

## Article

# Gendered Migration and Agroforestry in Indonesia: Livelihoods, Labor, Know-How, Networks

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**Abstract:** Migration connects land use in areas of origin with areas of new residence, impacting both through individual, gendered choices on the use of land, labor, and knowledge. Synthesizing across two case studies in Indonesia, we focus on five aspects: (i) conditions within the community of origin linked to the reason for people to venture elsewhere, temporarily or permanently; (ii) the changes in the receiving community and its environment, generally in rural areas with lower human population density; (iii) the effect of migration on land use and livelihoods in the areas of origin; (iv) the dynamics of migrants returning with different levels of success; and (v) interactions of migrants in all four aspects with government and other stakeholders of development policies. In-depth interviews and focus group discussions in the study areas showed how decisions vary with gender and age, between individuals, households, and groups of households joining after signs of success. Most of the decision making is linked to perceived poverty, natural resource and land competition, and emergencies, such as natural disasters or increased human conflicts. People returning successfully may help to rebuild the village and its agricultural and agroforestry systems and can invest in social capital (mosques, healthcare, schools).

**Keywords:** coffee; cocoa; Java; livelihoods; rural–urban; remittances; returning migrants; Sumatra; Sulawesi

## 1. Introduction

Contrary to the long-term attachment to place that prevails in “myths of origin” and cultural constructs of place-based identity [1,2], humans have a history of dispersal and migration [3], as reflected in our complex DNA and linguistic signatures [4]. Migration has been the demographic basis of the expansion of our species spreading to all parts of the world, adapting to a wide range of circumstances and learning how to cope with variability and diversity. Both cultural and genetic evidence suggests that human dispersal and migration were not a one-way process and that links to areas of origin were maintained through any means of communication and transport that was accessible in given periods of human history and development. Cultures have absorbed newcomers while migrants kept a cultural attachment to areas of origin, creating the rich “unity in diversity” fabric that characterizes many Asian countries [5]. Human dispersal and migration have had ethnobotanical consequences, with a large number of semi-domesticated trees and crops spreading along with humans as well as the knowledge of how to use them [6,7]. Working across Indonesia, anecdotes of how agroforestry and local forest management practices were inspired by experiences elsewhere during “circular migration” or were traced back to migrants from other parts of the country are commonly heard [8] but appear not to have been systematically analyzed. In the current “lockdown” response to the COVID-19 pandemic [9], both positive and negative aspects of such human movement call for a more nuanced analysis as part

of the Sustainable Development Goals [10]. Migration can involve a radical decision to uproot and try one's luck elsewhere for a variety of social, political, economic, and environmental reasons [11,12] or be a more gradual process wherein temporary and circular migration precedes "permanent" migration at the individual or household level, with family members potentially following suit [13]. The decision to migrate circularly or permanently is usually taken step by step in response to perceived success or failure and interacting with external circumstances, such as policies in both the area of origin and area of the temporary new residence. While many studies have zoomed in on specific parts of the decisions to move and/or return, a holistic perspective requires a human life-cycle approach that is not easy to obtain experimentally but can be constructed by combining separately studied pieces of a larger puzzle.

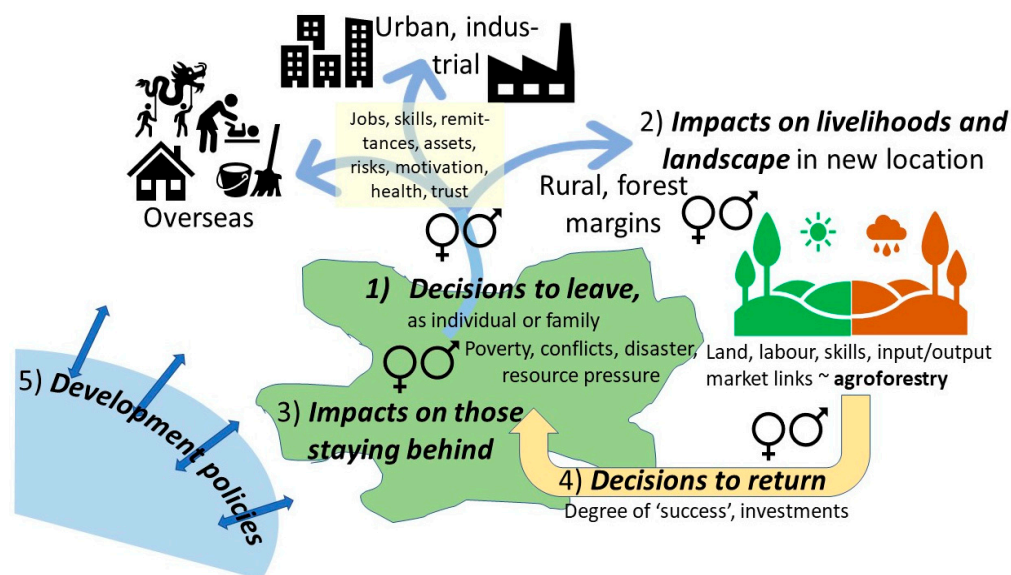
Each year, around half a million Indonesians travel abroad to work, half of those to the Middle East. They are typically women from small cities or villages with primary education and limited work experience, hired to perform domestic work [14]. Econometric analysis of data on emigration rates of countries at different stages of economic development has revealed inverse U-shaped responses. With a GDP per capita at purchasing power parity of USD 3893 in 2018 [15], Indonesia as an emerging lower-middle-income country is approaching the income level at which international migration is expected to peak (USD 5–10,000). Although merely based on cross-sectional evidence, the "migration hump" is widely interpreted as a causal relationship. However, this interpretation is contested [16,17]. The fact that income growth increases the opportunity cost of migration and also eases liquidity constraints—two opposite forces at play—may explain the "hump". Further analysis of a migration matrix for all of Indonesia [18] found roles for ethnic networks in groups such as the Sundanese from West Java and the Buginese from South Sulawesi that reduced the fixed costs of international migration from rural areas of Indonesia and contributed to the recorded way income elasticity of migration varies depending on the exposure of the given type of landholdings to variability of rainfall and rice prices. Although these ethnic communities may be isolated from native ethnic populations when residing outside their historical homelands, they still have strong ties to the broader Sundanese and Buginese networks with the potential for connections to international labor markets. The choices involved in internal migration within large countries like Indonesia may, however, differ from those for international migration. A study in East Java found that individuals with access to water, health insurance, or markets, or those living in villages that have a large proportion of non-irrigated land being used for non-agricultural activities, were less likely to seek employment elsewhere [19].

