The hypothesis of mobility transition. *Geographical Review* 61(2):219–249.

WORKING PAPERS WITH DOIs

2005

1. Agroforestry in the drylands of eastern Africa: a call to action
2. Biodiversity conservation through agroforestry: managing tree species diversity within a network of community-based, nongovernmental, governmental and research organizations in western Kenya.
3. Invasion of *prosopis juliflora* and local livelihoods: Case study from the Lake Baringo area of Kenya
4. Leadership for change in farmers organizations: Training report: Ridar Hotel, Kampala, 29th March to 2nd April 2005.
5. Domestication des espèces agroforestières au Sahel : situation actuelle et perspectives
6. Relevé des données de biodiversité ligneuse: Manuel du projet biodiversité des parcs agroforestiers au Sahel
7. Improved land management in the Lake Victoria Basin: TransVic Project's draft report.
8. Livelihood capital, strategies and outcomes in the Taita hills of Kenya
9. Les espèces ligneuses et leurs usages: Les préférences des paysans dans le Cercle de Ségou, au Mali
10. La biodiversité des espèces ligneuses: Diversité arborée et unités de gestion du terroir dans le Cercle de Ségou, au Mali

2006

11. Bird diversity and land use on the slopes of Mt. Kilimanjaro and the adjacent plains, Tanzania
12. Water, women and local social organization in the Western Kenya Highlands
13. Highlights of ongoing research of the World Agroforestry Centre in Indonesia
14. Prospects of adoption of tree-based systems in a rural landscape and its likely impacts on carbon stocks and farmers' welfare: The FALLOW Model Application in Muara Sungkai, Lampung, Sumatra, in a 'Clean Development Mechanism' context
15. Equipping integrated natural resource managers for healthy Agroforestry landscapes.
17. Agro-biodiversity and CGIAR tree and forest science: approaches and examples from Sumatra.
18. Improving land management in eastern and southern Africa: A review of policies.
19. Farm and household economic study of Kecamatan Nanggung, Kabupaten Bogor, Indonesia: A socio-economic base line study of Agroforestry innovations and livelihood enhancement.
20. Lessons from eastern Africa's unsustainable charcoal business.
21. Evolution of RELMA's approaches to land management: Lessons from two decades of research and development in eastern and southern Africa
22. Participatory watershed management: Lessons from RELMA's work with farmers in eastern Africa.
23. Strengthening farmers' organizations: The experience of RELMA and ULAMP.
24. Promoting rainwater harvesting in eastern and southern Africa.
25. The role of livestock in integrated land management.
26. Status of carbon sequestration projects in Africa: Potential benefits and challenges to scaling up.

27. Social and Environmental Trade-Offs in Tree Species Selection: A Methodology for Identifying Niche Incompatibilities in Agroforestry *[Appears as AHI Working Paper no. 9]*

28. Managing tradeoffs in agroforestry: From conflict to collaboration in natural resource management. *[Appears as AHI Working Paper no. 10]*
29. Essai d'analyse de la prise en compte des systemes agroforestiers pa les legislations forestieres au Sahel: Cas du Burkina Faso, du Mali, du Niger et du Senegal.
30. Etat de la recherche agroforestière au Rwanda etude bibliographique, période 1987-2003

2007

31. Science and technological innovations for improving soil fertility and management in Africa: A report for NEPAD's Science and Technology Forum.
32. Compensation and rewards for environmental services.
33. Latin American regional workshop report compensation.
34. Asia regional workshop on compensation ecosystem services.
35. Report of African regional workshop on compensation ecosystem services.
36. Exploring the inter-linkages among and between compensation and rewards for ecosystem services CRES and human well-being
37. Criteria and indicators for environmental service compensation and reward mechanisms: realistic, voluntary, conditional and pro-poor
38. The conditions for effective mechanisms of compensation and rewards for environmental services.
39. Organization and governance for fostering Pro-Poor Compensation for Environmental Services.
40. How important are different types of compensation and reward mechanisms shaping poverty and ecosystem services across Africa, Asia & Latin America over the Next two decades?
41. Risk mitigation in contract farming: The case of poultry, cotton, woodfuel and cereals in East Africa.
42. The RELMA savings and credit experiences: Sowing the seed of sustainability
43. Yatich J., Policy and institutional context for NRM in Kenya: Challenges and opportunities for Landcare.
44. Nina-Nina Adoung Nasional di So! Field test of rapid land tenure assessment (RATA) in the Batang Toru Watershed, North Sumatera.
45. Is Hutan Tanaman Rakyat a new paradigm in community based tree planting in Indonesia?
46. Socio-Economic aspects of brackish water aquaculture (*Tambak*) production in Nanggroe Aceh Darrusalam.
47. Farmer livelihoods in the humid forest and moist savannah zones of Cameroon.
48. Domestication, genre et vulnérabilité : Participation des femmes, des Jeunes et des catégories les plus pauvres à la domestication des arbres agroforestiers au Cameroun.
49. Land tenure and management in the districts around Mt Elgon: An assessment presented to the Mt Elgon ecosystem conservation programme.
50. The production and marketing of leaf meal from fodder shrubs in Tanga, Tanzania: A pro-poor enterprise for improving livestock productivity.
51. Buyers Perspective on Environmental Services (ES) and Commoditization as an approach to liberate ES markets in the Philippines.

52. Towards Towards community-driven conservation in southwest China: Reconciling state and local perceptions.
53. Biofuels in China: An Analysis of the Opportunities and Challenges of Jatropha curcas in Southwest China.
54. Jatropha curcas biodiesel production in Kenya: Economics and potential value chain development for smallholder farmers
55. Livelihoods and Forest Resources in Aceh and Nias for a Sustainable Forest Resource Management and Economic Progress
56. Agroforestry on the interface of Orangutan Conservation and Sustainable Livelihoods in Batang Toru, North Sumatra.

2008

57. Assessing Hydrological Situation of Kapuas Hulu Basin, Kapuas Hulu Regency, West Kalimantan.
58. Assessing the Hydrological Situation of Talau Watershed, Belu Regency, East Nusa Tenggara.
59. Kajian Kondisi Hidrologis DAS Talau, Kabupaten Belu, Nusa Tenggara Timur.
60. Kajian Kondisi Hidrologis DAS Kapuas Hulu, Kabupaten Kapuas Hulu, Kalimantan Barat.
61. Lessons learned from community capacity building activities to support agroforest as sustainable economic alternatives in Batang Toru orang utan habitat conservation program (Martini, Endri et al.)
62. Mainstreaming Climate Change in the Philippines.
63. A Conjoint Analysis of Farmer Preferences for Community Forestry Contracts in the Sumber Jaya Watershed, Indonesia.
64. The highlands: a shared water tower in a changing climate and changing Asia
65. Eco-Certification: Can It Deliver Conservation and Development in the Tropics.
66. Designing ecological and biodiversity sampling strategies. Towards mainstreaming climate change in grassland management.
67. Towards mainstreaming climate change in grassland management policies and practices on the Tibetan Plateau
68. An Assessment of the Potential for Carbon Finance in Rangelands
69 ECA Trade-offs Among Ecosystem Services in the Lake Victoria Basin.
69. The last remnants of mega biodiversity in West Java and Banten: an in-depth exploration of RaTA (Rapid Land Tenure Assessment) in Mount Halimun-Salak National Park Indonesia
70. Le business plan d'une petite entreprise rurale de production et de commercialisation des plants des arbres locaux. Cas de quatre pépinières rurales au Cameroun.
71. Les unités de transformation des produits forestiers non ligneux alimentaires au Cameroun. Diagnostic technique et stratégie de développement Honoré Tabuna et Ingratia Kayitavu.
72. Les exportateurs camerounais de safou (Dacryodes edulis) sur le marché sous régional et international. Profil, fonctionnement et stratégies de développement.
73. Impact of the Southeast Asian Network for Agroforestry Education (SEANAFE) on agroforestry education capacity.
74. Setting landscape conservation targets and promoting them through compatible land use in the Philippines.
75. Review of methods for researching multistrata systems.

76. Study on economical viability of *Jatropha curcas* L. plantations in Northern Tanzania assessing farmers' prospects via cost-benefit analysis
77. Cooperation in Agroforestry between Ministry of Forestry of Indonesia and International Center for Research in Agroforestry
78. "China's bioenergy future. an analysis through the Lens if Yunnan Province
79. Land tenure and agricultural productivity in Africa: A comparative analysis of the economics literature and recent policy strategies and reforms
80. Boundary organizations, objects and agents: linking knowledge with action in Agroforestry watersheds
81. Reducing emissions from deforestation and forest degradation (REDD) in Indonesia: options and challenges for fair and efficient payment distribution mechanisms

2009

82. Mainstreaming climate change into agricultural education: challenges and perspectives
83. Challenging conventional mindsets and disconnects in conservation: the emerging role of eco-agriculture in Kenya's landscape mosaics
84. Lesson learned RATA garut dan bengkunat: suatu upaya membedah kebijakan pelepasan kawasan hutan dan redistribusi tanah bekas kawasan hutan
85. The emergence of forest land redistribution in Indonesia
86. Commercial opportunities for fruit in Malawi
87. Status of fruit production processing and marketing in Malawi
88. Fraud in tree science
89. Trees on farm: analysis of global extent and geographical patterns of agroforestry
90. The springs of Nyando: water, social organization and livelihoods in Western Kenya
91. Building capacity toward region-wide curriculum and teaching materials development in agroforestry education in Southeast Asia
92. Overview of biomass energy technology in rural Yunnan (Chinese – English abstract)
93. A pro-growth pathway for reducing net GHG emissions in China
94. Analysis of local livelihoods from past to present in the central Kalimantan Ex-Mega Rice Project area
95. Constraints and options to enhancing production of high quality feeds in dairy production in Kenya, Uganda and Rwanda

2010

96. Agroforestry education in the Philippines: status report from the Southeast Asian Network for Agroforestry Education (SEANAFE)
97. Economic viability of Jatropha curcas L. plantations in Northern Tanzania- assessing farmers' prospects via cost-benefit analysis.
98. Hot spot of emission and confusion: land tenure insecurity, contested policies and competing claims in the central Kalimantan Ex-Mega Rice Project area
99. Agroforestry competences and human resources needs in the Philippines
100. CES/COS/CIS paradigms for compensation and rewards to enhance environmental Services