Internal migration in Indonesia has been linked to productivity growth [20]. Between 1979 and 1988, the Transmigration Program relocated 2 million voluntary migrants (hereafter, transmigrants) from the Inner Islands of Java and Bali to newly created agricultural settlements in the Outer Islands (with Sumatra, Kalimantan, Sulawesi, and Papua being the largest). The success rate depended on the agro-ecological similarity between the areas of origin and migration targets [21], while diverse communities, rather than migrants from a single origin, could be linked to stronger integration and success in the new environment [22].

Migration decisions relate to gender-specific expectations and have gender-specific consequences for those who move, those who stay behind, and those who return. The latter can enrich local livelihoods with new knowledge, norms, and expectations, apart from the financial resources they may have. However, returning migrants will need to invest in social capital to earn their place back in the local community. In cases where males are primarily involved in migration to Africa and South Asia, effects on the source areas may be a "feminization" of agriculture [23,24], however, the opposite case—where females preferentially engage—is common in Asia as well. Distinct feminization of labor migration in Southeast Asia, participating in gender-segmented global labor markets, has significantly altered care arrangements, gender roles and practices, as well as family relationships within households [25]. Elsewhere, youth migration has become an issue [26]. What these all have in common is that selective migration of either gender or age segments leads to a reshuffling of roles in local livelihoods and households, with a gradual change in associated "identities". Burgers [27]

described the consequences of female migration for the matrilineally inherited rice fields in Kerinci, Sumatra with a complex adaptive change to customary rules.

Anecdotal evidence, as reflected in journalists' accounts and literary reflections, suggests that the full spectrum of success to failure and exploitation exists. Policy responses that try to minimize risks of exploitation and trafficking need to be constructed without reducing opportunities for livelihood benefits, which is no easy task. Our analysis of case studies was aimed at obtaining a more complete understanding of the drivers and consequences of migration from densely populated rural parts of Java in Indonesia to overseas urban and rural target areas, using a gender lens. Gender-specific aspects can be expected to apply to the decision to move (for young males, young females, families); their roles and opportunities in the new areas of temporary residence interacting with local communities and businesses; their relations back home, including remittances, invitations to join, sharing of knowledge and experience; the consequences of their migration on those who stay behind; and the consequences in case they decide to return home with any assets they may have acquired, their new skills, and norms of behavior, as shown in Figure 1. Each of these aspects deserves a fully fledged study but, even with the limited evidence available, a system approach to the whole picture is needed to guide policy development and to inform public discourse, where strongly polarized opinions pro and con tend to dominate.



**Figure 1.** Gender-specific aspects before, during, and after (circular) migration decisions concerning land use in the area of origin.

While migration decisions—leaving and returning—are part of a large body of ethnographic studies, few studies have analyzed both the source and target areas of specific rural-to-rural migration patterns in Indonesia. We here describe two such cases, which allowed us partial answers to the following questions.

(1) What are the gendered patterns of movement concerning age and life histories in both source and target areas? Do gender norms of behavior influence land-use patterns differentially in source and target areas?

(2) How do (temporary) migrants compare the positive and negative aspects of home and temporary abodes?

(3) How do returnees reintegrate and modify land use, gender norms, and culture of the areas from which they originated?

We will first describe the two cases as such and then draw comparisons between them. The discussion will also touch on interactions with the government and other stakeholders concerning development policies.

## 2. Methods and Locations

### 2.1. Methods

This paper is based on anthropological fieldwork by the first author analyzing gender aspects of social development across Indonesia and, in particular, in two cases where migration source areas (West Java and South Sulawesi) could be linked to specific migration target areas (Lampung and Southeast Sulawesi, respectively), as shown in Table 1. Details of some of the field studies synthesized here have been published elsewhere [28–30]. Their *post hoc* combination into a single study, based on emerging opportunities rather than prior design, is new here.

**Table 1.** Characteristics of migration in the study area.

Study Area	Source	Area of Destination	Ethnicity	Type of Migration	Type of Work in the Destination Area
West Java	Ciamis	Sumberjaya, West Lampung	Sundanese	Temporary	Land-based and off farm
Southeast Sulawesi	Bone, Bulukumba, Soppeng, Sinjai, Wajo, Jenepono, Maros in South Sulawesi	Kolaka and Konawe in Southeast Sulawesi	Bugis	Temporary	Land-based and off farm
			Bugis	Permanent	Land-based

The two case studies were each explored in two phases. Phase 1 aimed at understanding the migration context in the origin areas; Phase 2 on understanding the in-migration pattern and challenge in receiving communities. The West Java study was conducted in 2016 while the Southeast Sulawesi study was conducted in 2013.

In-depth individual interviews, individual structured interviews through a household survey, participatory observation, and structured group discussions were the methods used to obtain primary data used for this paper. The primary data could explore migration phenomenon, networks, patterns, and challenges at micro- and meso-levels. Specific to Southeast Sulawesi, the migration network was deeply analyzed at these levels. Stratified purposive sampling was applied for each method, for the individual structured interviews and structured group discussions.