101. Case study approach to region-wide curriculum and teaching materials development in agroforestry education in Southeast Asia
102. Stewardship agreement to reduce emissions from deforestation and degradation (REDD): Lubuk Beringin's Hutan Desa as the first village forest in Indonesia
103. Landscape dynamics over time and space from ecological perspective
104. Komoditisasi atau koinvestasi jasa lingkungan: skema imbal jasa lingkungan program peduli sungai di DAS Way Besai, Lampung, Indonesia
105. Improving smallholders' rubber quality in Lubuk Beringin, Bungo district, Jambi province, Indonesia: an initial analysis of the financial and social benefits
106. Rapid Carbon Stock Appraisal (RACSA) in Kalahan, Nueva Vizcaya, Philippines
107. Tree domestication by ICRAF and partners in the Peruvian Amazon: lessons learned and future prospects in the domain of the Amazon Initiative eco-regional program
108. Memorias del Taller Nacional: "Iniciativas para Reducir la Deforestación en la region Andino - Amazónica", 09 de Abril del 2010. Proyecto REALU Peru
109. Percepciones sobre la Equidad y Eficiencia en la cadena de valor de REDD en Perú –Reporte de Talleres en Ucayali, San Martín y Loreto, 2009. Proyecto REALU-Perú.
110. Reducción de emisiones de todos los Usos del Suelo. Reporte del Proyecto REALU Perú Fase 1
111. Programa Alternativas a la Tumba-y-Quema (ASB) en el Perú. Informe Resumen y Síntesis de la Fase II. 2da. versión revisada
112. Estudio de las cadenas de abastecimiento de germoplasma forestal en la amazonía Boliviana
113. Biodiesel in the Amazon
114. Estudio de mercado de semillas forestales en la amazonía Colombiana
115. Estudio de las cadenas de abastecimiento de germoplasma forestal en Ecuador http://dx.doi.org10.5716/WP10340.PDF
116. How can systems thinking, social capital and social network analysis help programs achieve impact at scale?
117. Energy policies, forests and local communities in the Ucayali Region, Peruvian Amazon
118. NTFPs as a Source of Livelihood Diversification for Local Communities in the Batang Toru Orangutan Conservation Program
119. Studi Biodiversitas: Apakah agroforestry mampu mengkonservasi keanekaragaman hayati di DAS Konto?
120. Estimasi Karbon Tersimpan di Lahan-lahan Pertanian di DAS Konto, Jawa Timur
121. Implementasi Kaji Cepat Hidrologi (RHA) di Hulu DAS Brantas, Jawa Timur. http://dx.doi.org/10.5716/WP10338.PDF
122. Kaji Cepat Hidrologi di Daerah Aliran Sungai Krueng Peusangan, NAD,Sumatra http://dx.doi.org/10.5716/WP10337.PDF
123. A Study of Rapid Hydrological Appraisal in the Krueng Peusangan Watershed, NAD, Sumatra. http://dx.doi.org/10.5716/WP10339.PDF

2011

124. An Assessment of farm timber value chains in Mt Kenya area, Kenya
125. A Comparative financial analysis of current land use systems and implications for the adoption of improved agroforestry in the East Usambaras, Tanzania
126. Agricultural monitoring and evaluation systems

127. Challenges and opportunities for collaborative landscape governance in the East Usambara Mountains, Tanzania
128. Transforming Knowledge to Enhance Integrated Natural Resource Management Research, Development and Advocacy in the Highlands of Eastern Africa http://dx.doi.org/10.5716/WP11084.PDF
129. Carbon-forestry projects in the Philippines: potential and challenges The Mt Kitanglad Range forest-carbon development http://dx.doi.org10.5716/WP11054.PDF
130. Carbon forestry projects in the Philippines: potential and challenges. The Arakan Forest Corridor forest-carbon project. http://dx.doi.org10.5716/WP11055.PDF
131. Carbon-forestry projects in the Philippines: potential and challenges. The Laguna Lake Development Authority's forest-carbon development project. http://dx.doi.org/10.5716/WP11056.PDF
132. Carbon-forestry projects in the Philippines: potential and challenges. The Quirino forest-carbon development project in Sierra Madre Biodiversity Corridor http://dx.doi.org10.5716/WP11057.PDF
133. Carbon-forestry projects in the Philippines: potential and challenges. The Ikalahan Ancestral Domain forest-carbon development http://dx.doi.org10.5716/WP11058.PDF
134. The Importance of Local Traditional Institutions in the Management of Natural Resources in the Highlands of Eastern Africa. http://dx.doi.org/10.5716/WP11085.PDF
135. Socio-economic assessment of irrigation pilot projects in Rwanda. http://dx.doi.org/10.5716/WP11086.PDF
136. Performance of three rambutan varieties *(Nephelium lappaceum* L.*)* on various nursery media. http://dx.doi.org/10.5716/WP11232.PDF
137. Climate change adaptation and social protection in agroforestry systems: enhancing adaptive capacity and minimizing risk of drought in Zambia and Honduras http://dx.doi.org/10.5716/WP11269.PDF
138. Does value chain development contribute to rural poverty reduction? Evidence of asset building by smallholder coffee producers in Nicaragua http://dx.doi.org/10.5716/WP11271.PDF
139. Potential for biofuel feedstock in Kenya. http://dx.doi.org/10.5716/WP11272.PDF
140. Impact of fertilizer trees on maize production and food security in six districts of Malawi. http://dx.doi.org/10.5716/WP11281.PDF