From the characteristics of migration in each area, as shown in Table 1, we identified each community household according to some typologies considering the status of migration (migrant or stayer), the reason for migration and its destination areas and, most importantly, the gender aspect. In the case study of South to Southeast Sulawesi, we interviewed 65 respondents—in the Southeast Sulawesi we only interviewed migrants and in South Sulawesi we interviewed both migrant and non-migrant families. In the case study of West Java to Lampung, we interviewed in West Java alone 120 respondents, categorized as migrant and non-migrant.

Snowball sampling was used in particular for in-depth individual interviews and social network analysis. In-depth interviews were conducted to understand the historical and social realities that described the established migration chain and network. Secondary data, such as the results of a population census by the Central Statistical Bureau (Biro Pusat Statistik: BPS) [31,32], related literature and documentation, were used to support an explanation of the migration phenomenon, mainly at meso- and macro-levels.

The results of the household surveys were analyzed using descriptive statistics and interpreted qualitatively combined with information from focus group discussions and in-depth interviews to explain migrants' and non-migrants' characteristics, social typology, and actors involved in the migration chains. T-test statistics were employed to determine the significant differences between males and females and differing situations of migration. The analysis of migration or social networks was conducted using NodeXL software, which can measure and visualize the relationships of actors.

### 2.2. Study Sites: Background and Context

#### 2.2.1. Indonesia

Indonesia is an archipelagic nation with the world's fourth-largest population (around 260 million people). The nation has recently reached lower-middle-income status. The average annual population

growth was 1.27% for 2005–2010 and is expected to decline to 0.82% for 2020–2025. In 2015, 52.6% of the population lived in urban areas. Urban growth is, at  $4.1\% \text{ y}^{-1}$ , the highest in Southeast Asia. The sex ratio of recent migration has been 110.3 (males per 100 females).

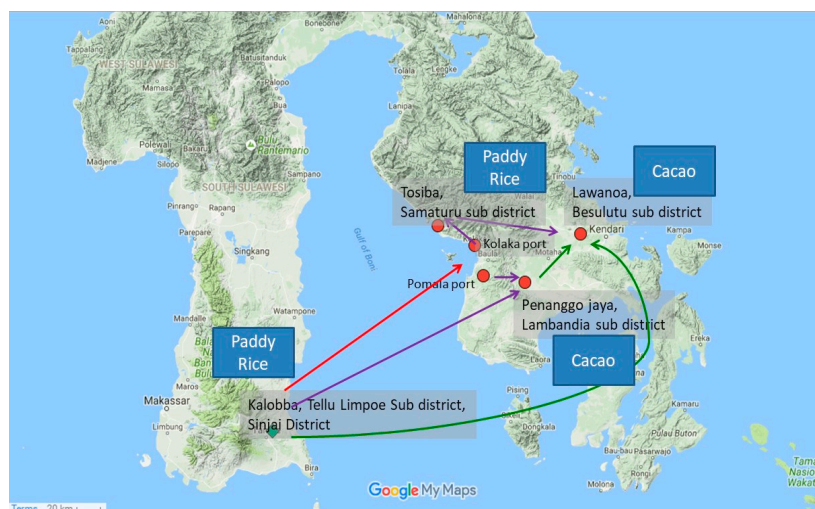
In terms of human population density, the largest contrast is between (i) densely populated, volcanic Java and Bali, with fertile soils and wet-rice agricultural traditions; (ii) Sumatra with population densities around the national average and strong tree-crop traditions, with coffee in the mountains and rubber and oil palm in the lowlands; and (iii) the rest of the archipelago with lower human population densities, with the exception of South Sulawesi, which approximates Java. Gender roles in agriculture tend to vary with regional contexts [28,29]. In upland areas, farming systems have mostly shifted from rice swiddens to a reliance on tree crops, such as cocoa, coffee, and rubber [33] and oil palm in areas with suitable rainfall.

### 2.2.2. Case Study One: The South to Southeast Sulawesi Connection

Our first case study analyzed migration histories, patterns, and networks from South to Southeast Sulawesi and other areas in rural areas in Indonesia and abroad. Cocoa began to boom and experience a “golden age” in Lawonua around 1997–1998 following the rise of prices worldwide, owing to a decrease in production in the Ivory Coast that led to global shortages. Li [34] described the same condition in Central Sulawesi, which also experienced a large arrival wave from South Sulawesi during the same period. Indonesia became a promising candidate for “major cocoa producer” at the time.

Working in the context of a regional development program underway at the time, we found that Lawonua Village in Besulutu Sub-district, Kolaka District, Southeast Sulawesi, with ongoing cocoa expansion, was a destination area for migrants from South Sulawesi. In the area, we had contacts that allowed surveys to be undertaken. The migrant percentage and composition in Lawonua were similar to that of the sub-district as a whole. The flow of migration into the village had been continuous over the preceding few years, which assisted our study in tracing the identity of the migrant community at origin. The tracing was conducted in the context of creating a community profile, which included physical, social, and economic conditions. The tracing was not only conducted at the location of migration (their current place of living) but also included the conditions (physical, social, and economic) in their origin village.

From the tracing process in Lawonua, 60% of migrants (which consisted of 40% of the total village population) came from Kalobba Village in Tellu Limpoe Sub-district, Sinjai District, South Sulawesi, as shown in Figure 2. Kalobba, characterized by limited resources and medium agricultural technology, is classified as a “suburban” area with limited land resources owing to pressure from outsiders. Competition for land causes a fairly high number of outgoing migrations from this village.