2012

141. Fortalecimiento de capacidades para la gestión del Santuario Nacional Pampa Hermosa: Construyendo las bases para un manejo adaptativo para el desarrollo local. Memorias del Proyecto. http://dx.doi.org/10.5716/WP12005.PDF
142. Understanding rural institutional strengthening: A cross-level policy and institutional framework for sustainable development in Kenya http://dx.doi.org/10.5716/WP12012.PDF
143. Climate change vulnerability of agroforestry http://dx.doi.org/10.5716/WP16722.PDF
144. Rapid assesment of the inner Niger delta of Mali http://dx.doi.org/10.5716/WP12021.PDF
145. Designing an incentive program to reduce on-farm deforestationin the East Usambara Mountains, Tanzania http://dx.doi.org/10.5716/WP12048.PDF
146. Extent of adoption of conservation agriculture and agroforestry in Africa: the case of Tanzania, Kenya, Ghana, and Zambia http://dx.doi.org/10.5716/WP12049.PDF

147. Policy incentives for scaling up conservation agriculture with trees in Africa: the case of Tanzania, Kenya, Ghana and Zambia http://dx.doi.org/10.5716/WP12050.PDF
148. Commoditized or co-invested environmental services? Rewards for environmental services scheme: River Care program Way Besai watershed, Lampung, Indonesia. http://dx.doi.org/10.5716/WP12051.PDF
149. Assessment of the headwaters of the Blue Nile in Ethiopia. http://dx.doi.org/10.5716/WP12160.PDF
150. Assessment of the uThukela Watershed, Kwazaulu. http://dx.doi.org/10.5716/WP12161.PDF
151. Assessment of the Oum Zessar Watershed of Tunisia. http://dx.doi.org/10.5716/WP12162.PDF
152. Assessment of the Ruwenzori Mountains in Uganda. http://dx.doi.org/10.5716/WP12163.PDF
153. History of agroforestry research and development in Viet Nam. Analysis of research opportunities and gaps. http://dx.doi.org/10.5716/WP12052.PDF
154. REDD+ in Indonesia: a Historical Perspective. http://dx.doi.org/10.5716/WP12053.PDF
155. Agroforestry and Forestry in Sulawesi series: Livelihood strategies and land use system dynamics in South Sulawesi http://dx.doi.org/10.5716/WP12054.PDF
156. Agroforestry and Forestry in Sulawesi series: Livelihood strategies and land use system dynamics in Southeast Sulawesi. http://dx.doi.org/10.5716/WP12055.PDF
157. Agroforestry and Forestry in Sulawesi series: Profitability and land-use systems in South and Southeast Sulawesi. http://dx.doi.org/10.5716/WP12056.PDF
158. Agroforestry and Forestry in Sulawesi series: Gender, livelihoods and land in South and Southeast Sulawesi http://dx.doi.org/10.5716/WP12057.PDF
159. Agroforestry and Forestry in Sulawesi series: Agroforestry extension needs at the community level in AgFor project sites in South and Southeast Sulawesi, Indonesia. http://dx.doi.org/10.5716/WP12058.PDF
160. Agroforestry and Forestry in Sulawesi series: Rapid market appraisal of agricultural, plantation and forestry commodities in South and Southeast Sulawesi. http://dx.doi.org/10.5716/WP12059.PDF

2013

161. Diagnosis of farming systems in the Agroforestry for Livelihoods of Smallholder farmers in Northwestern Viet Nam project http://dx.doi.org/10.5716/WP13033.PDF
162. Ecosystem vulnerability to climate change: a literature review. http://dx.doi.org/10.5716/WP13034.PDF
163. Local capacity for implementing payments for environmental services schemes: lessons from the RUPES project in northeastern Viet Nam http://dx.doi.org/10.5716/WP13046.PDF
164. Seri Agroforestri dan Kehutanan di Sulawesi: Agroforestry dan Kehutanan di Sulawesi: Strategi mata pencaharian dan dinamika sistem penggunaan lahan di Sulawesi Selatan http://dx.doi.org/10.5716/WP13040.PDF
165. Seri Agroforestri dan Kehutanan di Sulawesi: Mata pencaharian dan dinamika sistem penggunaan lahan di Sulawesi Tenggara http://dx.doi.org/10.5716/WP13041.PDF
166. Seri Agroforestri dan Kehutanan di Sulawesi: Profitabilitas sistem penggunaan lahan di Sulawesi Selatan dan Sulawesi Tenggara http://dx.doi.org/10.5716/WP13042.PDF
167. Seri Agroforestri dan Kehutanan di Sulawesi: Gender, mata pencarian dan lahan di Sulawesi Selatan dan Sulawesi Tenggara http://dx.doi.org/10.5716/WP13043.PDF

168. Seri Agroforestri dan Kehutanan di Sulawesi: Kebutuhan penyuluhan agroforestri pada tingkat masyarakat di lokasi proyek AgFor di Sulawesi Selatan dan Tenggara, Indonesia. http://dx.doi.org/10.5716/WP13044.PDF
169. Seri Agroforestri dan Kehutanan di Sulawesi: Laporan hasil penilaian cepat untuk komoditas pertanian, perkebunan dan kehutanan di Sulawesi Selatan dan Tenggara http://dx.doi.org/10.5716/WP13045.PDF
170. Agroforestry, food and nutritional security http://dx.doi.org/10.5716/WP13054.PDF
171. Stakeholder Preferences over Rewards for Ecosystem Services: Implications for a REDD+ Benefit Distribution System in Viet Nam http://dx.doi.org/10.5716/WP13057.PDF
172. Payments for ecosystem services schemes: project-level insights on benefits for ecosystems and the rural poor http://dx.doi.org/10.5716/WP13001.PDF
173. Good practices for smallholder teak plantations: keys to success http://dx.doi.org/10.5716/WP13246.PDF
174. Market analysis of selected agroforestry products in the Vision for Change Project intervention Zone, Côte d'Ivoire http://dx.doi.org/10.5716/WP13249.PDF
175. Rattan futures in Katingan: why do smallholders abandon or keep their gardens in Indonesia's 'rattan district'? http://dx.doi.org/10.5716/WP13251.PDF
176. Management along a gradient: the case of Southeast Sulawesi's cacao production landscapes http://dx.doi.org/10.5716/WP13265.PDF