**Figure 2.** The source and destination of migrants in our first case study, in South (left) and Southeast Sulawesi (right), respectively.



### 2.2.3. Case Study Two: The West Java to Lampung Connection

Our second case study analyzed migration patterns, dynamics of migrant and stayer communities, migration decision making, and gender relations, with a focus on Ciamis District, West Java, where there is a close migration connection to coffee-growing landscapes in West Lampung District, Lampung, as shown in Figure 3. In Ciamis, the study was conducted in two villages in Panjalu Sub-district and two villages in Rajadesa Sub-district. Panjalu is in the northwest of the district and is the capital of Ciamis. Rajadesa is in the eastern part. Both villages are categorized as agricultural communities that rely heavily on farming as their source of livelihoods.



**Figure 3.** The source (right) and destination (left) of migrants in our second case study, West Java and Lampung.

## 3. Results

### 3.1. Migration Decision Making

Within the community of origin, decisions to migrate or stay in the village were mainly due to economic opportunity. Many migrants chose to migrate based on the capital they had, the support provided by their extended family and neighbors who could reduce the need for money for taking care of family members who stay in the village, or even the cost of living in the migration destination. There were four types of migrants in the community of origin.

(1) Off-farm out-migrants without capital. This group of out-migrants had low–middle economic status and were landless or had low levels of land ownership. They usually tried to find work to meet their daily needs as well as accumulate capital to establish farms. Their migration destinations were mostly in urban areas nearby, both in Sulawesi and West Java. This out-migrant group generally consisted of some family members (either women or men); however, most were male. Most women who out-migrated were typically unmarried. When they married, they usually chose to stop working for money, 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 businesses and/or cultivated 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 the sale of crops, or from inheritance. This out-migrant group could feature entire families migrating to cities or other prospective rural areas, who would only return to their village of origin for holidays. Most of these out-migrants were male. If there were women who out-migrated, they usually went with other family members.

They were mostly interested in off-farm livelihood sources, e.g., selling secondhand iron in West Java, while in Lampung and Southeast Sulawesi, selling clothes and other household items. The success of previous out-migrants in this line of work, as well as the networks created, attracted others from their village to do the same.

(3) and (4) Land-based out-migrants with and without capital. Land-based migrants without capital consisted of low–middle economic status who were mostly landless or had limited land in the origin community. They moved to the destination as on-farm labor, mostly working on their relatives' land, with some developing patron–client relationships. Rajadesa Village members in West Java migrated to Sumberjaya, Lampung to support their relatives in growing coffee. In Sulawesi, the relationship between a landowner and their followers became one of the doors through which a large number of migrants arrived. Landowners (land-based out migrants with capital) had some funds to open cocoa plantations and recruit followers from their home village to clear the land, plant, and care for the cocoa. When the plantation began to produce—after five years—a sharing system was implemented. The landowners maintained relationships with their clients to support their economic activities as well as maintain the power of their networks. The patrons' clients, who generally came from lower socio-economic groups, had better income sources through the patron compared to those in their home village, which no longer attracted their attention. Furthermore, through the patron's support, their migration to the new area became lower in risk and the cost required to migrate was reduced. The reciprocal relationship (reciprocity), although it was not entirely symmetrical (it was often highly asymmetric), was still able to improve their income. A summarized excerpt from an interview that illustrates this pattern follows.

*Around 1997, HS, a landlord from South Sulawesi, purchased a large amount of land in Southeast Sulawesi. HS [a patron] later recruited his men [clients] to manage his land. His men were given approximately four hectares each for cocoa plantations. During the first six months, HS's men were given a living allowance of approximately 20 kg of rice per month, salted fish, and a few other staples. After six months, HS's men subsisted on seasonal crops grown in their plantations. After producing cocoa—after about 5 years—the harvest was divided: one part for the landowner and another part for the workers. Nowadays, the land here still belongs to the landlord, the clients may get a small part of the land as theirs, though the other land was still owned by HS. [30]*

### 3.2. Social Network, The Instrument of Migration Decision Making

As detailed elsewhere [30], three main network models reflected strategies used by migrants in their decision to migrate. The first model was a kinship-based network of either close relatives or immediate family, as well as distant relatives or extended family (53.84%). This strategy was commonly deployed by migrant communities who tended to be more mature, had sufficient capital to start migrating, as well as knowledge of cocoa or coffee cultivation as a requirement for planting. However, some landless people also decided to migrate as on-farm labor for other migrant communities who had established their farming practices in destination areas. Those migrants could be temporary, permanent, or seasonal. An excerpt from an interview that illustrates this pattern follows.

*Mr T, a resident of T, Lawonua Village, stated, "I was visited by my uncle ... and he said, come on, move ... What are you doing staying in this village? You can plant a cocoa plantation there and the price of the land is cheap, not as expensive as here. Sell your plantation or cows here, it's enough to buy land there". [30]*

The second was a network set up to gain profit (44.12% of the total network). This network was either run in balance or not and built through a patron–client mechanism. A capital owner who later acts as a patron needs workers who are his inferiors as clients. The patron provides jobs and financial support, including the cost of migrating and supporting the clients' living needs in the early days of migration. These clients need the patron to improve the economic conditions of their families through

managing their land as well as minimizing their migration risks. In this type of relationship, often the client's decision to migrate was not voluntary but forced owing to economic pressure and the vertical relationship with the patron.

The third network is a pattern of relationships that emerge owing to similarity of purpose. Generally, this pattern is characterized by identity, location of origin, and current residence similarities and was generally found in migrant communities who had been pioneer settlers in Southeast Sulawesi and Lampung. These groups built a network of neighborhood or identity similarity among community origin who had the same goal of increasing the number of plantations by expanding to villages that still had available land.