2014

177. Are trees buffering ecosystems and livelihoods in agricultural landscapes of the Lower Mekong Basin? Consequences for climate-change adaptation. http://dx.doi.org/10.5716/WP14047.PDF
178. Agroforestry, livestock, fodder production and climate change adaptation and mitigation in East Africa: issues and options. http://dx.doi.org/10.5716/WP14050.PDF
179. Trees on farms: an update and reanalysis of agroforestry's global extent and socio-ecological characteristics. http://dx.doi.org/10.5716/WP14064.PDF
180. Beyond reforestation: an assessment of Vietnam's REDD+ readiness. http://dx.doi.org/10.5716/WP14097.PDF
181. Farmer-to-farmer extension in Kenya: the perspectives of organizations using the approach. http://dx.doi.org/10.5716/WP14380.PDF
182. Farmer-to-farmer extension in Cameroon: a survey of extension organizations. http://dx.doi.org/10.5716/WP14383.PDF
183. Farmer-to-farmer extension approach in Malawi: a survey of organizations: a survey of organizations http://dx.doi.org/10.5716/WP14391.PDF
184. Seri Agroforestri dan Kehutanan di Sulawesi: Kuantifikasi jasa lingkungan air dan karbon pola agroforestri pada hutan rakyat di wilayah sungai Jeneberang
185. Options for Climate-Smart Agriculture at Kaptumo Site in Kenyahttp://dx.doi.org/10.5716/WP14394.PDF

2015

186. Agroforestry for Landscape Restoration and Livelihood Development in Central Asia http://dx.doi.org/10.5716/WP14143.PDF

187. "Projected Climate Change and Impact on Bioclimatic Conditions in the Central and South-Central Asia Region" http://dx.doi.org/10.5716/WP14144.PDF
188. Land Cover Changes, Forest Loss and Degradation in Kutai Barat, Indonesia. http://dx.doi.org/10.5716/WP14145.PDF
189. The Farmer-to-Farmer Extension Approach in Malawi: A Survey of Lead Farmers. http://dx.doi.org/10.5716/WP14152.PDF
190. Evaluating indicators of land degradation and targeting agroforestry interventions in smallholder farming systems in Ethiopia. http://dx.doi.org/10.5716/WP14252.PDF
191. Land health surveillance for identifying land constraints and targeting land management options in smallholder farming systems in Western Cameroon
192. Land health surveillance in four agroecologies in Malawi
193. Cocoa Land Health Surveillance: an evidence-based approach to sustainable management of cocoa landscapes in the Nawa region, South-West Côte d'Ivoire http://dx.doi.org/10.5716/WP14255.PDF
194. Situational analysis report: Xishuangbanna autonomous Dai Prefecture, Yunnan Province, China. http://dx.doi.org/10.5716/WP14255.PDF
195. Farmer-to-farmer extension: a survey of lead farmers in Cameroon. http://dx.doi.org/10.5716/WP15009.PDF
196. From transition fuel to viable energy source Improving sustainability in the sub-Saharan charcoal sector http://dx.doi.org/10.5716/WP15011.PDF
197. Mobilizing Hybrid Knowledge for More Effective Water Governance in the Asian Highlands http://dx.doi.org/10.5716/WP15012.PDF
198. Water Governance in the Asian Highlands http://dx.doi.org/10.5716/WP15013.PDF
199. Assessing the Effectiveness of the Volunteer Farmer Trainer Approach in Dissemination of Livestock Feed Technologies in Kenya vis-à-vis other Information Sources http://dx.doi.org/10.5716/WP15022.PDF
200. The rooted pedon in a dynamic multifunctional landscape: Soil science at the World Agroforestry Centre http://dx.doi.org/10.5716/WP15023.PDF
201. Characterising agro-ecological zones with local knowledge. Case study: Huong Khe district, Ha Tinh, Viet Nam http://dx.doi.org/10.5716/WP15050.PDF
202. Looking back to look ahead: Insight into the effectiveness and efficiency of selected advisory approaches in the dissemination of agricultural technologies indicative of Conservation Agriculture with Trees in Machakos County, Kenya. http://dx.doi.org/10.5716/WP15065.PDF
203. Pro-poor Biocarbon Projects in Eastern Africa Economic and Institutional Lessons. http://dx.doi.org/10.5716/WP15022.PDF
204. Projected climate change impacts on climatic suitability and geographical distribution of banana and coffee plantations in Nepal. http://dx.doi.org/10.5716/WP15294.PDF
205. Agroforestry and Forestry in Sulawesi series: Smallholders' coffee production and marketing in Indonesia. A case study of two villages in South Sulawesi Province. http://dx.doi.org/10.5716/WP15690.PDF
206. Mobile phone ownership and use of short message service by farmer trainers: a case study of Olkalou and Kaptumo in Kenya http://dx.doi.org/10.5716/WP15691.PDF
207. Associating multivariate climatic descriptors with cereal yields: a case study of Southern Burkina Faso http://dx.doi.org/10.5716/WP15273.PDF
208. Preferences and adoption of livestock feed practices among farmers in dairy management groups in Kenya http://dx.doi.org/10.5716/WP15675.PDF

209. Scaling up climate-smart agriculture: lessons learned from South Asia and pathways for success http://dx.doi.org/10.5716/WP15720.PDF
210. Agroforestry and Forestry in Sulawesi series: Local perceptions of forest ecosystem services and collaborative formulation of reward mechanisms in South and Southeast Sulawesi http://dx.doi.org/10.5716/WP15721.PDF
211. Potential and challenges in implementing the co-investment of ecosystem services scheme in Buol District, Indonesia. http://dx.doi.org/10.5716/WP15722.PDF
212. Tree diversity and its utilization by the local community in Buol District, Indonesia http://dx.doi.org/10.5716/WP15723.PDF
213 Vulnerability of smallholder farmers and their preferences on farming practices in Buol District, Indonesia http://dx.doi.org/10.5716/WP15724.PDF
214. Dynamics of Land Use/Cover Change and Carbon Emission in Buol District, Indonesia http://dx.doi.org/10.5716/WP15725.PDF
215. Gender perspective in smallholder farming practices in Lantapan, Phillippines. http://dx.doi.org/10.5716/WP15726.PDF
216. Vulnerability of smallholder farmers in Lantapan, Bukidnon. http://dx.doi.org/10.5716/WP15727.PDF
217. Vulnerability and adaptive capacity of smallholder farmers in Ho Ho Sub-watershed, Ha Tinh Province, Vietnam http://dx.doi.org/10.5716/WP15728.PDF
218. Local Knowledge on the role of trees to enhance livelihoods and ecosystem services in northern central Vietnam http://dx.doi.org/10.5716/WP15729.PDF
219. Land-use/cover change in Ho Ho Sub-watershed, Ha Tinh Province, Vietnam. http://dx.doi.org/10.5716/WP15730.PDF

2016

220. Agroforestry and Forestry in Sulawesi series: Evaluation of the Agroforestry Farmer Field Schools on agroforestry management in South and Southeast Sulawesi, Indonesia. http://dx.doi.org/10.5716/WP16002.PDF
221. Farmer-to-farmer extension of livestock feed technologies in Rwanda: A survey of volunteer farmer trainers and organizations. http://dx.doi.org/10.5716/WP16005.PDF
222. Projected Climate Change Impact on Hydrology, Bioclimatic Conditions, and Terrestrial Ecosystems in the Asian Highlands http://dx.doi.org/10.5716/WP16006.PDF
223. Adoption of Agroforestry and its impact on household food security among farmers in Malawi http://dx.doi.org/10.5716/WP16013.PDF
224. Agroforestry and Forestry in Sulawesi series: Information channels for disseminating innovative agroforestry practices to villages in Southern Sulawesi, Indonesia http://dx.doi.org/10.5716/WP16034.PDF
225. Agroforestry and Forestry in Sulawesi series: Unravelling rural migration networks.Land-tenure arrangements among Bugis migrant communities in Southeast Sulawesi. http://dx.doi.org/10.5716/WP16035.PDF
226. Agroforestry and Forestry in Sulawesi series: Women's participation in agroforestry: more benefit or burden? A gendered analysis of Gorontalo Province. http://dx.doi.org/10.5716/WP16036.PDF
227. Kajian Kelayakan dan Pengembangan Desain Teknis Rehabilitasi Pesisir di Sulawesi Tengah. http://dx.doi.org/10.5716/WP16037.PDF
228. Selection of son tra clones in North West Vietnam. http://dx.doi.org/10.5716/WP16038.PDF