In the case of West Java, the first settlers in Lampung joined the transmigrant program in the early 1960s [35]. With their success in managing coffee systems apparent by the late 1980s, migrants joined from West Java originally as laborers and opened new coffee plots when they had access to capital [36].

These various relationship patterns often overlapped. A vertical relationship pattern, such as the patron–client relationship, could be reinforced by the patterns of kinship and neighborhoods, which were horizontal. For example, in the patron–client relationship, the kinship between the two often enlarged the client's decision to migrate not only because of economic need but also reluctance to reject an offer from a relative. Moreover, the overlapping relationship was also enforced by brokers, intermediaries, or ones who bridge the various groups of migrants from different regions to select land and encourage them to move. An intermediary or broker is an actor who can bridge and build the trust of the individual or group of individuals who initially were not interconnected. They facilitate social interaction, increase a community's economic activity, and minimize the risks of migration. On the other hand, the broker or intermediary is often associated with exploitation, transfer of risk into profits for intermediaries, and the accumulation of profit.

### 3.3. Type of In-Migrant

Migrant characteristics in receiving communities vary, however, among (1) new migrants (first-time movers), (2) recurrent migrants (multiple movers), and (3) follow-up migrants (family movers), as shown in Table 2. New migrants (pioneer migrants) are categorized as migrants who come directly from the area of origin to the receiving community and who have not migrated to other areas before. They may have a connection to the receiving community, through their family or neighbor who has lived in those areas, or they just decided to move, driven by the motivation to obtain land and increase their incomes.

Recurrent migrants or multiple movers are those who have already moved into, and out of, the region in surrounding receiving communities more than once. They may have some experience abroad in Malaysia or in Kalimantan, Indonesia. Recurring migrants in Southeast Sulawesi were generally migrants moving from an area near to their current receiving communities but decided to move to other areas in the same province to find better economic opportunities. A summarized excerpt from an interview that illustrates this pattern follows.

*P, 68 years-old, a cocoa farmer from Kampala Village in Sinjai District, South Sulawesi sailed to Konawe, Kolaka District, Southeast Sulawesi in the 1970s. He crossed the Gulf of Bone with his youngest child, aged 6 years, bringing five sacks of rice, two cows, and money amounting to IDR 35,000 (≈USD 3.50). After sailing for three days and two nights, he arrived at Kolaka and immediately visited his uncle who had already moved to Konawe Village. He was helped by his uncle to look for flat land to be used to grow rice. After two days, he found land owned by a native resident who had received the land from the government but was unable to cultivate it. The land was sold cheaply to P. Over time, P's desire for land increased, especially for providing land for his children to equip them for the future. In 1995, P sought land in Lawanua (their current location) assisted by SF. Once the land was obtained, P did not move to Lawanua but still lived in Kolaka. However, in 2000, P finally decided to move to Lawanua with his wife and child. [30]*



**Table 2.** Migrant types and characteristics in Southeast Sulawesi [30].

Migrant Types	%	Origin Areas	Educational Background (% of Population)				Migrant Age Group (%)				Gender	
			Primary	Lower Secondary	Upper Secondary	Tertiary	16–24	35–29	40–54	>54	M	F
New migrants	45.83	Bone, Bulukumba, Sinjai, Soppeng, Wajo in South Sulawesi	44.4	44.4	11.1	0	1.39	22.22	18.06	5.56	14	20
Recurrent migrants	38.89	Bone, Bulukumba, Soppeng, Sinjai, Wajo, Jenepono, Maros in South Sulawesi	67.9	14.3	10.7	7	-	11.11	18.06	5.56	13	14
Follow-up migrants	12.5	Bone, Bulukumba, Soppeng, Sinjai, Wajo in South Sulawesi	69.7	15.2	12.1	3	2.78	6.94	2.78	-	6	3

These recurring migrants migrated with the motivation to increase the amount of land they owned. Some of them had financial difficulties and intended to sell land in Pinanggo or Konawe to overcome their problems. Land in the area was more expensive than land in Lawonua. Selling the land in their area and looking for land in a cheaper place could solve their problems. Some other migrants who were able to accumulate capital deliberately looked for land in new areas to increase the number of their plantations. Recurring migrants usually owned land. The acquired land was later shared as inheritance or dowry for the marriages of their offspring.

Follow-up migrants are descendants of migrants who have lived for a long time in receiving communities. Most of them were born in their origin areas and later moved to the receiving communities as toddlers or teens after their parents had already moved there. They are follow-up migrants who have not received a share of the family land nor been able to obtain their own.

### 3.4. Gender Relations in Communities of Origin

In describing the gender and age specificity of migration patterns, we used distinctions based on the status of who had migrated, as shown in Table 3. From the two case studies, we could see that for land-based livelihood options, youth or single men and adult or married men migrated by themselves and left their families in the origin area, who might join later. However, the discussion has shown that no married women left their villages for land-based options but perhaps to work in urban areas.

**Table 3.** Livelihood options based on the type of migration, age, and gender.

Gender of the Migrant	Age Classification	Livelihood Option		Type of Migration	Condition in Origin Areas
		Off-Farm Based	Land-Based		
Only men migrated	Youth (un-married)	Industrial work in urban and rural areas abroad Business (sales)	Plantation labor	SeasonalPermanent	- Abandoned land - Spouse or an extended family member manages the land
	Adults (married)		Sharecropping Land-rent	Seasonal	
Only women migrated	Majority youth and unmarried	Industrial and domestic workers (urban and abroad)	No	Seasonal	- Spouse or an extended family member manages the land
Men migrated first, women following	Adults (married)	Starting a new business—urban areas	Sharecropping Land-rent Land-purchase	Permanent (combination with seasonal)	- Spouse or an extended family manage the land - Abandoned land
			Sharecropping Land-rent Land-purchase Plantation labor		
Whole family migrated	All ages (family)	Industrial Starting new business	Sharecropping Land-rent Land-purchase Plantation labor	Permanent	- Abandoned land

Source: Household survey in West Java, Southeast and South Sulawesi, and focus group discussions in West Java and South Sulawesi.

From the case study in West Java, of the family members left behind in the origin communities, some were maintaining their agricultural systems and there were some changes in the roles of family members—when men migrate, the women or other family members maintain their agricultural plots. Statistical analysis of the difference in women's roles showed that women's decision making was significantly increased in paddy rice cultivation and regular maintenance; in particular, for fertilizer and pesticide purchasing, as shown in Table 4. Decision making on other agricultural practices was slightly increased although not significantly. Although women's roles increased in maintaining plots, decision making regarding timber cultivation was still considered to be the man's domain. An excerpt from an interview illustrates this pattern.

*“When father migrated, I had the responsibility to cultivate our timber garden. Usually, I weed the plot. To me, cultivating a timber garden is not so difficult, just weeding. If we need to harvest it, we need to wait for my husband, who usually knows how to calculate the timber prices and who can negotiate the price. I don't know anything about selling timber and how to calculate the price of timber”* (in-depth interview, Rajadesa Village, West Java).

When we compare the situation of land-based out-migrant and off-farm out-migrant situations, the role of women in decision making is greater in the off-farm, in which the men move to urban areas

and have less involvement in agriculture. For land-based out-migrant communities, men and women still worked together on agricultural practices and most decisions were made jointly, or by the man alone, as shown in Table 5.

**Table 4.** Women's workload and power related to decision making based on different periods, West Java.

Category	Activity and Decision Making	When Male Stayed	When Male Out-Migrated	p-Value	Significance
All	All decisions	4.48	5.01	0.00	√
Farming	Paddy rice	4.11	6.79	0.00	√
	Annual crops	2.78	3.11	0.44	
	Trees	2.78	3.11	0.44	
	Planting	3.64	4.05	0.25	
	Farm labor	4.24	4.78	0.18	
	Fertilizer/pesticide application	3.20	3.44	0.54	
	Purchasing fertilizer/pesticide	3.01	3.93	0.05	√
	Marketing products	4.03	4.49	0.27	
	Daily consumption	8.52	9.12	0.04	√
Household	Schooling	5.09	5.48	0.08	
	Purchase house	4.41	3.64	0.02	√
	Purchase land	4.53	3.94	0.03	√
	Purchase vehicle	4.33	3.63	0.02	√
	Sell land	4.67	4.00	0.08	
	Financial management	6.17	6.53	0.37	
	Home and childcare	7.76	8.71	0.00	√

Source: Household survey, West Java (2016).

**Table 5.** Women's workload and power related to decision making based on the type of migration, West Java.

Category	Activity and Decision Making	Off-Farm Based Out-Migration	Land-Based Out-Migration	p-Value	Significance
All	All decisions	4.95	4.43	0.00	√
Farming	Paddy rice	5.08	5.87	0.19	
	Market products	4.88	3.60	0.02	√
	Farm labor	4.79	3.90	0.08	
	Annual crops	4.27	2.91	0.00	√
	Purchasing fertilizer/pesticide	4.19	2.43	0.00	√
	Planting time	4.02	3.21	0.07	
	Fertilizer/pesticide application	4.02	2.50	0.00	√
	Trees	3.59	2.04	0.00	√
	Daily consumption	8.76	8.93	0.62	
Household	Schooling	5.28	5.23	0.87	
	Purchase house	4.00	4.05	0.91	
	Purchase land	4.21	4.17	0.89	
	Purchase vehicle	4.12	4.04	0.82	
	Sell land	4.83	4.07	0.08	
	Financial management	6.58	6.04	0.28	
	House and childcare	8.55	7.83	0.07	

Source: Household survey, West Java (2016).

We might see that this migration owing to land-based activities does not improve women's role in decision making. However, we could see that this means less burden for women. When the male migrates and women are responsible for the land, the extended family may be involved, or the woman hires labor. However, for a poor family, women's work in agriculture will be increased. We see that in land-based migration, women can still make decisions in certain cases but for more strategic decisions they needed to discuss it with the man, as the land manager. Additionally, in land-based migration, at certain times, i.e., in seasons when source areas need more labor, the male might return to the village to help while for off-farm migrants, opportunities to return to the village were less.

### 3.5. Returnee Migrants

Some of the migrants who had accumulated considerable capital moved back to their place of origin, cleared land, and started to cultivate. The remittances and investment of the returnee migrant could be in various forms, such as building a mosque or road for the villages of origin. In the West Java study, some of the migrants once back in their village, in addition to managing their agricultural land there, kept their land in Lampung or other destination areas, employing landless farmers from their village of origin to cultivate it. Hence, inducing follow-up migrants.

In West Java, returnee migrants from Lampung used their collected capital and skills they built during the migration experience to manage the coffee system in the Gunung Sawal protected area under a community-based management scheme. De Royer [37] stated that while there seems to be no clear correlation between the beginning of the community forestry program in 2008 and the mass return of migrants, the program has been perceived by migrants as a great opportunity to make money from the skills they obtained in Lampung while re-establishing themselves in West Java. The Gunung Sawal region has since developed into the coffee hub of West Java with a very well-developed market. Here we can see a clear link between the return of migrants and the rapid expansion of land under coffee cultivation during the last two decades. People converted their mixed tree gardens into coffee gardens; those who were not migrants learned from those who were.