229. Growth and fruit yield of seedlings, cuttings and grafts from selected son tra trees in Northwest Vietnam http://dx.doi.org/10.5716/WP16046.PDF
230. Gender-Focused Analysis of Poverty and Vulnerability in Yunnan, China http://dx.doi.org/10.5716/WP16071.PDF
231. Seri Agroforestri dan Kehutanan di Sulawesi: Kebutuhan Penyuluhan Agroforestri untuk Rehabilitasi Lahan di Sumba Timur, Nusa Tenggara Timur, Indonesia. http://dx.doi.org/10.5716/WP16077.PDF
232. Agroforestry and Forestry in Sulawesi series: Agroforestry extension needs for land rehabilitation in East Sumba, East Nusa Tenggara, Indonesia. http://dx.doi.org/10.5716/WP16078.PDF
233. Central hypotheses for the third agroforestry paradigm within a common definition. http://dx.doi.org/10.5716/WP16079.PDF
234. Assessing smallholder farmers' interest in shade coffee trees: The Farming Systems of Smallholder Coffee Producers in the Gisenyi Area, Rwanda: a participatory diagnostic study. http://dx.doi.org/10.5716/WP16104.PDF
235. Review of agricultural market information systems in |sub-Saharan Africa. http://dx.doi.org/10.5716/WP16110.PDF
236. Vision and road map for establishment of a protected area in Lag Badana, Lower Jubba, Somalia. http://dx.doi.org/10.5716/WP16127.PDF
237. Replicable tools and frameworks for Bio-Carbon Development in West Africa. http://dx.doi.org/10.5716/WP16138.PDF
238. Existing Conditions, Challenges and Needs in the Implementation of Forestry and Agroforestry Extension in Indonesia. http://dx.doi.org/10.5716/WP16141.PDF
239. Situasi Terkini, Tantangan dan Kebutuhan Pelaksanaan Penyuluhan Kehutanan dan Agroforestri di Indonesia. http://dx.doi.org/10.5716/WP16142.PDF
240. The national agroforestry policy of India: experiential learning in development and delivery phases. http://dx.doi.org/10.5716/WP16143.PDF
241. Agroforestry and Forestry in Sulawesi series: Livelihood strategies and land-use system dynamics in Gorontalo. http://dx.doi.org/10.5716/WP16157.PDF
242. Seri Agroforestri dan Kehutanan di Sulawesi: Strategi mata pencaharian dan dinamika sistem penggunaan lahan di Gorontalo. http://dx.doi.org/10.5716/WP16158.PDF
243. Ruang, Gender dan Kualitas Hidup Manusia: Sebuah studi Gender pada komunitas perantau dan pengelola kebun di Jawa Barat. http://dx.doi.org/10.5716/WP16159.PDF
244. Gendered Knowledge and perception in managing grassland areas in East Sumba, Indonesia. http://dx.doi.org/10.5716/WP16160.PDF
245. Pengetahuan dan persepsi masyarakat pengelola padang aavana, Sebuah Kajian Gender di Sumba Timur. http://dx.doi.org/10.5716/WP16161.PDF
246. Dinamika Pengambilan Keputusan pada komunitas perantau dan pengelola kebun di Jawa Barat. http://dx.doi.org/10.5716/WP16162.PDF
247. Gaharu (eaglewood) domestication: Biotechnology, markets and agroforestry options. http://dx.doi.org/10.5716/WP16163.PDF
248. Marine habitats of the Lamu-Kiunga coast: an assessment of biodiversity value, threats and opportunities. http://dx.doi.org/10.5716/WP16167.PDF
249. Assessment of the biodiversity in terrestrial landscapes of the Witu protected area and surroundings, Lamu County Kenya. http://dx.doi.org/10.5716/WP16172.PDF
250. An ecosystem services perspective on benefits that people derive from biodiversity of Coastal forests in Lamu County, Kenya http://dx.doi.org/10.5716/WP16173.PDF

251. Assessment of the biodiversity in terrestrial and marine landscapes of the proposed Laga Badana National Park and surrounding areas, Jubaland, Somalia. http://dx.doi.org/10.5716/WP16174.PDF

2017

252. Preferensi Petani terhadap Topik Penyuluhan dan Penyebaran Informasi Agroforestri di Indonesia. http://dx.doi.org/10.5716/WP16181.PDF
253. Seri Agroforestri dan Kehutanan di Sulawesi: Keanekaragaman hayati jenis pohon pada hutan rakyat agroforestri di DAS Balangtieng, Sulawesi Selatan. http://dx.doi.org/10.5716/WP16182.PDF
254. Potensi dan Tantangan dalam Pengembangan Skema Ko-Investasi Jasa Lingkungan di Kabupaten Buol, Indonesia. http://dx.doi.org/10.5716/WP17008.PDF
255. Keragaman Jenis Pohon dan Pemanfaatannya oleh Masyarakat di Kabupaten Buol, Indonesia. http://dx.doi.org/10.5716/WP17009.PDF
256. Kerentanan dan preferensi sistem pertanian petani di Kabupaten Buol, Indonesia. http://dx.doi.org/10.5716/WP17010.PDF
257. Dinamika Perubahan Penggunaan/Tutupan Lahan Serta Cadangan Karbon di Kabupaten Buol, Indonesia. http://dx.doi.org/10.5716/WP17011.PDF
258. The Effectiveness of the Volunteer Farmer Trainer Approach vis-à-vis Other Information Sources in Dissemination of Livestock Feed Technologies in Uganda. http://dx.doi.org/10.5716/WP17104.PDF
259. Agroforestry and Forestry in Sulawesi series: Impact of agricultural-extension booklets on community livelihoods in South and Southeast Sulawesi. http://dx.doi.org/10.5716/WP17125.PDF
260. Petani Menjadi Penyuluh, Mungkinkah? Sebuah Pendekatan Penyuluhan dari Petani ke Petani di Kabupaten Sumba Timur. http://dx.doi.org/10.5716/WP17145.PDF
261. Dampak Perubahan Tutupan Lahan terhadap Kondisi Hidrologi di Das Buol, Kabupaten Buol, Sulawesi Tengah: Simulasi dengan Model Genriver. http://dx.doi.org/10.5716/WP17146.PDF
262. Analisis Tapak Mata Air Umbulan, Pasuruan, Jawa Timur. Kajian elemen biofisik dan persepsi masyarakat. http://dx.doi.org/10.5716/WP17147.PDF
263. Planned comparisons demystified. http://dx.doi.org/10.5716/WP17354.PDF
264. Soil health decision support for NERC digital soil platforms: A survey report. http://dx.doi.org/10.5716/WP17355.PDF
265. Seri Pembangunan Ekonomi Pedesaan Indonesia: Menanam di bukit gundul: Pengetahuan masyarakat lokal dalam upaya restorasi lahan di Sumba Timur. http://dx.doi.org/10.5716/WP17356.PDF
266. Tree diversity and carbon stock in three districts of Kutai Timur, Pasir and Berau, East Kalimantan http://dx.doi.org/10.5716/WP17357.PDF
267. Tree Diversity and Carbon Stock in Various Land Use Systems of Banyuasin and Musi Banyuasin Districts, South Sumatera http://dx.doi.org/10.5716/WP17358.PDF
268. Tree diversity and carbon stock in various land cover systems of Jayapura, Jayawijaya and Merauke Districts, Papua Province http://dx.doi.org/10.5716/WP17359.PDF
269. Modelling tree production based on farmers' knowledge: case for kapok (*Ceiba pentandra*) and candlenut (Aleurites mollucana) under various agroforestry scenarios. http://dx.doi.org/10.5716/WP17361.PDF