In Sulawesi, returnee migrants did not move back to cultivate their land. Some of them tried to find better luck elsewhere with cheaper, or any available, land, thereby creating multiple-time migrants. A few of them used their network and their knowledge of land information to connect people from the origin areas to available land in destination areas, acting as intermediaries or brokers. However, the legality of such land in the market is often "grey". Some land "ownership" does not have a strong legal basis supported by a letter or certificate from the National Land Agency.

## 4. Discussion

These various observations can be interpreted as pieces of a larger puzzle in which migration decisions become linked at human life-cycle scales, as shown in Figure 1, based on the five questions raised in the introduction. We split the first question ("What are the gendered patterns of movement concerning age and life histories in both source and target areas? Do gender norms of behavior influence land-use patterns differentially in source and target areas?") into two parts.

### 4.1. Q1A. Which Conditions within the Community of Origin Have Been the Main Trigger for People to Try Their Luck Elsewhere (Overseas, Urban, or Rural), at Least Temporarily?

In the two study cases, economic needs were the main trigger for migration. The lack of arable land and lack of capital to intensify farming systems pushed the pioneer farmers in West Java and South Sulawesi to search for land elsewhere. The choice of target areas was usually decided through existing kinship or neighborhood networks. The broker or intermediary mechanism was formed through informal relationships and occurred at almost all stages of migration. In South Sulawesi, during the era of crop development implemented by government programs (the "Green Revolution", agricultural intensification, and agricultural extension), migration occurred spontaneously into those communities that wanted to improve their livelihoods by attracting more labor [38]. Kinship networks were so strongly binding that the functions of intermediaries were not visible. After the boom in cocoa

commodity development in Sulawesi, the rate of migration rapidly increased, the primary purpose of which was to improve incomes through the expansion of cocoa plantations. Migration increased massively and spread to other areas; migrants from different villages began to arrive. The roles of intermediaries became stronger during this phase, using networks of kinship, neighborhood, and friendship.

What occurred in the two study areas was similar to that described in a study of motivations to migrate conducted by Amacher and Hyde [39] in remote areas in the Philippines. They indicated that the direction of migration to remote areas was largely determined by the availability of land that was accessible for migrants, resulting in a preference for areas with low population density. Accessible in this context meant that the land had no clear ownership status so that they could easily start cultivating it.

#### *4.2. Q1B. What Effects Did Migration Have on Gender-Specific Land Use and Livelihoods in the Areas of Origin?*

Feminization of agriculture as described elsewhere [40] under dominantly male migration patterns, appeared to be less common in the two study areas. What occurred was often a pattern where elderly people or other extended family members taking care of grandchildren stayed behind and struggled to maintain their agricultural practices. In the case of the West Java study, male farmers still had the decision-making power on tree-based farming in the origin area. Male farmers would return during harvesting or for any other activity that required their presence. Vice versa, females could undertake temporary migration to help harvesting or other laborious activities. However, in the day-to-day decision making in managing households and annual crops, there were significant differences in decision making compared to when the male was not on migration. Despite the changing roles in the households of a migrant community, balancing the needs of agricultural labor, work seasons, and family needs might be achieved through mutual adjustments of marriage partners [41]. This could be the key to the success of livelihood actions in the areas of origin adapting to change.

Hecht (2015) [42] indicated that off-farm labor migration could result in changes in land uses and forest dependence, following shifts in gender and generational relations. Our findings indicate, though not significant, that women's burden was heavier in the off-farm-based migration situation and abandonment of land could occur more readily. Further exploration is needed to see patterns of work and the success of working relationships in non-land-based migration.

#### *4.3. Q2. How Do (Temporary) Migrants Compare the Positive and Negative Aspects of Home and Temporary Abodes?*

The influx of migrants into new areas can change the type of farming systems. For example, the Bugis migrants entering Southeast Sulawesi in the era of the rice-focused Green Revolution began to switch their interest to cocoa cultivation. It became easier for them to find new areas that were suitable for planting cocoa because of their migration experience, under the schemes inspired by the Green Revolution, which turned out to be compatible with cocoa cultivation. New technology (such as herbicides and hand tractors) introduced in the Green Revolution for rice fields reduced the length of time on the farm, and therefore, the opportunities to manage more land became greater. Their mobility was increased as well, owing to less time being consumed on-farm and were motivated even more to look for land and manage cocoa plantations in other places. In some of the cases, experience with more intensified land use in the source area (e.g., West Java) enriched agriculture and agroforestry in the new environment (e.g., South Sumatra).

The influx of migrants also triggered a new type of job. The farmers in Southeast Sulawesi who were no longer interested in farming and planting began to turn to other sources of income (off-farm). Those who understood land matters later became intermediaries in land markets, drawing on the pool of people they knew, be they relatives or neighbors, to buy land. Absorption of new labor can start as paid labor and a patron–client relationships or share-cropping but also involve land renting and buying within customary ownership rules (rarely involving formal land certification).



In both Southeast Sulawesi and Lampung, migrants from more densely populated South Sulawesi and Java, respectively, did not arrive on an empty slate but in landscapes where local farming communities of Semendo (a southward expansion of a group in the neighboring province of South Sumatra) and Tolaki ethnic identity had converted forests for extensive land use. The migrants brought traditions of more intensive agroforestry management of coffee and cocoa, leading to a synergy where the group with longer presence opened forest and the newcomers bought existing gardens and intensified them before they returned to fallow vegetation. In the surveys of local ecological knowledge in Sumberjaya in Lampung, the two groups were distinguishable in knowledge and concepts [43].

Similarly, experience in farming cultivation can have an impact on the farming systems in the origin areas. Such is the case with the West Java migrants who, upon returning from Lampung and gaining access to forest land through a social forestry scheme, were able to manage coffee systems that were considered to be more environmentally friendly than timber systems, which were the traditional farming systems in the area.

#### *4.4. Q3. How Do Returnees Reintegrate and Modify Land Use, Gender Norms, and Culture of the Areas from Which They Originated?*

There is a tendency that migrants who have failed may find other land uses or urban labor elsewhere, rather than returning home. For those who succeed, these land-based migrants may return home if arable land still exists, as in the case of the West Java study. The migrants, returning or not, will continue supporting the home villages by building a mosque or supporting other social infrastructure development, such as building schools or daycare centers.

In the case of South Sulawesi, the migrant farmers continued exploring other regions to gain more land. In current circumstances, there is very little forest area left that is accessible to migrants. Most of the accessible land is already owned by local communities or is in areas in which conflict between companies, governments, and communities has already emerged. Acquiring land requires contracts with (and payments to) the native or migrant communities who have access (*de facto* and/or *de jure*). The actions of land brokers and the migration process grew rapidly, spreading to areas where ample land was available with less population density and less strict local institutions. Simbune Village in Kolaka District firmly rejected migrants. The village head stated that a ban on selling land to new settlers was strictly implemented. It was proven to be the case by the lead researcher of this study, who visited the village in 2014. All land was still controlled by residents.

Ruf [44] analyzed the effects of cocoa development on migration. The model of migration for the development of cocoa plantations was mostly adopted by Bugis migrants and several other groups. Various methods were used to facilitate migrants in obtaining land for cocoa plantations, especially for those who had limited capital. The systems included informal “forest rent” payments to forest authorities, share-cropping, and patron–client relationships. This situation strengthened migrant desire to gain more land in other areas, when they felt to have failed in migrating a previous time or when they needed to expand their livelihood.

#### *4.5. Interactions with Development Policies?*

Overall, our analysis suggests that positive aspects in both areas of origin and receiving areas may prevail, with the exchange of knowledge between areas of different land-use intensities spreading agroforestry practices. The latter may well be more effective than the routes through formal knowledge and extension and in some cases is combined with tree germplasm exchange. Feminization of agriculture through preferentially male-based migration is not common in Indonesia but age-based consequences are common, in both urban (or overseas) migration and dispersal to areas of lower population density.

Costs and benefits of social capital in the context of rural–urban migration are organized by gender [45]. Opportunities for urban jobs tend to be gender-specific, with higher perceived success for unmarried women to work in the export factories of West Java so as to remit money to their natal

households and, at the same time, gather experience of modernity, has had consequences for the young men that stayed behind [46].

Spontaneous and organized population movements have long been used as a means of promoting a country's goals of development and national integration. At the local level, on the other hand, these movements have frequently done the opposite, fueling local grievances, sharpening group distinctions, and at times creating "sons-of-the-soil" conflicts [47]. In different policy phases associated with environmental governance in Lampung in Indonesia, migrants were defined initially as pioneer entrepreneurs, bringing progress to Indonesia's hinterland but, subsequently, as forest squatters, threatening the cultural and ecological integrity of the province [41]. Rural migrants attempted to resolve their problematic positioning through multi-local livelihoods, which combine access to non-local income through temporary migration with the maintenance of a foothold that signals belonging and legitimate entitlement to state resources.

Migrants coming from more densely populated areas with more intensive agriculture bring know-how and customs that can be new to the areas where they settle but also differ from government regulations. In an irrigation-based Balinese migrant society in Sulawesi, the traditional ("subak") institutions for water management linked to synchronized cropping cycles clashed with the state-regulated water users' association that separated technical water management from the wider scope of subak. Adjustment of perceived property rights to land, water, and irrigation infrastructure was feasible within a transmigration setting but conflicts persist where farmers of different ethnic and religious backgrounds farm close together [48].

Bilocality—in which an individual will spend part of the year in a rural area and the other in an urban area—is increasingly common in Central Java, addressing lack of income in rural areas. It generates remittances but also contributes in limited ways to the commonly anticipated rural development outcomes [49].

A review of the literature on remittances [50] concluded that land use as a driver of migration, livelihood strategies, and the use of remittances in investment in land use need to be studied more coherently than has commonly been the case. Financial remittances are only part of the way relationships are maintained, as may be clear from our case studies.

## 5. Conclusions

Synthesizing across two case studies in Indonesia, we focused on five aspects of (circular) migration.

(1) The conditions within the community of origin that encourage people to migrate are diverse. Most of the decision making to migrate is linked to natural resource and land competition and emergencies, such as natural disasters or increased human conflict. However, decisions are facilitated by networks that take over existing social obligations within the community.

(2) The effect of migration on land use and livelihoods in the areas of origin mean extensification or lowering of the labor/land ratio. Feminization of agriculture, as reported elsewhere, appears to be less common in the study areas. There are differences in decision making between women with migrating and non-migrating spouses but not in managing tree-based systems.

(3) The changes in the receiving community and its environment generally imply intensification. A new way of managing more efficient farming systems was commonly found in both study areas. Absorption of new labor as follow-on migration through expansion of the agricultural area encourages the existence of new jobs as a land broker owing to increases in land renting and buying.

(4) Migrants return with different levels of external success. People coming back with success may help to rebuild the village and its agricultural system and could invest in social capital (mosques, healthcare, schools). Some who have failed may find other land uses or urban labor options elsewhere.

(5) The interaction of migrants with the government and other stakeholders concerning development policies is largely implicit. Government programs on rural and agricultural development often support migrants in the initial phases of migration with the technical know-how of new commodities or farming systems that migrants practice in the origin areas. The development of good

transportation infrastructure allows successful farmers to easily manage agricultural land in both the origin and target areas. Overall, circular migration facilitates the exchange of know-how within the broader Indonesian agroforestry traditions of rural land use on the forest margins, with substantial reliance on economically important tree crops.

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