270. The Impact of Land Cover and Climate Change on Present and Future Watershed Condition. Study case: Tugasan, Alanib and Kulasihan Sub-watershed of Manupali Watershed, Lantapan, Bukidnon, Philippines. http://dx.doi.org/10.5716/WP17362.PDF
271. Tree Diversity and Above-ground Carbon Stock estimation in Various Land use Systems in Banjarnegara, Banyumas and Purbalingga, Central Java. http://dx.doi.org/10.5716/WP17363.PDF
272. Agroforestry and Forestry in Sulawesi series: Landscape Management Strategies in Sulawesi: Review of Intervention Options. http://dx.doi.org/10.5716/WP17364.PDF
273. Household Food-Security and Nutritional Status of Women and Children in Buol Regency, Central Sulawesi, Indonesia. http://dx.doi.org/10.5716/WP17365.PDF
274. Palm oil expansion in tropical forest margins or sustainability of production? Focal issues of regulations and private standards. http://dx.doi.org/10.5716/WP17366.PDF

2018

275. Decision analysis methods guide: agricultural policy for nutrition http://dx.doi.org/10.5716/WP18001.PDF
276. Supporting human nutrition in Africa through the integration of new and orphan crops into food systems: Placing the work of the African Orphan Crops Consortium in context. http://dx.doi.org/10.5716/WP18003.PDF
277. Seri Pembangunan Ekonomi Pedesaan Indonesia. Pilihan Manajemen Budidaya Kacang Tanah sebagai Upaya untuk Memperbaiki Penghidupan Masyarakat Haharu. http://dx.doi.org/10.5716/WP18004.PDF
278. Estudio de línea de base CCAFS a nivel de hogar en Nicaragua y Costa Rica. Fase de diagnóstico del estudio: "Contribución de la diversidad arbórea a los medios de vida para la adaptación y la mitigación al cambio climático. http://dx.doi.org/10.5716/WP18005.PDF
279. Understanding tree cover transition, drivers and stakeholder perspectives for effective landscape governance. A case study in Na Nhan commune, Dien Bien province, Vietnam. http://dx.doi.org/10.5716/WP18006.PDF
280. El Sistema "Quesungual": Agroforestería y manejo de suelos para la producción de maíz y frijol en laderas. http://dx.doi.org/10.5716/WP18007.PDF
281. Stakeholder Approach to Risk Informed and Evidence Based Decision Making (SHARED) for Resilience. http://dx.doi.org/10.5716/WP18008.PDF
282. Shifting discourse, shifting power: how is climate change mitigation and justice negotiated in Indonesia? http://dx.doi.org/10.5716/WP18009.PDF
283. Result of Land Use Planning and Land Administration (LULA) Implementation in South Sumatra, East Kalimantan, Central Java and Papua. http://dx.doi.org/10.5716/WP18010.PDF
284. Farmers' preferences for training topics and dissemination of agroforestry information in Indonesia. http://dx.doi.org/10.5716/WP18015.PDF
285. CSA-Diagnostic (CSA-Dx): A primer for investigating the 'climate-smartness' of ag technologies. http://dx.doi.org/10.5716/WP18020.PDF
286. An analysis of the vulnerability of poor communities in Yunnan Province, China. http://dx.doi.org/10.5716/WP18021.PDF
287. Gendered space and quality of life: gender study of out-migration and smallholding agroforestry communities in West Java Province, Indonesia. http://dx.doi.org/10.5716/WP18024.PDF

The World Agroforestry Centre is an autonomous, non-profit research organization whose vision is a rural transformation in the developing world as smallholder households increase their use of trees in agricultural landscapes to improve food security, nutrition, income, health, shelter, social cohesion, energy resources and environmental sustainability. The Centre generates science-based knowledge about the diverse roles that trees play in agricultural landscapes, and uses its research to advance policies and practices, and their implementation that benefit the poor and the environment. It aims to ensure that all this is achieved by enhancing the quality of its science work, increasing operational efficiency, building and maintaining strong partnerships, accelerating the use and impact of its research, and promoting greater cohesion, interdependence and alignment within the organization.

United Nations Avenue, Gigiri • PO Box 30677 • Nairobi, 00100 • Kenya
Telephone: +254 20 7224000 or via USA +1 650 833 6645
Fax: +254 20 7224001 or via USA +1 650 833 6646
Email: worldagroforestry@cgiar.org • www.worldagroforestry.org

Southeast Asia Regional Program • Sindang Barang • Bogor 16680
PO Box 161 • Bogor 16001 • Indonesia
Telephone: +62 251 8625415 • Fax: +62 251 8625416
• Email: icraf-indonesia@cgiar.org
www.worldagroforestry.org/region/southeast-asia
blog.worldagroforestry.org